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## 8 ANNEX

### ***ENERGY ASPECTS OF CTI MEMBER GOVERNMENTS' PURCHASING ACTIVITIES RELATING TO THEIR OWN FACILITIES***

Throughout the text, entries highlighted in *italics* = market enhancement activities

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## Energy Aspects of Government Purchasing in

### AUSTRALIA

#### Objectives of government's environmental purchasing policy:

- to seek to buy goods and services with the least adverse environmental impacts;
- to work with industry to encourage continuous improvement in the environmental impact of the goods and services it buys;
- to assess the environmental impact of goods and services against informed and common standards and methods.

#### Legislative Framework:

Australia has no specific Federal legislation covering the energy aspects of Government purchasing, although Federal and State and territory regulations can be used for this purpose.

The relevant frameworks for action are:

- the National Greenhouse Response Strategy endorsed by Federal, State and Territory Governments;
- policy statements, including "Safeguarding the Future - Australia's Response to Climate Change" (Prime Minister's statement of 20 November 1997).

#### Organisational Framework:

- departments and agencies have to meet or better the Government's energy target;
- government buyers are required to take energy usage into account when assessing whole-of-life costs, and keep in mind that purchasing energy-efficient products may reduce running costs;
- development of competency based training for Government buyers, incorporating information and advice on complying with purchasing policy requirements;
- energy management training courses are provided for officials;
- establishing a comprehensive advisory service on measures to reduce energy consumption;
- *Common-Use Arrangements (CUAs): buyers are required to purchase goods and services from common-use arrangements, including environmentally preferred and energy-efficient product;*
- *Endorsed Supplier Arrangements apply to information technology and major office*

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*machines. Companies wishing to be considered as Endorsed Suppliers must have demonstrated a commitment to world best practice and meeting certain industry development criteria and government policies, including environmental policies. Only Endorsed Suppliers are able to compete for access to CUAs for IT equipment and major office machines.*

### **Buildings:**

Declared target: 25% reduction before 2003-2004, using 1992-93 as the base year.

- *Required to consider energy use in the design and construction of new buildings, and in the refurbishment of existing ones;*
- *enhance the robustness of, and access to, buildings' energy consumption data.*

### **Lighting, Office and Household Appliances:**

- *Buy electrical appliances (covered by the Australian 'star' energy-rating scheme) of at least a four-star rating where these are available and meet functional need;*
- *purchase only US EPA Energy Star compliant office equipment.*

### **Vehicles:**

- *Adopt car fleet and fuel management practices to reduce overall fleet fuel consumption;*
- *provide training courses for officials, directed at safety and fuel efficient selection and use of vehicles;*
- *review agency fleets to identify opportunities for fuel efficiency gains consistent with operational needs;*
- *enhance the robustness of, and access to, vehicle energy consumption data;*
- *introduce fuel efficiency targets for Commonwealth Government vehicle fleets, to apply from 2003.*

### **Bibliography:**

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- *Final Report of the Canada-Japan Workshop - March 24-25, 1996 - Vancouver, Canada.*

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- *Expert Consultative Meeting on "The Greening of Government"* OECD, Paris, 16 November 1995.
  - *The Greening of Governments - Scope and Experiences - Australia A Summary.*
  - IEA (1995) *Energy Policies of IEA Countries 1994 Review* (Paris: OECD/IEA).
  - IEA (1996) *Energy Policies of IEA Countries 1996 Review* (Paris: OECD/IEA).
  - *Safeguarding the Future - Australia's Response to Climate Change*; statement by the Prime Minister of Australia, 20 November 1997.

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## Energy Aspects of Government Purchasing in

### AUSTRIA

#### Organisational Framework:

- The Federal Government plays a co-ordinating and leadership role, while the Länder have responsibility for building codes, legislation for energy efficiency, heating system maintenance and metering.

#### Buildings:

- *Building codes (passed in 1994) included more stringent insulation levels, performance index ratings, stricter k values for new buildings, renovations and extensions, and the adoption of performance based energy index ratings in line with EU Directive 93/76/EEC;*
- *heating equipment must comply with EU Directive 93/76/EEC, on minimum performance standard.*

#### Vehicles:

- *The Federal Government provides funding for the sale and use of 200 electric vehicles.*

#### Bibliography:

- IEA (1995) *Energy Policies of IEA Countries 1994 Review* (Paris: OECD/IEA).
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## Energy Aspects of Government Purchasing in

### BELGIUM

#### Organisational Framework:

- Energy conservation initiatives are coordinated by CONCERE/ENOVER, between the federal government and the regional executives, which are responsible for effecting the measures;

#### Buildings:

Declared target: to save 20% of energy from non-residential buildings.

- *Strengthened energy saving measures in non-residential buildings;*
- *EU directive on minimum energy efficiency standards for hot water devices and boilers adopted nationally;*
- *Regional Ministers for Energy launched campaigns on energy labelling for boilers, to increase their uptake;*
- *energy labelling of buildings in compliance with EC Directive 93/76/EEC.*

#### Lighting, Office and Household Appliances:

- *use of high-efficiency lighting.*

#### Bibliography:

- IEA (1995) *Energy Policies of IEA Countries 1994 Review* (Paris: OECD/IEA).
- IEA (1996) *Energy Policies of IEA Countries 1996 Review* (Paris: OECD/IEA).

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## Energy Aspects of Government Purchasing in

### CANADA

#### Overall Objectives of Government Purchasing Strategy:

- to reorientate energy policy towards energy efficiency, alternative and renewable energy sources;
- to perform government activities within the context of sustainable development and to reduce emissions;
- to demonstrate leadership in energy conservation nationally and internationally;
- to reduce total energy costs for all forms of energy used in buildings;
- to stimulate economic growth through job creation and support for environmental industries;
- to serve as a testbed for energy performance contracting (EPC).

#### Legislative Framework:

- Energy Efficiency Act 1993 is the framework for energy efficiency measures, including setting efficiency standards and energy consumption labelling requirements. The Act covers the minimum energy performance of energy-using products, doors and windows, the energy labelling of energy-using products, and the collection of statistics and information on energy use and alternative energy. The energy efficiency standards cover heating, cooling and ventilation equipment, water-heating equipment and other energy-using equipment such as lights and electric motors;
- Efficiency and Alternative Energy Programme (EAE);
- in April 1995 Cabinet approved a coordinated approach to greening government operations. Ministers were made individually accountable for the environmental performance of their departments and were collectively responsible for government-wide results.
- "Federal Environmental Stewardship" was part of an initiative covering all major aspects of environmental protection and sustainable development, announced in December 1990. It covers four categories: *promotion of environmentally responsible practices*, including green office practices, waste reduction, green procurement and employee training and awareness programs; *sustainable use of resources*, including conservation of energy in buildings, and in transportation, and *environmental audits* of government holdings;
- Environment Canada published the "Code of Environmental Stewardship" which sets out commitments including: integration of environmental concerns into decision-making; meeting the spirit and intent of environmental laws; improving environmental awareness in the public service; integrating environmental considerations into purchasing policies; reducing input of raw materials and other resources; and managing lands in an

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environmentally-sound manner;

- The “*Alternative Fuel Act*” 1995 requires that a portion of federal vehicles which are bought or leased for longer than 1 year be capable of operating on alternative fuel vehicles, as follows: 50% of new vehicles in 1997/8, 60% in 1998/9, 75% in 1999/2000, and for every year thereafter;
- amendments to the “Auditor General Act” to promote sustainable development .

#### **Estimated spending on energy in public buildings and vehicles:**

- Federal Canada has 21.4m hectares of land under direct management; 59,000 buildings and facilities; 25,000 motor vehicles costing CA\$21 million annually and emitting 92 kilotonnes of CO<sub>2</sub> annually; 224,000 employees; and spends over CA\$8 billion in annual purchases of goods and services;
- the Federal energy bill exceeds CA\$800 million annually. Federal departments are aiming to reduce their energy consumption by 15% to 20%, to achieve total savings of up to CA\$100 million per year.

#### **Organisational Framework:**

- Many policy instruments lie outside the jurisdiction of the federal government. Provincial and territorial programmes include energy efficiency regulations and energy audits in public buildings;
- departments and agencies have prepared individual "environmental action plans", applying the Code of Environmental Stewardship to their operations. The Government of Canada is developing a government-wide set of "best practices" for greening government operations;
- the Treasury Board Secretariat and Environment Canada have formed the "Environmental Accountability Partnership";
- *Internet sites are used to provide information to government purchasers;*
- *most governments use the Environmental Choice Program (ECP) guidelines first, followed by the Energy Star rating for office equipment;*
- a subcommittee called the Federal Committee on Environmental Management Systems (EMS) has been created to identify and overcome barriers to EMS and share experiences.

#### **Buildings:**

Declared target: a 20% reduction in 30% of total energy use/costs over the 1995-2000 period, and an additional 20% reduction in 40% of total energy use/costs over the 2001-2005 period.

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- *The Federal Buildings Initiative (FBI) helps Federal departments to improve the energy efficiency of their 50,000 buildings. The capital costs to the government of this programme are minimal because performance contracting is in place: private sector firms design the energy improvements, install them, pay for the work and train the staff to operate the new systems. The private firm is repaid for the work out of the energy savings, i.e. the difference between the original energy operating costs and the new and lower costs. There are 3,000 FBI projects;*
  - *the "C-2000 Program" is a small demonstration programme promoting environmentally sound design and construction principles, with very demanding performance requirements in newly constructed offices. Energy consumption in C-2000 buildings is to be no more than 50% of conventional buildings. The buildings will demonstrate to industry that high environmental and energy efficiency standards can be reached without excessive costs or difficulty. Results so far show that the C-2000 buildings are meeting the performance requirements at lower-than-expected capital cost increments. This success is largely attributed to the clear design guidelines which have been developed;*
  - *the Green Power Procurement Initiative promotes the use of renewable energy in Canadian government buildings. The Programme will test and deploy leading-edge technologies in PV, wind, small hydro and bioenergy;*
  - *the Federal Industrial Boiler Programme was launched to retrofit old boilers or install new boilers which are more energy efficient, and reduce NOx emissions;*
  - *Federal and provincial officials working to develop more energy efficient building codes;*
  - *the Ontario Government has initiated a "Build Green" Labelling Program for building products which have recycled content or demonstrate efficient use of renewable resources. Under this program, a not-for-profit organization called Build Green Inc. has been created to oversee plant inspections, assist in marketing and promotion of work to bring new products to market. Manufacturers of recycled or renewable resource building products which meet the criteria of the Build Green Program will be eligible to carry the Build Green Label on products, literature, etc. This program has specific application to government buildings and government-financed activities;*
  - *an agreement in principle has been reached to establish a North American Build Green partnership;*
  - *the Building Environmental Performance Assessment Criteria (BEPAC) is being applied to government office buildings in the province of Ontario as a sophisticated energy and environment audit;*
  - *information about building management is on Internet site <http://www.ec.gc.ca/office/>*

**Results, energy and emissions saved:**

- The FBI programme has been applied to 2,500 buildings, costing CA\$200 million in private-sector investment, and has saved about CA\$25 million per year in operating costs.

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### **Lighting, Office and Household Appliances:**

- *A variety of energy labelling programmes exist for appliances: EnerGuide, Power Smart which is an international energy labelling programme, and Energy Star, the US EPA programme labelling computers, monitors, printers, copiers and fax machines. These cover over 100 products.*

### **Results, energy and emissions saved:**

- Public Works and Government Services Canada undertook lighting retrofits at 9 buildings; savings in one building alone amounted to 30% of energy, or \$200,000 per year.

### **Vehicles:**

- Transport Canada has reduced the size of its fleet as an economic efficiency measure and as a way of reducing CO<sub>2</sub> emissions;
- in 1994 the government introduced the AutoSmart Program to encourage motorists to make fuel-efficient and environmentally responsible decisions in the purchase, operation and maintenance of their vehicles. This was also implemented in the government fleet;
- *Bill S-7 introduced requiring 75% of the federal fleet to be converted to alternative fuels within a five year period.*

### **Results, energy and emissions saved:**

- Transport Canada reduced the size of its fleet by 178 vehicles in the first two years of its programme. This saved the Department CA\$2.6 million.

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- *"Directions on Greening Government Operations: A Guide to Green Government"*.
- *Costs and Benefits of Greening Federal Govt Operations: Appendices to Final Report*, Price/Waterhouse May 1996.
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  - Website <http://www.ec.gc.ca/office/>

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## Energy Aspects of Government Purchasing in

### DENMARK

#### Objectives of government purchasing strategy:

- to have a significant "demonstration" effect (be a good example) on companies and citizens to encourage environmentally conscious procurement outside the public sector;
- to encourage Danish producers and suppliers to develop environmentally acceptable products and help create a market for green products, initially to meet public purchasing requirements;
- to limit the State's energy consumption and ensure low-energy operation of buildings owned or rented by the State;
- to exchange experience with companies.

#### Legislative Framework:

- The Danish Environmental Protection Act states that "public authorities must in the establishment and operation of public plants, and in connection with procurement and consumption, endeavour to promote the objectives of the Act";
- the Energy 21-plan addresses integrated resource planning, standards for equipment, energy labelling (in the context of the EU Directive), informative electricity bills, campaigns to replace inefficient appliances, purchase agreements with groups of buyers, and limits on the installation of electric heating;
- "Energy 21" states that public authorities should take the lead in the area of rational energy consumption and requires energy audits in the public sector;
- the circular on Environmental and Energy Considerations in State Purchasing requires government agencies to accord equal importance to environmental considerations in purchasing decisions.

#### Public spending:

State procurement: DKK 20 billion annually;

Counties' annual procurement: DKK 5 billion;

Local authorities' annual procurement :DKK 16 billion;

Public procurements for which tenders are invited throughout the EU:DKK 3,000 billion annually.

#### Organisational Framework:

- Administratively divided into 14 counties and 277 municipalities, each has an

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environmental administration;

- Environmental Protection Agency and the National Energy Agency to initiate a temporary training programme for government purchasers to raise their level of knowledge of environmental impacts, procurement and the consumption of products, effected in 1996;
- Ministry of Energy (1992) sent a circular on energy efficiency to State institutions defining energy saving procurement;
- environmental criteria integrated into each department's administration, with coordination centres/secretariats within the administration to exchange information, gather information from outside, and coordinate the different departmental regulations (energy, traffic etc);

### **Buildings:**

- *In the counties a project for cleaner technology in the hospital sector was launched in 1994;*
- the National Association of Local Authorities and the Association of County Councils encourage the local areas and counties to draft environmentally conscious procurement policies, so that the districts and counties themselves are responsible for documenting the results they obtain;
- the Environmental Protection Act requires local authorities to promote the use of cleaner technology, but the lowest bid is the first requirement. In 1992 experimental projects were started on housing blocks involving extra insulation, passive and active solar heating (Slagelse);
- *several municipalities support the installation of low-energy appliances and lighting in publicly owned housing (in hallways, stairs etc) and have implemented energy saving measures in institutions and office buildings by installing low-energy bulbs and appliances, eg. fridges and freezers;*
- *some municipalities have adapted their energy supply to locally available, renewable energy resources such as wind energy, biogas (Elsinore municipality, with surrounding local authorities collecting household waste), and a number of waste incineration plants have been converted to cogeneration.*

### **Lighting, Office and Household Appliances:**

- *In 1994, the National Energy Agency incorporated energy conditions into framework agreements on appliances, but is working towards European wide Directive;*
- *brochures about energy-saving office machines, computing equipment and lighting issued to purchasers;*
- Street lighting costs are incorporated into the government's overall energy consumption charges. Several municipalities implement energy savings by turning off every second lamp;

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- *the Energy 2000 programme set standards for energy consumption in office equipment, requires the energy labelling of appliances, and ran campaigns to replace inefficient appliances. The government is working towards European integration with US Energy Star programme.*

#### **Vehicles:**

- The “Plan of Action for Transport” encouraged public authorities to include environmental considerations when purchasing new transport equipment;
- *the counties have main responsibility for public bus transportation. Some voluntary trials have started using alternative fuels;*
- the government is encouraging cleaner energy sources for public transport and vehicles owned by public bodies.

#### **Bibliography:**

- *Action plan for a sustainable public procurement policy* : Ministry of Environment and Energy, Denmark. Translation March 1995.
- *Ecological behaviour of public bodies in Denmark, Germany and The Netherlands* OKO Institute, Darmstadt, 1992.
- *Cooperative Procurement, Market Acceptance for Innovative Energy Efficient Technologies* (NUTEK/DSM/IEA 1996 ISBN 91-7318-294x and ISBN 1102-2566).
- IEA (1995) *Energy Policies of IEA Countries 1994 Review* (Paris: OECD/IEA).
- IEA (1996) *Energy Policies of IEA Countries 1996 Review* (Paris: OECD/IEA).

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## Aspects of Government Purchasing in

### FINLAND

#### Objectives of government purchasing strategy:

- to develop and market new technologies;
- to promote energy efficiency as an active policy towards sustainable development and to combat the increase in greenhouse gas emissions;

#### Legislative Framework:

- During 1997 a Government Bill on Energy Efficiency of Appliances will be passed in Parliament;
- State and local authorities must promote energy efficiency in their planning and decision-making;
- requirements concerning energy efficiency are set within EU rules.

#### Organisational Framework:

- MOTIVA the information centre for energy efficiency, is now a permanent body;
- the Ministry of Trade and Industry oversees the implementation of the energy efficiency programme;
- each Ministry is required to inform the Ministry of Trade and Industry of the progress of energy efficiency measures, and the results obtained;
- general agreements will cover the monitoring of energy efficiency, the preparation of conservation plans, energy auditing, the carrying out of energy efficiency investments, the introduction of new technologies, and methods to be used in monitoring and reporting;
- MOTIVA will be in charge of related training, authorisation and the monitoring of the energy audits.

#### Buildings:

- New buildings (including public housing) will be equipped with a metering system for personal consumption of hot water and electricity, and possibly for heat, if technological advances allow this;
- *the energy auditing of public and residential buildings will be developed, and continuing auditing ensured;*

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- a new certificate, based on the EU SAVE Directive, will be developed to assess the energy consumption of residential buildings;
  - *the government and a consortium launched a technology collaboration project for energy-efficient windows. Buyer groups paid a minor entrance fee for participation and will receive subsidy of 15% on the delivery of the new windows;*
  - 3rd party financing schemes are being investigated to support the costs incurred in improving energy efficiency of government facilities;
  - revised Building Codes are in preparation with a view to reducing energy consumption in new buildings.

#### **Lighting, Office and Household Appliances:**

- *Buyer groups (mainly government buyers) are participating in the IEA DSM project on Cooperative Procurement of Innovative Technologies which is encouraging the further development of incandescent energy efficient bulbs;*
- *government facilities are to be used as a means of speeding up acceptance of NUTEK's (Sweden) lighting design requirements in office lighting (10 W/m<sup>2</sup>);*
- *MOTIVA is to participate in the EU Technology Procurement in high efficiency lighting; government buyers will play a key role in market transformation;*
- *DSM project on energy efficient copiers (zero energy stand-by mode) will involve government buyers.*

#### **Bibliography:**

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- Ministry of Trade and Industry Paper to IEA, 13 December 1996.
- IEA (1995) *Energy Policies of IEA Countries 1994 Review* (Paris: OECD/IEA).
- IEA (1996) *Energy Policies of IEA Countries 1996 Review* (Paris: OECD/IEA).

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## Energy Aspects of Government Purchasing in

### FRANCE

#### Legislative Framework:

- The "Plan National pour L'Environnement" introduced in 1990;
- the Environment and Energy Conservation Agency (ADWMW) was established in 1990 and reorganized in 1991 as an autonomous agency. Its objective is to promote energy savings, especially in public buildings;
- a French Commission on Sustainable Development has been created to oversee the government's environmental performance, with a budget of Ffr1.5 million.

#### Organisational Framework:

- The Interministerial Committee for the Environment, chaired by the Prime Minister, examines the consistency of actions across departments relating to greening government operations. The Committee strengthened the environmental stewardship of government operations, and appointed environmental managers in each government department;
- an environmental management plan for day-to-day operations was submitted by all departments to the Committee;
- an Interministerial Committee exists focussing on electric and alternative fuel vehicles.

#### Buildings:

- *More stringent insulation regulations for new housing and industrial buildings came into force in 1997;*
- *an energy savings programme was launched for public sector buildings, including mandatory energy efficiency audits for existing buildings, and energy efficiency studies for new ones;*
- *energy labelling for new buildings started in 1996;*
- *regional and national demand-side management (DSM) pilot programmes promote energy efficiency audits, public lighting, and efficient industrial motors .*

#### Lighting, Office and Household Appliances:

- *among the regional and national DSM programmes are ones covering the promotion of energy efficient appliances and compact fluorescent light bulbs (CFLs).*

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- IEA (1996) *Energy Policies of IEA Countries 1996 Review* (Paris: OEAC/IEA).

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## Energy Aspects of Government Purchasing in

### GERMANY

#### Legislative Framework:

- Germany has no national plan, but it has an eco-management system. Individual units are involved with environmental reviews, policy development, programme responsibilities, operating procedures, monitoring, and non-compliance action;
- The Haushaltsgrundsatzgesetz (Budgetary Principles Act) of 19 August 1969 governs all cost-related measures of the Federation and Länder; to implement this Act, the Bundeshaushaltsordnung (Federal Budget Code) and the Länd Budget Codes were adopted. Contracting authorities are obliged to have open tendering before awarding a contract.

#### Organisational Framework:

- There are 16,000 administrative units throughout Germany: Federal, Länder, and local administrations of around 15,000 units, and 660 cities of more than 20,000 inhabitants. Over 12,000 cities and municipalities have purchasing offices of their own;
- Germany has no national plan or programme on greening government operations, but there are initiatives in local communities and regional bodies, and many operate a local energy management system with energy offices;
- many cities have introduced environmental management systems or action plans. Several *länder* have started initiatives to adjust public purchasing to environmental requirements;
- local authorities are particularly interested in environmentally orientated purchasing. The activities of the municipalities often lack integration and local administrations frequently pursue isolated measures in individual sectors;
- since 1990, most efforts in Germany have focussed on the former German Democratic Republic, following the Unification Treaty of August, 1990. Through the Treuhand, a trust fund, the Federal Republic acquired ownership of nearly all the state enterprises and land in the territory. The aims of the Treuhand are to privatize enterprises while improving their competitiveness, and to create jobs up to the point that they are privatized. The total estimate of environmental reconstruction is around 211.3 billion Deutschmarks. Many current and former military bases and government facilities are involved;
- a comprehensive handbook on green procurement is used by all Federal personnel;
- the RAL German Institute for Quality Control and Labeling is the body which awards the Blue Angel Label. The RAL makes a private contract with the producer or importer of a product to award the label. It is a self financing arrangement.

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## **Buildings:**

- *the major government offices are moving from Bonn to Berlin, and as the move is implemented green design and construction principles and practices will be put into place. Parliament has initiated a list of environmental performance criteria which must be met: heating is to be 20% below the standard requirements, there is to be no air conditioning, energy is to be from combined heat and power generation, solar energy is to be used, ecologically sound construction materials are to be used, waste is to be minimised, water to be conserved and transport needs to be met with energy efficiency a major requirement;*
- *the Thermal Insulation Ordinance took effect in 1995, and tightened thermal insulation requirements for new buildings, and in old buildings where substantial renovation takes place;*
- *fee based incentives for architects and engineers to offer more services related to energy savings and use of renewable energy sources, were put in place in 1996;*
- *in 1994 the Ordinance on Heating Appliances tightened the regulations, and required appliances to be more efficient with improved insulation, and required old installations to be retrofitted and modernised.*

## **Lighting, Office and Household Appliances:**

- Guidelines are in place requiring procurement of products which carry a Blue Angel Label;
- *Blue Angel Label photocopiers have energy saving specifications: maximum power input, energy consumption, number of copies per minute, standby position, facility for making duplex copies. Public procurement of labelled products in the Länder and municipalities strongly reinforced the effectiveness of the label;*
- the Blue Angel scheme for computers is considered the most well developed;

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- *ECO Behaviour of Public Bodies in Denmark, Germany and The Netherlands* OKO Institute, Darmstadt No. 92.
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- IEA (1995) *Energy Policies of IEA Countries 1994 Review* (Paris: OECD/IEA).
- IEA (1996) *Energy Policies of IEA Countries 1996 Review* (Paris: OECD/IEA).

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## Energy Aspects of Government Purchasing in

### IRELAND

#### Overall Objectives of Government Purchasing Strategy:

- To take the lead in energy saving measures and set an example to industry and the public.

#### Legislative Framework:

- The Operational Programme for Economic Infrastructure 1994-99 includes a sub-programme on energy efficiency.

#### Organisational Framework:

- The Irish Energy Centre coordinates and implements energy saving programmes;
- *information campaigns are organised by the Centre to increase public awareness of energy efficiency.*

#### Buildings:

- *Energy Audit Grant Scheme provides grant support for 40% of the cost of an energy audit in public, commercial, industrial and institutional sectors;*
- *conferences and workshops are held on CHP and energy efficiency in buildings;*
- *the revised building codes increased the thermal insulation requirements for new residential and commercial buildings, and including public buildings.*

#### Lighting, Office and Household Appliances:

- *conferences and workshops held on energy efficient lighting;*

#### Vehicles:

- Dublin Transport Initiative produced a strategy up to 2011 for improving energy efficiency and reducing emissions. Its main measures include improved traffic management and development of Quality Bus Corridors to increase use of public transport and the development of light rail.

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  - IEA (1996) Energy Policies of IEA Countries 1996 Review (Paris: OECD/IEA).

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## Energy Aspects of Government Purchasing in

### ITALY

#### Legislative Framework:

- Three-year Environmental Management Program passed in 1990 covering the combined environmental expenditures of all central government ministries;
- the second plan, 1993- 96 covers Ministry of the Environment expenditures only;
- Regulations were passed in 1992 requiring the appointment of energy managers, including in the public sector.

#### Organisational Framework:

- In 1993, the National Environmental Protection Agency was established to promote environmental research, collect and disseminate data, provide technical support for formulating environmental standards, and conduct environmental monitoring;
- Intergovernmental Committee established to coordinate, review and update initiatives and programmes for “greening of government” in Ministries;
- ad-hoc agreements promote integration of Ministries’ measures;
- ENEL has an interdepartmental committee set up to consider demand side management (DSM) measures, and to promote them internally;
- in 1987 protocols of intent to improve the environmental impacts of operations were signed between the Minister of the Environment, the Minister of Defence, and the Minister of Public Instruction. Environmental Impact Assessments of public projects were carried out in 1988; funding for environmental programmes in the public sector was agreed in 1989; and targets for purchasing to environmental standards were agreed in 1991;
- the state agency ENI has worked with a Forum on Environmental Reporting composed of industry, university, and government agency representatives to develop guidelines for the preparation of company environmental reports. The format is applicable to state-owned enterprises, and many government operations;
- information dissemination is provided for energy managers by the Ministry of Industry, ENEL and FIRE (Federation for the Rational Use of Energy);
- information campaigns have been run to inform the public, schools and local authorities of energy efficiency measures.

#### Buildings:

- *Mandatory energy efficiency codes were passed in 1993 for all new buildings and*

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*renovations;*

- *DSM measures have included efficient heat pumps for water heating and air conditioning, solar panels, improved insulation and temperature controls, motive power and power factor correction, and efficient industrial transformers.*

**Lighting, Office and Household Appliances:**

- A mandatory labelling and certification system was introduced for appliances in 1991;
- the DSM programmes included compact light bulbs.

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## Energy Aspects of Government Purchasing in

### JAPAN

#### Overall Objectives of Government Purchasing Strategy:

- to reduce the environmental load through the Government's environmentally-friendly actions in its economic activities;
- to lead by example, so that corporations and individuals will take voluntary actions.

#### Legislative Framework:

- The Basic Environment Law was introduced in November 1993, and the Basic Environment Plan followed in December 1994. Both are to be in place up to the 21st century, and they strengthened Japan's commitment in the area of environmental protection;
- the Basic Environment Plan sets the long-term objectives of environmental policy and establishes a series of principles to guide the activities of central and local governments, private corporations, citizens and private organizations in order to implement the objectives;
- promotion of the Plan is made by a Council of Ministries and Agencies. Members of the council are at Director-General level from 23 ministries and agencies; it is chaired by the Director-General, Planning and Coordination Bureau, Environment Agency;
- within the government, sustainable development principles have been turned into a set of guidelines: "The Action Plan for Greening Government Operations". This has been adopted by Cabinet and is coordinated by the Council. The Plan covers four main fields. One of them is "environmental considerations regarding the purchase and use of goods and services";
- implementation of the Action Plan is by the Council.

#### Estimated spending on energy in public buildings and vehicles:

- Total fuel use by government vehicles : 16,750 kl of petroleum, 3,791 kl of gas oil;
- Total fuel consumed by utilities in government buildings: 346,509 k. of heavy oil, 73,229 k. of kerosene, 91,963 (1000m<sup>3</sup>) of city gas, 22,094 (1000m<sup>3</sup>) LPG
- Electricity consumption per unit of office space : 123 kWh/m<sup>2</sup>.

#### Organisational Framework:

- An Action Plan for Greening Government Operations for the government as a whole has

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been established and includes principles on the construction and management of buildings and their energy efficiency; the reduction of energy use in offices; and environmental awareness training and education for government officials;

- the Action Plan includes advice on purchasing and using materials and services with reduced environmental burden, and reducing emissions of polluting materials.

### **Buildings:**

Declared target: Electricity consumption per unit of office space shall be reduced to less than approximately 90% of 1995 levels by the year 2000.

- *The government proposes to improve the energy efficiency of its buildings through effective heat insulation etc. and plans to introduce solar energy where possible;*
- *the Environment Agency is adopting renewable forms of energy: solar and vegetation on the rooftops of its training centre, and the Ministry of Telecommunications is introducing a solar powered generator;*
- *the National School is adopting the Energy Save System and equipment.*

### **Results, energy and emissions saved:**

- Total fuel consumed by utilities in government buildings: 346,509 k. of heavy oil, 73,229 k. of kerosene, 91,963 (1000m<sup>3</sup>) of city gas, 22,094 (1000m<sup>3</sup>) LPG;
- Electricity consumption per unit of office space : 123 kWh/m<sup>2</sup>.

### **Lighting, Office and Household Appliances:**

- Equipment standards encourage manufacturers to improve the energy consumption of items such as air conditioners, fluorescent lamps and photocopiers. These items are required to carry energy consumption labels;
- the Action Plan for Greening Government Operations specifies that the replacement of energy consuming office equipment with energy efficient ones shall be promoted as much as possible up to the year 2000;
- the government will review the number, and energy consumption, of automatic vending machines and efforts shall be made to increase energy efficiency and reduce the number;
- office appliances and lighting with improved energy efficiency have been purchased by several government departments. Automatic operating switches for electric lighting to be introduced in Ministry of Home Affairs training centre.

### **Vehicles:**

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Declared target: By 2000 to have 10% of the vehicle fleet operating on alternative fuels; the amount of fuel consumed by government vehicles shall be reduced to less than approximately 90% of the current level by the year 2000.

- The Action Plan for Greening Government Operations specifies that the selection and use of fuel with minimal environmental impact shall be promoted as much as possible, such as kerosene, LPG, and LNG;
- the government will investigate the possibility of introducing low-pollution-emission vehicles into the fleet aiming at 10% of fleet by 2000 (0.1% in 1997);
- the government is reviewing the number of government vehicles in use, and will aim to reduce the number of vehicles as much as possible;
- in 1996 the Environment Agency and Ministry of Post and Telecommunications introducing electric vehicles, the Ministry of Agriculture introduced a hybrid bus, and Ministry of Transport a methanol fuel vehicle.

***Results, energy and emissions saved:***

Total fuel consumed by government vehicles : 16,570kl of petroleum, 3,791kl of gas oil.

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## Energy Aspects of Government Purchasing in LUXEMBOURG

### Legislative Framework:

- A Grand Ducal regulation covering the development of district heating is in development.

### Buildings:

- A Grand Ducal regulation on mandatory insulation standards for new buildings came into force in 1996;
- *a further Grand Ducal regulation passed in 1996 covered a programme for promoting energy savings in buildings in municipalities, with free advice provided by the Energy Agency;*
- energy audits are mandatory in all large residential, industrial/commercial and public buildings, which consume more than 3 Gwh per year;
- *the Energy Agency is installing thermal solar energy in swimming pools, sports halls and campsites.*

### Vehicles:

- *the City of Luxembourg has introduced hybrid electric buses.*

### Bibliography:

- IEA (1995) *Energy Policies of IEA Countries 1994 Review* (Paris: OECD/IEA).
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## Energy Aspects of Government Purchasing in

### THE NETHERLANDS

#### Overall Objectives of Government Purchasing Strategy:

- to create a demand for environmentally friendly products;
- to set an example;
- to act as guardians of the law;
- to provide information.

#### Legislative Framework:

- Environmental policy set out in National Environmental Policy Plan (and NEPP+). This is the strategy to 2010, with 4-yearly reviews;
- Memorandum of Energy Conservation passed in 1990 and updated in 1993.

#### Organisational Framework:

- NEPP perceives the essential elements of an environmental care system to be: an environmental policy statement, an environmental programme, integration of environmental care into management activities and plans, measurements and registration, internal checks, information and education, internal and external reporting, and screening of the whole system;
- the perceived difficulties with setting up a system of green government procurement are: there is little available information on the environmental aspects of products, and procurement in the Netherlands is decentralised to the ministries, provinces and municipalities who buy their own products. Relations with EC directives, coordinating procedures for awarding public contracts and whether Dutch products with Dutch/Eco label should be given preference, all cause concern;
- the Ministry of Economic Affairs and NOVEM have signed 25 long-term voluntary agreements with industry covering 85-90% of its energy consumption, and 700 firms. These address the development of appliance and building standards, and includes a programme for energy efficient air-conditioning: the Night Tariff Programme. The Agreements provide for monitoring and reporting on energy efficiency, and for amendments or termination. They are reviewed annually;
- Interservice Committee on Energy Management (ICEB) (the working party at the Ministry of Defence) believes energy savings of at least 20% are feasible in the military estate by the year 2000 (reference year 1989). Savings are expected in energy use by improving efficiency, in insulating new buildings, in expanding cogeneration facilities, and in developing wind energy;

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- the Ministry of Defence is studying air pollution from aviation fuel and specific emission reduction targets will be set for aviation (including military aviation);
  - the Ministry of Defence is preparing an inventory of emissions of methane from waste, and carbon monoxide from poor combustion in vehicles and combustion plants. Targets will be set to reduce emissions of methane by 10% and carbon monoxide by 50% by the year 2000 (reference year 1990).

Overall target:

- To reduce energy requirements by 3%-5% per annum (reference year 1990) and improve energy efficiency by 2% per annum up to the year 2000: 25% of the savings are to be achieved from space heating, 20% from traffic and transport, 30% by the utilities and 25% from buildings;
- to increase deployment of renewables to 2% of energy supplies in 2000, and 5% by 2010.

### **Buildings:**

Declared target: To reduce the energy requirements of buildings by 25%.

- The appendix to NEPP+ on Sustainable Construction enables municipalities to impose environmental standards so long as they don't contradict building codes on safety, health, practicability and economical energy consumption. National laws do not inhibit awarding contracts which may be more expensive but more environmentally friendly, and the project specification for constructing a public building can demand bids from builders who meet the environmental criteria;
- the Housing Act and Building Decree were reviewed in line with the Sustainable Construction appendix;
- *NEPP+ and the Memorandum of Energy Conservation encourage DSM measures on lighting, boilers, building management, residential insulation, district heating, and general operations and maintenance;*
- *efficiency standards for new buildings (introduced 1995) are intended to save 15%-20% in energy consumption. The standards also promote renewable energy sources, especially solar;*
- *the Energy Saving Appliances Act provides the basis for general regulations for energy efficiency and labelling of appliances. An energy certificate for hot water boilers is in force.*

### **Lighting, Office and Household Appliances:**

- *Under the Energy Saving Appliances Act a label for energy efficient lighting is in preparation.*

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- *Cooperative Procurement, Market Acceptance for Innovative Energy Efficient Technologies* - (NUTEK 1996).
- Defence Environmental Policy Plan "Defence and Environment" towards a sustainable relationship.
- IEA (1995) *Energy Policies of IEA Countries 1994 Review* (Paris: OECD/IEA).
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## Energy Aspects of Government Purchasing in

### NEW ZEALAND

#### Legislative Framework:

- The Energy Efficiency and Conservation Authority (EECA) provided with additional funding in 1993 to develop a long-term strategy to improve take-up of energy efficiency measures. This became the Integrated Energy Efficiency Strategy, a 10 point plan;
- Public agencies are subject to the same laws as the private sector.

#### Organisational Framework:

- Each Departmental Chief Executive has a “contract” for energy efficiency improvements, and each Department has its own procurement policy. Guidelines are provided;
- the focus of the Departmental strategies are long-term (to 2010), and divided into 9 strategic targets (one covers environmental issues). Departments are obliged to report on the progress of their contribution to the strategic targets;
- local governments have their own procurement policies.

#### Buildings:

- The Building Codes are being revised to include insulation standards for all buildings, and minimum heat loss requirements for domestic water heaters.

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## Energy Aspects of Government Purchasing in

### NORWAY

#### Overall Objectives of Government Purchasing Strategy:

- To develop the government purchasing activity and make it more efficient, rational and professional to the advantage of the government as well as the business community;
- to save world resources while at same time setting a good example to the rest of society;
- to persuade the market to produce goods that are less harmful to the environment;
- to encourage Norwegian enterprises to build up know-how on the environment, which will increase their competitive edge in the future;
- to make financial savings and efficiency improvements;
- to build up sound competence on purchasing at every level of government with extended training programmes;
- to establish databases to inform buyers of available products, and suppliers of potential cooperation schemes and interesting acquisitions;
- the objectives of the “Green Government Procurement Policy” are:
  - that government departments and agencies, by directing their procurements towards more sustainable consumption, shall help to reduce the loads on the environment, and at the same time set a good example to the rest of society and encourage the market to produce goods that are less harmful to the environment;
  - that government departments and agencies, by using procurement routines that give priority to the environment, will encourage Norwegian enterprises to build up know-how on the environment, which will increase their competitive edge in the future.

#### Legislative Framework:

- Norway complies with EU Directives including those relating to public procurement policies, with WTO Government Procurement Agreement (1994), and EFTA Free Trade Agreements;
- the Act on Public Procurement (1992) regulates procedures, and is currently being reviewed.

#### Estimated spending on energy in public buildings and vehicles:

- In 1993 public procurement for government departments and agencies reached NOK 70

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billion.

### **Organisational Framework:**

- A 3 year programme initiated (1994-98) for improving government procurements. The government purchasing programme is made up of a number of projects concerned with professional purchasing, directed at trade and industry. Proposals for criteria and guidelines for a green government procurement policy cover environmental criteria when choosing products, and suggests how these criteria can be incorporated into the procurement policy. This work has been followed up with a guidebook on environmentally sound procurement, made by the GRIP centre;
- traditionally, government has implemented environmental policy through "command and control" instruments. Since 1996 economic and information-based instruments have taken a more central role. These are designed to stimulate innovation, but are less predictable in their effect, and place new demands on business management's ability to understand how environmental policy will affect their business;
- The GRIP centre for Sustainable Production and Consumption has green procurement as one of its main programmes. They use the following methods: *direct marketing in the form of "do-it-yourself" manuals, seminars, articles in professional journals and presentations, and indirect marketing by influencing management high school curricula to include environmental issues. GRIP is also documenting the market conditions which make eco-effectiveness incompatible with sound business;*
- *The Ministry of Environment and the Lillehammer Olympic Organising Committee (LOOC) established in 1991 the "Green Office" programme. Seven municipalities and two counties in the Olympics region took part in the project. The project later expanded, and by 1993 120 out of a total of 450 municipalities had introduced the Green Office concept. Suppliers soon found that they needed to train their marketing and sales staff on environmental criteria. Suppliers who did not stock appropriate products lost the market share.*

### **Buildings:**

- There is an ongoing programme of energy efficiency in buildings, and NOK 7.5 million was directed to government buildings in 1997.

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- IEA (1995) Energy Policies of IEA Countries 1994 Review (Paris: OECD/IEA).

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- IEA (1996) Energy Policies of IEA Countries 1996 Review (Paris: OECD/IEA).

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## Energy Aspects of Government Purchasing in

### SPAIN

#### Objectives of government purchasing strategy:

- To reduce emissions from energy related activities;
- to ensure sustained savings in energy use.

#### Legislative Framework:

- The National Annual Plan for 1991-2000 adopted in 1992;
- the Energy Conservation and Efficiency Plan. A project for estimating the potential improvements in electricity end-use efficiency started in 1994;
- In March 1995 the Ministry of Industry and Energy issued a new environmental plan "Strategy for Energy and Environment", which strengthens the objectives for reducing energy-related emissions.

#### Estimated spending on energy in public buildings and vehicles :

- Total government expenditure on the DSM project to replace inefficient appliances is expected to reach Ptas 30.7 billion between 1995 and 2000.

#### Buildings:

- *Housing: from 1996-99 a mandatory energy certificate will require public housing to use adequate thermal insulation and building materials according to the region.*

#### Lighting, Office and Household Appliances:

- Spain complies with EU minimum performance standards and labelling laws on electrical goods;
- *A Decree in January 1995 launched a Demand Side Management programme, setting up 10 projects, encouraging the replacement of low-efficiency electrical equipment (including lamps and fridges) and aiming to move electricity consumption from peak load to base loads through storage systems. It is being effected through voluntary agreements with utilities. The Ministry gives consumers rebates on the purchase price of the equipment and will compensate utilities (with subsidies) for the cost of managing these projects.*

#### Bibliography:

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  - IEA (1995) *Energy Policies of IEA Countries 1994 Review* (Paris: OECD/IEA).
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## Energy Aspects of Government Purchasing in

### SWITZERLAND

#### Overall Objectives of Government Purchasing Strategy:

- To stabilise fossil fuelled energy consumption and CO<sub>2</sub> emissions at 1990 levels by 2000, and reduce emissions thereafter;
- to slow electricity demand growth by the year 2000, and stabilise electricity consumption thereafter.

#### Legislative Framework:

- The “Decree on Energy Use” introduced in 1991 (active to 1998) will be replaced by the Energy Law in 1998/99. It replaces many regulations on buildings. Broader policies will be implemented by the cantons, or private sector organisations;
- the “Decree on Energy Use” states that energy is to be used rationally and sparingly, and the use of indigenous and renewable energy sources is to be increased. Among other provisions, the Swiss Confederation is entitled to reduce the consumption of appliances, vehicles and plants through the use of legal instruments.

#### Estimated spending on energy in public buildings and vehicles:

In 1994 total purchasing by the confederation, cantons and municipalities was Sfr 25,000 million (US\$ 20 billions). The total purchasing sum of the cantons is Sfr 6,000 million a year, and of the municipalities Sfr 11,000 million a year.

#### Organisational Framework:

- At Swiss confederation level there is no environmentally preferable public purchasing programme but some federal offices, cantons and municipalities have developed their own guidelines, regulations and criteria for environmentally preferable purchasing. For legal reasons, these regulations are mostly recommendations or internal directives;
- at national level two unofficial purchaser groups of interested officials from federal, cantonal and municipal authorities exchange experiences on green public purchasing, develop a common purchasing policy and criteria;
- *Since 1991 the Federal Office of Energy has run an energy saving programme called E2000. The Federal Office of Energy has worked with market leaders and industry experts in office equipment on the definition of target-values, or non-mandatory standards for standby losses for office appliances. Deadlines are also negotiated with industry for 80-95% of products on the market to comply with the agreements by a given year;*
- the main characteristics of the E-2000 programme are that it is based on a voluntary

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declaration by manufacturers, with no mandatory enforcement procedure, the testing procedures are proposed as a basis for a valid declaration of energy performance;

- *The E-2000 label complements the target value agreement: it is awarded to those models which satisfy criteria for power consumption in the standby and off modes. It is set so that 20-30% of equipment on the market at any time can meet the criteria. The power levels have been gradually lowered each year up to 1997, when most equipment is expected to meet the corresponding target;*
- E-2000 label is useful for industry for marketing purposes, and for communities and utilities for information campaigns.

### **Buildings:**

Declared target: E2000 target of 100,000 heat pumps to be installed by 2000 (providing 2.25 TWh a year and meeting 1% of Swiss space heating needs).

- Ordinance relating to federal buildings includes specification that ecological aspects have to be taken into consideration;
- one of the national level non-official working groups of purchasers from all levels of government is focussing exclusively on building issues;
- Office of Federal Buildings has a training programme for all purchasers where posters have to be filled in by the purchaser (architect) for every project. Throughout a building construction project, these posters must regularly be consulted;
- *individual metering of heating and hot water consumption in new existing buildings has been introduced, and new water heaters, hot water and storage heating systems have to meet efficiency standards;*
- *stringent recommendations for the use of electricity in buildings came into force in 1995, and is expected to save 30-50% of electricity consumption for air conditioning, lighting and rotary pumps;*
- *renewable energy projects : solar collectors in large apartment blocks and hospitals, PV in school buildings, heat pumps;*
- *PACER programme aims to transfer technical information on mature renewable energy technology to the private sector, and part of the programme is developing a technique for estimating and incorporating the external costs of energy use in investment decisions in public buildings.*

### **Lighting, Office and Household Appliances:**

Declared target: E 2000 maximum energy consumption in off and standby modes as follows:

Copiers: by 1997 off mode to be 1W, standby to be 27W +3.23 pgs/min;

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*Computers: by end 1997 off mode to be 5W, standby to be 15W with integrated monitor or 10W without monitor;  
by 1999 off mode to be 3W, standby to be 13W in equipment with integrated monitor;*

*Screens: by end 1997 sleep mode to be 5W, by 1999 to be 3W.*

*Printers: by end 1996 off mode to be 1W, standby to be 2W*

*Telefax machines: by end 1997 standby to be 2W*

*Television sets: by end 1997 standby to be 3W*

*Video recorders: by end 1998 standby to be 3W.*

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- *IEA (1995) Energy Policies of IEA Countries 1994 Review (Paris: OECD/IEA).*
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## Energy Aspects of Government Purchasing in SWEDEN

### Overall Objectives of Government Purchasing Strategy:

- To reduce the use of energy in targeted programme areas by 10TWh in 2000.

### Legislative Framework:

- The National Energy Efficiency Programme.

### Organisational Framework:

- NUTEK is responsible for most energy efficiency and renewable energy related programmes. The Swedish Council for Building Research (BFR) currently has four energy technology programme areas relating to buildings, including guidance and implementation of energy conservation/management planning, and demonstration projects using renewable energy technologies. The Swedish Transport and Communications Research Board (KFB) is responsible for transport research, including work on biofuels and electric and hybrid vehicles;
- the Environmental Advisory Council has been asked by the Government to propose an Environmental Management System(EMS) for government operations, and to decentralise and integrate environmental responsibility in all sectors. The objectives and targets of EMS are established in different government agencies, with designated responsibility, methods, timetables and training. Management representatives are responsible for implementation, monitoring and reporting;
- the Environmental Advisory Council is considering a system to oblige national, regional and local government officials to integrate environmental considerations into their activities;
- monitoring of performance is carried out annually. Environmental audits are made every third year by the National Audit Bureau.

### Buildings:

- *Financial support is available for installing small boilers in buildings which are linked to biofuel fired district heating systems;*
- *a technology procurement project for high-performance windows was carried out in 1992. Four large window manufacturers (comprising 50% of the market) produced new window designs, in close conjunction with architects and others. The windows were made with three panes, and with very low U-values which minimises the risk of cold draughts. This allowed more flexible heat supply systems in the buildings (radiators are usually installed beneath windows to eliminate cold draughts);*

- 
- *a project is in progress for thermostatic controls on existing electric heaters.*

**Results, energy and emissions saved:**

- 55 ventilation projects run under the Department of Energy Efficiency's collective agreements have resulted in savings of 11 Gwh or improved efficiency of 37%.

**Lighting, Office and Household Appliances etc:**

- The greatest potential for savings is to be found in the lighting sector, and the Government expects to reduce electricity use by 60%;
- *collective agreements are used by the Department of Energy Efficiency to increase property administrators' interest in energy matters. The objective is that the programme requirements of 10W/m<sup>2</sup> for lighting, should become the norm. Buildings where improvements have been made are used as demonstration examples to spread the word;*
- *high-frequency lighting systems have been installed in half of all lighting refurbishments in schools and government offices. The use of high-frequency lighting improves not only the light output efficiency of fluorescent tubes by about 20%, but also eliminates flicker and allows use of lighting sensor controls. A technology procurement project of high-frequency lamps run in 1991 resulted in a significant price reduction. The market share of the lamps doubled in one year, and has increased by 500%, by 1994 these lamps had cornered 30% of the market;*
- *the Government offers training programmes for installation contractors to allow them to learn about the new high-frequency technologies;*
- *a pilot project has been run in 8 Swedish towns using 8W red LED traffic signals to replace the 70W incandescent lamps. The light is as clearly visible and maintenance is minimal; conventional bulbs are normally replaced six times each year, while the LED lamps have a 30 year life. The payback time, including electricity savings, is 6 months;*
- *high-pressure sodium lamps (which are 10% more efficient, contain no mercury, and fit existing fittings) are routinely installed for street lighting and large indoor areas such as sports halls;*
- *one of the technology procurement projects was a competition for energy efficient washing machines in apartment utility buildings;*
- *office equipment standards are in place and the government purchases only these technologies (TO marked and Energy Star computers and photocopiers).*

**Results, energy and emissions saved:**

- Twenty-four collective incentive agreements have been signed covering high-frequency lighting installations, and have resulted in improvements in efficiency worth over 34 Gwh.

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This is measured as the difference in energy use before and after the measure was effected. 107 lighting projects have saved 14 Gwh, making an average improvement of 41% relative to the original lighting installations.

#### **Vehicles:**

- *Ethanol and biogas are currently being tested in buses, trucks and private cars;*
- *Since 1993 a 4 year project has been running involving demonstrations of several hundred electric and hybrid vehicles;*
- *a technology procurement project was launched for an electric car: 40 companies and organisations were in the purchasing group, 18 bids were received from 14 manufacturers from Europe and the US. Renault won the bid and will provide the first pre-production car. The user requirement is that the car will travel 100km without recharging and that the recharge will take only eight hours.*

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## Energy Aspects of Government Purchasing in

### The UNITED KINGDOM

#### **Legislative Framework:**

- "This Common Inheritance" (cmd 1200) published in 1990 is the UK's comprehensive white paper on its environmental strategy;
- "Sustainable Development - The UK Strategy" (cmd 2426) published in 1994 set the policy framework on sustainable development.

#### **Estimated spending on energy in public buildings and vehicles:**

- The Government has about 8,000 properties in the Civil Estate, with 11 million metres of space, and spends about £7 billion each year on goods and services.

#### **Declared Overall Target:**

- To achieve 15% improvement in energy efficiency on the Government estate over 5 years, to March 1996;
- Target under consideration: to reduce energy use on Government estate to 80% of 1990 levels by 2000.

#### ***Results, energy and emissions saved:***

- Results for 1993-4 show 6% improvement on the standard indicator, with greater improvements on reducing CO<sub>2</sub> emissions.

#### **Organisational Framework:**

- A Cabinet Committee on the Environment (called EDE) exists, where collective environmental decisions are made;
- each Department has a Green Minister who ensures that environmental considerations are integrated into the strategy and policies of that Department. Ministers receive reports on Departmental energy efficiency performance;
- a civil service committee, chaired by the Cabinet Office meets two or three times a year in a policy steering committee;
- a network of "Green Contacts" is linked across all Government Departments to develop best practice and coordinate policy;
- each department and agency has its own strategy relating to the environmental impacts

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of its policies. The Environment Department has hosted information seminars to alert other Departments of environmental impacts;

- "The Green Guide" was produced by the Department of the Environment to provide practical advice and help building managers to assess the environmental impacts of their activities. The Treasury Department has issued guidance to departments on "Environmental Issues in Purchasing". Departments have produced "green housekeeping" strategies to improve their in-house activities;
- regular publications circulated internally heighten awareness of government initiatives and issues facing the environment.

### **Buildings:**

- *The July 1995 revised building regulations require all new dwellings and conversions (including local authority dwellings) in England and Wales to obtain a Standard Assessment Procedure (SAP) home energy rating;*
- An initiative is underway (1997) to label larger buildings according to their environmental performance, using the Building Research Establishment Environmental Assessment Method (BREEAM);
- public housing constitutes 28% of all residences in the UK. Local authorities have implemented programmes to improve the energy performance of dwellings, and have thereby reduced structural deterioration through damp, mold and high relative humidity, achieving improved indoor air quality;
- *CHP will be installed by end 1997 as part of the Whitehall District Heating Scheme.*

### **Lighting, Office and Household Appliances:**

- *During 1995 & 1996 the government implemented a revised high efficiency lighting strategy.*

### **Vehicles:**

- Efforts to reduce exhaust emission and promote more fuel-efficient and less polluting vehicles has paid off for one public enterprise which has slashed its year-on-year gas consumption by over £60,000 since March 1992.

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## Energy Aspects of Government Purchasing in

### The UNITED STATES

#### Overall Objectives of Government Purchasing Strategy:

- to reduce air pollution;
- to stimulate domestic economic activity;
- to provide market incentives for the development of new technologies which are needed to meet the requirements of the Executive Orders on office appliances, and alternative fuelled vehicles;
- to provide environmental leadership in local communities.

#### Legislative Framework:

- EPC Act and the 1993 Climate Change Action Plan provide the framework for energy efficiency policies;
- the Advisory Committee to the President on ways of improving energy efficiency and reducing emissions from transport failed to agree on recommendations;
- the 1994 Executive Order 12902 from the President on Energy Efficiency and Water Conservation at Federal Facilities. Federal, state or local agencies receiving Federal Funds, or contractors to the Federal government, are required to comply with Executive Orders.

#### Estimated spending on energy in public buildings and vehicles:

- The Federal government buys \$10 billion-\$20 billion of energy related products annually. This number is 4-5 times higher when state and local government agency purchases are included.

#### Organisational Framework:

*A cooperative procurement programme called the Technology Introduction Partnerships Program (TIPP) is in place between the private sector, the CEE, DOE (Energy), DOD (Defence), and EPA (Environment). Procurement initiatives are also in place to install efficient HIR lamps.*

#### Buildings:

Declared target: To reduce energy use per square foot by 30% by 2005 (base 1985 levels).

- *In April 1995 a five-year pilot programme was launched to encourage federal agencies to adopt energy savings performance contracts, a form of third party financing. Under*

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- the programme private contractors agree to invest in energy efficient equipment and earn a return according to the energy saved as verified by independent audits;*
- *the State Buildings Energy Incentive Fund was launched in 1996 to finance the design and start-up of energy management programmes for public buildings, and cost-shared demonstrations of emerging energy efficient building technologies;*
  - *the 1994 Executive Order (EO) 12902 from the President on “Energy Efficiency and Water Conservation at Federal Facilities”:* intends to:
    - i) *reduce overall Federal energy consumption by 30% by 2005 (base year 1985);*
    - ii) *increase overall energy efficiency in industrial Federal facilities by 20% by 2005 (base year 1990);*
    - iii) *encourage switching to less-polluting energy sources such as natural gas or solar and other renewable energy sources;*
    - iv) *designate one major building as a showcase for energy or water efficiency;*
    - v) *purchase products in the upper 25% of energy efficiency, whenever practicable and cost-effective;*
    - vi) *conduct audits and prioritisation surveys on all facilities;*
  - *Executive Order 12902 also states that Federal agencies shall issue “a Federal procurement challenge”. Innovative financing or contractual mechanisms including new sample contracts, are among the techniques identified for consideration. The EO directs the Administrator of General Services, in consultation with the Secretary of Energy, to develop procurement techniques, methods and contracts to speed the purchase and installation of energy efficient and renewable energy technologies in Federal facilities. It includes performance contracting, and designer/builder incentives such as award fees and life-cycle-value engineering;*
  - *EPA has also issued guidance to Federal facilities to help them identify and purchase environmentally preferable products;*
  - *The Green Buildings Vision and Policy Statement is a guide for EPA, and a model for other agencies, using both innovative technologies and presenting a holistic, systems approach to sustainable building design, renovation, and maintenance. EPA will work with the private sector to identify opportunities for innovation and to help create markets for both products and design concepts. These considerations must include the use of solar energy and other renewables where appropriate, energy efficient building design and minimisation of energy and materials waste throughout the building’s life cycle;*
  - *EPA has established a Tailored Collaborative Working Arrangement with the Department of Energy’s National Renewable Energy Laboratory (NREL) to develop a Solar Process Heat Program in applicable EPA facilities. Each EPA-owned facility will be evaluated by NREL to determine its suitability for a solar-generated hot water system. When projects are determined to be cost-effective, EPA will share the cost of the purchase and installation of the solar system. In cooperation with DOE, other federal agencies, private and public utilities, and technology manufacturers, EPA is also pursuing similar agreements for wind energy, ground- and water-source heat pumps, and natural gas fuel cell electric generator technologies;*
  - *The majority of EPA’s facilities have been assessed for energy conservation opportunities. The following technologies are being installed in three or more EPA*

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*facilities: Green Lights, Water Source Heat Pumps, High Efficiency Central Plant Components, Solar Hot Water, Water Saving Devices. Financing options such as Energy Savings Performance Contracting, Rebates, and Third Party Financing are becoming more attractive and feasible for Agency projects;*

#### **Lighting, Office Appliances etc:**

- *Executive Order 12845 Requiring Agencies to Purchase Energy-Efficient Computer Equipment (April 21, 1993) encourages market transformation through increased purchase of energy-efficient computers, monitors and printers which meet the EPA's Energy Star specifications for energy efficiency. Fax machines and copiers bearing the Energy Star label have been introduced to the marketplace, but only computers, monitors, and printers are covered by the Executive Order;*
- *Energy Star labels on computers and printers refer to the power requirements in the standby state (max 30W), auto-off feature and automatic duplexing. Changes have to be cost effective and must not compromise their performance. EPA chose voluntary agreements with industry to avoid time-consuming standard-setting., particularly as the computer world changes so rapidly. The performance levels are set in two tiers: first tier met in 1995, second tier with more stringent requirements met in 1997. Suppliers believe the Energy Star will become an industry standard, being met by almost all suppliers;*
- *in 1993 Federal agencies were directed to buy computers which met the EPA Energy Star requirements. In 1994 several state governments joined a collaborative project to promote energy efficient purchasing at the state and local levels;*
- *the Green Lights Programme is a voluntary pollution-prevention programme whereby an organisation (company, hospital, government agency, university, etc.) agrees to survey its domestic facilities and upgrade the lighting, wherever it is profitable to do so, within 5 years. The EPA provides information on technology and guidance with regard to financing options. The Green Lights system was installed in 500,000 square feet of space by the end of 1995.*

#### **Results, energy and emissions saved:**

Green Lights Programme: In one example, a public institution upgraded its lighting equipment at a cost of \$85,446 and achieved annual savings of \$102,150. The environmental impact in terms of pollution prevention is 3,064,488 lbs of CO<sub>2</sub>, 11,849,354 grams of SO<sub>2</sub> and 5,107,480 grams of NO<sub>x</sub> prevented per year.

#### **Vehicles:**

Declared target: In California 10% of vehicles sold must be zero emission vehicles (ZEVs) by 2003.

- *EPA Act and EO 12844 Federal Use of Alternative Fuelled Vehicles (April 21, 1993) requires state governments to purchase Alternative Fuel Vehicles (AFVs) for 10% of their fleet, rising to 75% by 2000. Most AFVs will be natural gas, propane and electric vehicles. Federal agencies bought 8,000 AFVs in 1995, and plan to increase to 30,000*

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by 1999. Some agencies are converting existing vehicles to alternative fuels;

- *the Motor Challenge programme under the Climate Plan aims to increase investment in energy efficient industrial electric motors and motor-driven systems through government/industry partnerships, demonstrations, an information clearing house, and market transformation strategies. EPAAct also calls for minimum efficiency standards for electric motors of 1-200 horsepower;*
- *in 1996 the Californian Air Resources Board (CARB) adopted a plan for a market based and voluntary introduction of ZEVs. The requirement is for 10% of all vehicles sold to be ZEVs by 2003. This is an amendment to the previous plan which was for 2% of vehicles sold in California in 1997 to be ZEVs, due to the insufficient technological development of batteries and vehicles. New York and Massachusetts also adopted this plan.*

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