



International Workshop

Meeting Energy Efficiency Goals:

Enhancing compliance, monitoring and evaluation



International Energy Agency, Paris, France

28-29 February 2008

Contents

| International Workshop1 | | | | | |
|--|---|--|--|--|--|
| International Energy Agency, Paris, France1 | | | | | |
| Chair's Summa | ry 1 | | | | |
| The problems ad | The problems addressed at the workshop1 | | | | |
| The solutions pro | pposed at the workshop2 | | | | |
| Priorities for action | on2 | | | | |
| Forward direction | ns3 | | | | |
| Introduction | | | | | |
| Buildings | | | | | |
| Appliances | | | | | |
| Evaluation | | | | | |
| Potential Activi | ities 11 | | | | |
| Appendix 1: Wo | orkshop Agenda12 | | | | |
| Appendix 2: List of Participants 17 | | | | | |
| Appendix 3: IEA energy efficiency policy recommendations for the 2006 and 2007 G8 Summits 21 | | | | | |

Presentations from the workshop can be downloaded at:

http://www.iea.org/Textbase/work/workshopdetail.asp?WS_ID=349

Chair's Summary

At a workshop held in Paris during February 2008, more than 140 public and private sector stakeholders representing 29 countries and numerous intergovernmental and other organizations examined the scope to maximize energy efficiency by improving the effectiveness of existing policy measures. Sponsored by the International Energy Agency (IEA) and the International Task Force for Sustainable Products (ITFSP), workshop participants discussed the potential for increasing energy and greenhouse savings through investment in the compliance, monitoring and evaluation of policies for appliances and buildings.

The problems addressed at the workshop

Workshop participants acknowledged the serious and linked challenges of tackling climate change, promoting clean energy and achieving sustainable development globally. Experts have long known of the benefits offered by energy efficiency:

- Current worldwide energy consumption would be 50% higher if energy efficiency policies had not been put in place, based on estimates by the IEA.
- Global energy demand is expected to grow by 60% over the next 25 years. The IEA estimates that by 2030 up to 83 EJ could be saved if the cost-effective policy 'recommendations' on energy efficiency made by the IEA at the 2006 and 2007 G8 Summits were implemented globally.
- Energy efficiency provides secure, reliable and affordable energy services that are fundamental to economic stability and development, and also helps to avoid the difficulties posed by rising energy demand.

As governments consider policies to reduce greenhouse gas emissions, energy efficiency must achieve its long identified promise.

The workshop heard many instances of where energy efficiency measures were failing to deliver between 25% and 50% of anticipated savings targets due to poor implementation, including poor compliance and enforcement. However, while there appeared to be broad awareness of the existence of a problem of poor compliance across a wide range of countries and policy measures, manv participants commented on the lack of available information to fully understand and quantify the extent of this problem. This applied also to evaluation-related information. Although the need for credible information on the costs and benefits of energy efficiency



programmes has never been more needed, the lack of knowledge about the real impacts is itself symptomatic of a lack of attention to adequate monitoring and evaluation procedures.

Regarding the consequences of poor compliance, too often, low rates of compliance with policy measures lead to a gap between the intended goals of a policy and its actual outcomes. Industry representatives also noted other serious consequences resulting from perceptions that compliance with both mandatory and voluntary policy measures are not being upheld. They noted that wholehearted participation by industry is threatened when investments in energy efficiency are not safeguarded by effective compliance regimes.

The risk of not addressing these issues is that governments fail to meet targets for energy or greenhouse savings, or improvements to energy security. Yet examples also exist to indicate that it is possible to ensure effective and cost-efficient compliance, monitoring and evaluation procedures.

The solutions proposed at the workshop

Participants highlighted the urgent need for policy makers and programme designers to take steps to improve compliance, monitoring and evaluation. There is room for improvement in all countries, but there are also many inspiring examples of effective compliance and evaluation practices.

"Things that are measured tend to improve" Based on several case studies provided at the workshop, the costs of improving compliance and evaluation appear modest while the additional savings potential is considerable – suggesting that investment in compliance and enforcement regimes are likely to be one of the most cost-effective means to increase energy and greenhouse gas savings. Increasing the effectiveness of existing policies may also delay the need

for the introduction of new policies and the outlay of additional resources for the imp[lamentation of new policies.

Participants noted that increasing the transparency of compliance activities would be a positive first step by governments and industry. The workshop heard of many instances where the results of market surveillance or enforcement actions were not made available to consumers or other industry stakeholders – despite evidence that public notification is highly effective in increasing rates of

compliance.

Effective compliance regimes require a multi-layered approach, with the ability to identify breaches and respond in a manner commensurate with the transgression. Making all stakeholders fully aware of their responsibilities and undertaking market surveillance are relatively low-cost activities that can minimize enforcement action, however, these need to be backed up by a willingness to use appropriate sanctions when required.

New investment is needed for capacity building in most countries, covering legal infrastructure and human resources as well as technical capabilities. It was noted that countries have varying capacities to put in place effective compliance regimes by themselves but that financial and technical support, which has previously been made available for policy development, should be



extended to cover the effective implementation and evaluation of energy efficiency policies.

Participants called on governments to consider allocating additional resources to target compliance and evaluation as a near-term priority, and upon international organizations, funding bodies, national bilateral programmes and carbon finance administrators to specifically address these issues within their programmes.

Priorities for action

With access to additional resources, participants believed that very considerable energy and greenhouse gas savings could be achieved through implementation of the following measures:

- the integration of compliance and evaluation procedures into the design of new policies and measures from the outset;
- appropriate legal and institutional infrastructure for ensuring compliance with energy efficiency requirements;
- transparent and fair procedures for assessing compliance, including specification of the methods, frequency and scope of monitoring activities;
- regular and public reporting of monitoring activities, including instances of non-compliance;
- a suite of enforcement actions commensurate with the scale of non-compliance and the value of lost energy savings;
- a robust system for evaluating policy and programme success; and

• regional and/or international cooperation on compliance to maximase the effectiveness of limited resources as well as leverage the benefits of compliance activities.

Forward directions

International workshops such as these provide an opportunity for governments, industry and experts to gain insights into the issues under discussion and to identify the opportunities for collaboration. While this workshop raised some important issues, it is evident from the two days of discussion that further work is warranted by the scale of opportunities that exist.

Many important activities were identified during the workshop, which can be categorized as:

- 1. Raising the profile of compliance and evaluation as a priority for policy makers.
- 2. Understanding and quantifying the opportunity for increased energy and greenhouse savings.
- Engagement with organizations with involvement in these issues, including governments, industry associations, NGOs, consumer groups and energy efficiency advocates, among others.
- 4. Many individual projects (see list on page 11).

"Test, test often, test loudly - reflects our learning experience. If you don't test you don't know. When you test you find the need to test more often - targeting certain suppliers who fail. When you have that history, you then have to start reporting outcomes in appropriate fora or by appropriate means, otherwise nothing changes."

As a result, establishing priorities and responsibilities for these activities is a positive next step, although it was evident that many participants wished to further consider how best to integrate the issues raised into their own, or their organization's, future agendas, and to investigate what they may be able to contribute.

All participants expressed the desire for the IEA and the ITFSP to continue to draw attention to compliance and evaluation issues for energy efficiency, facilitating future international collaboration on the subject. This could include further workshops and dialogues with stakeholders such as international organizations and carbon finance schemes.

In closing the workshop, the IEA Secretariat proposed to consider:

- strengthening its recommendations to the Japan G8 Summit in July 2008;
- considering the role of the IEA Implementing Agreements (buildings and appliances);
- carrying forward the key messages in IEA publications and dialogues with countries;
- holding further meetings to develop a Road Map, in conjunction with other interested parties.

Mark Ellis International Energy Agency Paris, 5th March 2008

Introduction

Many policies and measures now exist, both of a voluntary and mandatory nature, for improving energy efficiency. However, alongside the continued evolution of energy efficiency policy measures is the common emergence of a gap – *at the point of implementation* – between expectations of what a policy measure will achieve and its actual, measured impacts. When such a gap emerges, anticipated energy savings may not be achieved, either within the anticipated timeframe, or at all.

A range of factors have been identified as contributing to this implementation gap, such as poor consumer awareness and various market barriers. However, the issue of poor compliance is frequently overlooked, despite the fact that sub-optimal compliance and monitoring procedures frequently hinder the full attainment of energy efficiency policy objectives. Not only may poor compliance result in lost energy savings and greenhouse reductions. It may also encourage free-riding, misleading conduct and related economic losses, hinder market development and foster a loss of confidence in the use of energy efficiency policy tools more widely.

The workshop, hosted by the International Energy Agency (IEA), in conjunction with the International Task Force for Sustainable Products (ITFSP), set out to examine the extent to which compliance and evaluation processes can be improved through international collaboration. To this end, the discussion document produced for the workshop raised the following questions:

- What are the consequences of sub-optimal compliance with energy efficiency measures?
- What are the barriers to effective compliance and monitoring?
- What are the key features of an effective compliance framework?
- Do the key barriers to, or features of, an effective compliance framework differ between the energy-usage subsectors?
- What international activities could help to facilitate enhanced compliance, monitoring and evaluation practices?



The extent of the problem

There is lack of available information on the rate of compliance with many energy efficiency policy measures, which reflects a general failure to monitor compliance in a systematic manner and to evaluate existing policy measures.

Infringements that occur can range from significant to minor, which also complicates the task of estimating additional savings opportunities from enhanced compliance. However, indicative levels of non-compliance span approximately 25% for appliance programmes to 50% for building regulations. Extrapolating from the example of Tunisia - the impact of energy efficiency measures in the Alternative Policy Scenario in the IEA's World Energy Outlook would be 25% higher. This would lead to:

- Annual global TPES savings of 485 Mtoe by 2030
- Annual global CO2 savings of 1500 Mt by 2030
- Annual net cost savings of US\$573 Billion by 2030
- Net cost of additional avoided CO₂ = -US\$380 per tonne

Benefits of a comprehensive compliance and evaluation regime

The disadvantages of non-compliance vary according to the different stakeholders. For governments, non-compliance reduces the effectiveness of existing policy measures and if not improved may require additional policies to meet targets, thereby increasing the policy burden for all. Policies such as energy efficiency regulations and procurement, if not enforced, may lead to unfair competition.

For industry, a lack of adequate compliance frameworks may be seen to penalise the honest industry participants, leading to a disincentive to invest in innovation.

For consumers, a lack of compliance may mean paying for performance that they do not get. Many energy efficiency programmes rely upon consumer confidence about the quality of information provided, but once that confidence is lost, it is extremely difficult to re-establish credibility.

Programme evaluation is vital in order to quantify the energy and greenhouse gas savings actually delivered, and the cost of those services. It also provides an important feedback loop in order to identify ways to improve the impact of current and future programmes.

The following sections outline the major issues raised in each of the three working groups, together with some opportunities for further work, as summarized by the working group rapporteurs.

Buildings

The buildings working group discussed in considerable detail the sector-specific issues that contribute to poor compliance levels in the buildings sector – such as the fact that buildings exist as individual sites, tend to have longer lifetimes than many appliances, contain sub-systems and products that have a big influence on their overall energy and environmental performance and about which adequate energy performance information may not be known, and are usually inspected by local rather than national-level agencies.

Participants commented on the need to ensure that existing legislation is effectively implemented and enforced as well as to review the effectiveness of energy efficiency performance requirements so as to achieve anticipated energy and greenhouse gas savings and cost benefits. The fact that energy performance requirements were incorporated into building regulations after their creation was noted, as was the fact that inspection and compliance procedures are often the responsibility of local authorities with inspectors who may often place a far greater priority on fire and safety-related aspects of their inspections rather than energy performance. The need for greater transparency was consistently emphasized, as was the point that better compliance must include both enforcement and facilitation-type activities. Similarly, the importance of ensuring that relevant professionals were trained in energy efficiency-related matters was noted.

Issues

- A compliance gap exists in the buildings sector - it is large both in developed and developing countries. Figures of around 50 % failure to comply were often mentioned, as were estimates of 20%– 25% additional losses because of lack of compliance.
- Additional energy costs due to non compliance would probably be measured in billions of dollars in each region.
- However, most countries do not know the exact magnitude of the problem. As such, there is a need to quantify:



Results of compliance tests on Chinese buildings

- o the distance to established performance requirements assuming full compliance with existing regulations;
- o the global financial and environmental costs of non-compliance; and
- the gap between regulated performance benchmarks and performance actually achieved, taking a globally representative sample of building types, climate zones and countries.
- A range of problems hamper compliance with energy efficiency measures in the buildings sector, including:
 - the localized nature of responsibility for testing and inspection, and low interest in energy efficiency measures in some countries;
 - o the complicated nature of procedures and the existence of individual building sites;
 - o the fragmented nature of the industry and related decision processes;
 - o poor training and collusive practices; and
 - o difficulties in enforcement of requirements for energy efficiency in refurbishment or improvements.
- Compliance-related problems also depend considerably on national circumstances; however, many lessons can be learned from international good practices.
- Some new and promising programmes are set up in different countries

- In Belgium / the Flemish region fines are set for the owners (builders, constructors or installers), who fails compliance. This fine is based on the failure in u-values x the surface area. For example, a one family house with non-compliant glazing was fined €2,500.
- In Denmark all new buildings are inspected by an independent consultant, who makes calculation based on the self declaration of the building used for the building permit, and a visual inspection on site which checks the actual insulation, glassing and installed products. Occupancy of the building can only occur once compliance with the building codes is validated.
- In Sweden the building process starts with an agreement on check points for the compliance between the community and the owner or developer of the buildings. Checks are also carried out after construction of the building, and after 2 years this is compared with the actual metered consumption for the building.

Next Steps

- A chapter on compliance-related matters could be included in the revised UNEP SBCI Buildings and Climate Change report, scheduled for release at the end of 2008.
- It would also be possible to consider compliance as a task under the IEA Implementing Agreements (such as EBC), and as a future initiative under the Sustainable Buildings Network
- Ways to prioritize enforcement, incentives and increased awareness of compliance-related matters could also be addressed.

Appliances

Several threads appeared to run throughout the discussions and presentations in the working group on appliances.

It was noted that the global agenda for improving energy efficiency can be delivered in part by enhancing compliance activities in individual national and regional programmes. Since many products are now traded internationally, collaboration between countries and programmes can assist in focusing the scarce resources allocated to compliance activities.

Additionally, making policy measures more effective needs to be viewed as a shared responsibility between governments and industry, albeit that the two have different roles.

Finally, the public reporting of compliance outcomes is highly effective and can greatly decrease the costs for all participants.



Issues

- There may have been too much attention on the process of introducing policies and too little a focus on maximising the impacts of these policies.
- Ensuring adequate compliance may be hard, but it is not no so hard as to be impossible or not worth striving for:
 - o limitations may include inadequate resources, excessive tolerance levels, or a lack of regulatory will.
- There is a real need to overcome barriers to sharing information between regulators/programmes:
 - geographically, per product; it could also be more effective to link with climate change and safety-related measures/information;
 - o a model protocol between regulatory and other agencies showed promise;
 - websites and the Internet offer opportunities for sharing information;

- o legal impediments should be removed.
- International cooperation can grow from regional and national 'champions'.
 - o may need to progress with individual products and bilateral arrangements.
- A considerable amount of good work is being done, but no single person or entity can currently access information on all relevant activities, therefore transparency is a key target for the future.
- Without adequate enforcement, anticipated potential energy and greenhouse gas savings are at risk.
- Resources for compliance can be attracted if interested players effectively make the case that this should be a priority.



Compliance is like an electrical system – all of the system parts need to be maintained.

Evaluation

In the United States, where evaluation is more widely undertaken than many other regions, 3 to 5% of energy efficiency programme costs are typically allocated for evaluation, and up to 8% in California. This has led to the development of substantial capacity and expertise. In contrast, in many other regions, evaluation activities are carried out in a rather ad hoc manner and expertise is less developed.

A range of key issues emerged in the working group on evaluation, as set out below. Many of these issues related to the lack of adequate information about the worth, methods and costs of evaluation activities. Another concerned the absence of an adequate number of appropriately trained evaluators.

Some key opportunities and next steps were identified, which could help to enhance the knowledge and practice of evaluation. Among the various opportunities raised was a meta-analysis – of both evaluations that have worked and those that have been less successful. Such an analysis could help to demonstrate and promote the value of evaluation

– itself considered an important task by many participants – as well as the means for ensuring the successful completion of evaluations. Discussion also focused on the possibility of developing a common methodology for evaluation, to provide for better comparison of findings and experiences. Attempts at harmonization both within the US itself, and within Europe, could be drawn on in this regard.

Among the various opportunities raised was information sharing by countries on experiences with evaluation and results from available policy/programme evaluation studies. Another was a meta-analysis of evaluations for a selected policy (or policies) that are relevant



to member countries. Such an analysis could help to demonstrate and promote the value of evaluation - itself considered an important task by many participants - as well as one means for ensuring the successful completion of evaluations. Discussion also focused on the possibility of developing, as appropriate, common methodologies for evaluations, to provide for better comparison of findings and experiences. Lessons could be learned from attempts at developing common methodology suitable for Europe. In the discussion of common methods it was recognised that there is no single methodology, because in many respects evaluation is policy-specific, market-specific, multiple methods may be necessary for some evaluations and the type of evaluation and questions addressed differ on the stage of the policy life-cycle and if the evaluation is formative or summative in nature.

Issues

- There is a low percentage of energy efficiency policies and programmes that are actually evaluated.
- Additionally, policymakers and programme administrators typically do not start evaluation planning at the outset; rather, this is usually done later (after several years), if at all.
- Evaluation costs (both personnel and financial resources) and the value of evaluations (eg. Use of evaluation results for efficient and effective policy/programme management) are not well understood.
- There is often a need to further clarify "How much evaluation is enough?
- How well the outcome of evaluations are used to improve current or future policy measures appears mixed.
- It is possible that there are issues relating to the quality of some portions of some policy and programme evaluations already completed; study methods are not always well documented; sometimes it is difficult to obtain the methodological details and assumptions used.
- The financial resources needed for evaluation are not always available.
- There is a possible shortage of evaluation professionals in some countries and regions.

Opportunities

- Analysis of the cost and value of evaluation would be useful, as would promotion, outreach and education activities toward policymakers regarding the value of evaluation.
- Common methodologies would also be useful. This could include a framework with different options, practices in evaluation costing, the identification of which sectors to evaluate, appropriate discount rates, co-benefits for inclusion, how to treat additionality, attribution, baseline determination and assumptions documentation, among others.
- Common terminology could similarly be of use.
- Tools could be developed for evaluation planning and for promoting evaluation planning in countries.
- The sharing of experiences could include bottom-up evaluation results, successes with addressing motivational issues, the amount of a budget that needs to be devoted to evaluation and lessons on the documented value of evaluation.



• Issues of uncertainty and the level of rigor and accuracy of evaluation studies could be addressed.

9

- More professionals could be trained in M&V and programme evaluation.
- A meta-analysis of evaluation studies could be conducted to document the cost-effectiveness of a selected policy (or policies) relevant to IEA member countries.
- Energy efficiency evaluation activities could be linked to wider sustainability benefits and to greenhouse gas reduction efforts.
- Lessons and good practices could be derived from evaluation activities in the transportation sector.
- Activities to support developing countries.

Next Steps

- IEA: Help member countries raise the profile of energy efficiency evaluation in respective countries.
- IEA: Raise the profile of evaluation at the policy level through the G8, ministerial and other processes.
- All: Collectively work together through existing networks.
- Regularly hold evaluation-specific meetings (to bring together evaluation practitioners and with a dedicated work programme).

Potential Activities

During the workshop a number of opportunities for future activities were identified from discussions, as was the need to develop a Road Map to attempt to prioritise and allocate responsibilities at some point in the future. The following list highlight some of the areas which future activities might address.

- Raise the profile of compliance and enforcement amongst policy makers.
- Ensure compliance and market surveillance on UN, G8 (+5), EU [International Partnership for Energy Efficiency initiative] etc. agendas.
- Better understand the problems and quantify the lost opportunities.
- Explore potential for raising compliance as a consumer issue and encourage consumer interest/protection NGOs to take an interest.
- Promote compliance with energy/environmental standards to same status as, e.g. safety standards.
- Governments should be more willing to share information and develop rationalized approach to impact assessment.
- Policy makers should encourage transparent policy development processes.
- Developed/developing countries need to explore partnerships for co-operation in policy development and capacity building.
- Explore scope for gov-business partnerships; share best practice models.
- Make testing programmes more transparent, setting out expected impacts and benefits.
- Business should be encouraged to reduce production variability; improved test lab consistency (round robin tests); lower test tolerances.
- Governments should look to simplify test procedures.
- Gov/Business could re-assign resources; do more testing; joint testing programmes; sharing information
- Government/Enforcement Agencies could develop information sharing protocols for sharing and publishing market surveillance results. They could also share information on 'delisting'.
- Share information on strategies to deal with those who either never comply or always comply
- Governments could co-ordinate testing regimes with others with similar products.
- Get clarity on legal issues regarding information sharing e.g. of compliance test results.
- Manufacturers increase transparency e.g. agree to publish list of base models and derivatives.
- Set and co-ordinate testing to achieve sample targets e.g. 5%/yr.
- Promote evaluation as an inherent aspect of policy.
- Develop capacity.
- Develop common methods (as appropriate) and common terminology.

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http://www.iea.org/Textbase/work/workshopdetail.asp?WS_ID=349

Appendix 1: Workshop Agenda

Day 1 - February 28

| OPENING PLENARY: SETTING THE SCENE | | | | |
|------------------------------------|--|--|--|--|
| Moderator: Economy | Moderator: Eoin Lees, Vice-Chair, European Council for an Energy Efficient Economy | | | |
| 9:00 | Welcome and Opening AddressNobuo Tanaka, Executive Director, International Energy Agency (IEA)Avoiding Lost Opportunities in Energy EfficiencyPaul Waide, IEAThe Need for International CooperationChris Baker, UK Department for Environment, Food and Rural Affairs(Defra), for the International Task Force for Sustainable Products (ITFSP)Why Evaluate Energy Efficiency Programmes?Steven Schiller, University of California and Schiller ConsultingWhy Evaluation Matters and Why it Doesn't HappenRobert Harmsen, Ecofys | | | |
| 10:30 | Coffee | | | |
| 11:00 | Problems and Consequences of Non-compliance Paolo Falcioni, Indesit Company, for European Committee of Domestic Equipment Manufacturers (CECED) Designing Energy Efficiency Policies with Compliance in Mind Brenda Boardman, Environmental Change Institute, Oxford Roundtable Discussion | | | |
| 12:30-14.30 | Lunch | | | |

Day 1 - February 28

STREAM 1: BUILDINGS

Moderator: Taipale Kaarin (Finland), Chair, Marrakech Task Force on Sustainable Buildings and Construction

| 14:30 | The Flemish Experience of Compliance with Changed Building Codes Peter Wouters, Belgian Building Research Institute (BBRI) Can Industry Help with Compliance? Industry Perspectives on Energy Efficiency Building Code Compliance Andrew Warren, European Alliance of Companies for Energy Efficiency in Buildings (EuroACE) Discussion | |
|-------|--|--|
| 16:00 | Compliance and Monitoring of Building Energy Performance Regulations Roger Hitchin, Building Research Establishment Ltd (BRE) Using Energy Certification to Ensure Compliance with Building Codes? The Danish Experience of Implementing the EPBD Directive Renato Ezban, Danish Energy Agency Compliance with Building Standards in the US: Perspectives From the North American States Adam Hinge, Sustainable Energy Partnerships Discussion | |
| 18:00 | ITFSP Reception | |

Day 2 - February 29

| Moderator: Jan te Bos, European Insulation Manufacturers Association (Eurima) | | | | |
|---|--|--|--|--|
| 9:00 | Reporting and Certification as Part of Ensuring Compliance: The Japanese Experience Shuzo Murakami, Professor, Keio University Is Compliance with Energy Standards too Difficult and Does it Pay Off? Perspectives From a Large Constructor and Manager of Buildings Jonas Gräslund, Skanska Discussion | | | |
| 10:30 | Coffee | | | |
| 11:00 | Another Way of Checking Building Compliance: The Swedish Experience of Compliance and the Use of Metered Data Hans-Olof Karlsson Hjorth, Swedish National Board of Housing, Building and Planning American Experience with Compliance and Actions for the Future: Lessons Learned at the Federal and State Levels John Hogan, Seattle Department of Planning and Development Compliance in the Buildings Sector: A View from Industry Randall Bowie & Chris Hamans, Rockwool International A/S Discussion | | | |
| 12:30 | Lunch | | | |

Day 1 - February 28

| STREAM 2: APPLIANCES & EQUIPMENT | | | | |
|----------------------------------|---|--|--|--|
| Moderator: | Moderator: Gerald Strickland, European Lamp Companies Federation | | | |
| 14.30 | Compliance Frameworks Around the World: What Lessons Can be Learnt? Christine Egan, Collaborative Labeling and Appliance Standards Program (CLASP) | | | |
| | Market Surveillance and EU Energy Labelling | | | |
| | Jan Viegand, Viegand & Maagøe on behalf of the European Association for the Coordination of Consumer Representation in Standardisation (ANEC) | | | |
| | Discussion | | | |
| 16:00 | Opportunities in the United States | | | |
| | Stephen Witkowski, US Department of Energy | | | |
| | Lesson Learnt in Japan with Checking Performance | | | |
| | Kiyoshi Saito, Japan Electrical Manufacturers' Association (JEMA) | | | |
| | Compliance and Enforcement in a Small Economy: From None to One Terry Collins, Energy Efficiency and Conservation Authority, New Zealand | | | |
| | Discussion | | | |
| 18:00 | ITFSP Reception | | | |

Day 2 - February 29

| Moderator: | Moderator: Shane Holt, Australian Greenhouse Office | | | |
|------------|---|--|--|--|
| 9:00 | Key Elements of a Compliance Framework Frank Klinckenberg, Consultant Experiences and challenges in China Shuming Hua, National Lighting Test Centre, China Nan Zhou, Lawrence Berkeley National Laboratory | | | |
| | Discussion | | | |
| 10:30 | Coffee | | | |
| 11:00 | Information Sharing in the UK Davide Minotti, Defra | | | |
| | Opportunities for International Collaboration Chris Evans, ITFSP | | | |
| | Co-operation on Compliance - CFL Harmonisation Initiative Adam Hinge, Sustainable Energy Partnerships | | | |
| | Roundtable Discussion | | | |
| 12:30 | Lunch | | | |

Day 1 – February 28

| STREAM 3: EVALUATION | | | | |
|----------------------|--|--|--|--|
| Moderator: | Moderator: Jeff Dowd, US Department of Energy | | | |
| 14:30 | The Importance of EvaluationDidier Bossebeouf, French Environment and Energy Management Agency (ADEME)Peter Taylor, IEA Terry Collins, Energy Efficiency and Conservation Authority, New ZealandDiscussion | | | |
| Moderator: | Steven Schiller, University of California and Schiller Consulting | | | |
| 16:00 | Experiences with Evaluation Activities: Case Studies Robert Harmsen, Ecofys Kazuhiko Shinpo, Japan Top Runner Programme Rino Romani, Italy Discussion | | | |
| 18:00 | ITESP Recention | | | |
| 10.00 | The Reception | | | |

Day 2 - February 29

| Moderator: | oderator: Peter Taylor, IEA | | | |
|------------|---|--|--|--|
| 9:00 | Methodological Issues in Evaluating Policy Measures Harry Veuls, SenterNovem Jeff Dowd, US Department of Energy Steven Schiller, University of California and Schiller Consulting Anibal T. de Almeida, University of Coimbra Discussion | | | |
| 10:30 | Coffee | | | |
| 11:00 | Gaps and Conclusions Peter Taylor, IEA Steven Schiller, University of California and Schiller Consulting Discussion and Conclusions | | | |
| 12:30 | Lunch | | | |

Day 2 – February 29

| CLOSING PLENARY | | | | |
|----------------------------|--|--|--|--|
| Moderator: Paul Waide, IEA | | | | |
| 14.30 | Learning From Other Sectors: Ensuring Compliance in the Environmental SectorEugene Mazur, Environment Directorate, OECDResourcing Compliance Frameworks & Capacity Building Gene McGlynn, Energy Charter SecretariatDiscussion | | | |
| 15.45 | Scope for International Cooperation Chris Baker, Defra, for the ITFSP | | | |
| | Priorities for Future Action | | | |
| | Shane Holt, Australian Greenhouse Office | | | |
| | Round Table Discussion | | | |
| 17.00 | Close | | | |

Appendix 2: List of Participants

| Last Name | First Name | Position | Organisation |
|----------------|-------------|--|--|
| Abreu Marques | Paula | Deputy Head of Unit | "International Relations, Enlargement", Directorate- |
| | | | General for Energy and Transport, European |
| | | | Commission |
| Agster | Rainer | | Adelphi Research gGmbH |
| Al-rashed | Saud | | American University of Paris |
| Alstadheim | Elen | Senior Adviser | ENOVA SF |
| Angioletti | ROBERT | 500, route des lucioles F 06560 VALBONNE | Head of DSM départment, ADEME |
| Arsouze | Aurelie | | American University of Paris |
| Baker | Chris | Head Market Transformation Unit, Sustainable | Defra |
| | | Products and Materials Division | |
| Baquero | Ricardo | Project Engineer | Industrial Assessment Center - University of |
| | | | Massachusetts |
| Barbuta | Mariana | Senior Researcher | ICEMENERG |
| | Nicoleta | | |
| Barnsley | Ingrid | Analyst, Energy Efficiency and Environment | IEA |
| | | Division | |
| Baudry | Paul | Project Manager | EDF R&D |
| Becker | Sharon | MSc | Greenpeace |
| Bisang | Kurt | Evaluation Officer | Swiss Federal Office of Energy |
| Boardman | Brenda | Environmental Change Institute, Oxford | Senior Research Fellow |
| | | University | |
| Boehnke | Reinhard | | Federal Environment Agency |
| Bossebeouf | Didier | French Environment and Energy Management Ag | gency (ADEME) |
| Bowie | Randall | Chief Consultant, Corporate Affairs | Rockwool International A/S |
| Brown | Mark | 21 Dartmouth Street, London SW1H 9BP | Energy Efficiency Partnership for Homes/EST |
| Cayre | Emmanuelle | | EDF R&D |
| Charlesworth | Jackie | | University of Leeds |
| Clapper | Maureen | Science Advisor for Energy Affairs | US Mission to the OECD |
| Clarke | Damien | Assistant Principal - Energy Efficiency Policy | Department of Energy |
| Colda | Iolanda | Professor | Technical University of Civil Engeneering, Bucharest |
| Collins | Terry | | EECA |
| Cooper | Chris | | University of Johannesburg |
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Appendix 3: IEA energy efficiency policy recommendations for the 2006 and 2007 G8 Summits

The IEA recommends G8 Leaders adopt a suite of energy efficiency measures. This package follows up on the Gleneagles G8 Plan of Action, which mandates the pursuit of a clean, clever and competitive energy future.

These measures set out an ambitious road map for improving energy efficiency at a global scale. Implementation of the IEA's energy efficiency recommendations can lead to huge energy and CO_2 savings. The IEA estimates that if implemented globally, the proposed actions could save between 4,400 – 6,800 MtCO₂/yr by 2030. This is equivalent to the USA's total CO₂ emissions in 2004.

Buildings

[2007] Building Codes for New Buildings

Countries that do not currently have mandatory energy efficiency standards for new buildings in Building Codes should urgently set, enforce and regularly update such standards. Those countries that currently have mandatory energy efficiency standards for new buildings should significantly strengthen those standards. Energy efficiency standards for new buildings should be set by national or state government and should aim to minimise total costs over a 30-year lifetime.

[2007] Passive Energy Houses and Zero Energy Buildings

Countries 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. Governments should set objectives for PEH and ZEB market share of all new construction by 2020. Passive Energy Houses or Zero Energy Buildings should be used as benchmark for energy efficiency standards in future updates of building regulations.

[2007] Existing Buildings

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

Equipment

[2007] Mandatory Energy Performance Requirements or Labels

All countries 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. Adequate resources should be allocated to ensure that stringency is maintained and that the requirements are effectively enforced.

[2006] Standby Power

The IEA concludes that international best practice consists of a "horizontal" 1-Watt regulatory limit on standby. The IEA recommends that all countries adopt the same 1-Watt limit and apply it to all products covered by an International Electrotechnical Commission definition of standby power with limited exceptions.

[2007] Low-power Modes for Electronic Equipment

All countries should adopt policies which require electronic devices to enter lowpower modes automatically after a reasonable period when not being used. Countries should ensure that network-connected electronic devices minimise energy consumption, with a priority placed on the establishment of industry-wide protocols for power management.

[2006] Television "set-top" boxes and digital television adaptors (DTAs)

The IEA concludes that international best practice with respect to energy efficient set-top boxes are policies that establish is a minimum efficiency standard for Digital Television Adaptors. These regulations should specify the maximum power levels while "on" and "off" and ensure that the consumer can easily switch the unit to the lower power level. A second aspect of best-practice is to ensure that government-subsidized units meet higher efficiency requirements.

Lighting

[2006] Best Practice in Lighting Policy

The IEA recommends that the G8 endorse the objective of across-the-board best practice in lighting.

[2007] Phase-out Incandescent Lamps

Governments should move to phase out the most inefficient incandescent bulbs as soon as commercially and economically viable.

In aiming for this objective there is a need both for appropriate time scales and performance targets to be established. Also government and industry actions must be coordinated internationally to ensure a sufficient supply of good quality higher efficiency alternative lamps. The IEA is well placed to facilitate such a coordinated transition were this to be requested by international stakeholders.

Transport

[2006] Fuel-Efficient Tires

The IEA concludes that international best practice with respect to fuel-efficient tires consists of two elements:

- Maximum allowable levels of rolling resistance for major categories of tires;
- Measures to promote proper inflation levels of tires.

[2007] Test procedures

Governments should adopt new international test procedures for measuring the rolling resistance of tyres to set maximum rolling resistance limits and for road-vehicle tyre labeling. In addition, all governments, in cooperation with international organisations including UNECE, should make the fitting of tyre-pressure monitoring systems on new road vehicles mandatory.

[2007] Mandatory Fuel Efficiency Standards for Light-duty Vehicles All governments should:

- 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,
- announce the more stringent content of the proposed standards as soon as possible, and
- harmonize, if appropriate, as many aspects of the future standards as possible.

Industry

[2007] High-quality Energy Efficiency Data for Industry

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.

Cross-Sectoral Recommendations

[2007] Increased Investment in Energy Efficiency Governments should:

- adopt, and publicise 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,
- review their current subsidies and fiscal incentive programmes to create more favourable grounds for private energy efficiency investments,
- collaborate with the private financial sector to establish public-private tools to facilitate energy efficiency financing.

[2007] National Energy Efficiency Strategies and Energy Intensity Reduction Objectives

All countries should set goals and formulate action plans for improving energy efficiency in each sector of their domestic economies, utilizing on-going IEA works for developing sectoral energy efficiency benchmarks and compiling good practices. Energy efficiency policy agencies should be adequately resourced. Best practice action plans should:

- assess energy consumption by end-use in all sectors,
- identify the economy's energy savings potentials.
- establish objectives and adequate methods for evaluating the success of the plan.

[2007] Monitoring and Reporting Progress with Concrete Recommendations

Governments should agree to track progress in implementing each of the concrete recommendations and to provide the IEA with regular updates. The IEA will then present an assessment of progress to the 2008 G8 Summit in Japan.