

## **Consolidated List of Energy Efficiency Recommendations prepared by the IEA for the G8 under the Gleneagles Plan of Action**

### **1. Energy-efficient Buildings**

#### **1.1 Building Codes for New Buildings**

- a) i) Governments that do not currently have mandatory energy efficiency standards for new buildings in building codes should urgently set, enforce and regularly update such standards.
- ii) Those governments that currently have mandatory energy efficiency standards for new buildings should significantly strengthen those standards.
- b) Energy efficiency standards for new buildings should be set by national or state governments and should aim to minimise total costs over a 30-year lifetime.

#### **1.2 Passive Energy Houses and Zero Energy Buildings**

- a) Governments should support and encourage the construction of buildings with very low or no net energy consumption (Passive Energy Houses and Zero Energy Buildings) and ensure that these buildings are commonly available in the market.
- b) Governments should set objectives for PEH and ZEB market share of all new construction by 2020.
- c) Passive Energy Houses or Zero Energy Buildings should be used as benchmark for energy efficiency standards in future updates of building regulations.

#### **1.3 Existing Buildings**

- a) Governments should systematically collect information on energy efficiency in existing buildings and on barriers to energy efficiency.
- b) Standardised indicators should also be calculated for energy efficiency in buildings for international comparison, monitoring and selection of best practices.
- c) Based on this information governments should construct a package of initiatives to address the most important barriers to energy efficiency in buildings.
  - i) This package should set standards to ensure that energy efficiency improvements are achieved during the refurbishment of all buildings.
  - ii) Also, the package should increase awareness of efficiency in the building sector and raise the market profile of a buildings' energy performance.

#### **1.4 Building Certification**

- a) Governments should take actions to make building energy efficiency more visible and to provide information on major energy saving opportunities. This should include:
  - i) Mandatory energy certification schemes that ensure that buyers and renters of buildings get information on the energy efficiency of buildings and major opportunities for energy savings; and
  - ii) Structures that ensure that energy efficiency information is available to all actors in the building sector at all times.

#### **1.5 Windows and other Glazed Areas**

- a) Governments should set up a policy package to improve energy efficiency in windows and other

glazed areas. This policy package should include:

- i) Minimum energy efficiency standards for windows and other glazing that are based on least lifetime costs;
- ii) A requirement for window and glazed-product manufacturers to provide energy efficiency labelling for their products; and
- iii) Governments establishing demonstration projects for efficient windows and implementing energy-efficient window procurement policies.

## **2. Energy-efficient Appliances**

### **2.1 Mandatory Energy Performance Requirements or Labels**

- a) Governments should adopt mandatory energy performance requirements and, where appropriate, comparative energy labels across the spectrum of appliances and equipment at a level consistent with international best practices.
- b) Adequate resources should be allocated to ensure that stringency is maintained and that the requirements are effectively enforced.

### **2.2 Low-power Modes for Electronic Equipment**

- a) Governments should adopt the same “horizontal” 1-Watt limit and apply it to all products covered by an International Electrotechnical Commission definition of standby power with limited exceptions.
- b) Governments should adopt policies which require electronic devices to enter low-power modes automatically after a reasonable period when not being used.
- c) Governments should ensure that network-connected electronic devices minimise energy consumption, with a priority placed on the establishment of industry-wide protocols for power management.
  - i) In order to enhance energy efficiency across electronic networks, governments should:
    - I. Instruct relevant public and private standards authorities to ensure that industry-wide protocols are developed to support power management in appliances and equipment, including networked devices; and
    - II. Ensure such protocols are developed and implemented.

### **2.3 Televisions, Television “set-top” Boxes and Digital Television Adaptors (DTAs)**

- a) The IEA concludes that international best practice with respect to energy-efficient set-top boxes are policies that establish a minimum efficiency standard for Digital Television Adaptors. These regulations should:
  - i) Specify the maximum power levels while “on” and “off”; and
  - ii) Ensure that the consumer can easily switch the unit to the lower power level.
- b) A second aspect of best-practice is to ensure that government-subsidised units meet higher efficiency requirements.
- c) Governments should implement energy efficiency policy measures for TVs and set-top boxes designed to:
  - i) Promote the best performing current TV products and technologies;
  - ii) Stimulate the market entry of new television technologies which aim to halve TV energy consumption compared to current performance levels; and
  - iii) Minimise the energy used by TVSP customers in receiving TV services by ensuring that such

requirements are included in relevant franchise or licensing agreements that allow TVSPs to operate.

## **2.4 Test Standards and Measurement Protocols**

a) Governments should:

- i) Review energy measurement standards currently used, to determine whether they are consistent with national policy requirements; and
- ii) Support the development and use of international measurement standards, where appropriate, in order to assist performance comparison and benchmarking for traded products while also reducing compliance costs.

## **3. Best Practice in Energy-efficient Lighting**

### **3.1 Best Practice and Incandescent Phase-out**

- a) The IEA recommends that governments endorse the objective of across-the-board best practice in lighting .
- b) Governments should move to phase out the most inefficient incandescent bulbs as soon as commercially and economically viable .
  - i) In aiming for this objective there is a need both for appropriate time scales and performance targets to be established.
  - ii) Also government and industry actions must be coordinated internationally to ensure a sufficient supply of good quality higher efficiency alternative lamps.

### **3.2 Non-residential Buildings and Phase-out of Inefficient Fuel-based Lighting**

- a) Governments should put in place a portfolio of measures to ensure energy-efficient leastcost lighting is attained in non-residential buildings. The portfolio of measures should include the following:
  - i) The inclusion of energy performance requirements for lighting systems within building codes and ordinances applicable to the installation of lighting in the commercial, public, industrial, outdoor and residential sectors. These requirements should:
    - I. Include targeted measures to stimulate better control of lighting and the avoidance of illumination of unoccupied spaces;
    - II. Specify that general service lighting systems in new non-residential buildings, or substantial retrofits of existing non-residential buildings, should draw no more than 10W of power per square metre of internal floor area when averaged over the whole building;
    - III. Be based upon a review of recommended lighting levels, including a full peer review comparing local recommendations with those applied internationally to ensure that there are no excessive lighting levels recommended in national guidelines; and
    - IV. Hasten the phase-out of inefficient street lighting technologies such as mercury vapour lamps.
- b) Governments should support international efforts to stimulate the adoption of higher efficiency alternatives to fuel-based lighting in off-grid communities e.g. via supporting the diffusion of solar powered solid state lighting devices.

## **4. Energy-efficient Transport**

### **4.1 Fuel-efficient Tyres**

a) Governments should:

- i) Adopt new international test procedures for measuring the rolling resistance of tyres, with a

- view to establishing labelling, and possibly maximum rolling resistance limits where appropriate, for road-vehicle tyres; and
- ii) Adopt measures to promote proper inflation levels of tires ;
    - I. This should include governments, acting in cooperation with international organisations including UNECE, making the fitting of tyrepressure monitoring systems on new road vehicles mandatory.

## **4.2 Mandatory Fuel Efficiency Standards for Light-duty Vehicles**

- a) Governments should:
  - i) Introduce new mandatory fuel efficiency standards for light-duty vehicles if they do not already exist, or, where they do exist, make those standards more stringent;
  - ii) Announce the more stringent content of the proposed standards as soon as possible; and
  - iii) Harmonise, where appropriate, as many aspects of the future standards as possible.

## **4.3 Mandatory Fuel Efficiency Standards for Heavy-duty Vehicles**

- a) For heavy duty vehicles, governments should introduce:
  - i) Fuel efficiency standards; and
  - ii) Related policies including labelling and financial incentives based on the vehicle's fuel efficiency.

## **4.4 Eco-driving**

- a) Governments should ensure that eco-driving is a central component of government initiatives to improve energy efficiency and reduce CO2 emissions.
  - i) Governments support for eco-driving should include promotion of driver training and deployment of in-car feedback instruments.

# **5. Energy-efficient Industry**

## **5.1 High-quality Energy Efficiency Data for Industry**

- a) Governments should support the IEA's energy efficiency indicator work that underpins critical policy analysis by ensuring that accurate energy intensity time series data for industrial sectors is reported regularly to the IEA.

## **5.2 Minimum Energy Performance Standards for Motors**

- a) Governments should consider adopting mandatory minimum energy performance standards for electric motors in line with international best practice.
- b) Governments should examine barriers to the optimisation of energy efficiency in electric motor driven systems and design and implement comprehensive policy portfolios aimed at overcoming such barriers.

## **5.3 Energy Management**

- a) Governments should consider providing effective assistance in the development of energy management (EM) capability through the development and maintenance of EM tools, training, certification and quality assurance.
- b) In addition, governments should encourage or require major industrial energy users to implement comprehensive energy management procedures and practices that could include:
  - I. The development and adoption of a formal energy management policy:

- i. Progress with implementation of this policy should be reported to and overseen at company board level and reported in the company report;
  - ii. Within this policy companies would need to demonstrate that effective organisational structures have been put in place to ensure that decisions regarding the procurement of energy-using equipment are taken with full knowledge of the equipment's expected life-cycle costs and that procurement managers have an effective incentive to minimise the lifecycle costs of their acquisitions.
- II. The appointment of full-time qualified energy managers at both the enterprise and plant-specific level as appropriate.
- III. The establishment of a scheme to monitor, evaluate and report industrial energy consumption and efficiency at the individual company, sector and national level.
- i. As a part of this effort appropriate energy performance benchmarks should be developed, monitored and reported at levels deemed suitable in each sector.

#### **5.4 Small and Medium-sized Enterprises**

- a) Governments should consider developing and implementing a package of policies and measures to promote energy efficiency in small and medium-sized enterprises (SMEs). This package should include:
- i) A system for ensuring that energy audits, carried out by qualified engineers, are widely promoted and easily accessible for all SMEs;
  - ii) The provision of high quality and relevant information on energy efficiency best practice;
  - iii) The provision of energy performance benchmarking information which ideally this information would be structured to allow international and within economy comparisons; and
  - iv) Appropriate incentives to adopt least-life cycle cost capital acquisition and procurement procedures.

### **6. Energy Utilities and Energy Efficiency**

- a) Governments and utility regulators should consider implementing mechanisms that strengthen the incentives for utilities to deliver cost-effective energy savings among endusers such as:
- i) Establishing regulation which decouples utility revenue and profits from energy sales and allows energy savings delivery to compete on equal terms with energy sales; or
  - ii) Placing energy efficiency obligations on energy utilities, the stringency of which is periodically raised based on continuing cost effectiveness in delivering energy services, and where:
    - I. Such obligations may be tradable and structured such that utility costs are recoverable through the rates;
    - II. The obligations are designed to be consistent with any corresponding mandatory or voluntary CO<sub>2</sub> emission target imposed on utilities; or
  - iii) Allowing energy efficiency measures to be bid into energy pools, on an equal basis to energy supply options; or
  - iv) Other appropriate policy measures that encourage utilities to play an active part in funding and or delivering end-use efficiency improvements among their customer base.

## **7. Cross-sectoral Policies to Support Energy Efficiency**

### **7.1 Increased Investment in Energy Efficiency**

- a) Governments should facilitate the private sector's involvement in energy efficiency investments by:

- i) Adopting, and publicising to the private sector, a common energy efficiency savings verification and measurement protocol, to reduce existing uncertainties in quantifying the benefits of energy efficiency investments and stimulate increased private sector involvement;
- ii) Encouraging financial institutions to train their staff and develop evaluation criteria and financial tools for energy efficiency projects;
- iii) Reviewing their current subsidies and fiscal incentive programmes to create more favourable grounds for private energy efficiency investments;
- iv) Collaborating with the private financial sector to establish public-private tools to facilitate energy efficiency financing;
- v) Promoting risk mitigation instruments, such as securitisation or public-private partnerships; and
- vi) Putting in place institutional frameworks to ensure regular co-operation and exchanges on energy efficiency issues between the public sector and financial institutions.

## **7.2 National Energy Efficiency Strategies and Energy Efficiency Goals**

- a) Governments should set goals and formulate action plans for improving energy efficiency in each sector of their domestic economies, utilising on-going IEA works for developing sectoral energy efficiency benchmarks and compiling best practices;
  - i) Best practice action plans should:
    - I. Assess energy consumption by end-use in all sectors;
    - II. Identify the economy's energy savings potentials; and
    - III. Establish objectives and adequate methods for evaluating the success of the plan.
- b) Energy efficiency policy agencies should be adequately resourced.

## **7.3 Compliance Monitoring, Enforcement and Evaluation**

- a) Governments should ensure that both voluntary and mandatory energy efficiency policies are adequately monitored, enforced and evaluated so as to ensure maximum compliance. At a minimum, this should include:
  - i) Considering and planning for optimal compliance, monitoring and evaluation procedures at the time new policies and measures are formulated;
  - ii) Establishing legal and institutional infrastructure for ensuring compliance with energy efficiency requirements;
  - iii) Ensuring transparent and fair procedures for assessing compliance; including specification of the methods, frequency and scope of monitoring activities;
  - iv) Ensuring regular and public reporting of monitoring activities, including instances of non-compliance;
  - v) Establishing and implementing a suite of enforcement actions commensurate with the scale of non-compliance and the value of lost energy savings; and
  - vi) Establishing and implementing a robust system for evaluating policy and programme success during and after implementation.

## **7.4 Indicators**

- a) Governments should ensure that their energy efficiency policies are supported by adequate end-use information by substantially increasing their efforts to collect energy end-use data across all sectors and relating to all energy-types.
  - i) This will require governments to increase the resources allocated to energy end-use data collection.

- ii) At a minimum, governments should ensure that they are able to complete and submit the annual energy efficiency data template developed by the IEA in co-operation with other organisations.

### **7.5 Monitoring and Reporting Progress with IEA's Energy Efficiency Recommendations**

- a) Governments should agree to track progress in implementing each of the concrete recommendations and to provide the IEA with regular updates.