



Implementing Agreement for a Co-operative Programme on Efficient Electrical End-Use Equipment (4E)



**End-of-Term Report
2008-2014**

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Preface

4E was launched in 2008 to provide a forum for international collaboration between countries on energy efficiency policies and technologies for appliances and equipment.

Much has happened during our first five years. Firstly, the profile of energy efficiency has grown, becoming recognised as an essential component in many national strategies to address climate change, energy security and kick start economic revival through developing clean energy technologies.

Secondly, after an initial period where 4E focused on research, we have seen the intense work of the Annexes bear fruit and as more 'results' become available, and this has meant a greater emphasis on 4E's outreach activities. The effectiveness of 4E's communication and dissemination to key target groups has been impressive: with over 180 publications in several languages, 4E is now referenced by governments, policy makers and industry as a source of authoritative and comprehensive information.

Over the past five years, we have also seen the emergence of new international fora in CEM, IPEEC and SEAD, while the Asia-Pacific Partnership (APP) is no longer with us. 4E's collaborations with these and other organisations play a key role in broadening the influence and uptake of our work. During 2011, there has also been the opportunity to expand our dialogue with industry, most notably through the Solid State Lighting and Motor Systems Annexes.

From the outset, 4E has attempted to deliver projects that answer some of the key questions faced by Governments – concerning both technology and policies. The fact that we have seen widespread reference to 4E's work suggests that the projects selected are proving to be strategically important. Here, 4E's evaluation of which energy efficiency policies have really worked, in lighting, motor systems and electronics, across most major economies, form a sound basis for governments to develop better national and international policies in the future.

Looking back at the end of five years, I am happy to say that my expectations have been exceeded and 4E is now established as a significant player within the energy efficiency environment. Most importantly, our member governments continue to believe that 4E has a valuable contribution to make.

This Report summaries the impressive achievements of 4E over its first five years. As you read it, I urge you to reflect on the enormous amount of work that has been done behind the scenes by 4E's national delegates, technical experts, consultants and Operating Agents throughout the first 5 years. My heartfelt thanks goes to all of them for their dedication and hard work.



Hans-Paul Siderius
Chair, 4E Implementing Agreement
2008-12

1 Introduction

At the end of 2006, Peter Cunz, then Chairman of the IEA End-Use Working Party (EUWP), first proposed a new Implementing Agreement to fill the gap in international co-ordinated work on efficient end-use appliances by providing a forum for countries to share expertise, develop their understanding of the technologies and issues involved.

In March 2007, a Definition Workshop was held to discuss the proposal and gauge the level of support from potential participants. The 21 interested parties that took part agreed to proceed with developing a new Implementing Agreement, and in July 2007 an Interim ExCo meeting nominated members and elected interim Chair persons from Denmark and Netherlands.

A second Interim ExCo meeting held in November 2007 considered the proposed 4E scope of work, and identified the first annexes (research projects) to be undertaken by 4E. The formal agreement to establish the IEA Implementing Agreement for Efficient Electrical End-Use Equipment (4E) was signed in March 2008.

This End-of-Term Report provides an assessment of the main achievements of 4E between 2008 and 2014 in terms of the criteria adopted by the IEA CERT Committee.

It draws on information gathered during a mid-term survey and workshop of ExCo members (November 2010), and a further survey undertaken in December 2012.

2 Strategic Direction

Throughout its first term, the activities of 4E has been consistent with the strategies of the CERT and EUWP, contributed to the strengthening of the technology network and interacted closely with the IEA Secretariat, as demonstrated below.

2.1 Provide energy end-use technology policy advice

A cornerstone of 4E's strategy has been to assist governments to develop better energy efficiency policies through the provision of evidence-based information and recommendations.

The Mapping and Benchmarking Annex provides a good example. In 2008, Governments identified a need to compare the performance of electrical equipment across regions and recognised that 4E was in a unique position to access the necessary data. The results have for the first time enabled Governments to better understand how their appliance performance compares to that in other countries, and why. All participating countries have been provided with a detailed report on their national situation (Mappings) as well as the results of the international comparison (Benchmarking), which include recommendations for policy makers.

In the Solid State Lighting Annex (SSL), 4E is in the process of developing an international quality assurance framework so that consumer confidence will not suffer as a result of low quality products entering the market, thereby delaying the uptake of energy efficiency lighting technology. The outputs of this Annex are already being used by governments to shape their national approach to lighting policy.

Based on unique access to data, and the key policy makers responsible for energy efficiency programs across most regions, 4E's analysis is able to be both more comprehensive and authoritative than has previously been feasible. Importantly, it has also enabled 4E to advise governments on the impact of previous policies and evaluate which have been most effective across the fields of lighting, motor systems and electronic equipment.

The recommendations flowing from 4E work have been widely disseminated, particularly through a series of publications summarising the key findings and advice. These 2-page Policy Briefs have proved extremely effective in bringing the key issues to the attention of senior policy makers.

Further information on the dissemination of policy advice to governments and intergovernmental organisations is provided in later sections of this Report.

2.2 Engagement with relevant organisations

4E has pursued a high level of collaboration, both amongst member countries and with relevant external organisations.

Within 4E, the emphasis on collaboration is evident in levels of participation in each Annex by member countries, as shown in Table 4.

Collaborations with external organisations fall into two categories:

- Those where there is an exchange of information and joint activities; and
- Those which are helpful for the dissemination of 4E messages.

2.2.1 Exchange of information and joint activities

Since there are many organisations that work on a national, regional or multinational level in the field of energy efficiency, it is important for 4E to communicate its role and relationship with these organisations. A description of the key multi-national organisations involved in energy efficiency and 4E's role is published on the website (<http://www.iea-4e.org/related-initiatives>) and summarised in our communication materials.

4E works closely with the Super Efficient Appliance Deployment (SEAD) initiative under an MOU that allows for the sharing of information and collaboration. In addition, there are close linkages that result from common participants in both groups.

Other organisations that 4E has been actively engaged with include:

- European Commission (EC): Briefings provided by 4E on key topics and presentations at EC sponsored conferences;
 - These have mainly centred on the outputs of 4E research, particularly Mapping & Benchmarking Reports;
 - These formal presentations have been supplemented by the use of 4E information by Member States in their negotiations with the EC (see Section 6.1);
 - The EC has also provided official observers to several of the ExCo and Annex meetings.
- IPEEC (International Partnership for Energy Efficiency Co-operation): Briefings provided by 4E.
- CEM (Clean Energy Ministerial): Information and recommendations provided by 4E.
- APEC: joint workshops on Standby Power.
- SELINA (Standby and Off-Mode Energy Losses In New Appliances Measured in Shops): Data exchange and joint workshops on Standby Power.
- CLASP (Collaborative Labeling and Appliance Standards Program): Data exchange and joint research, in their capacity as Operating Agent of SEAD.
- Asia-Pacific Partnership (now disbanded): joint workshops on Standby Power.

In 2012, a collaborative 'Community of Practice' (CoP) was launched by 4E, the IEA secretariat and SEAD to focus on the issue of international standards for energy efficiency. This CoP involves governments, the IEA, international standardisation bodies such as the IEC (International Electrotechnical Organisations) and ISO (International Organization for Standardisation) and other stakeholders, with the aim of increasing the relevance of standards for use in national energy efficiency programs.

2.2.2 Dissemination of 4E messages

There is a wide range of organisations and groups that are targeted by 4E as conduits of information to key audiences. Activities in this area are described in later sections of this Report.

2.3 Strengthening of technology network

4E values the relationship with the Energy Technology Network, and with the End-Use Working Party and has sought to strengthen these links where feasible. For example, 4E has provided input to the Technology Network through the following channels:

- The 4E Chair has participated in the IEA Building Co-ordination Group Meetings, providing regular updates of activities and explored opportunities for co-operation.
- Regular updates to the EUWP.
- The CERT Chair attended the 4E ExCo in Zurich, May 2011.
- The 4E Operating Agent presentation to the CERT, February 2012.
- 4E Chair presented at the EUWP meeting, March 2013.

The history of further linkages with other Implementing Agreements is described in Section 2.7

Most 4E Contracting Parties are also members of many other Implementing Agreements, as well as the EUWP and CERT. The ExCo has therefore encouraged delegates to interact with their national counterparts and provide regular briefings on 4E activities in order that they are well-informed and can explore opportunities for further collaboration.

For example, Austria holds regular meetings for all national participants in Implementing Agreements and 4E has worked with the Austrian delegate to provide appropriate materials for these workshops.

4E works particularly closely with the IEA Secretariat. In addition to collaborations on work and the use of 4E analysis in IEA publications (see Section 6.3), the ExCo considers a report on current and future activities provided by the IEA Secretariat at each six-monthly meeting, and IEA staff attend meetings in person when resources allow, usually every alternate meeting.

Through this structural link, ExCo delegates have the opportunity to remain updated with IEA activities, and explore opportunities for future collaboration, especially with the Energy Efficiency Policy Unit.

2.4 Scope

As one of the few Implementing Agreements targeting end-use energy efficiency in appliances and equipment, there is scope for tackling a broad range of issues and technologies. However, the ExCo has taken the view for the first term to limit the number of activities to those that can produce deliverables within the timescale and resource capacity of the Implementing Agreement. Driven primarily by the needs of member governments, this approach has been important in order to establish a reputation for delivering practical solutions in order to maintain and attract new members.

In addition to the detailed work undertaken by the Annexes, the ExCo has initiated a number of events and projects, where new Annexes cannot be justified. The international conference on monitoring, verification and enforcement, held in the UK in 2010, is one example of an ExCo project. More recently, the ExCo has funded research activities in the field of 'policy driven innovation' and 'smart metering infrastructure' which may lead to new 4E activities in the future.

Now that 4E is established, a broadening of scope is envisaged for the second term, covering a wider selection of end-use technologies and cross-cutting issues, as described in the Strategic Plan, 2014-2019.

2.4.1 Activities

The full range of communication and outreach activities is shown in Table 1. This includes 189 individual reports, publications and technical webinars, plus 56 presentations. There have also been 94 meetings, workshops and exchanges of technical or policy information.

Table 1: 4E activities by type, 2008-13

	ExCo	M&B	EMSA	STANDBY	SSL	TOTAL
Reports	8	94	5	14	8	129
Meetings	14	14	1	8	2	39
Workshops	6	0	5	7	0	18
Communication	16	7	3	1	1	28
Newsletters	4	5	11	12	0	32
Scientific/policy exchange	6	0	12	1	18	37
Presentations	9	31	11	0	5	56
TOTAL	63	151	48	43	34	339

The numbers of participants in the various meetings, workshops, scientific/policy exchanges and technical webinars total nearly 3,500, as shown in Table 2.

Table 2: Activities by type and participants

Activity	Number	Participants
Scientific/policy exchange	37	1,461
Meetings	39	1,010
Workshops	18	780
Technical Webinars	6	215
Total		3,466

Further information is available from the 4E website: <http://www.iea-4e.org>

2.5 Funding

4E is managed on a cost-sharing basis, with financial contributions comprising approximately 60% of the total annual budget of around €1million, with the remaining 40% provided by in-kind support. The majority of these financial contributions are made by way of annual membership fees for the ExCo and individual Annexes, with occasional additional payments made for special projects.

Membership fees reflect the cost of the future workplan and associated budgets that are approved by the ExCo on an annual basis. Table 3 summarises the current level of membership fees.

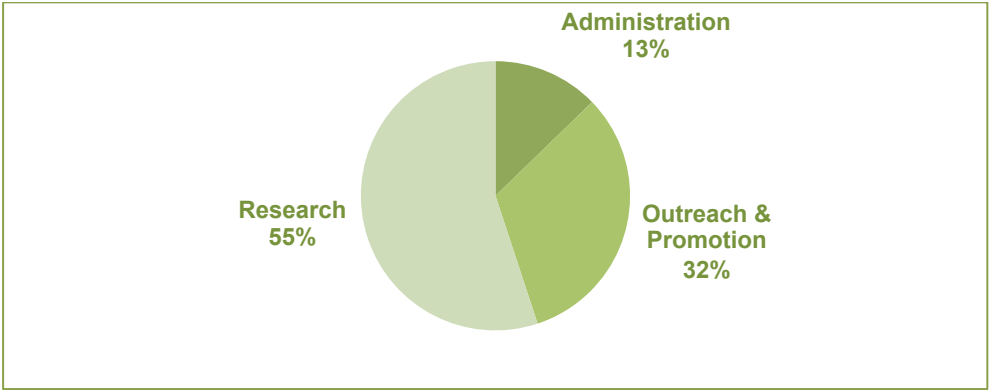
Table 3: Current 4E membership fees

Item	Annual fee (€)	Additions
4E ExCo	10,000	Plus occasional voluntary contributions for one-off events
EMSA	15,000-30,000	
Mapping and Benchmarking Annex	15,000	Plus occasional voluntary contributions for data purchase
Standby Power	2,500	
Solid State Lighting	19,000	

As illustrated in Figure 1, more than half of 4E's total expenditure (ExCo and Annexes) over the five years has been allocated for the key research activities of the Implementing Agreement. Around one-third of the total budget has used for outreach activities, including communication, and this proportion has been growing steadily over recent years with the increase in outputs from 4E.

Administration accounts for only 13% of the combined ExCo and Annexes budget.

Figure 1: 4E allocation of total expenditure, 2008-2013



A full record of income and expenditure is provided by the Operating Agent to delegates at each ExCo meeting, enabling them to undertake their responsibilities for financial management.

While there is considerable pressure on all participants to minimise their contributions, fluctuations in annual fees can also cause problems and most annual fees have remained stable over the five-year period. Considerable efforts are made to ensure that:

- 4E activities are tailored to the needs of participants, and
- The outputs of these activities represent value for money.

It is worth noting that in the 2012 assessment of 4E by participants, 100% of ExCo delegates regard participation in 4E as being cost-effective.

In addition, 30% of countries consider that they have made financial savings as a result of participation in 4E, primarily due to reduced costs in national policy development activities. This has been possible because the outputs of 4E activities have been integrated within national policy development processes to achieve ends that would otherwise have required more costly independent research. The contribution of individual countries towards joint research has been minimised by the pooling of resources under 4E.

2.6 Membership

Table 4 shows the status of 4E Contracting Parties (CPs) between 2008-2013, demonstrating that there is a high level of engagement by members in all 4E activities.

Table 4: Status of 4E Contracting Parties

SIGNATORY	DATE JOINED	PARTICIPATES			
		M&B ANNEX	STANDBY ANNEX	SSL ANNEX	EMSA ANNEX
Australia	March 2008				
Austria	March 2008				
Canada	October 2008				
Denmark	March 2008				
France	April 2008				
Japan	Dec 2010				
Republic of Korea	March 2008				
The Netherlands	March 2008				
South Africa*	Nov 2009				
Sweden	Dec 2010				
Switzerland	March 2008				
United Kingdom	March 2009				**
United States	April 2008				

Notes:

*South Africa joined 4E on the 21 September 2009, through the designated agency SANERI, however was only able to participate in one ExCo (October 2011), and formally announced its withdrawal on 21 June 2012.

** The UK participated in EMSA from October 2008-October 2010

4E has held extensive negotiations with several countries, particularly China, India, Mexico, the Philippines and Germany, as well as the European Commission, which have expressed an interest in joining 4E. In addition to providing information on the benefits of joining 4E, these potential new participants have been invited to attend ExCo meetings as observers in order to better understand the scope and activities of 4E. China, India the Philippines and the European Commission have all attended one or more ExCo or Annex meetings. However, as these cases illustrate, while there are usually agencies within each country that see considerable benefit from joining, there are often internal reasons that inhibit membership and which are beyond the control of 4E. Typically these include:

- A lack of clarity about responsibilities for energy efficiency policy within countries, and/or debate over which agency should join 4E.
- Government entities responsible for policy embargoed from joining IEA Implementing Agreements.
- A misplaced belief that there is a duplication of roles between 4E and organisations such as IPEEC, CEM, SEAD (see 2.2.1 for further information on the relationships between these organisations and 4E).

Experience suggests that these factors have been more significant than the cost of participation, and have led to the 4E ExCo seeking a balance between the pursuit of new contracting parties and meeting the needs of those currently engaged.

The current approach is described by one delegate in the 2012 review: *“4E continues to need to build membership, but remains focused primarily on the needs of member countries.”*

At the time of establishment, the 4E ExCo took the decision to exclude individual companies and industry associations from formally joining 4E, in order to maintain 4E as a government-led group able to discuss policy issues openly amongst delegates. This decision has been reviewed periodically through the first term of 4E and on each occasion there has been unanimous agreement to continue this policy. However, this does not preclude informal links with industry and these have been encouraged, as shown by the extent of industry engagement activities identified in Section 5.

2.7 Contribution to the technology network

4E takes particular care to avoid duplication of activities with other organisations, including those undertaken by other Implementing Agreements. To this end, the Chair of 4E has regularly attended the IEA Building Co-ordination Group meetings and the Chair and Operating Agent reviews information from EUWP meetings.

It is worth noting that 4E engaged in discussions with the DSM IA in 2009/10 regarding the possibility of joints Annex on 'Branding Energy Efficiency' and 'Demand Response Equipment'. More recently, there has been engagement with ISGAN regarding the 4E research into the energy consumption of smart metering infrastructure, and representatives from ISGAN and the DSM IA made presentations to the 4E workshop on this topic held in Nice in May 2013.

4E provides regular updates to the EUWP and has provided extensive briefings to the CERT and EUWP, as follows:

- The attendance of Peter Cunz at the 4E ExCo in Zurich, May 2011
- The 4E Operating Agent presentation to the CERT, February 2012.
- The 4E Chair's presentation to the EUWP, March 2013.

Feedback from these briefings have been valuable and, where appropriate have been noted by the 4E ExCo.

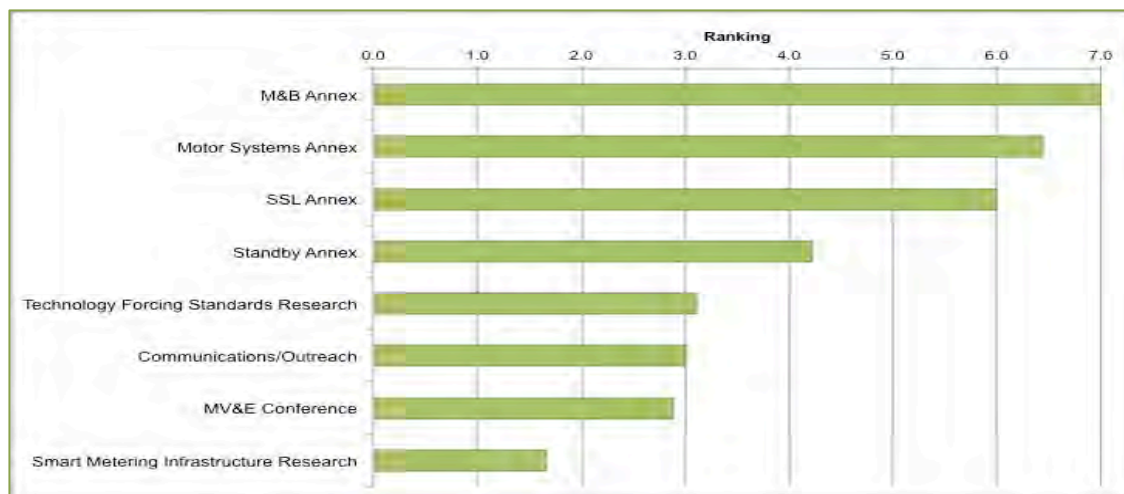
Finally, it should be noted that 4E maintains a close working relationship with the IEA Secretariat, particularly the Energy Efficiency Policy Unit, with which 4E has held several joint workshops.

2.7.1 Significant outcomes

The 2012 review of 4E activities highlighted delegates' appreciation of the work of individual annexes, as shown in Figure 2, while also noting some of the following achievements:

- The establishment of a framework for international collaboration.
- Improving the understanding of policies and market factors affecting efficiency trends.
- The establishment of methodologies for comparing product efficiency trends across markets.
- The cross fertilisation of policy ideas and approaches.

Figure 2: The most effective activities/projects of 4E during its first term



3 Contractual and Management Requirements

3.1 Management of 4E

4E is managed by the ExCo comprising delegates from all Contracting Parties, and is served by a Chair and one or more Vice-Chairs, together with the 4E Operating Agent. The ExCo meets formally twice per annum when, as shown in Table 5, it is unusual if all CPs are not represented.

Day to day management issues are dealt with by the Management Committee comprising the Chair and Vice-Chair(s), the Chairs of each Annex and the 4E Operating Agent. This group meets via a teleconference once per month.

Additional teleconferences and ballots can be organised for the ExCo or Management Committee if required to discuss matters out of session, although neither of these have occurred frequently in the first term.

The Operating Agent is responsible for administering the ExCo bank account, maintaining the financial records, producing budgets and reporting on financial issues.

Arrangements for the management of Annexes are described below.

3.2 Objectives, strategic plans and work plans

The countries involved in 4E have agreed to work together in pursuit of the following objectives:

4E will undertake international efforts to promote adoption of government policies to encourage the use of efficient electrical end-use equipment. 4E will provide a forum for countries and other stakeholders to:

- share expertise and develop their understanding of end-use equipment and policies; and
- facilitate coordination of international approaches in the area of efficient end-use equipment.

This will be achieved through:

- collecting and sharing information on end-use equipment technologies and programmes; and
- pooling resources for agreed projects and tasks.

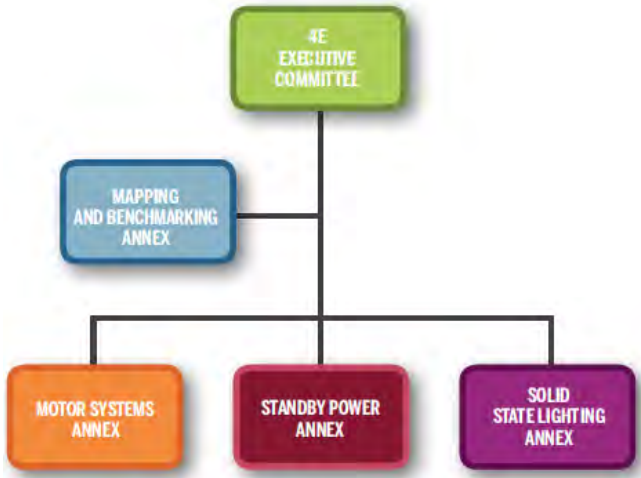
The Strategic Plan adopted by the ExCo in April 2008 established the initial structure of 4E, whereby the main collaborative research and development activities under 4E are undertaken within a series of Annexes, each of which addresses a particular theme through an agreed work plan. These work plans, and their respective budgets, are negotiated amongst the participating countries.

Current 4E Annexes include:

- Electric Motor Systems Annex (EMSA), launched in October 2008 and led by Switzerland: Reporting the means used to improve efficiency and encourages alignment on policies proven to be effective.
- Mapping and Benchmarking Annex, launched in April 2009 and led by the United Kingdom: Compares and contrasts technology performance, policies and outcomes with global best policy practice. This long-term endeavor will help identify future projects for 4E.
- Standby Power Annex, launched in April 2009 and led by Australia: Identifying new trends in standby power and the policies with potential to reverse increasing energy use.
- Solid State Lighting (SSL) Annex, launched in June 2010, chaired by Sweden: Development of quality assurance frameworks for LED lighting.

Due to the pivotal role that the Mapping and Benchmarking Annex plays in identifying policy gaps and informing future priorities for 4E, all participants are obliged to belong to, and fund, activities within this Annex. Otherwise, membership of all other Annexes is voluntary, depending on the priorities of individual countries.

Figure 3: Schematic of 4E structure



Each Annex is managed by a lead country representative, aided by an Operating Agent, and produces an annual workplan and budget which is required to be approved by the ExCo. The ExCo also monitors progress through reports presented by each Annex to each of the six-monthly ExCo meetings.

Annex meetings are convened for members at least twice per year, and often quarterly, using a mixture of face-to-face meetings and teleconferences. As a rule of thumb, one Annex meeting is held alongside the ExCo every 12 months so that ExCo delegates have the opportunity to better understand and track activities within each Annex.

Table 5: Meeting frequency

Meeting	Quantity	Participants
Executive Committee meetings	2/year	100%
Annex/task/topic meeting		
Mapping & Benchmarking	4/year	95%
Electric Motor Systems	2/year	100%
Standby Power	4/year	100%
Solid State Lighting	6/year	95%

The relationship between the ExCo and Annexes has evolved between 2008 and 2013 to take account of the expanded activities within each of the Annexes. The Administrative Guidelines produced in 2010 (see Appendix A) describes the delineation of roles and powers of the ExCo and Annexes, recognising the need for the ExCo to provide overall management and strategic direction, while providing the Annex with the necessary authority to deliver on the agreed outputs.

These Guidelines provide a highly effective management system, and have been credited by the IEA Legal Office as a model of good practice.

In line with 4E procedures, the ExCo unanimously approved new work plans for the Mapping & Benchmarking, Electric Motor Systems and Standby Power Annexes In 2011.

3.3 Annual reports

4E Annual Reports have been published covering each of the calendar years 2008-12 and are available on the 4E website, as well as through the IEA via the IMPAG site.

These Reports have proved to be very popular with current members as they provide a single reference for:

- All activities undertaken by 4E during the year;
- The key achievements;
- Financial and administration records;
- List of all participants.

As such, the Annual Reports have enabled delegates to demonstrate to their national governments the cost-effectiveness of continued participation in 4E.

Each of the Annual Reports has been drafted by the 4E Operating Agents, with input from the Management Committee and final approval from the Chair.

3.4 IEA framework

A copy of the latest IEA Framework for International Energy Technology Co-operation (the Framework) is held in the secure area of the 4E website, together with other important background documents. These are available for download by any of the ExCo delegates and form part of the package of important documents provided to new and prospective members.

3.5 IA legal text

Although the IA legal text has been revisited on numerous occasions, the ExCo has had no cause to make revisions since it was adopted by the ExCo in 2008. As with the IEA Framework, the legal text is available for all ExCo delegates via the secure website and is frequently referred to during deliberations by the ExCo and the Management Committee.

As noted above, the ExCo has adopted additional 'guidelines' for the management of Annexes, first in March, and then in November 2010 (see Appendix A). These not only give a summary of key matters relating to Annexes in the IA legal text, but provide additional detailed procedures to assist Annexes in day-to-day management.

There are also Operating Manuals for each of the Annexes and for the ExCo, which identify the Annex management structure and the roles of the Operating Agents.

4 Contribution to Technology Evolution/Progress

4E plays a key role in supporting the development of national and regional policies designed to provide effective support for more efficient products. Through this work, which is highlighted below, 4E helps in the creation of national and globally sustainable markets for efficient technologies, which in turn provides the environment for increased public and private sector investment in efficient technologies:

- The Mapping & Benchmarking Annex identifies the current and potential role of emerging equipment technologies in reducing energy consumption and greenhouse gas emissions.
- The SSL Annex is establishing quality assurance frameworks so that governments, industry and consumers can be confident in performance of new lighting technologies.
- EMSA is supporting new performance requirements, international certification processes and test methodologies for high efficient motors and motor driven systems.
- EMSA's motor tool encourages the better design of motor systems and provides instant feedback on the benefits.
- The Standby Power Annex is developing international policy frameworks so that suppliers of networked products have the regulatory certainty required to invest in the design and manufacture of efficient products.
- In general, 4E's projects involve analysis of the impact of past and current policies in order to better understand how to design and implement better policies in the future.

5 Contribution to Technology Deployment/Market Facilitation

The IEA WEO 2011 and 2012 estimate that end-use efficiency improvements make the largest single contribution to scenarios for substantial greenhouse gas abatement by 2035. It is also estimated that the majority of these savings over the next decade can be delivered by current technologies¹.

4E was established in order to assist in the development of international policy frameworks vital to increasing the uptake of existing and future energy efficient technologies, thereby realising these opportunities. This in turn is leading to an increased incentive and capacity for industry investment in R&D.

4E's role in the development of more effective policies to encourage end-use energy efficiency is widely recognised by industry, as noted by Joseph M Hogan, Chief Executive Officer and Member of the Group Executive Committee of ABB Ltd, Switzerland, in August 2011:

"[The 4E EMSA] fills an important gap in the energy and climate debate by putting some hard facts on the table about a topic on which independent measurement and analysis have been lacking. But it also clearly points to the central role of policy makers in realising the potential savings from electric motors: efficiency levels are highest where policy makers have been most active, such as in the US, Canada and China."

4E publications, including newsletters, are freely available to industry, academic institutes and other stakeholders. In addition, 4E organises many events, workshops, technical seminars which provide the opportunity for a dialogue with key industry participants. These are often targeted towards particular sectors of industry where 4E is active. 4E presentations to industry meetings are a further means for 4E seeks to explain its activities and gain feedback from relevant stakeholders.

A range of events where 4E has engaged with industry is shown in Table 6. Some of these events have been co-sponsored with industry.

Table 6: 4E engagement with industry

Activity	Location		Date
EMSA Testing Workshop	Nantes	France	September 2009
EEMODS '09	Nantes	France	September 2009
4E/APP/APEC Standby Power Workshop	Seoul	Korea	November 2009
International Workshop on Solid State Lighting (SSL): Test Methods, Quality Standards and Policies & Programmes to Promote High Quality SSL	Stockholm	Sweden	January 2010
APP/4E/SELINA International Standby Power workshop	Vienna	Austria	March 2010
Electrical End-use Efficiency Chances for Green ICT and Electronics in Austria workshop	Vienna		March 2010
Network Standby workshop Paris	France		April 2010
Light + Build	Frankfurt	Germany	April 2010
EMSA presentation to ACEF Asian Clean Energy Forum	Manila	Philippines	June 2010
Ecodesign Product Innovation seminar		Taipei	July 2010
UK Energy Efficiency Partnership for Homes	London	UK	July 2010
Government Partnership for Domestic Energy Efficiency Stakeholder Forum	London	UK	October 2010
'Saving More Energy Through Compliance' Conference	London	UK	September 2010
Journées Nationales de la Lumière (JNL)		France	September 2010

¹ McKinsey, *A cost curve for greenhouse gas reduction*, Per-Anders Enkvist, Tomas Naucler and Jerker Rosander, 2007

² Chris Robertson, ERA Technology Ltd, UK

Alignment of Standby Power Approaches – Moving Towards 1 Watt and Beyond conference (joint 4E/APP/APEC event)	Tokyo	Japan	October 2010
Motor Summit 2010	Zurich	Switzerland	October 2010
Nord Led Copenhagen		Denmark	November 2010
China SSL 2010	Shenzhen	China	December 2010
Global Lighting Forum	Shenzhen	China	December 2010
ForumLed	Lyons	France	December 2010
Presentation on Resources and Energy efficiency Chamber of Commerce in Upper Austria.	Linz	Austria	April 2011
Open forum with Swiss Government and Industry	Zurich	Switzerland	May 2011
EEMODS: International conference on Energy Efficient Motors Systems	Washington DC	USA	September 2011
National Advisory Committee Meeting	Hamilton	Canada	September 2011
Asia Lighting Compact (ALC) meeting		Singapore	November 2011
Electrical & Electronic Equipment and the Environment 2011 conference	London	UK	November 2011
LED Symposium	Tokyo	Japan	March 2012
Light + Build Stakeholder Workshop	Frankfurt	Germany	April 2012
NEMA Lighting Division Meeting	Baltimore, Maryland	USA	April 2012
Ecodesign & energy labelling UK government stakeholder meeting	London	UK	May 2012
Network Standby Data Collection Methodology and Policy Development Conference	Stockholm	Sweden	May 2012
Global Green Growth Forum	Copenhagen	Denmark	October 2012
Motor Summit	Zurich	Switzerland	December 2012
Network Standby Workshop	Toronto	Canada	March 2013

4E also engages with industry through participation in international standardisations activities, an important role acknowledged by others (see below), and which is expanding:

“ERA considers the 4E programme to be immensely valuable for providing a non partisan source of performance data which covers different geographies. This is useful when validating data from other sources (e.g. in our role as Independent Inspector of Imaging Equipment) and also highlighting possibilities for improvements in performance beyond business as usual arising from the sometimes major differences that have been found in different regions. The work on standards is also important as enforcement or demonstration of compliance becomes very messy without reproducible test methods.”²

EMSA and the SSL Annex both have extensive involvement with a range of international standards organisations, and their role in the development of relevant test and performance standards has been recognised.

For example, EMSA was mentioned in the European Commission mandate on future standards on efficient electric motors handed to CENELEC in June 2010.

“As appropriate, CEN, CENELEC and ETSI will consult organisations of other global standardisation and policy initiatives such as the IEA Electric Motor System 4E Annex.”

The 'IEA-4E EMSA Guide for the Use of Electric Motor Testing Methods Based on IEC 60034-2-1, Version 1.1' provides detailed instructions for the use of the international test method for motors, and

² Chris Robertson, ERA Technology Ltd, UK

illustrates how 4E activities have enhanced the standardisation process for the benefit of energy efficiency. This work has also been crucial to the success of the SEAD Motor Awards³. A critical part of the Awards is the verification procedure of the presumptive winners: normally, this requires a preferably globally accepted test method; in this case the IEC 60034-2-1:2007. However, this method does not state the conditions for measurements of partial load (which can lead to varying results if done in random order) and so the 4E EMSA Guide was referenced.

For its part, the 4E SSL Annex's engagement with the International Commission on Illumination (CIE) has led to improvements and expertise in the use of test methods for solid state lights and the development of proficiency processes for laboratory across the world.

In addition to the work that Annexes undertake directly with relevant standardisation bodies, 4E members participate within the standardisation processes in their own right, both at the Strategic and Technical Committee levels, and bring this experience to the work of 4E. To make better use of this resource, in 2012 4E has begun to develop a broader and more co-ordinated approach to its standardisation work through the launch of a 'Community of Practice' (CoP) with the IEA secretariat and SEAD, as noted in Section 2.2.1. It is expected that this project will gain further momentum during the second term.

6 Policy Relevance

4E ExCo delegates represent national policy-makers from member countries, and they play a vital role in directing the work of 4E towards areas where there is a demand for information and advice. This process ensures that the outputs have a high policy relevance, as shown in the following sections.

It is important to note that governments within 4E are now more willing to discuss the effectiveness, benchmarking and harmonization of policies changes than was the case when 4E began. This demonstrates that 4E is now established as a trusted forum and, as a result, the scope of 4E's achievements has been able to expand considerably.

6.1 How 4E has assisted the development of national energy efficiency policies

Established to support the development of better policies for energy efficient electrical equipment, 4E members comprise national government representatives from ministries, departments or agencies responsible for energy efficiency policies. Their participation in the ExCo and Annexes helps to ensure that the work of 4E continues to have a high degree of relevance to the policy requirements of governments.

The concrete role that 4E has played in assisting national policy development is illustrated by the following direct quotes from the Australian 4E delegate:

"The Australian Government operates its national appliance and equipment energy efficiency program as a country that imports most equipment from overseas sources. The Australian Government policy is to match the regulatory standards already imposed by its major trading partners as a way to meet its trade, environment and energy efficiency goals. Australian membership in the IEA-4E Implementing Agreement is a practical manifestation of giving effect to this policy because it results in information-sharing and good policy outcomes in the field of energy efficient appliances and equipment.

The IEA encouraged member countries to take coordinated action in the field of standby power. The EU has lead the world in regulating in 2009 and 2013 minimum energy performance requirements for several low-power mode functions for all electronic equipment. In August 2013, the Australian Government will release a regulatory analysis proposing to match the EU standards in 2013 which, subject to the regulation-making process in our country, may follow the EU position a year or so later. The dialogue about standby power within the Annex helped inform government agencies of the options used by other countries and choose the one most appropriate for our circumstances.

³ see <http://superefficient.org/en/Activities/Awards/Motor%20Award%20Competition.aspx>

Another example might be white-good test standards. The Australian Government is organising a forum in October 2013 to discuss with national stakeholders a timetable adopting the International Electrotechnical Commission test methods (the defacto global test methods) rather than continue the past practice of using regional variants as testing methods. This move away from regional test methods is in part a response to the 4E Mapping and Benchmarking Annex for refrigerators, dishwashers, clothes washers & dryers, showcasing Australia lags many of the leading nations. This 4E analysis will be presented to stakeholders as the major reason for moving to the IEC by no later than 2017 (subject to subsequent regulation-making process in Australia which satisfy the Minister).

A third example is electric motor standards. The Australian Government, under the auspices of 4E, was able to contribute to the development of truly globally applicable standards in ways that would not occur if it were making similar contributions to our local motors standard bodies. Australian experts have been able to contribute to test methods, performance requirements and compliance issues in a fashion that accelerated adoption of the IEC standard within our country as well as actually improving the global specifications through that contribution. The EMSA Annex provided a forum for that cooperation which surpassed the stultifying option of making formal submissions via our national standards-setting bodies to the IEC.

If governments and interested parties are to meet the greenhouse gas savings required to avoid the IEA 450ppm scenario, then cooperation forums like IEA-4E must lead to further practical, on-the-ground collaborations like this Implementing Agreement has delivered to Australia in its first 5 years.”

The Swedish delegate has also provide concrete examples of the use of 4E information to assist the development of national and European policy approaches:

“When preparing the Swedish position (in part in cooperation with 5 other Member States) on the lighting regulation 1194/2012⁴, we have used some of the results from the 4E SSL Annex, in particular the 4E proposals for performance requirements for different types of lighting products, including directional lamps. We have also ensured that the policy officer at the EC responsible for the lighting regulations up until 2012, Andras Toth, has been informed on a regular basis of the IEA 4E SSL work. It is noteworthy that the criteria and values of three parameters included in the final regulation (1194/2012) are consistent with the 4E recommendations.”

Additional benefits for 4E participants have also been noted as follows:

- Characterising the performance of various markets is important in maintaining Canada's priorities in these areas, and 4E Mapping & Benchmarking presentations have been used to reinforce rationale for program renewal.
- In Denmark, the Motor Annex has supported local institutes to become accredited test laboratories.
- The Danish Government has also gained good general background knowledge, and data from the M&B Annex has been used in building national scenarios and informing negotiations of EU-legislations concerning Ecodesign and labelling.
- The Netherlands has especially used 4E in discussions on the framework of EU product policy (energy labelling, Ecodesign).
- 4E Mapping & Benchmarking reports have enabled the UK see how the UK /EU compares against the rest of the world has allowed us to take a bullish approach to EU performance standards, most recently in relation to progress on trends in standby. Work from the 4E SSL Annex has been used to inform our response to the EC Green Paper (2011).

⁴ Regulating efficacy requirements for directional LED lamps and technical parameters for both non-directional and directional LED lamps

- The effect of 4E on US national policies has been modest, but not insignificant. The existence of 4E has helped SEAD be more effective, which has been noted by key US policymakers. The importance of global collaboration in this area is now widely recognized in the US.

6.2 The use or referencing of 4E work in developing national policies

Amongst 4E participating countries, 63% have used or referenced 4E work directly when developing national policies. In particular, 4E results have been used to:

- Develop future policy work on electric motors.
- Set a framework for regulation of standby power.
- Emphasise the importance of good data for evaluation and international comparisons.
- Reinforce rationale for program renewal.
- Develop Motor Systems policy:
 - research on policy options and potentials of motor systems;
 - capacity building: motor systems tool;
 - exchange of experiences (approach and results) with national motor programs;
 - standards development and global developments of motor technology, of testing, enforcement and national regulations.
- Negotiate the regulations on directional lighting in EU.
- Inform discussion of the SEAD Award for motors.
- Present information on trends in standby power.

6.3 The use or referencing of 4E work by the IEA analysis and other intergovernmental organisations

The following IEA publications have used 4E data and analysis:

- Energy Efficiency Policy Opportunities for Electric Motor-Driven Systems, 2011.
- IEA ETSAP Technology Briefs (x9), 2012.
- Tracking Clean Energy Progress - Energy Technology Perspectives excerpt on IEA input into the Clean Energy Ministerial, 2012.
- Electricity in a Climate Constrained World – Data and Analysis, 2013.
- Energy Technology Transitions for Building, Strategies and Opportunities to 2050, 2013.
- 4E news has appeared regularly in the OPEN Bulletin, and all five editions in 2012 featured information on 4E activities.

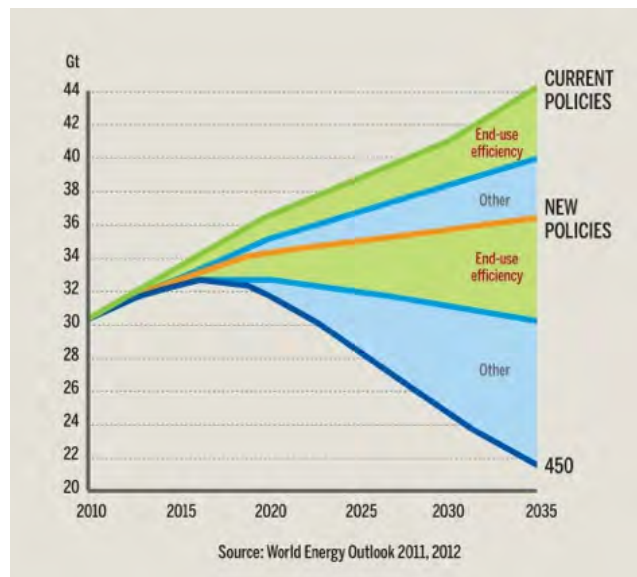
In addition, 4E contributed to the materials used by SEAD presented to the 2012 Clean Energy Ministerial as noted below:

“I want to thank you again for your work on the refrigerator and TV standby analyses. Please find attached the final talking points prepared for Secretary Chu to introduce the energy efficiency portion of the ministers’ plenary, which refer to both study results.”

Gabby Dreyfus, Climate Change Policy and Technology Fellow, Office of Policy and International Affairs, U.S. Department of Energy.

7 Contribution to Environmental Protection

Figure 4: World energy-related CO₂ emissions abatement in the 450 scenario relative to the Current and New Policies Scenarios – WEO 2011/12

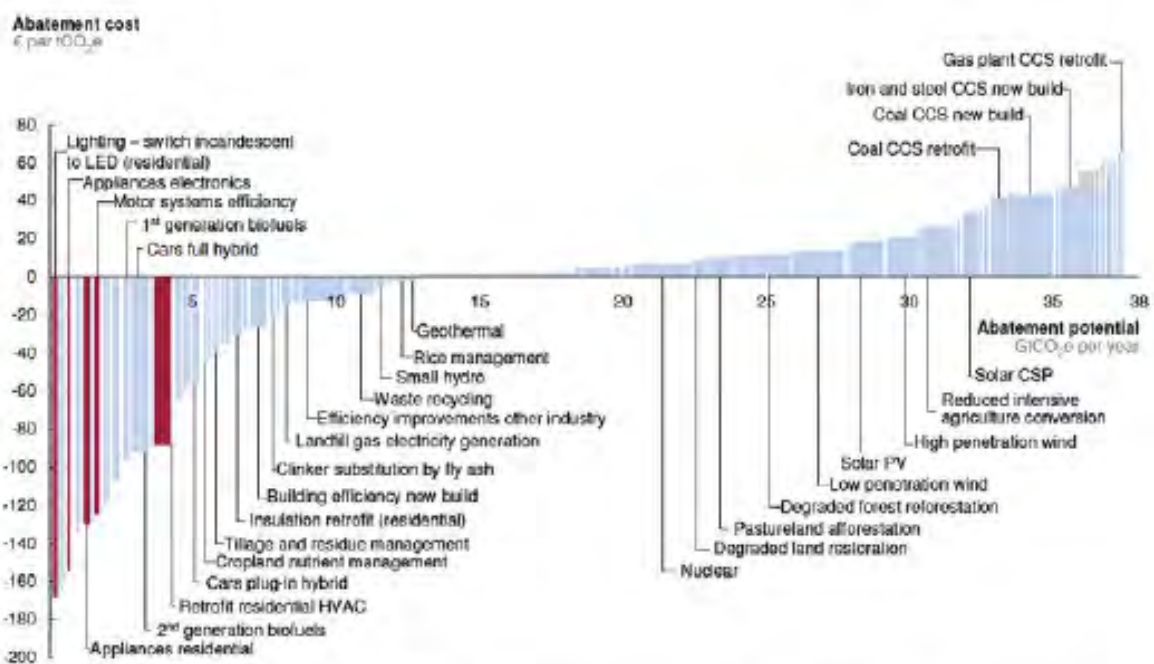


Globally, electrical equipment is one of the largest and most rapidly expanding areas of energy consumption, led by the growth in electronic devices providing greater connectivity, services and comfort to more people in developed and developing countries. However, this poses considerable challenges in terms of economic development, environmental protection and energy security.

In considering the solutions, most analysts have concluded that de-carbonizing the energy supply has associated additional costs and will take time to implement. Energy efficiency offers the most potential in the short- to medium-term, with the majority of efficiency gains to be found in the end-use sector (see Figure 4).

The savings from end-use efficiency are not only very large, but they are also amongst the cheapest, as illustrated by the abatement cost curve in Figure 5. This is borne out by the evaluation of energy efficiency policies implemented over the previous decade in most major economies, which shows conclusively that the resulting reduction in energy costs has vastly exceeded the total costs to consumers, industry and governments.

Figure 5: Global GHG abatement cost curve beyond business-as-usual to 2030



Note: The curve presents an estimate of the maximum potential of all technical GHG abatement measures below €80 per tCO₂e if each lever was pursued aggressively. It is not a forecast of what role different abatement measures and technologies will play.

While we know that making individual appliances more efficient, so they perform the same job using less electricity, is the cheapest and quickest way to cut greenhouse emissions, influencing the efficiency of the millions of individual appliances sold today, or in the future, is complex. The large number of non-monetary barriers in this market, such as the lack of information, extended supply chains and disaggregated customers, impede the most efficient appliances from being developed, purchased and used.

This is why policies to encourage investment in efficient end-use technologies are so important and a major reason for the establishment of the 4E Implementing Agreement. As the international trade in appliances grows, many of the reputable multi-governmental organisations, for example the Clean Energy Ministerial (CEM), the International Partnership for Energy Efficiency Cooperation (IPEEC) and the International Energy Agency (IEA), have highlighted the role of international co-operation and the exchange of information on energy efficiency policies as crucial in providing cost effective solutions to climate change.

4E was set up to fill the previous absence of an inter-governmental forum for collaboration and co-operation on energy efficiency policies for electrical equipment. 4E's track record shows that its work has led directly to the improvement and implementation of international, regional and national energy efficiency policies designed to increase the uptake of end-use efficiency in appliances and equipment. This in turn has avoided environmental damage due to the generation, transmission and use of electricity.

8 Contribution to Information Dissemination

The steady growth in communicable outputs led to the adoption of a 'Communication Strategy' in May 2011. This document provides the framework for priority communication activities undertaken by the ExCo and Annexes, and informs the budget allocations for ExCo communication tasks.

8.1 Key objectives for the communication strategy

The three major objectives for the 4E communications strategy:

- Promoting the outcomes of 4E projects to key government policy makers and other stakeholders in order that they can take informed and appropriate action.
- Ensuring the continued support of 4E by contracting parties. This can be achieved by showing the effects of our work to assist delegates who were (and are) responsible for their nation's participation in 4E.
- Increasing the knowledge base and potential learning/coordination opportunities through expanding the number of contracting parties in 4E by showing the benefits of participation – demonstrated through the results and the effects of our results.

To achieve this 4E needs to ensure that we:

- Clearly identify, and quantify where appropriate, the results of our work.
- Know who our key stakeholders are.
- Understand and record the impact of the results of our work.
- Identify the non-member countries to be targeted.

8.2 Stakeholder groups

The communication strategy identifies key stakeholder groups beyond 4E member countries within the public, private and NGO sectors. 4E's communication objectives with respect to each of these key groups are shown in Table 7.

Table 7: Organisational targets for 4E communication

Organisational Category	Sub-categories	Objectives
Intergovernmental organisations	Energy Efficiency (e.g. IPEEC)	Like 4E, have global remit for policy debate on key issues – trade, climate change, harmonisation
	General (e.g. WEF)	Means of extending engagement with non-member countries (promotion of 4E to new countries)
	IEA Energy Technology Network	Build on relationships with 4E member governments
Standards organisations	International (e.g. IEC)	Vital for delivering S&L programmes. Engagement required to achieve harmonisation
	National	Means of involving industry
Industry associations	Multi-product	Highly influential on policy debate and harmonisation issues
	Industry specific	4E engagement with Industry Assocs helps individual country initiatives. Easier to deal with than individual companies, but may represent lowest common denominator
Major manufacturers & suppliers	Multi-product	Understand the issues relating to globalisation and international trade
	Single product	May be a source of technical input to 4E Annexes
NGOs	Environmental	Common areas of interest
	Consumer	Some 4E governments wary of too close an involvement with NGOs – but can be a useful recipient of 4E messages

8.3 Communication tasks

Following extensive consultation with ExCo members and Annex participants, a list of 12 main communication activities have been agreed, and costed. These are shown in Table 8, together with the target group for each activity.

Table 8: Communication activities for the period mid 2011- end 2013

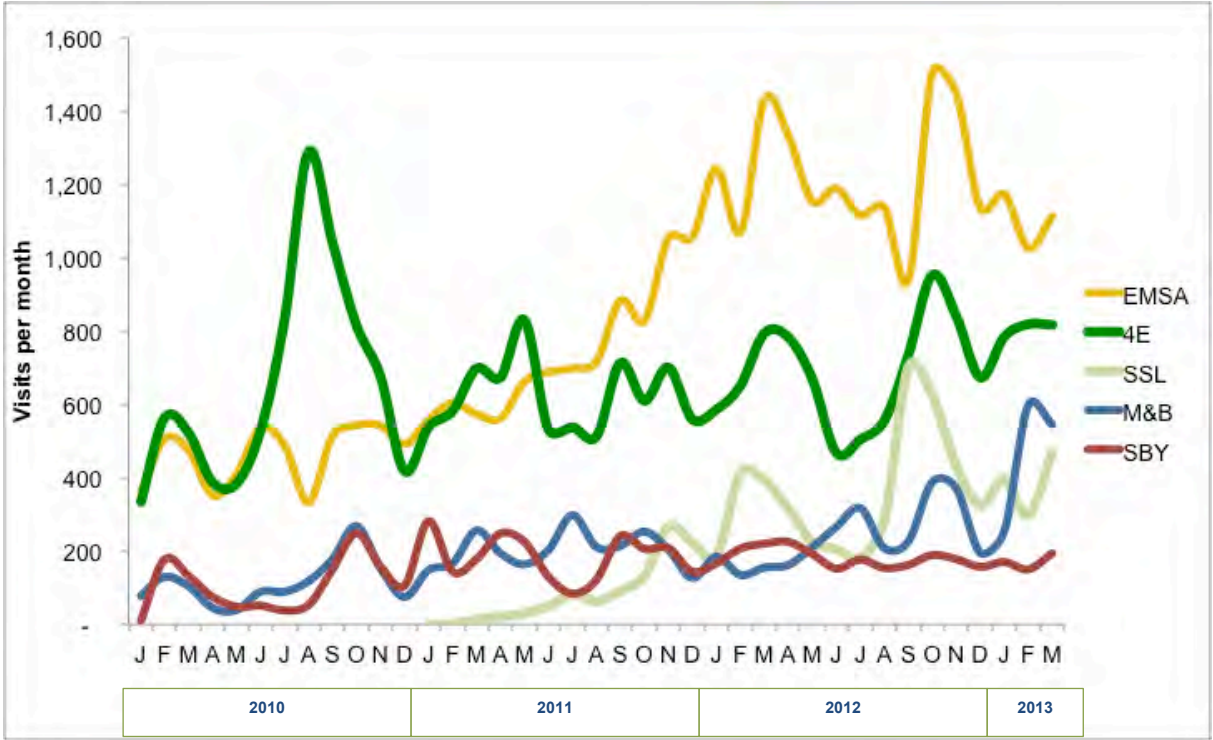
Title	Quantity p.a.	Target	Channel
Annual Report	1	General	4E website, 4E delegates
Bright Spark Newsletters	3	General	Mail to subscribers, 4E website, 4E delegates
Govt-govt outreach to non-member countries	10	Non-member governments	Govt-govt official communications
ExCo host meetings	3	Government officials, industry, consumer groups, NGOs, etc.	Seminar or workshop
Presentations at key events	4-5	General or target groups	Conference or workshop
Optimise website visibility	1	General	Website
Linkages with IEA Secretariat and IEA Energy Technology Network	2-3	Governments and Industry	Open Bulletin, ETP, WEO, Reports to EUWP, etc
Contact lists	1	General	Targeted mail
Annex dissemination plans	4	Stakeholder group per Annex	Varied
High level briefing sheets	5-6	Politicians, senior level government officials, industry	Targeted mMail, 4E delegates, website
Regional 4E briefings	4	Government officials in 4E member and partner countries	Face to face meetings
Standard organisations	2	Standards development	Submission, personal meeting

8.4 4E websites

The 4E websites serve a dual purpose: as the organisation’s primary public outreach tool and also a means for storing and exchanging confidential information amongst participants through secure-access sites.

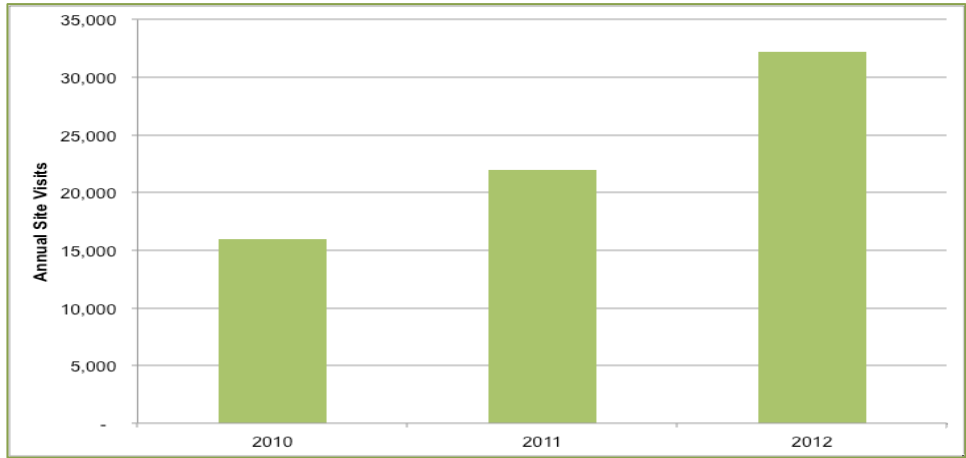
External use of 4E websites varies considerably according to the availability of public documents, other promotional activities and the profile of each Annex amongst their target audience. This is illustrated in Figure 6.

Figure 6: Visits to 4E websites



Visits to the 4E websites have increased by an average of 42% per annum, as shown in Figure 7.

Figure 7: Annual number of visits to 4E websites



9 Engagement with IEA Partner Countries

9.1 Broadening the scope of 4E membership

In terms of 4E's activities to encourage an expansion of membership, we encourage all countries to join 4E however our resources are used to target countries that have at least one of the following features:

- A commitment to operating energy efficiency programs for electrical equipment and appliances, or a demonstrable intent to develop programs.
- The organisational resources to participate in 4E.
- Represent an expansion of the geographical diversity of 4E participants.

As a result, the ExCo has decided that key countries to be targeted at the current time should be prioritised according to Table 9.

Table 9: Target 4E non-member countries

High Level (ranking 1)	Mid-level (ranking 2)
China	Brazil
European Commission	Finland
Germany	Ireland
India	New Zealand
Mexico	Norway
	Spain
	Thailand

The strategy used to by 4E with respect to these governments comprises the following three elements that are being pursued simultaneously:

- 4E will continue to directly contact energy efficiency departments/agencies in each country and invite their government to join 4E.
- The Australian Government will formally approach these countries and urge them to join 4E.
- To liaise with the IEA Secretariat on approaches to key governments.

As a result of direct contact with these countries, representatives from the following prospective member countries have attended 4E ExCo and Annex meetings as observers:

- China, European Commission, India, Mexico, Philippines and Russia.

It is worth noting that the National Lighting Test Centre from Beijing, China, is part of the network of laboratories providing expert input into the SSL Annex.

The Operating Agent continues to discuss membership with all targeted countries and to provide detailed information in order that they can reach a decision.

9.2 Dissemination of information to IEA non-member countries

4E engagement activities have successfully reached a large number of countries that are not current members of 4E.

This is illustrated by two key statistics:

- The 90,000 visitors to the 4E websites have originated from 157 different countries, and significant use is made of the online facilities by non-member countries, as shown in Table 10.
- Over 1,000 copies of the Motor Systems Tool have been downloaded since September 2011. The country with the largest number of users largest country is Brazil, and Figure 8 shows that many other IEA non-member countries are making good use of this free software.

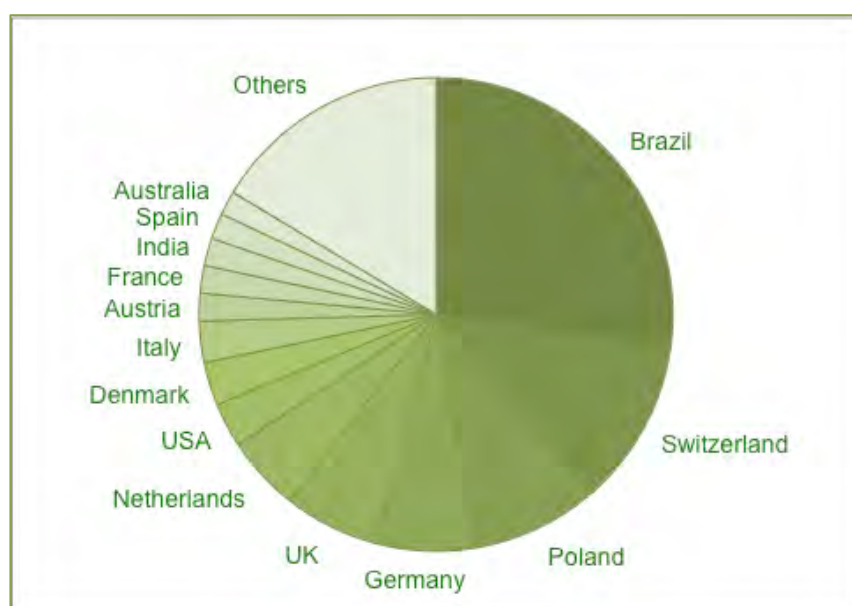
Table 10: Distribution of 4E website visits, 2008-2013

Country	% of total website visitors	Country	% of total website visitors
United States*	13%	Portugal	0.8%
United Kingdom*	9%	Singapore	0.7%
Denmark*	7%	Hong Kong	0.7%
Australia*	7%	Greece	0.6%
Japan*	5%	Indonesia	0.5%
France*	5%	Philippines	0.5%
India	5%	United Arab Emirates	0.5%
Switzerland*	4%	South Africa	0.5%
Germany	3%	New Zealand	0.4%
Austria*	3%	Iran	0.4%
South Korea*	3%	Mexico	0.4%
Canada*	2%	Serbia	0.4%
China	2%	Philippines	0.4%
Sweden*	2%	Vietnam	0.4%
Netherlands*	2%	Saudi Arabia	0.3%
Italy	2%	Romania	0.3%
Belgium	2%	Norway	0.3%
Spain	2%	Ukraine	0.3%
Brazil	2%	Ireland	0.3%
Taiwan	1%	Colombia	0.3%
Poland	1%	Egypt	0.3%
Thailand	1%	Hungary	0.3%
Russia	1%	Czech Republic	0.2%
Turkey	0.9%	Israel	0.1%
Finland	0.8%	Bulgaria	0.1%
Malaysia	0.8%	Peru	0.1%

Notes

* 4E Members

Figure 8: Users of the EMSA Motor Systems Tool, Sept 2011-April 2013



It is also noteworthy that the EMSA newsletter is now published in English, Chinese, Japanese, Russian and German, and is distributed to more than 3,300 public and private sector readers.

10 Added Value

In the 2012 Review, ExCo delegates 100% of ExCo delegates regard participation in 4E as being cost-effective, and 30% consider that they have made financial savings as a result of participation in 4E, primarily due to reduced costs in national policy development activities. They also recognised that the following achievements might not have happened without 4E:

- All of the Annexes have undertaken a great deal of technical work which has been shared and has been influential in many participating countries. There has also been good collaboration with key industry partners, which has had a positive impact in terms of policy development and technical/policy progress.
- 4E has improved the speed of achievements, and have contributed to focus on energy efficiency, e.g. WEO 2012's focus in energy efficiency.
- The results of the M&B annex. It would not have been possible to collect this information without 4E.
- Improvements at the EU level on products (air conditioners, motors, SSL).
- Worldwide awareness of opportunities for motor and motor system policies.
- Without the activities of the Motor Systems Annex it would have been much more difficult to develop the current national policy direction and national activities on motor systems and to connect to the local suppliers, installers and industry end users.
- The kind of work that now takes place in the SSL-annex (task 1 -3) plus the meetings between different stakeholders (governments, industry, academia).
- During the life of 4E there has been an emerging recognition that S&L policies are a global priority and that there is a need for global collaboration. 4E certainly contributed significantly to these developments. They would have occurred more slowly without 4E.

Further information of the benefits of participation in 4E is included in Section 6.1.

Appendix A: 4E Administrative Guidelines

Adopted 4 November 2010

The Executive Committee shall issue Administrative Guidelines as agreed and required. Administrative Guidelines provide a general ruling, however Annexes or project delegates may make an alternative case if they think 4E would be better served by that approach for their Annex or project.

These are to be considered in addition to Procedural arrangements for the management of 4E Annexes adopted by the 5th Executive Committee Meeting, Vienna, 4th March 2010.

Guideline 1

Upon invitation, potential country delegates to 4E or delegates to its projects and Annexes may observe not more than 3 meetings without formally advising the Operating Agent and Executive Committee of their intention to participate (as a member of 4E or its project or Annex).

Guideline 2

The Operating Agent from any Annex or project must inform the Executive Committee when a delegate remains in default of financial obligations for more than 2 meetings or for 12 months (whatever is the shorter period).

Procedural arrangements for the management of 4E Annexes

Adopted by the 5th Executive Committee Meeting, Vienna, 4th March 2010.

This document provides guidance for the operational management of 4E Annexes in order to ensure transparency and efficiency in daily Annex operations. These arrangements do not replace but complement the formal rules adopted in the text of the 4E Implementing Agreement and subsequent decisions by the 4E ExCo (see end of document for Summary of these rules).

These arrangements have been developed to assist Annex lead countries, participants and Operating Agents by providing practices and procedures to deliver on those agreed goals of transparency and efficiency. Changes to the arrangements in this document may be made by agreement between the ExCo chair and lead countries of all operational Annexes, and reported to the ExCo.

Management Responsibilities

- 1.1 Each Annex, under the management of the lead country, shall decide on issues of membership, financial contributions and the day-to-day running of the Annex within the broad framework agreed by the ExCo.
- 1.2 The Annex Operating Manual that is presented as part of a proposal to establish an Annex shall record the organisational procedures for managing the Annex.
- 1.3 In the following text, Annex Members are defined as Contracting Parties or Sponsors that have formally joined an Annex by the nomination of one or more delegates and the payment of any Annex fees.

Membership Issues

- 1.4 Participants in Annexes must also be participants in 4E.
- 1.5 It should be noted that Sponsors from Industry are currently not invited to join 4E (and hence individual Annexes). All other organisations seeking to participate as Sponsors must be approved beforehand by the ExCo and CERT.
- 1.6 Annexes should adopt rules regarding the rights and obligations of Sponsors.
- 1.7 Annexes should adopt rules for observers at Annex meetings.

Decision making procedures

- 1.8 There should be clear procedures for Annex members to make decisions. A record of decisions adopted by Annex members at formal Annex meetings shall be kept and made available to Annex members as soon as possible and not more than 6 weeks after the relevant meeting. This may be done through the secure part of the Annex website.
- 1.9 Decision making outside Annex meetings should consist of a formal vote by all Annex members, the result of which is recorded and circulated with the outcome to all Annex members. A vote may be conducted by email or other electronic transmission.

Financial Management

- 1.10 In the following text, the term ‘in-kind’ is defined as non-financial support, and third-party is defined as financial and/or in-kind contributions provided by parties that are not Annex members or paid consultants that provide services to an Annex.
- 1.11 Each Annex shall submit a yearly work plan and a budget, including all financial and in-kind contributions, for approval by the ExCo. Any subsequent changes to Annex expenditure exceeding 5,000 Euro shall be approved by the Annex and ExCo.
- 1.12 All financial transactions (income and expenditure) of a value exceeding € 10,000 which are entered into by Annexes or the ExCo, or by Operating Agents (or other entities) on behalf of an Annex of the ExCo, not including Annex member fees or Operating Agent contracts, shall require prior approval by the ExCo Chairman, Vice-Chair or person nominated by these officers.

The following information shall be provided prior to approval:

Pro forma for approval:	
<i>Annex Name:</i>	
<i>Organisation contracting for Annex</i>	
<i>Income/expenditure:</i>	
<i>Purpose of transaction:</i>	
<i>Transaction amount:</i>	
<i>Third party name:</i>	
<i>Expected date of transaction:</i>	
<i>Other relevant information regarding the transaction and any consequences (where applicable)</i>	

- 1.13 In-kind contributions should only be used for the express purpose of achieving the aims and objectives of Annexes or for the support of Annex activities.
- 1.14 Activities associated with projects which are not under the direct management of the Annex should not be considered as in-kind support, but may be identified as an ‘Associated Project’ that is beneficial to the Annex.
- 1.15 Generally, in-kind support should not include the time and expenses of participating in management activities by Annex members. Each Annex should decide on:
- 1.15.1 The type of in-kind contributions allowed;
- 1.15.2 The method of valuation and accounting of in-kind contributions.
- 1.16 All Annexes should adopt rules for the treatment of contributions by third-parties to the activities of the Annex.

Co-ordination between the Annexes

- 1.17 The Operating Agents for every 4E Annex and the ExCo Operating Agent will have regular contact, comprising at least 1 teleconference each year.
- 1.18 This purpose of these meetings will be coordinate activities across 4E and to raise operational issues for consideration by the ExCo Chair. The outcomes of these meetings will be recorded and provided to the ExCo chair and Annex leaders. Where necessary, matter may be referred to the ExCo for further deliberation.

Resolution of Disputes

- 1.19 Annex members should take up any issue or complaint directly with the relevant Annex Operating Agent, also informing the lead country of the relevant Annex, where applicable.
- 1.20 If they remain dissatisfied with the outcome, members may refer the issue to the Chair of the Ex-Co for further consideration.
- 1.21 The Chair may refer the issue to the Operating Agents, the ExCo or deal with the matter himself.

Summary of 4E Implementing Agreement Rules

1. Participants in Annexes must also be participants in 4E
2. There are two kinds of participants: a) Contracting Parties and b) Sponsors
 - i. Contracting Parties are governments, or a national agency, public organisation, private corporation or other entity designated by the government, or international organisations in which governments participate.
 - ii. Sponsors are entities which are not designated by the governments of their respective countries to participate in the Implementing Agreement, or non-governmental international entities.
3. Each participant in 4E shall designate a representative to the ExCo, and may designate one or more alternates. Each Participant shall inform the Executive Director of the IEA and the Operating Agent in writing of all designations under this paragraph.
4. A representative of the Operating Agent and one representative of the IEA Secretariat may attend meetings of the Executive Committee and its subsidiary bodies in an advisory capacity.
5. The ExCo can adopt rules of procedure as are required for its proper functioning.
6. New participants can be invited by unanimous vote of the ExCo. Participation of Sponsors requires prior approval by the CERT.
7. New Annex proposals are required to be approved by the ExCo.
8. Annex work plans and budgets are required to be presented and approved by the ExCo.
9. Annexes must advise the ExCo and IEA on their membership and any changes to participants' details.

Additional decisions by the ExCo:

10. All participants in 4E must participate in the Mapping & Benchmarking Annex.
11. Each Annex, under the management of the lead country decide on issues of membership, financial contributions and the day-to-day running of the Annex within the broad framework decided by the ExCo.
12. Operational Annexes are to provide a progress report to each ExCo meeting.
13. Sponsors from Industry are currently not allowed until an agreed position has been reached by the ExCo, although information sharing through workshops is encouraged.
14. Invitations to join 4E are approved for China, India, Japan, Mexico, India, Germany, Russia (plus Sweden).
15. To help decide whether to join, these countries are invited to attend 4E meetings as observers for a limited period.