

Public Procurement of Energy Saving Technologies in Europe (PROST)

**Report on the Country Study for Japan:
Task 2a – Current Public Sector Purchasing, Building, and
Replacement Practices
Task 4b – PICO Feasibility Study**

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The International Council for
Local Environmental Initiatives

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1 Executive Summary

Energy Efficiency in Current Public Sector Purchasing, Building, and Replacement Practices and Public Internal Performance Contracting (PICO)

Japan has a ten-year history of active green purchasing policy. Activities started in the eighties, with an Eco-Labeling Scheme realised in 1989 by the federal government in form of a private company.

Public purchasing activities were started by local authorities in the early 1990s. One of the forerunners, the Prefecture of Shiga, initiated to coordinate activities at a national level and bring together buyers and vendors in order to develop common guidelines.

In 1995, the government adopted the first “Action Plan for Greening of Government Operations”. This action plan set objectives and indicates the methods to achieve a greening of public procurement by the year 2000.

In 1996, the Green Purchasing Network (GPN) was established to promote green purchasing among consumers, companies and governmental organisations in Japan. It currently has 2350 members, including 350 local authorities, 1640 private companies, consumer groups, environmental NGOs, and co-operative associations. The GPN promotes the ideas and practices of green purchasing, draws up purchasing guidelines for each type of product, publishes environmental data books on various products, holds seminars and study meetings, and awards commendations to organisations that have shown remarkable performance in implementing green purchasing.

Public purchases fall within the responsibility of procurement sections, in terms of building management and investment they are building management sections, on both national and local government level, and are controlled by law. National legislation requires public procurement units to submit competitive tenders also for purchases under the threshold value. In public procurement, despite targets to reduce energy consumption, increase efficiency, the price is still the most important parameter.

Green purchasing is very often seen as a first step to change general consumer behaviour. Activities focus on office material and electronics, as well as vehicles.

Decisions are mainly based on Japanese Eco-label criteria, which are called Eco-marks in Japan and which are purely private and the guidelines of the GPN. Criteria specified in the laws is also based on criteria and specifications developed by the GPN in broad consensus.

The Green Purchasing Network published it's first guidelines on paper, copiers and printers in 1996. These guidelines enumerate important points that should be considered from the environmental point of view when purchasing paper for office machines, printing paper, copiers, laser printers, laser faxes, or their multifunctional devices. The guidelines cover those machines which are used mainly in offices, not including ink-jet printers, thermal faxes, and colour copiers.

In 1997 the first so called Data Books on copying and printing paper as well as on copiers and printers were published. The "Environmental Data Book for Product Selection" provides purchasers with quantitative/qualitative environmental information on each product in accordance with the purchasing guidelines. They are based on the information to register for the Eco-Label. Data books on copying and printing paper, copiers, printers, and facsimile machines, PCs, stationery and office supplies, toilet and tissue paper, lighting apparatus and lamps, motorcars, refrigerators, and washing machines have been published.

On the local level, The first regional Green Purchasing Network was established in Shiga in December 1999. In 2000, the first Green Purchasing Fair took place in Kita Kyushu, Sapporo and Osaka. A Green Purchasing Act demanding „Action plans“ from all federal departments and proposing this to local authorities and companies has been enacted as of April 1st 2001

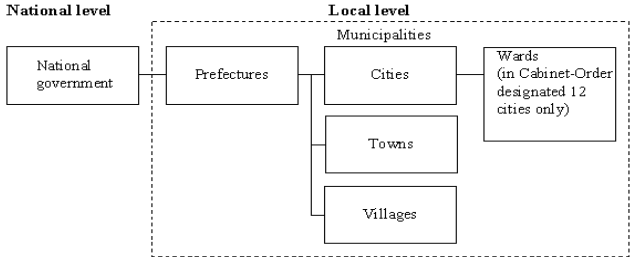
In a recent survey carried out by Nikkei Ecology and the Santo Institute of Management, among business and municipalities, the number of those doing green purchasing reached over 60% for stationary and paper products, between 34% and 23% for lighting, PC and copiers and less for clothing and motor vehicles. The numbers are on the increase and Japan can, in terms of office equipment and paper, be regarded a forerunner of green procurement.

2 General Information on the Political, Legal, and Economic Framework for Energy-Efficient Public Purchasing

2.1 Administrative and Political Structure, Education¹

Japan has in total 320 cities and 47 prefectures.

The National administration is carried out by the Cabinet and the organizations under the Cabinet. The Cabinet, Ministries, Agencies, and public corporations form one organization, with the Cabinet heading it. The Cabinet is responsible for all the activities of State except legislative and judicial ones. There are the Prime Minister's Office and twelve Ministries.



Levels of Government

control of Ministers through the means of appointment of directors and financial supervision. Some of them are regarded the same as government offices in the application of statutes concerned.²

Education

All schools in Japan can be divided into three groups according to the type of organization responsible for their administration: national, administered and supported solely by the national government; public, administered by prefectural boards of education and supported by both prefectural and local funds; and private, administered and supported by private foundations. The vast majority of schools are public, with the exception of kindergartens, which are predominantly private. Within prefectural boards of education, compulsory education and upper secondary schools are administered separately.

Public corporations, 78 as of 1 January 2000, have also been established to help an efficient performance of State business. These special corporations are subject to the supervision and

¹ As not enough health sector data was found this part was left outside consideration

² Self description of the Japanese Governments website www.kendai.go.jp

National Targets for Energy Efficiency and/or Climate Protection in the Public Sector

S1. Are there national targets for energy efficiency or CO₂ reduction in public institutions (maybe derived from other environmental targets)? Do such targets exist on other levels of government (regional, local)?

Greenhouse gas emissions in Japan in 1990 were 1,124,534 Gg of CO₂, in 1997 they reached 1,230,000 Gg or 9.76 tons per capita.³

With almost no own sources and thus relying heavily on imported energy sources of approximately 80% , in the case of crude oil more than 90%, the efficient use of energy sources/energy has been an imperative for Japan's economy since the first oil crisis in the 1970s. The target was to increase the country's economic efficiency steadily every year. Energy consumption has since levelled off in the industrial sector. Over the past two decades Japan focused its energy conservation measures specifically on the industrial sector, which previously accounted for more than half of Japan's total energy consumption.

This led to remarkable improvements in energy intensity. As for the public sector it had taken until 1995 before quantified targets were made obligatory for national government bodies.

Under the Kyoto Protocol (KP) which was adopted at the 3rd Conference of the Parties to the UN Framework Convention on Climate Change (UNFCCC) in 1997, COP 3, the Japanese government has the obligation to reduce the amount of CO₂ emitted by 6% compared with 1990 levels. The government has since stated that 2.5% of this 6% target is to be achieved through measures relating to energy supply and demand. Most of it, namely 2% should be achieved through increased technology efficiency, whereas the level of CO₂ emissions shall be stabilized at 1990 levels. Each of the measures categories targets are specified a bit further such as:

The improvement of energy efficiency standards should lead to a 10-20% increase in fuel efficiency for automobiles by 2010 (1995 levels), a 8-30% increase in efficiency is envisaged for household electrical and office equipment and regarding energy efficiency standards for housing and buildings an improvement of heat insulation that will lead to a 20% reduction in heating and cooling for housing, and a 10% reduction for other buildings is specified.

³ Second National Communication of Japan to the UNFCCC, 2000

National government operations were targeted in the so called "The Action Plan for Greening Government Operations" (1996- 2000). It listed quantified targets for improvement of energy efficiency and reduction of CO₂ emission such as reducing the amount of virgin pulp to 80% of 1995 levels by 2000 (for targets and results see also annex).

2.2 Policy Programmes on Energy Efficiency in Public Institutions

Question(s) to be answered in this section:

- S2. Is there a national programme on energy efficiency in public institutions in your country? If yes, is it voluntary or compulsory? Is there such a programme on other levels of government (e.g. run by a regional govt., or a co-operation of local governments)?
- S3. Is it on product procurement, or building energy management, or both?
- S4. What does it contain?
- Info?
 - Training?
 - Benchmarking
 - Product databases, best practice databases, etc
 - LCC analyses and evaluation?
 - Specifications, guidelines, target values
 - Laws, regulations, rules
 - Financial incentives (purchasing; investments; and institution building)
 - Credit, revolving funds, etc
 - Support for performance contracting (rule making, promotion, training)
 - Other
- S5. Who co-ordinates the programme?
- S6. If a specific programme, what are the resources (staff, funding/year) available for the programme and the co-ordinator? How is it organised: on the central government level only, or with regional branches?
- S14 Trends, expected evolution?

Active green purchasing policy activities started in the late 1980s with an Eco-labelling scheme realised by the government in form of a private company. Purchasing activities at the local level started in the early 1990s. Forerunners like Shiga Prefecture initiated to coordinate activities at the national level and bring together buyers and vendors in order to develop common guidelines.

As stated before, energy conservation has been vital to Japan's economy and society as the country is very much dependent on imported energy sources. The approach to target this was to pass laws mainly aimed at one sector such as the industry, but which often aim at the society as a whole and call upon all parts of society. In Japan often any initiative is seen as the first step towards a general change of behaviour in the country's society.

The Law Concerning Rational Use of Energy (Energy Conservation Law) enacted in 1979, is the main pillar of Japan's energy conservation policy. It covers factories, buildings and equipment in the industry sector.

Following the obligation stemming from the KP the Japanese government had enacted the [Law Concerning the Promotion of the Measures to Cope with Global Warming](#) and with it settled its [Guideline of Measures to Prevent Global Warming](#) in order to reach this goal. It has been one of the first laws to be specifically addressed to the issue of global climate change. The law requires central and local governments (47 prefectures and more than 3000 cities, towns and villages) to prepare action plans for limiting emissions from their business activities.

1) The Guidelines of Measures to Prevent Global Warming

In the Guidelines it is stated that 2.5 % of the 6% emissions reduction target is to be achieved through measures relating to energy supply and demand. The government programme has a number of components to target energy supply and demand. This includes

- 1) a drastic improvement of energy efficiency through the revised Law on Rational Use of Energy and is targeted at a) appliances, b) automobiles and c) household electrical and office equipment
- 2) strengthening energy efficiency standards for appliances, office equipment
- 3) strengthening energy efficiency standards for housing and buildings, mostly targeted at insulation.

For energy efficient housing and buildings an incentive system is also required to be established (but not further specified) and current standards for insulation efficiency are to be revised and improved.

The *Top Runners Approach* aims for standards meeting or exceeding the highest energy efficiency in an industry among products under development. It is the legally binding efficiency standard and programme that should support these measures categories mentioned beforehand on the product/technology side.

The Guideline of Measures to prevent Global Warming also included information provision, however mostly to the industry and public. Under exemplary measures taken by the

government it is stated that priority will among others be given to the following (relating to procurement and energy efficiency).

- In principle purchase low fuel consumption vehicles and low pollution vehicles for official use
- The introduction of new energy systems such as PV power generation in government buildings and public facilities
- The promotion of improvement of environment- friendly government building facilities (Green Government Buildings)

The local and regional government level are required to create action plans to reduce the environmental impact of their actions through the Basic Environment Policy and many institutions are implementing similar action programmes on measures mentioned in the Guidelines to Measures to Prevent Global Warming but no obligatory quantified targets are specified for the local level.

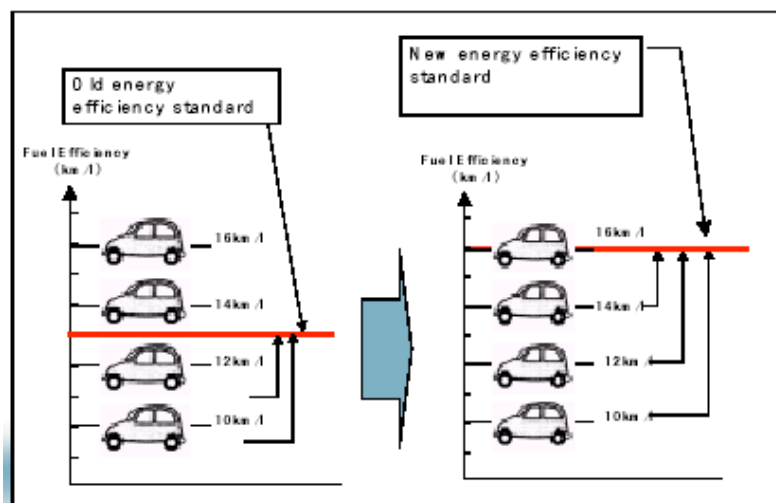
Within the national government of Japan, currently the ministries responsible for this issue are making a draft for a new action programme to promote the reduction of CO₂ emissions. When the new programme starts to work, it will be the successor to "The Action Plan for Greening Government Operations".

2) The Top Runner Programme

The top runner programme, although targeted at the commercial and private sector, will finally also influence public sector investment in these products, as purchasing labelled or high standard goods is requested in the Law on promoting green purchasing.

The Top Runner Programme sets energy efficiency targets for 12 products, passenger vehicles (gasoline, diesel), motor trucks (gasoline, diesel), air conditioners (heating & cooling, cooling only), fluorescent lamps, television receivers, copying machines, computers, magnetic disc devices, video cassette recorders, refrigerators and freezers. These machines occupy about 70% of total residential power consumption and about 80% of total power consumption of office automation equipment. The target values are set on the basis of whether a product has the highest energy efficiency of all the products of the same group currently in the market. This is a substantial change from the earlier energy-efficiency standard because the previous one was set based on average performance. Under this programme, all manufacturers and importers are obliged to achieve these challenging targets by a specified

target year. For the 12 designated products the introduction of the "Top Runner Programme"



is expected to bring about an improvement in the energy efficiency ranging from 7 per cent (for diesel-fueled passenger automobiles) to 83 per cent (for computers)⁴.

3) The Action Plan for Greening Government Operations

By the end of FY2000, the national government of Japan has finished its Greening of the Government programme, "[The Action Plan for Greening Government Operations](#)" which had started from FY1996. This programme was launched to greening the administrative works of national government.

The ministries of the government had been expected to achieve the quantified targets for improvement of energy efficiency and reduction of CO₂ emissions (for targets and results see annex). The Action Plan for Greening Government Operations⁵ which was settled in accordance with [the Basic Environment Plan](#) contained regulations for training of officers, a scheme for product databases, guidelines and target values for improvement of the energy efficiency. The actions specified in the programme included “the purchasing eco-labelled products, promoting use of electronic mail, installing energy efficient lights, utilising rain water, reducing the use of agro-chemicals, conditioning appropriate temperature in office space (cooling : approximately 28 degrees centigrade, heating : 20 degrees centigrade), avoiding overtime work on Wednesday, introducing bicycles for common use, elaborating recycling plans in each building, establishing schemes for the promotion and reviewing of the

⁴ Sato, A: Promotion of Energy Efficiency Investments in Japan
(http://www.unescap.org/enrd/energy/finance/part3_sato.html)

⁵ <http://www.env.go.jp/en/pol/g2o/index.html> for the index of the action plan

Plan and appointing an accountable chief executive official among high ranking officials. Public reporting on the achievement of the plan every year was scheduled as well. Channels were for example an annual White Paper on the Environment. Considering the scheme for auditing the Plan such as audit at the Council involving experts from the outside of the Government was also suggested⁶.

The programme had taken on the issues of both purchasing and building energy management. After the programme ended in FY2000, the [Law Concerning the Promotion of Procurement of Eco-Friendly Goods and Services by the State and Other Entities \(Law on Promoting Green Purchasing\)](#), legislated in May 2000 and come into force 1 April 2001, succeeded the section on the promotion of green purchasing.

In regard to building energy management, the successor programme to "The Action Plan for Greening Government Operations" will be responsible to promote it in the public sector. The detailed specification of the new action programme is yet to be decided.

3) The Law on Promoting Green Purchasing /Basic Policy on Promoting Green Purchasing

In April 2001 the Law on Promoting Green Purchasing entered into force and succeeded the purchasing section of the Guidelines to Measures to Prevent Global Warming. It required the national government to define a basic policy on green purchasing which was released in February and partially amended in June of 2001. In the Law on the Promotion of Green Purchasing experiences made with the previous Action Plan are reflected. In its Basic Policy on Promoting Green Purchasing, sets Selection Criteria including energy efficiency. It applies to the ministries and agencies as well as to the diet, courts and other independent administrative entities. Specifications and criteria are developed for 15 broad categories ranging from PCs to passenger cars to building materials and services.

Information for staff and the public is foreseen, training is provided by initiatives such as the Green Purchasing Network, but no internal training is given on the ministerial level.

Yearly reports are required by all administrative units on targets achievement; therefore the “social control” will serve as the benchmarking whereas no real benchmarking is taking place yet.

Building Energy Management

⁶ dto

In regard to building energy management, all institutions are encouraged to make use of so-called energy conservation diagnosis services for buildings that include analysis and proposal of action for improving the energetic performance of a building. The possibility that this could evolve to a PICO type of service is perceived as possible.

The programme is coordinated by the Ministry for the Environment, is organised centrally (national level), but via the regional branches of the ministry.

There is no indication of what the budget is allocated specifically for the implementation of this law. However, it is stated that buildings eligible to undergo the service need to be specified and included in the budget at the beginning of each fiscal year.

On the local level, some local authorities do have training on green procurement for new staff and even they are not obliged under the law, the initiative for green purchasing did come from the local level and many of the especially larger cities are active members of the Green Purchasing Network (GPN), following their guidelines and purchasing with the help of the product data catalogues provided to them.

2.3 Co-operative Purchasing by Public Institutions

Question(s) to be answered in this section:

S7. Typically, which type of national/ regional/ municipal/ other institutions in your country have an energy management unit?

S14 Trends, expected evolution?

There is no agency that is assigned this kind of function in Japan. The Green Purchasing Network (GPN) guidelines were a cooperative effort of purchasers and industries and ease green purchasing activities. Data books, published by the GPN since 1997 provide purchasers with quantitative and qualitative information on each product in accordance with the purchasing guidelines. The comparison of competitors from an environmental point of view for the first time in Japan has influenced the industries. But cooperative purchasing was not seen as happening in Japan by interview partners.

The Basic Policy on Promoting Green Purchasing foresees a contact group for government agencies and others to study the promotion policies and successful coordination of green purchasing among institutions which can be an indication for a future cooperative purchasing practice.

2.4 Energy Management in Public Institutions

Question(s) to be answered in this section:

S8. Typically, which type of national/ regional/ municipal/ other institutions in your country have an energy management unit?

S14 Trends, expected evolution?

On the national government level, purchasing is dealt with by a central purchasing department, whereas smaller purchases are done by the individual departments themselves. (i.e stationary). Building Management units exist.

On the local level, a purchasing unit and a building management unit are responsible for the centrally organised purchasing and energy management. Single departments can, however, purchase smaller non-expensive things like stationary at their own. Energy is being purchased usually by the building management section, a section that is within the same larger unit as is the purchasing section. The budget system is a one year closed budget system..

2.5 Key Statistical Data

S9. Key statistical data

Energy data:

- How much energy of which type goes to public sector? How much (%) of natl. total?
- Energy costs as share of the jurisdiction's total budget (specific jurisdiction examples or typical)

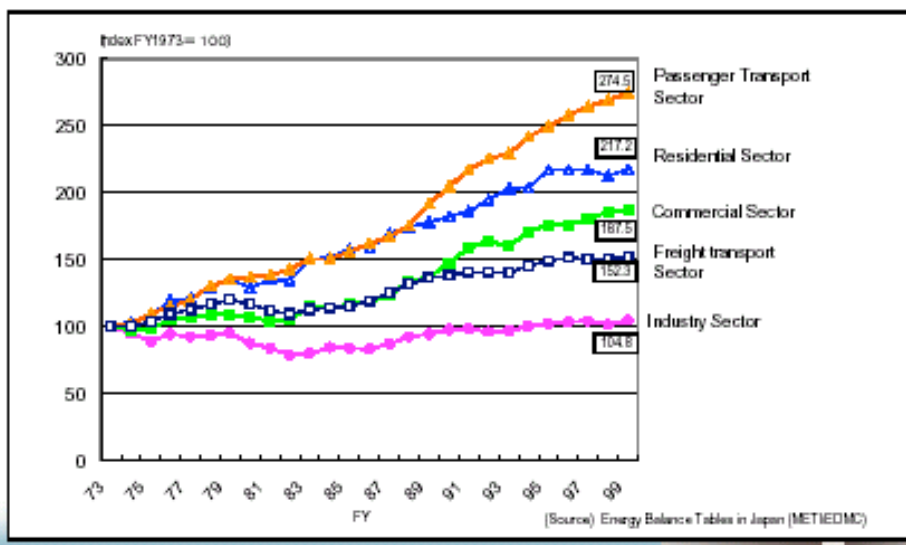
S16. Do bottom-up studies of energy by end-use in public institutions exist?

S14 Trends, expected evolution?

2.5.1 Energy Data

Energy data is available for Industry, Commerce, Transport and Services but public sector is not specifically listed in any of the official statistics of Japan. Despite the success at reducing the energy consumption and thus increasing efficiency in the industrial sector, the commercial/household and transport sectors are showing increasing amounts of energy consumption levels.

Indices on Final Energy Consumption by Sector



Source: <http://unfccc.int/sessions/workshop/010810/papers.html>

In the financial statistics, non personal expenses were listed for local government bodies, which is assumed to include electricity bills. The amount account for some 7.5% of the total expenses in 1998, whereas maintenance costs amount to approx. 1.2% of the total⁷ also in 1998 figures. On the more general data it can be seen from the table below that energy consumption is increasing.

Indicator	Data	Year
Industrial Energy Intensity	12.5 thousand Btu per 1985 dollar (vs. 24.7 thousand Btu in U.S.)	1990
Energy Consumption per 1987 Dollar of GDP	6.4 thousand Btu (vs. 6.4 thousand Btu in 1990)	1993
Net Electricity Consumption per 1987 Dollar of GDP	0.26 kilowatthours (vs. 0.26 kilowatthours in 1990)	1993
Net Electricity Consumption per Person	6,248 kilowatthours (vs. 5,974 kilowatthours in 1990)	1993
Energy Consumption per Capita	152.4 billion Btu (vs. 146.3 billion Btu in 1990)	1993
Energy-Related Carbon Emissions	316.9 million metric tons (vs. 308.4 million metric tons in 1990)	1993

Table: Energy and Efficiency indicators of Japan

Source: Energy Information Administration/Japan (June 1995)/lfeld@eia.doe.gov

⁷ Statistical Yearbook of Japan, ORDINARY Accounts of Local Governments

This trend can be seen especially since the early 1990s and it attributable to an increasing number of electronic equipment in private households. Additionally energy/fuel consumption in the transport sector increased and still increases considerably.

Some consumption data is available for public bodies is available via the results of the central government’s Action Plan for Greening Government Operation. The results were not as originally expected. For this reason a new programme was (re: procurement law) and is currently being developed (re: building management) for the public sector.

Item	1996	1999	Target		
ELECTRICITY CONSUMPTION PER UNIT OF OFFICE SPACE (Kwh / m2)	105.57	113.59	Below 95.1	Electricity consumption per unit office space shall be reduced to less than approximately 90 % by fiscal 2000 .	
THE AMOUNT OF FUEL CONSUMED BY UTILITIES IN GOVERNMENT BUILDINGS	HEAVY OIL (kl)	177,658	161,015	17,766 reduce	The amount of fuel consumption by utilities in government buildings by approximately 10 % fiscal 2000.
	KEROSENE (kl)	51,917	51,693	5,192 reduce	
	CITY GAS (1000m3)	83,910	104,878	8,391 reduce	
	L.P.G. (1000m3)	22,631	1,453	2,263 reduce	

Table: Greening Government Operations – Result sheet (directly energy related only)

2.5.2 Product Data

Question(s) to be answered in this section:

Product data

- annual appliance sales (to all, to public sector)
- annual energy use - for each year’s purchase
- suggested efficiency norm for purchasing
- energy savings (for public sector only) if all were purchased at that norm (per 1 year of sales - Note: need to look at potential after several years of sales and turnover, especially for products with longer lifetimes and slower rates of turnover.)

- “public sector” includes: national, regional and municipal governments, universities, schools, public housing

S14 Trends, expected evolution?

Much of the data that is available is only for IT products and mostly related to business and private but hardly specified for the public sector. Not reliable data was not given out by interview partners. Otherwise the data available is connected to the industry, and business and sometime to private households.

For the government sector, a number of on average 0.63 computers per government employee was obtainable. An increased IT use is part of the strategy of the government also to save elsewhere (e.g amount of paper, energy through a telework day) by increasing IT accessibility.

2.5.3 General Data

Not all of the general data which was envisaged could be found. The collected data is summarised in the table below.

<i>Building floor area by type</i>		
	Office/admin. (public sector, as % of total)	No data
	Public housing (# units as well as floor area; public sector as % of total)	~ 48,000,000 dwellings total with averagee 91,92 m ² floorspace
	Schools (# students; public sector as % of total)	17,885,112 # students floor area 1,100,736,000m ²
	Universities (# students)	2,740,023 total # in 2000
	Building floor area Universities	floor area 1,500,170,000 m ²
	Hospital/health (# beds)	#of hospitals: 9333 # beds 1656415 (1998 data)
	Prisons (# prisoners/beds)	56,133,000 prisoners (Year 2000)
	Military housing (barracks, family housing - # units or # soldiers)	No data found
<i>Building area by %: heated, cooled, ventilated</i>		
		No data found
<i>Number (#) of employees</i>	Educational system	2,170,951
	Public administration	2,140,000
<i>Population</i>		126,071,305
<i>Gross Domestic Product</i>	Total	
	%age public sector	17.8% (national government: 4,4%, local governemt 13.4%)

Source: Japan statistical Yearbook, Japan Statistics Bureau.

2.6 Laws and Regulations Governing Product Purchasing and Investments by Public Institutions

Question(s) to be answered in this section:

S10. Which laws and regulations govern product purchasing and investments in general (including building codes, minimum efficiency standards, technical guidelines etc. that apply to all purchasers/investors)?

- buying products
- replacing components (if different from above)
- for buying energy
- for making investments in buildings
- for O & M in buildings (buying services or through internal staff)

S14 Trends, expected evolution?

2.6.1 General Laws and Regulations

Buying products

- Commercial Code
- Guideline of Measures to Prevent Global Warming (spec to Law Concerning the Promotion of Measures to Cope with Global Warming)
- Law concerning the rational use of Energy
- Action Plan for Greening of Government Operations

Law on Promoting Green purchasing

This law makes it obligatory for ministries, agencies and institutions of the national government, including branch offices, to implement green procurement. It imposes obligations on local government to make similar efforts. The national government accounts for 4.4 per cent, local government for 13.4 per cent of Japan's GDP (total 17.8) thus this has an impact on the market and business.

In April 2001 the specification of items to be targeted for green procurement was published and thus the law came into full force. It is the minimum list that government bodies are to strive for and the law requires a yearly report on results for these items. The criteria for assessment are also included in the specifications which are in the Basic Policy on Promoting green purchasing

For buying energy

Electric Utilities Industry Law etc.

For making investments in buildings

- Building Standard Law

For Constructing, Operation & Maintenance in buildings

- Guideline Measures to Prevent Global Warming

- Action Plan for Greening Government Operations and therein the "Standards for Location, Scale and Structure of Buildings for National Agencies and Their Affiliated Facilities (Notification No.2379 of ministry of Construction issued on December 15, 1994)"

Building Energy Management

- Law Concerning the Rational Use of Energy (original:1979)
- Enforcement Ordinance for the Law Concerning The Rational Use of Energy (1979) and Amendments (1984 and 1993)
- Enforcement Regulations for the Law Concerning the Rational Use of Energy (1979, amended 1984 and 1993)
- The Law Concerning the Rational Use of Energy

2.6.2 Special Energy Efficiency Regulations for Public Buildings

The Law on Promoting Green Purchasing encourages all public institutions of the government to procure „energy conservation diagnosis“ services for buildings that include analysis and proposal of action for improving the energetic performance of a building. Other building management related criteria (materials, fixed equipment) is included.

Also there is a trend towards ISO 14001 certification, also among local authorities (230 have registered for certification, about 100 are certified) which will improve energy management in public sector buildings further.

No indication was found on guidelines that have more strict or comprehensive regulations and criteria than the national basic law of each category on the national level. Regional/ local governments sometimes have more strict ones. However, national guidelines are already being developed *after* guidelines had been developed and agreed upon through the GPN.

There are also currently studies ongoing for an energy conservation label system for buildings although this is aimed only at the commercial sector⁸.

⁸ Source: Japan 2nd Communication to the UNFCCC

2.6.3 Special Energy Efficiency Regulations for Public Purchasing

[The law concerning rational use of energy](#) encourages purchasing of energy efficient products and regulates some methods for improvement of building energy efficiency in national level. On the other hand, [Law on Promoting Green Purchasing](#) shows awarding criteria of environmentally preferable products and requires national government institutions to promote green procurement.

Other specifications: The *Japanese Industrial Standards (JIS)* scheme is established to provide the market with a credible proof that industrial products qualify certain performance.

The Japanese *Ecomark* system was installed in 1989 as a private company to promote dissemination of products. To date approx. 2000 product brands in 69 categories have been designated with the mark, including products that incorporate recycled paper pulp, hot-water supply systems that use solar heat, and heat insulation materials for construction applications.

The *Top Runner approach* standards of energy efficiency, introduced with the amended law concerning Rational Use of Energy and in effect since April 2000), are established at levels which meet the highest energy efficiency achieved among products currently commercialised.

With the law, the energy efficiency standards for housing and buildings were also strengthened. Energy efficiency for air conditioning of housing and other buildings are expected to be improved by about 20% and 10% respectively.

The *International Energy Star Programme* is also being applied in Japan.

The trend is being judged in a way that the demand for environmentally friendly products is rapidly growing in industrial sector, as well as in the public sector. Green purchasing is achieving rapid progress, especially in the field of private companies, and the Local authorities that are in the GPN are achieving good results. There are some that even claim having achieved 100% green purchasing regarding office supplies of paper and stationary.

2.6.4 The Green Purchasing Network

In 1996, the Green Purchasing Network (GPN) was established to promote green purchasing among consumers, companies and governmental organisations in Japan. It currently employs five staff and has 2350 members, including 350 local authorities, 1640 private companies, consumer groups, environmental NGOs, and co-operative associations. The GPN promotes the ideas and practices of green purchasing, draws up purchasing guidelines for each type of

product, since 1997 publishes environmental data books on various products, holds seminars and study meetings, and awards commendations to organisations that have shown remarkable performance in implementing green purchasing.

The Green Purchasing Network provides strong support for exchange of experience. It enhances the collaboration among business, municipal governments, the Environmental Agency and NGOs interested in green purchasing.

A survey carried out by the GPN from September to October 2000, distributed to members and non-members of the GNP including local authorities and private companies, showed that the members of the GPN are more advanced in green purchasing activities than the non-members. They are also actively involved in diffusion and education of green purchasing among consumers. The objectives of the survey were to find out about prices of green products and about the level of green purchasing activities in different product groups.

2.7 Organisation of and Decisions on Product Purchasing and Buildings Investments in Public Institutions

Based on your research and interviews, please draw simplified organisation and decision flow charts that are typical for your country (if needed, different for different levels of government) - which actors influence energy use, energy-related budgeting and purchase decisions, construction and renovation? How is the flow of decisions between these actors? (Please note that these are case studies and the organograms serve to illustrate processes and relations.)

3 Success Stories and Good Examples of Energy Efficiency in Public Institutions /Green Procurement

Green purchasing in Sendai

Having introduced recycled paper in 1990, Sendai, the “City of Trees” started using electric cars in 1991 and then introduced hybrid buses into the transit bus service in 1992. In 1996 Sendai joined the Green Purchasing Network, gathered employees in charge of commodity contracts from all its municipal departments and gave a study seminar to promote green purchasing. This study seminar has been held every year since then.

After promoting green purchasing unsystematically, Sendai enacted the Sendai Basic Environmental Ordinance, which explicitly states that citizens, business operators and administration each have the responsibility to promote green purchasing. In March 1997, a basic environmental plan called “City of Trees Environmental Plan” was developed. It established a definite course for the promotion of systematic green purchasing.

In March 1998, Sendai has created the “Leading Ecoplan Sendai”, a detailed environment-oriented action plan. Items concerning green purchasing include two numerical targets based on the concept of effective utilisation of limited resources. One is to reduce the paper goods consumption by 6% with respect to 1996, and the other is to raise the containing ratio of used paper to 40% or higher.

Sendai has set criteria of its own to encourage green purchasing. Details including the product name, price, specifications, and environmental considerations are compiled in a catalogue which is distributed to purchasers in all departments and sections and made available on the Intranet.

Green purchasing in Shiga

Shiga Prefecture was one of the initiators of the Green Purchasing Network and was among the first local authorities to start green purchasing. It was Shiga that established the first regional Green Purchasing Network in December 1999. It took the lead in Japan to establish “the basic purchasing guidelines for green products”. Green purchasing in Shiga started in 1994 with 50 products (mainly stationary), and includes today 168 products including vehicles, furniture and clothing. 94% of all office stationary is green, including computers and copiers, and 30 out of 100 cars are hybrid gas/electric.

Purchasing is organised centrally by the purchasing department. As criteria, the administration basically uses Eco-labels (Eco-mark, Green mark and Re-cycle mark). Green purchasing is not integrated into a wider environmental programme but is driven by itself. Training for purchasing officers is foreseen on a regular basis, e.g. explanation of green products is part of the training course for new staff. Annual training also includes information related to green purchasing.

One of the main benefits from green purchasing was a drastic change in the behaviour of municipal staff. Employees are reported to be much more sensitive to environmental questions.

4 Detailed Results from the Interviews

This chapter serves to summarise the answers from the interviews plus any other sources for each question of the interview guide. It also tries to answer the following specific questions:

- % of total floorspace (or # of buildings) with energy audits? how often updated? Examples.
- government-owned buildings vs. leased space
- Are there norms (or guidelines) about thermostat settings for heating and cooling?
- Outsourcing of maintenance/services for lighting and HVAC systems?

4.1 Interview Partners and Institutions

<i>PA Sector</i>	<i>Institution Interviewed</i>
For Local Government	Green Purchasing Network
National Government	Ministry of the Environment
National Government	Statistical Organisation of Japan
Local Government	Shiga Prefecture

4.2 Administration Structure

4.2.1 General Information on Purchasing and Energy

Question(s) to be answered in the interviews:

I4 Who has the *budget/decision* responsibility for

- buying appliances/products < Note: differentiate according to different products if necessary – see Appendix, part A >
 - buying energy
 - making investments in buildings <see Appendix, part B>
 - O & M in buildings (buying services or through internal staff)
 - replacing components (e.g., lamps, single worn-out fixtures, pumps, fans, windows—if different from O&M)
- If possible, an administration organogramme might be helpful

I5 Are any cost-effectiveness criteria applied for investments and product purchases? If so, which (e.g. LCC-criteria, simple payback, NPV)? Which other criteria are applied?

I6 Can you give us some figures about the volume of energy-related purchasing?

I7 How much energy does your organisation use (by energy source)? Which are the energy costs (by energy source)? How much is this in % compared to your total budget?

National Level

On the national government level, each ministry/department develop their own budgets which in the end are authorised by the Ministry of Finance and afterwards fixed for the current financial year, budgets are in a one year closed budget system. Purchasing is dealt with by a

central purchasing department, whereas again smaller purchases are possible to be done by the individual departments themselves. (i.e stationary). Decisions are mainly based on Japanese Eco-label criteria which are called Eco-marks. An important decision criteria however is still the price of the goods. The volume of energy was not obtainable from interview partners, as the building was shared by various ministries of the government.

Local Level

Local governments have special purchasing and also building management departments both within the same unit. The budget is developed by each department and then centrally approved and also fixed in a single year budget cycle.

Most energy data is available on a monthly basis, some only on a yearly basis; this information is passed to the individual units, but not published publicly (i.e it was not available from interview partners)

On average, purchasing decisions are based mostly on the eco-labels and criteria specified in laws and regulations in most of the larger cities and prefectures. Smaller ones tend to have price as the decisive criteria and consider those regulations that are obligatory for them.

The local authorities that are members of the network for the most part are larger cities and prefectures. No compliance scheme for the work of the GPN but a strong social control makes sure that a minimum standard of green purchasing is being followed, for those products for which guidelines and data books exist. The broad agreement on these guidelines with the manufacturing side and the data books for the inclusion in which a manufacturer pays also ensures that there is a sort of benchmarking process /competition watching and further development in energy efficient products on the supply side.

Investments in Buildings: newly constructed floorspace by government level is available via the Japan Statistical Yearbook. See table below. Data on energy related investment is not available or has not been found.

Year	Total		By type of investor					
	Total floor area	Estimated construction cost	National government		Prefectures		Cities, wards, towns and villages	
			Total floor area	Estimated construction cost	Total floor area	Estimated construction cost	Total floor area	Estimated construction cost
1980	220.97	22.760	7.066	854	6.958	829	18.070	2.222
1985	199.56	23.223	4.525	647	4.703	661	11.234	1.626
1990	283.42	49.291	4.591	890	5.542	1.088	12.878	2.553
1995	228.14	37.892	4.505	985	5.754	1.335	11.045	2.752
1996	259.79	43.340	5.475	1.265	6.384	1.522	11.265	2.640
1997	227.97	37.925	4.738	1.069	5.588	1.366	10.682	2.539
1998	195.99	32.434	4.377	982	4.391	1.110	9.261	2.161

Area in thousands of square metres; value in billions of yen

Source: Japan Statistical Yearbook 2000

4.2.2 Accounting and Financing

Questions to be answered:

I8 Are departments within your organisation charged for the energy they use?

I9 Are saved costs (or negative balances) transferable to the next budget year? Yes/No..... Please comment.

I10 What happens with the energy costs that are saved through energy efficiency?

I11 Are budgets of departments split and fixed between investments and running costs by the central administration level, or are individual departments allowed to determine the split between investments and running costs from a global budget frame?

I12 Are investments fixed within one year's budget, or can they be depreciated over a number of years (or over their lifetime) (i.e. can future savings help to finance an investment)?

I13 Are internal or external credits available for major investments in energy efficiency? Is there a limit for investments even if they are profitable? Is there an annual budget available for investments in energy efficiency? Is this budget large enough?

For none of the interview partners, departments were individually charged for the energy they used. Energy bills are paid by the building management section. Data on the energy that is saved is not available per department, only per building. Energy costs that are saved are not reattributed to the sections that have been efficient, **the money will usually be spent by the end of the budget year.**

However, one case of a local government is known that is currently thinking about incentives to reduce energy consumption by making the savings available to the department/building that reduced their energy use.

Budgets are split and fixed between investments and running costs, and the positions on either part cannot be reallocated once the budget is approved. For local governments, some funding sources are available. Local Governments can sell bonds to the national government and the revenues can be used for investment. These bonds work like a type of loan. However, if investment is needed again this has to be included in the next budget cycle in a normal case. Depreciation is possible again, if announced and included in the budget ahead of time.

4.3 Energy Management in Public Buildings

Energy is purchased and paid for by the building management section. As are investments in buildings such as boilers, pumps, etc. Information on energy is given by building but not per department. The information is not publicly accessible.

The budget is fixed and split between investment and running costs. Once the budget is authorized by the Ministry of Finance, no changes are possible and the budget has to be executed accordingly within the financial year. Apart from the regulations on purchasing decisions, price is still the decisive factor for purchases. For construction some overview data on investment available are seen in the extract of construction data.

In relation to investment, an exception is the public engineering works, but as a general rule the investment budget is also fixed and executed within the specified budget year.

Maintenance is upon failure plus whatever is scheduled in the budget for the current financial year, i.e the needs that have been uncovered ahead.

On the local level targets usually exist for renovation in building management in that the overall consumption of energy is to be reduced by about 10-15%. The cost factor has been a driving force behind setting those targets for which there are no rules. For central government agencies an incentive to set such targets besides reducing dependency on energy sources is the obligation to reduce CO₂ emissions. Targets in general are part of green procurement strategies as well as based on energy policies.

Year	Total floor area	Estimated construction cost	National government 1)		Prefectures 2)		Cities, wards, towns and villages 3)	
			Total floor area	Estimated construction cost	Total floor area	Estimated construction cost	Total floor area	Estimated construction cost
1980	220.973	22.760	7.066	854	6.958	829	18.070	2.222
1985	199.560	23.223	4.525	647	4.703	661	11.234	1.626
1990	283.421	49.291	4.591	890	5.542	1.088	12.878	2.553
1995	228.145	37.892	4.505	985	5.754	1.335	11.045	2.752
1996	259.793	43.340	5.475	1.265	6.384	1.522	11.265	2.640
1997	227.966	37.925	4.738	1.069	5.588	1.366	10.682	2.539
1998	195.997	32.434	4.377	982	4.391	1.110	9.261	2.161

1) Including Housing Loan Corporations etc.; for 1980, including Japan Tobacco and Salt Public Corporation (present Japan Tobacco Inc.) and Nippon Telegraph and Telephone Public Corporation (present Nippon Telegraph and Telephone Co., Ltd.), and

through 1985, also including Japanese National Railways (present Japan Railway Company).

2) Including boards of education and housing supply corporations, etc.

4.3 Public Purchasing of Energy Efficient Appliances and Products

For appliances lease contracts are a popular way to procure for example personal computers or printers. Changes due to the new procurement law are not yet clear. So far there are no cooperative purchasing activities or buying agencies in Japan, however it would legally be possible. Probably through the work of the GPN such an institution has not been perceived as needed due to the data books on products etc.

In regard to barriers for some products such as copiers there are actually no barriers keeping from buying efficient as the price of efficient products is not higher than the price for other products.

For lighting and other high frequency equipment which is rather expensive first costs are a barrier to more efficient purchasing. For cars however, buying low emission and low fuel consumption vehicles is a target for national governments and therefore these more efficient vehicles are being bought. Decreasing energy costs might be a potential barrier to intensifying energy efficient procurement.

Guidelines and specifications exist for products and appliances through the new procurement law (see document). There is no clear specification that distinguishes between leased and purchased products, but most local governments at least include leasing and also apply energy efficiency criteria.

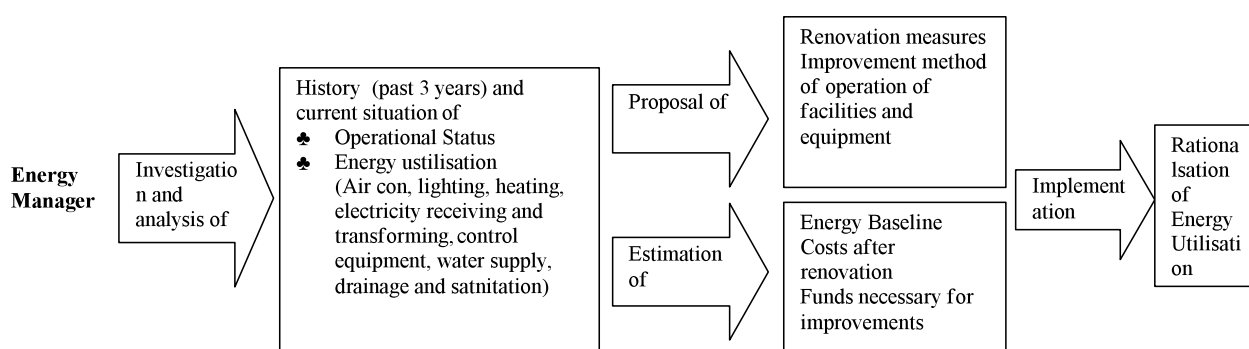
So far, decisions are made mostly in favor of energy efficiency when it is obligatory through legal stipulation. However, this applies to national and large local governments operations, and not for the many smaller and medium sized public authorities (no idea on educational and health services). What is perceived as needed is a push, so that the perceived additional work load is overcome. Also the purchasers aren't thinking as much in political/policy terms as maybe the colleagues from the environmental department. When energy efficient purchasing is to further succeed the help of the environmental department is needed. They need to be convinced and then they can be the allies in helping convince the purchasing and building management departments. However, for purchasing departments a top-down approach would be needed under the current circumstances.

5 Public Internal Performance Contracting (PICO)

There have not been any PICO type activities yet to the knowledge of interview partners and own research. ESCO experiences are available in Japan, however, have, in a first response, been perceived as difficult to implement. However, on side of the Green Purchasing Network, PICO was seen to be an interesting option for local governments to enhance energy efficiency and it is possible that a discussion on PICO will be started based on the information provided by the PROST team /i.e the Wuppertal Institute. The legal possibility was not clear but it was stated to be worthwhile investigating further.

Also, according to the GPN, one local authority has begun investigating an incentive system to enhance energy efficiency by making energy savings available to the department that achieved the savings for their own spending, not related to the fixed budget. Therefore it should be possible to overcome any legal uncertainties. The Green Procurement Law foresees an energy diagnosis service that is suggested to be used for public agencies. Although it is not obligatory it is recommended to purchase this service and it could be like a legal possibility for PICO approaches as also internal staff can conduct the service.

In the following a graphic image shows the basic functioning and process of this service .



5 References

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