

Second Time Around: Improving a Second Evaluation while Maintaining Comparability with the First

Sara Bryan Pasquier, *International Energy Agency, Paris, France*
Nigel Jollands, *European Bank for Reconstruction and Development, London, UK*

Abstract

In 2009, the International Energy Agency (IEA) conducted an evaluation of twenty-eight countries' implementation of a set of energy efficiency policies. The 2009 evaluation provided an overview of areas where countries were considered to be 'on track' for maximising energy efficiency policy implementation, and identified areas where further urgent action was required.

In 2011, the IEA conducted a second evaluation with similar objectives to the first. This paper highlights the results of that evaluation. It also describes the challenges associated with improving a second evaluation while maintaining comparability with the first. Some of these challenges were methodological, and others political. One methodological challenge, for example, was simplifying (and clarifying) aspects of the 2011 evaluation template while ensuring that benchmarking with the 2009 results was still possible. One political challenge was modifying the evaluation process, including how countries were consulted regarding preliminary results, while maintaining the integrity of the findings.

Introduction

This paper begins with an introduction to the 2009 and 2011 Evaluations, including an overview of the evaluation methodologies. The introduction is followed by a discussion of the challenges faced when developing and conducting the 2011 Evaluation. The paper concludes with a few highlights from the 2009 and 2011 Evaluation results.

To support governments in their implementation of energy efficiency, the IEA recommended the adoption of specific energy efficiency policy measures to the G8 summits in 2006, 2007 and 2008. The consolidated set of recommendations to these summits is known as the 'IEA 25 energy efficiency policy recommendations' because it covers 25 fields of action across seven priority areas: cross-sectoral activity, buildings, appliances, lighting, transport, industry and energy utilities. The IEA estimates that if implemented globally without delay, the proposed actions could save as much as 7.6 giga tonnes (Gt) CO₂/year by 2030 – almost 1.5 times the current annual carbon dioxide (CO₂) emissions of the United States.

At the 2007 IEA Ministerial Meeting, Energy Ministers strongly welcomed the IEA 25 energy efficiency policy recommendations (25 EEPR) and invited the IEA "to evaluate and report on the energy efficiency progress of IEA member and key non-member countries" against the recommendations. In response to this invitation, in 2009, the IEA conducted an evaluation of member country implementation of the 25 EEPR and similar measures. The results of the 2009 Evaluation were published in the book *Implementing Energy Efficiency Policies: Are IEA member countries on track?* In 2011, IEA management decided to conduct a second evaluation to track policy implementation since 2009. The results of the 2011 Evaluation are published in two reports, the *IEA Scoreboard 2011: Implementing Energy Efficiency Policy: Progress and challenges in IEA member countries* and in a longer paper titled *Progress Implementing the IEA 25 Energy Efficiency Policy Recommendations, 2011 Evaluation*.

Evaluation Methodology

Analysis for the 2009 and 2011 evaluations is based on information gathered from several sources including energy efficiency policy reports submitted by member countries to the IEA Energy Efficiency Working Party; the IEA energy efficiency indicators' database; IEA in-depth energy policy reviews; the IEA energy efficiency policies and measures database¹; and IEA expert knowledge of policy developments in IEA member countries.

The primary evaluation tool was a questionnaire, in which countries' implementation of the 25 EEPR was determined according to a five-step colour grading system (Table 1). For each recommendation, the IEA defined criteria for achieving each progress level.²

Table 1. Colour grading system used for reporting implementation of the recommendations

Progress level	Description
Fully implemented (dark green)	The policy recommendation - or similar policy - has been fully implemented according to defined criteria.
Substantial implementation (light green)	The policy recommendation - or similar policy - has been implemented with some minor limitations.
Implementation underway (blue)	The policy recommendation - or similar policy - is being implemented and the policy is at a stage where regulations/instruments have been developed and implemented, but with significant limitations.
Plan to implement (orange)	The policy recommendation - or similar policy - is planned for implementation. This is indicated by regulations/instruments that have already been developed but are not yet operational.
Not implemented (red)	The recommendation has not been implemented.
Not applicable (gray)	Policy recommendation/area demonstrated to be not applicable to country context.

For the 2009 Evaluation, countries completed a self-evaluation questionnaire, and used the five-step grading system to evaluate progress made in implementing the energy efficiency recommendations. For the 2011 Evaluation, IEA member countries were pre-scored based on IEA analysis and consultations with the European Commission. Countries could then review their scores and, if they disagreed with them, provide evidence to modify them.

¹ http://www.iea.org/textbase/pm/index_effi.asp

² <http://www.iea.org/publications/freepublications/publication/name,3782,en.html>

Challenges

After completing the 2009 Evaluation, the IEA asked member countries to provide feedback on the evaluation results and process. Country delegates were, on average, satisfied with the evaluation process and final report. In general, the final report met their expectations and was useful for their work. However, some member countries expressed concerns about the heavy workload brought about by participating in the evaluation and how evaluation results were communicated in the final report.

Modifications to methodology

When IEA management proposed a new round of evaluations in 2011, country delegates agreed contingent on the IEA simplifying the evaluation methodology to reduce workload and revisiting how to communicate evaluation results. With this in mind, the IEA took the following measures:

The IEA reduced the number of fields in the evaluation questionnaire. For example, six subset questions for finance were folded into two (Figure 3); six subset questions for compliance and enforcement were folded into one and two indicator subset questions were folded into one.

Now that there were fewer fields than in the 2009 Evaluation, the IEA faced the challenge of maintaining comparability. To overcome this challenge, the IEA generated a new 2009 score based on the average score of the collapsed fields. During the 2011 Evaluation, this average score was provided to member countries as a point of comparison in the column labelled ‘2009 Score’ (Figure 3). Although the new 2009 scores were not directly comparable to the results published in the 2009 Evaluation report, they did provide a benchmark and a point of comparison with 2011.

Figure 1. Sample from 2011 evaluation questionnaire

Title	Recommendation	2009 Score	Fully implemented	Substantial implementation	Implementation underway	Plan to implement	Not implemented	Not Applicable
Increased Investment in Energy Efficiency - Common energy efficiency savings, verification and measurement protocol	1.1 a) i) 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;		○	○	○	○	○	○
Increased Investment in Energy Efficiency - Other measures	1.1 a) i) Encourage financial institutions to train their staff and develop evaluation criteria and financial tools for energy efficiency projects; 1.1 a) ii) review their current subsidies and fiscal incentive programmes to create more favourable grounds for private energy efficiency investments; a) i) collaborate with the private financial sector to establish public-private tools to facilitate energy efficiency financing; a) v) Promote risk mitigation instruments, such as securitisation or public-private partnerships; a) vi) Put in place institutional frameworks to ensure regular co-operation and exchanges on energy efficiency issues between the public sector and financial institutions.		○	○	○	○	○	○

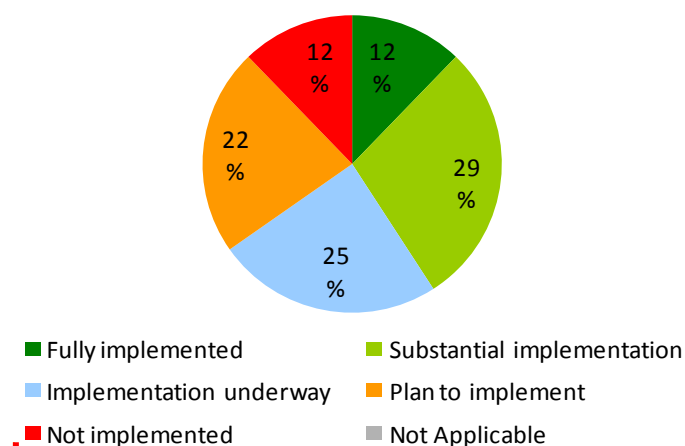
The IEA changed the evaluation process. In 2009, member countries self graded their policy implementation in a questionnaire and then the IEA reviewed these scores. Countries were required to provide rationale for the grades and include supporting documents. In 2011, the IEA pre graded countries and then asked for member country review. The IEA pre grades were based on information collected from the European Commission, the Energy Efficiency Working Party summary report updates, in-depth country energy reviews, IEA analysis and submissions to the IEA policies and measures database. Unlike in 2009, the IEA was responsible for providing rationale for each grade. This transferred the time spent researching policies from countries to the IEA. The IEA pre grades were provided in the columns next to the ‘2009 score’ so that countries could quickly review IEA 2011 pre grades and compare them to 2009.

One challenge with the revised 2011 process was that by pre-evaluating countries, the IEA ran the risk of providing grades higher than countries would have given themselves. Some countries did, in fact, request a down grade after reviewing the IEA pre-evaluation.

In order to save participating countries time, the IEA removed a section on “policy context” from the 2009 questionnaire when preparing the 2011 Evaluation form. This section included information about government energy efficiency and climate change strategies, energy efficiency institutions, energy intensity, etc. Removing this section did not pose a problem because policy context information was collected from other sources.

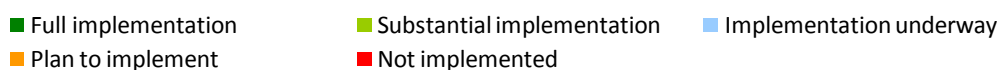
To clearly communicate how much progress had been made in implementing energy efficiency policies from 2009 to 2011, the IEA replaced the pie graphs used in the 2009 Evaluation (Figure 2) with comparative bar charts (Figure 3).

Figure 2: Sample building recommendation pie chart, 2009 Evaluation



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Stringency and geographic scope

Several delegates expressed reservations about the country comparison graphs used to display the 2009 Evaluation results (Figure 4). They were concerned that the international press would view these graphs as a “beauty contest”. Delegates also reiterated that not all recommendations are relevant to all countries; differences in energy, economic, regulatory and climate context make some recommendations more important and cost-effective to certain countries than to others and therefore a comparison of all recommendations across all countries was not appropriate.

The IEA addressed this concern in two ways. First, the IEA only evaluated a country’s implementation of recommendations that the IEA deemed relevant to a country’s context (thus the comparison graphs only include scores for ‘relevant’ recommendations). Determining the relevance of a recommendation to a country was more straight forward than one might think. For example, one

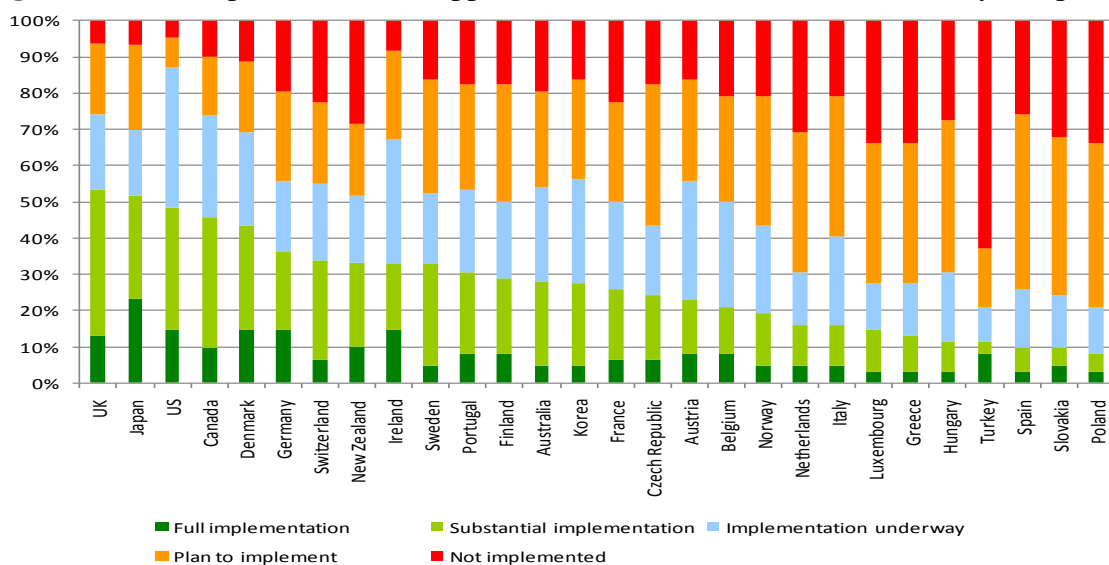
recommendation stated that government-subsidized television set-top boxes should meet high efficiency requirements. If a government claimed that it did not subsidize set-top boxes, then this recommendation was deemed to be “not applicable.” The same process for determining recommendation “relevance” was used in the 2009 Evaluation, so there were no problems with consistency.

Second, in the final full 2011 Evaluation report, the IEA moved the country comparison graphs like the one in Figure 4 to the Annex. This permitted the report to focus on energy efficiency policy developments since 2009 instead of country comparisons.

Downplaying the country comparison graphs helped the IEA minimise another issue; comparing policy stringency and scope across countries. For example, in the questionnaire, two countries could receive “fully implemented” if they had recently set fuel-efficiency standards for road vehicles, even if the stringency of these standards was much tougher in one country than the other. By moving the country comparison graphs to the Annex, these kinds of evaluation limitations were less obvious.

A related issue involved how to demonstrate stringency improvements within a country since the 2009 evaluation; i.e. some countries received the maximum ‘fully implemented’ score in 2009 but had strengthened policies since then. The IEA addressed this by noting the stringency improvement within the report text (graphically it was impossible).

Figure 4. 2009 Implementation of applicable IEA recommendations³, country comparison



Evaluation results

The 2009 Evaluation report provided an overview of areas where the IEA considered a country to be progressing towards maximising its energy efficiency policy implementation efforts, and identified areas where further action was required. The report revealed that governments were implementing a wide array of innovative energy efficiency measures. These included national strategies and action plans, minimum energy performance requirements (MEPs) for appliances and equipment, financial instruments and other policies to improve building energy efficiency, adoption of standby power policies and the phase out of inefficient lighting. Policies also promoted proper tyre inflation and provided incentives for energy utilities to improve end-use energy efficiency.

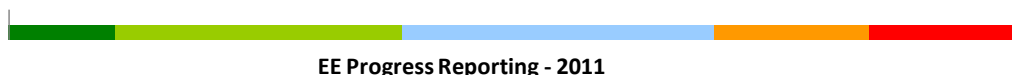
The 2011 Evaluation revealed important energy efficiency policy developments since 2009 (Figure 5 and Figure 6). These developments included strengthened MEPs in building codes,

³ That is, proportion of all recommendations minus “not-relevant” recommendations.

implementation of building certification schemes and increased collection and publication of information on energy efficiency in existing buildings. In the appliance and equipment sector, IEA member countries were strengthening and expanding MEPs and implementing standby power requirements.

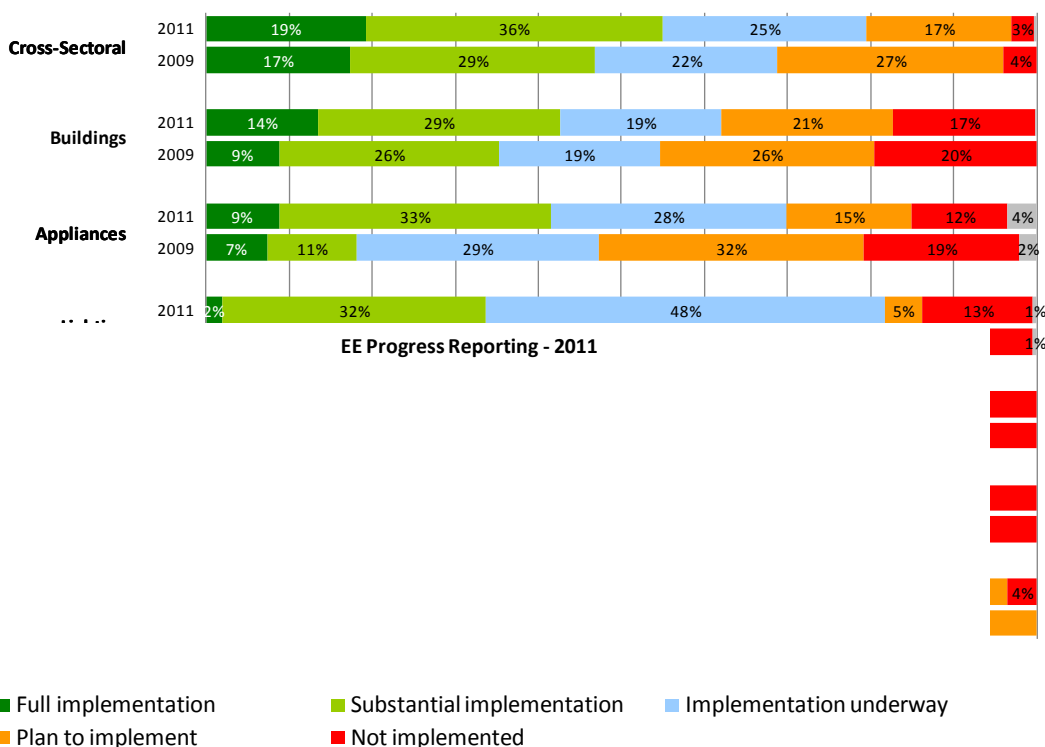
The transport sector experienced noteworthy policy development since 2009, especially with regard to regulations for tyre-pressure monitoring systems (TPMS), tyre rolling resistance and labelling, CO2 emissions standards for passenger cars and policies to promote eco-driving and feedback instruments, particularly in EU member states. Energy management and promotion of MEPs for motors had strengthened energy efficiency policy in industry, and some countries had further implemented policies to encourage energy utilities to deliver cost-effective energy savings to end users.

Figure 5. Implementation of all applicable recommendations, all IEA member countries



■ Full implementation
 ■ Substantial implementation
 ■ Implementation underway
■ Plan to implement
 ■ Not implemented

Figure 6. Implementation by sector of all applicable recommendations, all IEA member countries



The following text provides more details about cross-sectoral, buildings, appliances, light, transport, industry and energy utility policy developments.

Cross-sectoral. Five of the 25 IEA energy efficiency policy recommendations aim to help governments set effective cross-sectoral frameworks for energy efficiency. Since 2009, IEA member countries have made some progress with developing cross-sectoral policies. Several governments are implementing policies that were only planned in 2009. Others have improved implementation of policies already under way.

Figure 7. Cross-sectoral results

Recent policy highlights	Areas for further development
<ul style="list-style-type: none"> • Many IEA member countries implementing policies to increase energy efficiency investment. • New efforts to ensure voluntary and mandatory energy efficiency policies are adequately monitored, enforced and evaluated in Australia, Canada, the European Union, Turkey and the United States. 	<ul style="list-style-type: none"> • Improve national energy efficiency strategies and action plans. • Expand efforts in financing, particularly with the development of savings verification and measurement protocols, and establishing public-private partnerships. • Increase efforts to promote risk-mitigation instruments, such as public-private partnerships. • Improve quality and coverage of energy indicators.

Buildings. The 2009 evaluation found that energy efficiency requirements for buildings were a key feature of all IEA member country policies.

At the time of the 2011 evaluation, many IEA countries reported recent policies to strengthen building energy efficiency. In May 2010, for example, EU Member States adopted the Energy Performance of Buildings Directive Recast (2010/31/EU), which articulates the application of minimum requirements to the energy performance of new and existing buildings.

Figure 8. Building sector results

Recent policy highlights	Areas for further development
<ul style="list-style-type: none"> • Policies put in place to strengthen building codes for new buildings in Canada, Korea, Luxembourg, Netherlands and the United Kingdom. • Building certification implemented and strengthened in the European Union. • Information on energy efficiency in existing buildings systematically collected and reported, with limitations, in Canada, Germany, Japan, Korea and New Zealand. 	<ul style="list-style-type: none"> • Strengthen minimum energy performance requirements (MEPS) for new and existing buildings. • Enforce building codes and MEPS. • Scale up construction of positive-energy houses (PEHs) and zero-energy buildings (ZEBs). • Implement policies to increase the rate of deep renovations to meet strengthened MEPS for existing buildings. • Increase efforts to promote energy-efficient windows and glazing.

Appliances and equipment. Since 2009, IEA member countries have made substantial progress with implementing policies to improve the energy efficiency of appliances and equipment.

Figure 9. Appliance and equipment sector results

Recent policy highlights	Areas for further development
<ul style="list-style-type: none"> • MEPS strengthened and expanded to cover new appliances and equipment in many IEA member countries. • Introduction of new MEPS and labelling for televisions, set-top boxes and digital television adaptors (DTAs) in Australia, Canada and Japan. • Many planned standby power requirements are now implemented. 	<ul style="list-style-type: none"> • Ensure that network-connected electronic devices minimise energy consumption, with a priority on establishing industry-wide protocols for power management. • Ensure that appropriate policies are in place to encourage television service providers to deliver a product that is as energy efficient as possible.

Lighting. IEA member countries continue to implement policies to increase energy efficiency in the lighting sector.

Figure 10. Lighting sector

Recent policy highlights	Areas for further development
<ul style="list-style-type: none"> • All but two governments continue to phase out inefficient incandescent lamps. • Canada, Japan, the Netherlands, the United Kingdom and the United States support international efforts to stimulate adoption of higher-efficiency alternatives to fuel-based lighting in off-grid communities in developing countries. 	<ul style="list-style-type: none"> • Develop measures for promoting energy efficiency in non-residential lighting. • Support adoption of high-efficiency alternatives to fuel-based lighting.

Transport. Four of the 25 energy efficiency policy recommendations focus on road transport and include policies to improve fuel economy standards for light- and heavy-duty vehicles, eco-driving and tyre energy efficiency. IEA member countries have implemented many of these recommendations since the 2009 evaluation.

Figure 11. Transport sector results

Recent policy highlights	Areas for further development
<ul style="list-style-type: none"> • The European Union adopted regulations for TPMS, tyre rolling resistance and labelling. • Japan started a voluntary tyre labelling scheme. • The European Union adopted a regulation for CO2 emissions for light-duty vehicles. • The United States tightened CAFE standards for model year (MY) 2012-16. • Gear-shift indicators mandatory in all new passenger cars with manual transmission in the European Union. 	<ul style="list-style-type: none"> • Create fuel efficiency standards and labelling for heavy-duty vehicles. • Ensure implementation of planned policies. • Include eco-driving in driving education.

Industry. There has been some progress with implementing policies to promote energy efficiency in Industry.

Figure 12. Industry sector results

Recent policy highlights	Areas for further development
<ul style="list-style-type: none"> • Coverage of industry energy statistics is high in all countries, particularly in Canada, Denmark and Switzerland. • Developments in policies to promote MEPS for motors in the European Union, Japan, the United States and other countries. • Energy management in industry strengthened in Australia, Norway, Slovak Republic and the United Kingdom. Several governments have made advances in policies for SMEs, including Italy, Slovak Republic, Spain and Sweden. 	<ul style="list-style-type: none"> • Examine barriers to the optimisation of energy efficiency in electric motor-drive systems, and design and implement comprehensive policy portfolios aimed at overcoming such barriers. • Design and improve policies and measures to assist small and medium-sized enterprises (SMEs).

Energy utilities. If the right institutional framework and enabling conditions can be established, energy utilities can play an important role in delivering end-use energy efficiency. The 2009 evaluation found that over half of IEA member countries had some form of policy to encourage utilities to promote end-use energy efficiency. At the time of the 2011 evaluation, several IEA countries reported further implementation of policies to encourage utilities to deliver cost-effective energy savings to end-users.

Figure 13. Energy utility results

Recent policy highlights	Areas for further development
<ul style="list-style-type: none">• Further implementation of policies to encourage utilities to deliver cost-effective energy savings to end-users in Canada, Denmark, Ireland, Poland, Spain, the United Kingdom and United States.	<ul style="list-style-type: none">• Devote more attention to providing incentives for utilities to promote energy efficiency in all IEA countries.

Conclusions

In conclusion, member countries were supportive of the steps the IEA took to improve the 2011 Evaluation while maintaining comparability with the 2009 Evaluation. In particular, they were satisfied with the format in which the evaluation was published; the qualitative policy evaluation results were published within the IEA Statistics Scoreboard 2011 as a complement to the quantitative assessments of energy savings allocated to energy efficiency in member countries from 1974 to 2008 (the most recent year for which detailed data are available). Together, the evaluation results and energy indicators show some evidence that energy efficiency trends are improving after disappointing progress in the 1990s. It also highlights the importance of data and indicator collection to assess policy impact.

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