Compliance: Who Cares?

Mark Ellis and Zoe Pilven, Mark Ellis & Associates
Christine Egan and Yamina Saheb[1],
Collaborative Labeling and Appliance Standards Program

ABSTRACT

National energy efficiency standards and labelling (S&L) programs form an important element of most national energy efficiency policy portfolios and S&L programs are expanding in scope in response to the need to improved energy efficiency and reduce greenhouse gas emissions.

Non-compliance with energy efficiency programs represents not only a lost opportunity for energy and CO_2 savings, but results in increased costs of unit savings (both energy and CO_2). Perhaps more importantly in the longer run, awareness of non-compliance erodes the credibility of energy efficiency programs in the eyes of both industry and consumer participants.

The improvement of monitoring, verification and enforcement (MV&E) activities are therefore at the heart of establishing energy efficiency as a reliable source of energy and greenhouse gas savings; however this area appears to have received less attention than policy development in many energy efficiency programs. To gain a better understanding of the status of compliance activities the Collaborative Labelling and Appliance Standards Program (CLASP), with funding from Climate Works Foundation, initiated an international survey of G20 countries plus Chile and Tunisia, focusing on the most mature types of programs: appliance standards and labels.

The results of this survey indicate considerable potential to improve the MV&E structures and practices surrounding S&L type energy efficiency programs. With this would come greater certainty of outcomes and increased energy and greenhouse gas savings. Just as importantly, attending to issues of compliance is vital to maintaining confidence in these programs by participants and consumers, and therefore to maintain and raise future participation levels. Given the increasing importance of these programs within national energy and climate policies, the modest levels of investment required to improve MV&E practices are a pre-requisite to ensuring the outcomes desired by governments.

Introduction

National energy efficiency standards and labelling (S&L) programs form an important element of most national energy efficiency policy portfolios and are widely recognized to have made a significant contribution to improved energy efficiency and the reduction of greenhouse gas emissions (IEA 2007). As greater emphasis is placed on energy efficiency within national energy and climate policies, S&L programs have expanded in scope to cover an increasing range of products and continue to be adopted by more countries and regions (IEA 2009).

The extent to which S&L programs, like any other program type, are successful in delivering the predicted savings in energy and greenhouse gas emissions depends upon a range of factors, including the design, stringency and implementation of measures. The study

[1] Yamina Sahib is no longer affiliated with CLASP.

described in this paper focuses on one of these critical factors – the potential to improve outcomes through ensuring that products within the scope of S&L programs adhere to the rules of these programs. This subject is often referred to as 'compliance' although it can also be broken down in a number of processes involving monitoring, verification and enforcement (MV&E)[2].

There are numerous benefits of improving compliance rates, not least the impact on increase energy savings and improved credibility amongst product suppliers and consumers. These have been discussed elsewhere (Ellis et al. 2009) and are not expanded on in this paper, which concentrates on describing a study undertaken during late 2009 and early 2010 into the MV&E infrastructure and processes used by S&L programs in a number of countries. This study has been initiated by the Collaborative Labelling and Appliance Standards Program (CLASP), with funding from Climate Works Foundation.

The primary aim of this project is to develop an understanding of the strengths and weaknesses of the infrastructure and capacity used by both mandatory and voluntary national S&L programs. As background, it should be noted that information on compliance rates in these types of programs is patchy at best which means that there is no ability to reliably identify a direct relationship between existing processes and levels of compliance. Nor is there an agreed standard or optimal structure yet developed to act as a benchmark against which to measure MV&E activities.

However the study has been informed by what is known about compliance practices in general, and widely accepted with respect to S&L programs. Those involved in compliance across many fields point towards the importance of establishing a 'compliance regime' that raises the perceived risks of non-compliance to the extent that the actors try to be compliant (see Mazur 2008; Zaelke et al. 2005). This is part of what is sometimes referred to as a 'culture of compliance'. The concept of a regime is important since the term encompasses the legal framework, individual monitoring and verification processes, enforcement powers and actions acting consistently to provide a coherent system.

There are many components to an effective compliance regime including those identified above. Some elements are frequently underestimated, for example, assisting compliance through educational processes to ensure that the target audience is aware of their obligations. Given that the aim of a compliance regime is to raise perceptions of risk, the role of publicizing MV&E actions has great importance. Making stakeholders aware of the monitoring and market surveillance activities that are undertaken, notifying suppliers or retailers of the results, regularly listing enforcement actions – these are amongst the many ways to make MV&E more visible and therefore increase perceptions of risk.

Many of these key elements in an effective regime are included in the following recommendations made by the IEA to G8 leaders in 2008:

> "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:

[2] In this context, monitoring refers to the gathering of information regarding the adherence to the rules of an S&L program, verification refers to the processes to ensure that product performance is actually as claimed by a supplier, and enforcement refers to identifying non-compliance and implementing the range of sanctions that may be applied in cases of non-compliance

- Considering and planning for optimal compliance, monitoring and evaluation procedures at the time new policies and measures are formulated;
- Establishing legal and institutional infrastructure for ensuring compliance with energy efficiency requirements;
- Ensuring transparent and fair procedures for assessing compliance, including specification of the methods, frequency and scope of monitoring activities;
- Ensuring regular and public reporting of monitoring activities, including instances of non-compliance;
- Establishing and implementing a suite of enforcement actions commensurate with the scale of noncompliance and the value of lost energy savings" (OECD/IEA 2008)

Building on this list of core elements, this project compares the approaches used by 30 similar energy efficiency programs in 14 countries. While the main aim was to collect information on the institutional powers, staffing, the allocation of resources, MV&E processes and the provision of public information in each program, it was decided to use the opportunity to collect information on the level of MV&E activity undertaken in each country where available.

At the time of writing, the final report had not been completed, and some additional information is still in the process of being sought and analyzed. As a consequence, the results described in this paper should be regarded as preliminary.

Methodology

The project used a survey process based on a questionnaire designed to capture separate information for each type of S&L program (MEPS, mandatory and voluntary labelling) where programs are individually administered. However, where programs are administered by the same government department / agency, it is frequently impossible to break down the responses by program type. Particular attention was given to ensure that the survey was sufficiently generic so as to be applicable to the different program designs and terminology used in each country. Even so, of the 66 questions not all were applicable to every program.

The questionnaire was provided to known government employees involved in the management of S&L programs who were offered the opportunity to respond by phone in order to save time (by clarifying queries in relation to the response immediately) or electronically. A phone response also allowed the consultants to ensure greater consistency in interpreting the questions. To date around 50% of respondents have chosen to complete the survey without assistance, primarily due to their limited capacity to communicate in English or a desire to conduct the survey according to their own schedule.

Distribution of the questionnaire and the collection of responses ran from October 2009 to February 2010.

G20 countries were the primary target for the survey however programs in Tunisia and Chile were also included. The inclusion of more countries from Europe was also considered, however it was decided instead to co-ordinate with a concurrent survey of EU Member States being run by the ATLETE project (ATLETE 2010). This built on earlier studies of MV&E practices (ANEC 2007; Fraunhofer et al. 2009) in relation to the energy labelling directive (EC, 1992). While there are differences between the foci of the ATLETE and CLASP surveys, there are sufficient similarities to be able to use the results to make valuable comparisons.

The findings reported in this paper summarize the responses from the 30 programs spanning 14 countries identified in Table 1. The remaining G20 countries not on this list either did not have an active S&L program or were not able to provide a survey response in time for this paper. It should also be noted that not all respondents were able to provide answers to all the questions, either because the information was not available, unknown or not applicable. Therefore the results shown here include only cases where a useful response was received. In many instances, the processes and activities of different S&L programs within one country are indivisible and therefore responses were provided that combined different programs.

Table 1: Countries and S&L Programs Included in the CLASP Survey Results

Country	ISO Abbreviations	MEPS	Mandatory Labelling	Voluntary Labelling
Argentina	AR	X	X	
Australia	AU	X	X	
Canada	CA	X	X	X
Chile	CL		X	
China	CN	X	X	
Germany	DE	X	X	
India	IN		X	X
Italy	IT	X	X	
Japan	JP	X (1)	X	X
Mexico	MX	X	X	
South Korea	KR	X	X	X
Tunisia	TN	X	X	
United Kingdom	UK	X	X	X
USA	US		X	X

Note (1): This program is Top Runner which is not a minimum energy performance standard but is classified with MEPS for this study.

Key Findings

The following section describes the major findings of the survey based on responses received to the questionnaire, augmented in some cases by responses to questions of clarification or supporting information provided to the researchers. Reference is also made to the results of studies undertaken in Europe.

Legal framework

Almost all S&L programs have a foundation in law and this applies not only to mandatory programs but also to most voluntary labelling programs. While the legal instruments vary, many provide the powers to undertake enforcement actions and describe the available sanctions. In the case of labelling programs in particular, sanctions may fall under consumer

protection law, rather than be included in the program's enabling legislation. In addition to sanctions, enabling legislation tends to be most prescriptive on compliance activities when a third party, such as a certification body or implementation agency, is involved. For example, the European regulation (No. 765/2008) describes the requirements for compliance and enforcement activities to be implemented by Member States.

All respondents were able to clearly identify the entity responsible for compliance in relation to energy efficiency programs, which in several cases is different from the agency with overall responsibility for the program. Obvious examples include the situation in Europe where policies are determined centrally but compliance is the responsibility of member states; and the different roles of commonwealth and state governments in Australia. Other countries with centralised government structures also have different agencies responsible for compliance. For example, responsibility for compliance with the mandatory labelling program in Argentina resides with the Secretariat of Commerce, while overall management is provided by the Secretariat of Energy. In some cases the delineations of responsibility may be constitutional, while in other cases they may reflect a desire to reduce any potential conflict of interest. While this survey was not able to identify any common issues with these types of arrangements, there is clearly a need for a high level of attention to co-ordination in these circumstances.

Allocation of Resources

Less than half the respondents were able to provide information on the total resources allocated to compliance activities. In a minority of cases this was explained by the split in responsibilities; however the main cause appeared to be the lack of an itemized budget for compliance activities. Few countries were able to identify the quantity of staff time devoted to compliance. Clearly many program staff undertake multiple responsibilities and compliance may be part of several people's jobs, so the staff time devoted to this topic may not be transparent. A further issue may be that some programs use external personnel for aspects of this work, in which case they pay for services, rather than employ staff directly. Similarly, many European Member states are unable to identify staff resources allocated to compliance activities; however there is considerable variation amongst those that can. For example, in Hungary, Lithuania and Slovakia the number of part time staff working in compliance are 30, 11 and 10 respectively. Denmark has approximately 5 part time staff, while the Netherlands and the UK have 4 and 6 fully time staff respectively (ATLETE, 2010).

Table 2: Annual Financial and Staff Resource Allocation for Compliance Activities (Responding Countries)

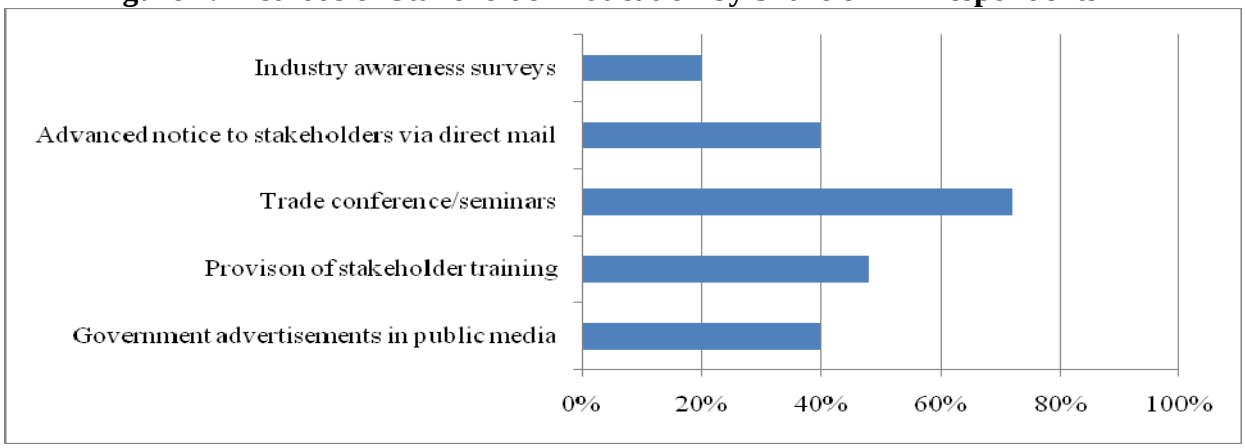
Country	**AU**	**CA**	**JP**		**IN**	**MX**	**KR**			**UK**
Program	*M&L*	*M&L*	*TR*	*VL*	*ML & VL*	*M&L*	*M&L*	*M&VL*	*VL*	*M&L*
USD (000's)	450	500-750	450	1730	n.a.	184	320	160	162	600-1500
Person/yr	n.a.	0.2	5	5	>4	n.a.	0.9	0.6	3.8	n.a.

Key: M = MEPS; L = Mandatory Label; VL = Voluntary Label; M&L = MEPS & Mandatory Labelling; TR = Top Runner

Stakeholder Education

Most countries provide a range of educational opportunities to stakeholders to make them aware of their obligations under the mandatory or voluntary programs. These include public adverts, direct mail, trade conferences and specific training activities, depending upon the type of stakeholders to be reached and the product. On the other hand, very few respondents indicated that stakeholders were surveyed on their understanding of programs requirements as a means to determine whether the information provided was effective in reaching the target audience.

Figure 1: Methods of Stakeholder Education by Share of All Respondents



The lead-times given to stakeholders to enable them to adjust to new requirements varies according to whether this relates to the introduction of a new program or a minor change to an existing requirement. Stakeholders are alerted to most significant changes at least 12 months in advance of their introduction, and is this usually in addition to the consultation processes involving stakeholders. Some voluntary programs have shorter lead-times but several have similar lead times to mandatory regulations.

Entry Conditions and Performance Claims

Most, but not all, programs have compulsory conditions that must be met for the product to participate within a program; that is suppliers must go through a process to provide information on the product energy performance or make a self-declaration that the product meets the program's energy performance requirements. There is considerable variation between programs in how these entry conditions are satisfied. For example, where product performance information is required, over nearly 60% of programs require products to have test reports from an independent certified laboratory or to have passed a verification process. Other programs allow information from a range of sources including in-house testing, calculation and self-declaration.

It is noteworthy that while the majority of programs provide consumers with information to identify which individual product models are covered and their energy performance, programs with no centralised process of data collection or certification do not have this information available.

Market Surveillance Activities

The majority of programs undertake the surveillance of products entering or in the marketplace, although the exact function of these activities vary depending upon the type and design of individual programs. Common reasons for undertaking surveillance are to check that entry conditions have been met by all products within the scope of the program; and to check that rules regarding the display of labels are being adhered to.

The most common method used is via visual checks at retail outlets, often used in conjunction with information obtained through other sources, such as registration processes or provided by border controls. Given that many of the products included within the scope of S&L programs are internationally traded, it is surprising that only two programs mentioned the use of border controls as part of their surveillance processes. While many surveillance activities include marketing catalogues, fewer monitor Internet sites, although web-sales are increasingly popular. In the EU, less than half the Member States carryout checks on catalogues or Internet sites (ATLETE, 2010).

While most programs undertake surveillance activities, there appears to be a considerable variety in the extent of these monitoring activities. While a few countries provided evidence of comprehensive and well-planned market surveillance activities, the majority appear to be irregular. The situation however is improving with a number of countries, particularly the UK, indicating that plans are underway to develop more comprehensive monitoring processes.

The majority of programs have systems in place to respond to cases of non-compliance found through market surveillance, and these tend to involve initial warnings and requests for corrective action, followed by the threat of sanctions. Only three respondents were able to identify the number of times that these procedures had been followed in the recent past.

Verification Testing

Over 80% of programs undertake product testing to check energy performance requirements or claims. In several cases, testing is under the control of a separate entity, such as a certification organisation, and therefore not all respondents had access to the results of testing. As shown in Table 3, the number of verification tests completed over the past three years by different programs varies, and generally does not appear to relate to the number of products within the program. There is a significant increase – of almost 40% - over the three-year period shown in Table 3, however it should be noted that most of this can be attributed to the testing conducted in the UK in 2008.

Of the 25 EU Member states recently surveyed, only 12 perform verification tests in practice; and these undertake between 1 and 200 tests per year (ATLETE, 2010).

Table 3: Number of Verification Tests Completed

Country	AU	CN	IN	JP	MX	KR			UK			US
Program	M&L	M&L	L&VL	TR	M&L	M	L	VL	L	M	VL	VL
2006	58	54	0	0	91	180	84	160	13		75	36
2007	113	73	7	0	132	228	88	135	18	100		11
2008	88	124	n/a	24	108	142	93	82	300		82	n/a

Key: M = MEPS; L = Mandatory Label; VL = Voluntary Label; M&L = MEPS & Mandatory Labelling; TR = Top Runner

The number of verifications tests undertaken are reflected in the programmatic expenditure on tests shown in Table 4, although the cost of individual tests depends upon the particular product under examination as well as the national cost structure. These results are consistent with European surveys of compliance:

> *"There are very large differences in resources used for market surveillance between Member States. The Netherlands and Denmark e.g. spend about 300,000 Euro annually, while a number of countries do not spend anything at all. Similarly, some countries make 60-70 tests annually while others do not make any tests. It is, however, difficult to assess and compare Member States' market surveillance activities since the degree to which Member States test appliances with the objective of measuring compliance of a product against several Directives (several requirements) varies strongly." (Fraunhofer et al. 2009)*

It is interesting to note that the average annual expenditure is approximately USD150,000, which is small in comparison to the costs of the savings achieved or the costs of other energy efficiency program types, particularly the provision of financial incentives.

Table 4: Approximate Annual Expenditure on Verification Tests (USD '000s)

Country	IN	JP	MX	KR			UK	US
Program	L&VL	TR	M&L	M	L	VL	M&L	VL
2006			$56	$177	$115	$98		$100
2007	$91	-	$80	$197	$121	$82	$145	$100
2008	$251	$100	$65	$212	$123	$91	$570	$100

Key: M = MEPS; L = Mandatory Label; VL = Voluntary Label; M&L = MEPS & Mandatory Labelling; TR = Top Runner

Where programs undertake verifications tests on a selection of products, these tend to be chosen on the basis of their higher than average risk of failure. This is usually based on market share, competitor information (if available), new market entrants, poor supplier record or market sector specific information. Samples are usually sourced from retailers, although some programs are provided with products directly from manufacturers. Typically, verification tests are conducted on between one and three samples, often depending on the category of product. In several cases programs use a two-stage process, beginning with a single sample and only increasing the number if tests of the first one fails.

Interestingly, the reported failure rate from verification tests is extremely varied ranging from 0% to 100%, as shown in Table 5. Considerable care needs to given to the interpretation of these results, and in particular it cannot be inferred that these figures are indicative of the performance of the stock of products in any country. The reasons for this include:

- This data provided may contain the results of initial screen tests and not those of final verification tests. It is usual for the number of products failing a screen test to be greater than those failing a final compliance testing process;
- As found in the survey, most countries use a process to target verification tests at products with a higher than average risk of failure. Where a high rate of non-compliance is found, this may therefore reflect the effective targeting of non-compliant products in the marketplace;
- Low rates of non-compliance may also be due to the approach taken in some programs where suppliers are given the opportunity to take corrective action before a test is deemed to have 'failed'.

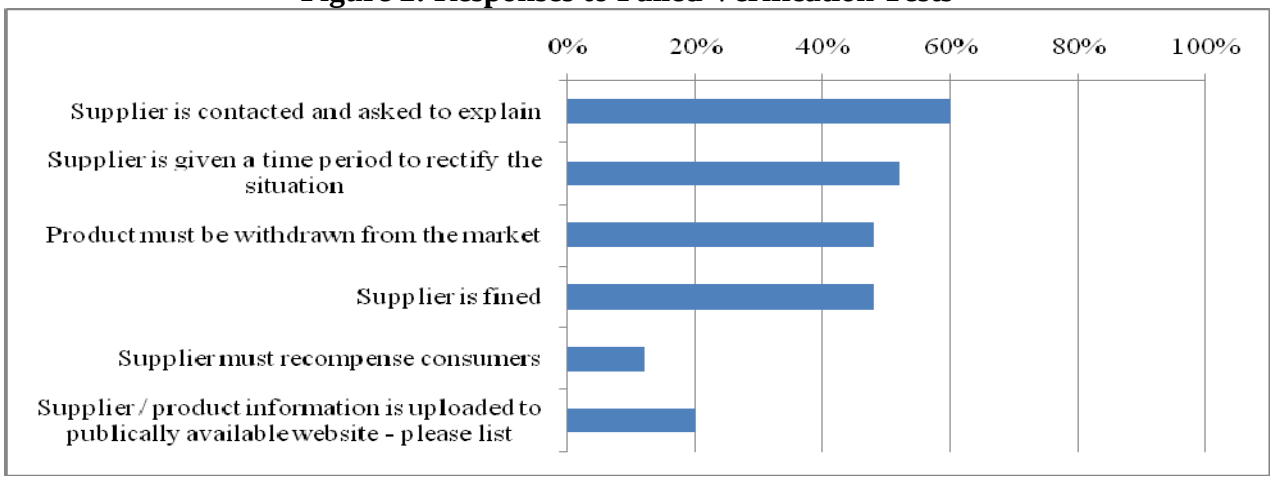
Table 5: Share of Verification Tests Producing a Failure

Country	**AU**	**CN**	**MX**	**KR**			**UK**			**US**
Program	M&L	M&L	M&L	M	L	VL	L	M	VL	VL
2006	48%	20%	5%	12%	0%	4%	20-66%			0%
2007	33%	4%	5%	18%	6%	13%	83%	19%		10%
2008	40%	2%	5%	7%	3%	27%	54-100%		66%	n/a

Key: M = MEPS; L = Mandatory Label; VL = Voluntary Label; M&L = MEPS & Mandatory Labelling

Not all respondents were able to explain the process used when a product fails a verification test, however the 60% of programs that could used a process that involved several potential responses. As indicated in Figure 2, the common initial response is to seek an explanation from the supplier, who is asked to provide a remedy. Usually only when this fails do more drastic actions, such as fines, or removal from the program, occur.

Figure 2: Responses to Failed Verification Tests



When asked about the frequency of these sanctions over the past three years, very few respondents were able to provide details. Only about one-quarter of programs make information on the number, frequency and general outcome of tests conducted publicly available, and these programs also tend to identify individual products that have failed.

Publication of Compliance Activities and Results

Only one-third of programs make the number of tests conducted, including pass / failure rates available publically. One-quarter of programs identify specific details of products that have failed verification test in this published information. Similarly, only 5 of the EU Member States publish results (ATLETE, 2010). This low level of results reporting is of concern given the potential impact that this information has amongst participants in terms of raising awareness of the risks of non-compliance.

Industry Views on Compliance

There appears to be little agreement amongst industry on whether it wishes to see increased or decreased compliance, with industry views varying considerably between countries and by product. However, there is almost universal agreement amongst respondents that industry considers that the risks of their products being found to be non-compliant outweigh the costs of meeting program requirements. If this is an accurate reflection of industry perceptions, then it suggests that the current range of compliance regimes in place are working well. However, to gain a better understanding of these important issues, further direct interrogation of industry participants is needed.

Assessment of Program Coverage and Overall Rates of Compliance

The number and the market share of models impacted on by energy efficiency programs was not known by all respondents, which is perhaps surprising given how fundamental this data is to understanding the potential impact of a program. Some mandatory and voluntary programs however, provided very detailed records of program coverage. Similarly only about half of all respondents were able to say whether overall compliance rates were assessed. Amongst these, most held the view that compliance rates were increasing.

Evaluation

Ex-ante program evaluations are undertaken for all mandatory programs, often in part to satisfy national governance requirements for new regulations, and for most voluntary programs. Ex-post evaluations are generally less common, particularly for voluntary programs. Not all respondents were able to say what levels of compliance were assumed within program evaluation, however 100% compliance was the most commonly assumed rate amongst those that knew. Several respondents typically used lower compliance rates in the range from 75% to 90%. One respondent noted that different compliance rates are assumed for different products.

Conclusions

Based on the information gathered from survey respondents, the following preliminary conclusions have been drawn:

- The majority of programs appear to have adequate legal basis to support compliance activities, and also have in place appropriate MV&E processes. All respondents were able to clearly identify the entity or entities responsible for MV&E, and many noted that enforcement powers were included within the legal framework for the program.
- While the legal and administrative frameworks underpinning programs in most cases identify appropriate procedures, there is considerable variation in the amount of MV&E activities that are carried out in practice.
- Few programs appear to have defined budget allocations and forward plans for a range of MV&E activities, and without these there is a risk that MV&E activities may be viewed as discretionary and compete with resources for other aspects of program management. In order to ensure MV&E are undertaken in practice it would be worthwhile for governments to require the regular production of forward plans for MV&E activities, and appropriate budgeting. Consideration should also be given to whether these requirements are included within enabling legislation or through administrative arrangements.
- The lack of readily available records on MV&E surveillance and verification activities suggests that there is more that can be done to publicise whatever compliance processes are undertaken, and their results. It would be worthwhile for governments to maintain records of MV&E surveillance and verification activities and make them publically available in order to highlight the risks of non-compliance.
- Most programs have the capacity and well-worked out processes for enforcement action, including remediation, as described by respondents. However, very few were able to provide detailed records of enforcement actions that had been undertaken in the recent past. The reasons for this are speculative, however it suggests that either there are few accessible records of these activities, or they occur very infrequently. It would be worthwhile for governments to keep better records of compliance actions and make them publically available in order to make stakeholders aware of the range and frequency of enforcement activities.
- Ensuring that all products within the scope of mandatory S&L programs meet program requirements is a complex and on-going task that involves several related processes. While there are different approaches to how this is achieved, the effectiveness of a program's compliance regime would likely be improved considerably with the availability of a centralised listing of product models that are part of program. Such information can be gained through the use of market entry conditions involving registration or certification processes, and be used to increase the effectiveness of market surveillance checks.
- While it is recognised that responsibility for day-to-day MV&E activities may be shared amongst staff, it is important that their activities are co-ordinated and recorded. It would

be useful for governments to ensure clear lines of responsibility for MV&E activities within each S&L program.

- Where responsibility for MV&E is devolved to an entity other than that with primary responsibility for the program, even though this may be justified to avoid the potential for conflicts of interest, there may be issues of co-ordination that need addressing. Special attention needs to be addressed to this issue when responsibility is split.
- Some comments from respondents indicate programmatic evaluations take little regard of compliance rates and therefore may be inaccurate. It is important for governments to include realistic compliance rates within their program evaluations.
- There is considerable variation in MV&E structures used in different energy efficiency S&L programs and many examples of interesting approaches. For example a few programs have integrated border controls within their MV&E process, and most programs are coming to terms with the challenges of distance selling. It would be worthwhile for governments to devote more attention to transferring experiences and approaches between programs with each other.

The results of this survey were found to be consistent with recent surveys on compliance activities undertaken in Europe (Fraunhofer, 2009; ATLETE, 2010) and indicate considerable potential to improve the MV&E structures and practices surrounding S&L energy efficiency programs. With this would come greater certainty of outcomes and increased energy and greenhouse gas savings. Just as importantly, attending to issues of compliance is vital to maintain confidence in these programs by participants and consumers, and therefore to maintain and raise future participation levels. Given the increasing importance of these programs within national energy and climate policies, the modest levels of investment required to improve MV&E practices are a pre-requisite to ensuring the outcomes desired by governments.

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