4E Technology Collaboration Programme

End of Term Report 2019-2024

Summary of Achievements

During its fourth term 4E has provided a highly effective international platform for governments to collaborate on the development of policy measures, designed to stimulate the uptake of energy efficient end-use technologies.

- ## Impacts

Policy Development

4E's input is often only one amongst a range of materials that inform national or regional policies, however the following instances are a few examples where 4E's input has been influential:

- The Electric Motor Systems Platform (EMSA) materials have been used by the Government of the Netherlands in the development of a new energy efficiency programme for large energy users.
- Work by EMSA on test methods for Variable Speed Drives (VSD) has supported the introduction of requirements within the EU Ecodesign Motors Regulation and in the UK and Switzerland.
- The EMSA motor systems tool is used by the New Zealand Government to roll out a decarbonisation programme aimed at motor systems.
- The Electronic Devices and Networks Platform (EDNA) research was used in the revision of the EU Ecodesign Networked Standby Regulation.
- EDNA work on Data Centres was used in the revision of the EU Energy Efficiency Directive.
- EDNA work on intelligent efficiency was used by the New Zealand Government to develop their Smart Homes guidance.
- EDNA reports on digitalisation have been used by several governments to help inform policy development. One example includes the Australian Government using an EDNA report to inform internal research on digitalisation opportunities in commercial buildings.
- The performance tiers published by the Solid State Lighting (SSL) Platform were used by the UK Government to revise their current MEPS.
- The SSL Platform input on lifetime testing and flicker in LEDS had a considerable impact on the EU Ecodesign Lighting Regulation that is currently also being considered by the Australian and New Zealand Governments.
- The Product Energy Efficiency Trend (PEET) workshops have assisted governments in Australia and New Zealand to develop the E3 Prioritisation Plan, 2021-2022.

Standardisation & Capacity Building

4E facilitates the development of methods for testing energy performance, which is the cornerstone of energy efficient policies implemented by 4E members. A focus on international test methods is a very efficient way for 4E to encourage international harmonisation.

In addition, 4E also helps to develop networks of competent accredited test laboratories around the world, to assist members to be able to expand their policy coverage and ensure compliance.

- The findings of the EMSA Round Robin for Converter losses (RR'C) in motors directly influenced the revision of the international standards IEC 61800-9 series, and IEC 60034-31.
- The SSL Platform interlaboratory comparison testing program for luminaires has resulted in clarifications in the testing of luminaires within the international test standard CIE S025.
- Results of Testing Advanced Technology Motors are used by governments such as the US Department of Energy as valuable inputs to the US revisions of energy efficiency regulations.
- The Air Conditioners & Heat Pumps Round Robin test programme aims to improve the testing of variable capacity air conditioners so that the results better reflect real use and are more repeatable, to encourage the optimisation of designs and enable national authorities to check compliance. The findings have been used by the US DOE in their Residential Cold Climate Heat Pump Challenge and the results will be fed into the revision processes for a range of the international test methods such as ISO 5151 and 13253.

Emerging technologies and approaches

- 4E has helped to shape the ongoing debate on issues such as Interoperability in electronic devices and Demand Flexibility through the EDNA Platform, working closely with the IEA to help governments to better understand the issues and policy questions around Digitalisation.
- 4E's work has identified the potential to reduce annual global energy consumption by 9% by extending product policies to cover relevant Energy Using Systems (larger than the total annual use of electricity in the Unites States in 2021). 4E's ongoing work in this area aims to identify the current hurdles to action and suggest remedial solutions.
- Other 4E initiatives into emerging technologies are in the fields of new Wide Band Gap power electronic devices, Smart Lighting and New Motor Technologies.

International initiatives

4E has provided expert input and technical support for a large number of international initiatives including:

- IEA publications: Energy Efficiency Market Reports (2019-22), the World Energy Outlook, Energy Technology Perspectives, and Digitalisation and Energy
- The Energy Efficiency Call to Action launched by the IEA and UK Government at COP 26 in Glasgow
- The UN Environment Program United for Efficiency (U4E) initiative Model Regulation Guidelines
- The Energy Efficiency Hub Digitalisation Working Group *Accelerating Energy Efficiency through Digitalisation*

Cost-effectiveness

During our 2022 mid-term evaluation, 100% of members considered participation in 4E to be cost effective and 60% of members have found that participation in 4E reduced or avoided national research costs. 70% of members identified 4E activities that had contributed to the development of their local energy efficiency policies.

Throughout the fourth term, the annual membership fee has remained at €20,000 per annum, and administrative costs for all 4E activities comprise less than 10% of expenditure.

4E Structure and Management

Structure

4E has developed a structure that enables excellent strategic and day-to-day management, while supporting an effective and on-going collaborative programme of work. At the same time, there is sufficient flexibility to meet the changing priorities of members. The key elements include:

- The Executive Committee convenes twice yearly to manage the work programme of 4E (although during Covid, many of the meetings have occurred online), liaises with the IEA Secretariat and provides prospective new members with the opportunity to view our work. These meetings are highly valued as a source of information sharing, with a participation rate of 92%. Secretariat functions for the ExCo are provided by the Operating Agent, funded by annual membership fees.
- Current 15 members of 4E include: Australia, Austria, Canada, China, Denmark, European Commission, France, Japan, Korea, the Netherlands, New Zealand, Sweden, Switzerland, UK, USA. The European Commission and New Zealand formally joined 4E in 2019 at the start of the fourth term.
- The 4E Management Committee meets monthly and comprises the 4E Chair and Vice-Chairs, together with the Platform Chairs. During the fourth term, 4E has benefited from a superb leadership team. Current members of Management Committee comprise: Hans-Paul Siderius (Netherlands), Brian Fitzgerald (New Zealand), Ashley Armstrong (US), Laura Gritt (UK), Roland Bruniger (Switzerland), Georges Zissis, Jeremy Dommu (US), Thore Stenfeldt (Denmark).

Chairs:

Michelle Croker (Aus), 2016-19
John Cymbalsky (US), interim, 2019-2020
Jamie Hulan (Canada), 2021-2022

Vice-Chairs:

Hans-Paul Siderius (Netherlands)
John Cymbalsky (US), retired 2022
Catherine Zerger (AUS), retired 2020
Brian Fitzgerald (New Zealand)
Ashley Armstrong (US)
Laura Gritt (UK)

- In Novermber 2022, the Executive Committee conditionally approved amendments *to the* 4E Implementing Agreement, making this consistent with the *Framework for the Technology Collaboration Programme (2020)*, subject only to formal approval by the European Commission.

4E Platforms

Targeted collaborative research and development activities are undertaken within our Platforms (previously Annexes), each of which has a particular focus and agreed work plan. The most recent of these Platforms was launched at the start of the fourth term (PECTA). During the fourth term, the following Platforms were active:

- Electric Motor Systems Platform (EMSA), launched in October 2008
- Solid State Lighting (SSL) Platform, launched in June 2010
- Electronic Devices and Networks Platform (EDNA), launched in 2014
- Power Electronic Conversion Technology Platform (PECTA), launched in 2019

4E Tasks

4E members also initiate tasks into areas of research relevant to policies for efficient end-use equipment. These may be special one-off activities or potentially lead to the development of a Platform or other avenues for pursuing more in-depth consideration. During the fourth term, the following Tasks were undertaken:

- Load-based Testing for Variable Speed Air Conditioners & Heat Pumps
- Product Energy Efficiency Trends (PEET)
- Regulating Energy-using Systems
- Achievements of Energy Efficiency Standards and Labelling Programmes
- Guidebook for Evaluating Energy Efficiency Standards and Labelling Programmes
- Input into the IEA Energy Efficiency Market Report (2019-2022)
- Regulators Monitoring, Verification and Enforcement (MV&E) Forum.

Support for IEA Medium-term Strategy for Energy Research and Technology (2018-2022)

4E's Programme of Work has continued to be strongly aligned to this strategy, providing practical effect to many of its key elements, as follows:

- ### Support research and innovation, enhance and expand analysis to inform policy makers' decisions, taking a whole-system perspective

Ensure continuous and easy access to quantitative and qualitative assessments of the role of available supply and demand energy technologies

- 4E has published a wide range of reports providing detailed analysis on the role of end-use technologies, each of which are freely available and widely disseminated through our website.
- Many of 4E's key findings are integrated within relevant IEA publications, such as the *World Energy Outlook* and *Energy Efficiency*, for broader dissemination and impact.
- 4E also runs workshops, and participates in conferences to engage with key stakeholders, including other governments, academics, and industry.

Support continued collaboration efforts for research, development and innovation, from basic science to frontier and emerging technologies for long-term solutions

- Wide Band Gap (WBG) power devices have the potential to provide a paradigm shift in performance and energy efficiency, however until the launch of 4E's Power Electronic Conversion Technology Platform, there was no international coordinating group to link governments and the research community for this important emerging technology. PECTA collects and analyses information about new WBG-based power electronics, and coordinates internationally acceptable approaches that promote WBG technologies.
- The 4E Solid State Lighting Platform is monitoring the energy impacts of Smart Lighting as this technology grows in significance. Early models exhibited high energy consumption however our testing programme has revealed that there are signs of considerable innovation through better circuit designs and different communication protocols. This type of knowledge base is essential as governments consider regulation and other means to drive improvements more widely throughout the industry.

Encourage & stimulate countries to foster technology deployment and implementation

- The 4E platform encourages countries to quickly expand their energy efficiency programme coverage by leveraging off the work of other members.
- The ongoing series of PEET workshops brings together 4E members to share detailed information on their national policies across a range of technologies and topics. Comprising online and face-to-face meetings amongst policy makers, these workshops provide a platform for new policy developments in one country/region to be understood and adopted by others.
- The *4E Achievements of Energy Efficiency Standards and Labelling Report 2021* based on new research data provides evidence of the benefits accruing from one of the most widely employed policy measures, drawn from a wide range of national results. This has been used extensively to support the maintenance and expansion of energy efficiency policy measures.
- Through engagement in international standardisation, 4E ensures that relevant technical standards embody the best technical know-how and suit the needs of energy efficiency regulators and policy makers. These underpin the performance of appliance and equipment programmes and improvements are transferred globally.

Facilitate discussions on cross-cutting and emerging energy technology areas, such as "Digitalisation and Energy", in order to better inform policy makers

- 4E has been at the forefront of initiatives to raise awareness of the energy implications of connected devices, through the EDNA Platform. Since the joint IEA/4E publication *More Data Less Energy*, EDNA has led research aimed at improving the energy efficiency of connected devices and the systems in which they operate.
- EDNA's publications and webinars examining the potential increased energy consumption that results from devices becoming connected to the internet, and ways to optimise the operation of systems of devices to save energy, continue to expand the knowledge base in this important area. Through liaison with the IEA and directly with 4E members, EDNA has helped to shape the ongoing debate on issues such as Interoperability in electronic devices and Demand Flexibility.
- 4E has also broken new ground in its work to develop regulatory policy approaches for Energy Using Systems. 4E's work has identified the potential to reduce annual global energy consumption by 9% by extending product policies to cover relevant Energy Using Systems (larger than the total annual use of electricity in the Unites States in 2021). It has also laid out a set of working definitions and ways of categorising systems to determine whether they are best suited to regulatory approaches.
- Other 4E initiatives into emerging technologies are in the fields of new Wide Band Gap power electronic devices, Smart Lighting and New Motor Technologies.

Facilitate priority-setting, conduct robust policy analysis, and formulate technology policy recommendations adapted to the needs of the audience

- 4E's authoritative analysis in the fields of LED lighting and Motors/Motor Systems have informed the development of voluntary performance tiers that span a range of stringency levels and have guided national policy makers in formulating appropriate national thresholds.
- 4E PEET has developed a robust methodology to track appliance performance trends levels drawn from a unique dataset of national registration information. The resulting international benchmarking analysis helps countries to see how they compare with products in other major economies, and which are the best performing products.
- To better reflect major selling products within all 4E economies and track prices as well as energy performance, PEET has recently begun to collect data through web scraping. This will allow us to consider the relationship between price and efficiency for many different products, and over time.
- 4E has developed a series of 2-page Policy Briefs specifically designed to present recommendations from 4E research activities for government audiences.
- 4E's activities have assisted the Australian and New Zealand Governments in selecting their future work priorities.

Strengthen the Energy Technology Network

4E has considerably strengthened its role in the Energy Technology Network throughout the fourth term. For example:

- 4E has developed an extremely effective partnership with the IEA Secretariat, collaborating on several joint publications and webinars, including those described below.

- The '*Achievements of Energy Efficiency Standards and Labelling Report 2022*' has been a collaboration between 4E and the IEA, used to launch the major new international initiative, the *Energy Efficiency Call for Action* at COP26. The IEA continues to use the findings of this work in its promotional activities.
- 4E regularly collaborates with the IEA to host webinars for governments, industry and other stateholders. For example, the webinar for in 2020 on Residential Test Methods for Air Conditioners was attended by over 400 participants. EDNA and the IEA's Digital Demand-Driven Electricity Networks (3DEN) Initiative combined in 2021for a discussion on Interoperability.
- 4E regularly contributes to and reviews the several IEA publications, in particular the flagship publication *'Energy Efficiency'* and '*Energy Technology Perspectives*'.
- During the fourth term, 4E has also contributed to the *World Energy Outlook*, the IEA article '*Technology and innovation pathways for zero-carbon-ready buildings by 2030*', the 7th *Annual Global Conference on Energy Efficiency* in Denmark and to the *Future Buildings Forum*, Canada, November 2022.
- In addition, 4E has attended all the Universal TCP meetings, all Building Collaboration Group meetings and now participates in the *Critical Minerals TCP Coordination Group*.
- 4E has collaborated with the USERS TCP on projects and webinars during the fourth term, and with the Heat Pump TCP on its project to improve test methods for air conditioners.

Governments

4E interacts with a large number of governments including members and non-members, and intergovernmental organisations, through engagement in the many tasks under the 4E umbrella.

- 4E's twice yearly ExCo meetings provide the opportunity for national government delegates to interact and share information over several days. The value of this is indicated by the extremely high participation rates.
- The large majority of 4E's work is published and freely available through the 4E website. Feedback on visitors to the site and downloaded materials shows that 4E publications are accessed globally, with users spread across all regions. Many of the heaviest users are from emerging economies which are not Members of 4E.

Private Sector

Although some of the face-to-face interactions have been curtailed as a result of Covid, 4E has increased the number of Webinars that it runs during the fourth term, usually in collaboration with the IEA, and these continue to attract many hundreds of industry participants spanning ITC, lighting, motors, air conditioning and power electronics:

- 4E's engagement with international standardisation processes for motor systems and lighting has involved considerable interaction with industry participants.
- EMSA plays a major role in the bi-annual Energy Efficiency in Motor Driven Systems conference (EEMODS).
- The three inter-laboratory comparison programmes conducted by 4E involves extensive collaboration with a large number of laboratories globally.
- Experts from both academia & industry participate in PECTA, in particular from the following countries: Austria, Denmark, France, Germany, India, Italy, Japan, Norway, Sweden, Switzerland, UK, USA.
- Although 4E liaison with industry is often informal, the SSL Platform conducts a formal consultation process with the lighting industry in the development of its voluntary performance tiers for LED lighting.

Intergovernmental Organisations

4E engages continuously with a range of intergovernmental organisations, including but not limited to:

- The Energy Efficiency Hub – particularly the The Digitalisation Working Group
- The Clean Energy Ministerial – particularly through the IEA and SEAD
- The Super-Efficient Equipment and Appliances Deployment (SEAD)
- United Nations Environment Programme (UNEP), United Nations Development Programme (UNDP) – particularly through United for Efficiency (U4E)
- International Electrotechnical Commission (IEC) and International Organization for Standardization (ISO)

4E TCP	KEY FINDINGS OR LESSONS LEARNED FROM ACTIVITIES Full explanations of 4E Tasks can be viewed on the 4E website, however their large number and diversity makes it difficult to summarise meaningfully. Therefore, the following are a small selection of 4E Tasks to demonstrate the breadth and effectiveness of 4E's activities
Activity name	**Achievements of Energy Efficiency Appliance and Equipment Standards and Labelling Programs**
Activity type	Applied research, database, report
Objectives	• To produce a report and summary that provides a credible global overview of some of the key achievements of Appliance and Equipment EES&L programmes, across the 80+ countries where they are deployed.
Term	October 2020 - October 2021
Total budget for the term	€ 52,000
Key findings, lessons learned	• In those countries with long running standards and labelling programmes, appliances are typically consuming 30% less energy than would otherwise be the case. • In the nine countries/regions for which data were available, such programmes reduced the annual electricity consumption by around 1 580 TWh in 2018. This is a similar order of magnitude as the total electricity generation of wind and solar energy in those countries in 2018. • The programmes that have been operating the longest, such as those in the United States and the European Union, are estimated to deliver annual reductions of around 15% of total current electricity consumption. This percentage increases each year as more of the older, less-efficient stock is replaced with equipment that meets new higher efficiency standards. • Well-designed policies encourage product innovation and build economies of scale, and so lead to appliance cost reductions, despite the efficiency gains. For example, in Australia, appliances have become typically 40% less expensive to purchase over the last 20 years, while average energy efficiency has increased by a third. • The overall conclusion is that expanding standards and labelling energy efficiency programmes makes the energy transition challenge easier, more affordable and will be realised more quickly. **Lessons Learned** • Too many EES&L programmes are either not evaluated or use a non-transparent methodology. The development of the 4E Guidebook flows from this learning. • Many programmes only evaluate energy savings and not other co-benefits.
Activity name	**Round Robin of Variable Speed Drives (VSD) for Motors**
Activity type	Applied research, field study, network
Objectives	• To verify the reference losses for VSDs used in IEC 61800-9-2, edition 1 • To check the levels of losses in VSDs in the market against the IE efficiency classes • To produce a report of the findings
Term	2019 - 2022
Total budget for the term	€ 90,000 (although it draws on contributions by laboratories not included in this costs)

Key findings, lessons learned	• The close involvement of the International Electrotechnical Commission and participation by 8 test laboratories were crucial to the success of this project. • The development of a uniform method of test for the round robin provided repeatable results which informed amendments to be made to IEC 61800-9-2, edition 2. • All the measured VSDs were found to easily meet the highest efficiency class within the IEC standard (IE2), which is the minimum requirement in the EU, Switzerland and the UK. • The results of this study suggest that threshold levels for additional IE class will be needed to support regulations that seek to improve the energy efficiency of VSDs
Activity name	**The Total Energy Model (TEM)**
Activity type	Applied research, model
Objectives	• To provide an interactive, web-based model of the additional energy used by connected devices resulting from connecting to communications networks. • To show the energy used by end-use devices, data networks and data centres. • To allow users to view the results by region and/or end-use products. • To allow users to model various policy scenarios using an interactive interface.
Term	2019 - present
Total budget for the term	€ 90,000 (although it draws on research undertaken by EDNA not included in this costs)
Key findings, lessons learned	• The model is an effective way to combine a large quantity of diverse research material into a visual representation suitable for a non-technical audience • The interactive nature of this model makes it versatile: it enables users to tailor it to their needs and examine topics of greatest interest. It also allows them to examine the impact of different policy settings on future consumption. • The TEM shows that connected devices are responsible for nearly 800 TWh of electricity consumption today. • Upstream energy use by Data Centres and networks are responsible for about 60% of this total electricity usage.
Activity name	**Power Electronic Conversion Technology Platform (PECTA)**
Activity type	Applied research, model, network
Objectives	• To collect and analyse information about new wide band gap (WBG) based power electronic devices. • To co-ordinate internationally acceptable approaches that promote WBG-based power electronics. • To develop greater understanding and action amongst governments and policy makers.
Term	March 2019 - present
Total budget for the term	€ 400,000
Key findings, lessons learned	• WBG technology respresents a potential step-chancge in efficiency over convention power conversion technologies, however there is a lack of awareness and supportive policy measures. • Prior to the launch of PECTA there was no independent co-ordination of technical and policy issues to bring together the WBG community to develop a coherent international approach. • The development of a wide band gap Application Readiness Map allows policymakers to identify those areas where WBG technology is currently being used, and where it is not.

	• It is important to understand the different hurdles (costs, reliability, etc.) which prevent the broad usage of efficient WBG-based applications. • There is a need to develop standards to define efficiency, the losses and the reliability of the emerging WBG-semiconductor modules, devices and appliances, in an internationally accepted and technically appropriate way.
Activity name	**Electronic Devices and Networks Platform (EDNA)**
Activity type	Applied research, model, network
Objectives	• EDNA provides technical analysis and policy guidance to members and other governments aimed at improving the energy efficiency of connected devices and the systems in which they operate. • EDNA is focused on the energy consumption of network connected devices, on the increased energy consumption that results from devices becoming network connected, and on system energy efficiency: the optimal operation of systems of devices to save energy.
Term	March 2019 - present
Total budget for the term	€ 1,050,000
Key findings, lessons learned	• Network standby energy can be reduced by improving the design of data traffic management and device power management, and by adopting appropriate communications protocols. • It is also possible to power network standby from ambient energy sources, using energy harvesting. • Not all connected devices are "smart" and not all can save energy. Policies at the device level could help ensure that connected devices become "energy smart digital devices", that can for example provide demand flexibility services to the power grid. • As digital traffic continues to increase, it is important for data networks and data centres that older technologies are rapidly replaced. Policies in this area are lacking and much effort is required.
Activity name	**Interlaboratory comparison for goniophotometers**
Activity type	Research, field study, capacity building
Objectives	• To evaluate the current industry test method (CIE S 025:E). To uncover practical challenges in verifying the performance of SSL lamps and luminaires. • To serve as a proficiency test for accreditation bodies around the world. • To test whether near-field goniophotometer measurements could be used for the requirement to demonstrate equivalence to a (far-field) mirror-type goniophotometer in CIE S 025.
Term	2017-2021
Total budget for the term	€ 100,000 (total costs offset by contributions from Laboratories)
Key findings, lessons learned	• Through bringing together 43 participating laboratories from 18 countries, the project improved the expertise and experience of key laboratories in many regions. • The ability to accurately test the performance of LED lamps and luminaires is essential for a smooth-running market. • The results indicate that more guidance is needed in CIE S 025 or other relevant standards for goniophotometric measurements of SSL products • This project verified that the near-field goniophotometers and source-rotating type goniophotometers that participated in this IC had overall equivalent accuracies to (far-field) mirror-type goniophotometers for the types of light source used in this IC.

CERT PROCEDURE FOR A TECHNOLOGY COLLABORATION PROGRAMME REQUEST FOR EXTENSION

QUANTITATIVE INFORMATION/INDICATORS[1]			
4E TCP	**During the current term**	**Change compared to the past term (+ / -)**	**TCP comments**
WORK PROGRAMME			
Number of studies (annex, task, subtask, survey, other study)	**48**	(-) 11	*Lower number includes rationalisation from previous term by combining several tasks*
Number of databases or models	**5**	(+) 4	
Number of experts' networks	**8**	(+) 2	
Other (please specify)	**0**		
OUTPUTS			
Number of in-person 'Status Updates' to the CERT	*0*	(-) 1	
Number of publications	*123*	(-) 16	
Number of scientific journal articles	*12*	(+) 12	
Number of conferences or workshops organised (and number of participants)	*52*	(-) 3	*Includes webinars. Total participants 3,800 (1,500 more than previous term)*
Number of executive summaries or policy briefs	*19*	(-) 3	
Other (please specify)	*53*		*Presentations: not recorded for previous term*
Number of two-pagers or annual reports submitted	*10*	(+) 6	*Includes Annual Reports and reports to EUWP*
IEA Secretariat activities (number of contributions/peer reviews):			
Energy Technology Perspectives (2020)	*1*	-3	
Technology Roadmaps	*0*	no change	
Activities under the IEA Technology Platform	n/a	n/a	
Market reports (gas, oil, renewables, energy efficiency)	*5*	(+) 1	*Energy Efficiency*
Periodic IEA publication on TCP achievements	n/a	n/a	
OPEN Bulletin	n/a	n/a	
Topical workshops	*10*	(+) 3	
Activities organised with Partner countries	*2*	(-) 1	*Activities curtailed due to Covid*
Other (please specify)	*16*	(+) 12	*TCP Universal meetings, Joint TCP article, WEO, joint webinars, TCP Surveys*

MEMBERSHIP			
Total number of participants	**15**		
Contracting Parties (located in OECD member countries)	*13*	(+1)	*New Zealand*
Contracting Parties (located in OECD non-member countries)	*1*	(+1)	*China*
Contracting Parties (intergovernmental organisations)	*1*	(+1)	*European Commission*
Sponsors (located in OECD member countries)	*0*		*4E does not have any Sponsors although it works with many expert organisations and ngos*
Sponsors (located in OECD non-member countries)	*0*		*See above*
COSTS OF THE COLLABORATION			
Funding mechanism (task-shared, cost-shared, mixed)	cost-shared		
Total annual budget (please note currency)	€887,200.00	(+) €27,200	
Executive Committee support (Secretary, Operating Agent, other)	€*100,000.00*	(-) €20,000	
Substantive activities (annex, task, model, network, other)	€*633,040.00*	(+) €97,000	
Efforts to raise awareness of your work	€*254,160.00*	(+) €41,000	
ExCo fees			
Contracting Parties	€20,000.00	no change	
Sponsors	none	no change	
Special conditions (please specify)	none	no change	
Number of full-time equivalent (FTE) employees	2.09	(+) 0.09	