

Strategic Work Plan 2019-2024

1 Introduction

The aims of the Technology Collaboration Programme on Energy Efficient End-use Equipment (4E TCP) are to promote energy efficiency as the key to ensuring safe, reliable, affordable and sustainable energy systems.

As an international platform for collaboration between governments, the 4E TCP provides policy guidance to its members and other governments concerning energy using equipment and systems. The 4E TCP prioritises technologies and applications with significant energy consumption and energy saving potential within the residential, commercial and industrial sectors (not including transport). To meet its aims, the 4E TCP harnesses the expertise of governments, industry, experts and other TCPs for joint research related to the development and deployment of energy efficient equipment.

2 Overall Strategic Direction 2019-2024

Building on the platform that has positioned the 4E TCP as an effective and reputable source of information and guidance, during 2019-2024 the 4E TCP will implement a work programme that is consistent with the strategic priorities of the 4E TCP and the IEA, with particular reference to the Medium-term Strategy for Energy Research and Technology 2018-2022.

Key challenges for 4E governments include the need to devise policy solutions to address the energy consumed by systems of equipment, digitalisation and rapidly evolving products such as electronic devices. Increasing the international harmonisation of product policies is also a priority to reduce costs for 4E governments and industry and unlock additional energy savings.

The 4E TCP will also continue to seek linkages with the IEA and other key international initiatives, such as Sustainable Development Goal (SDG) 7 under the UN 2030 Agenda for Sustainable Development, Mission Innovation and the work of related TCPs. To this end, the 4E TCP will establish 'relationship managers' to explore opportunities for on-going collaboration.

In order to stimulate internationally accepted approaches that promote energy efficient equipment, during 2019-2024 the 4E TCP will:

1. Collect data, analyse information, share expertise and pool resources. Including:
 - Gather information about the energy consumed by equipment and systems, relevant policies and savings potential from 4E TCP members and other sources.
 - Utilise the combined expertise of 4E TCP members to undertake targeted research and analysis.
 - Co-ordinate with strategically important external organisations and build collaborative networks.
2. Support and strengthen government policy and regulation. Including:
 - Distil technical issues into reputable, evidence-based, policy considerations.
 - Co-ordinate internationally accepted approaches with member governments.
 - Maintain a work program aligned to member government priorities.
3. Disseminate information to develop greater understanding and promote government actions that encourage the uptake of energy efficient equipment, including:
 - Undertake strategic outreach to inform and influence beyond the 4E TCP, including engagement with the IEA and other TCPs, and relevant international organisations.
 - Exchange and disseminate information to targeted stakeholders from non-member countries and industry.

3 Work Programme

A key strength of the 4E TCP is its membership comprising influential policy makers within 13 major economies. To maintain the extremely high level of uptake of advice and information, the 4E TCP will strive to develop a work programme reflecting the priorities of 4E members, both through existing annexes as well as potential new areas of work in line with the priorities highlighted above.

3.1 Existing Annexes

The 4E TCP's existing Annexes address topics of considerable strategic importance to policy makers. The analysis has been used as a foundation for policy development by national governments, intergovernmental organisations and expert groups, bringing together key actors from the public and private sectors. The work will be strengthened with particular emphasis on engagement with industry and the development of policy approaches to systems. Proposals from members for additional Annexes will be welcomed and considered according to the 4E TCP's strategic priorities, administrative arrangements and capacity.

3.1.1 Electric Motor Systems Annex (EMSA)

Background: Motor systems are responsible for over 50% of global electricity use with potential savings of 20%-30%. EMSA facilitates the international exchange of policy experience through publications, workshops and meetings. It advises policy

makers on the design and implementation of coherent motor systems policies and helps to develop international standards to support policy implementation.

During 2019-2024: EMSA will explore the potential for energy savings through digitalization in motor systems, and support government efforts to develop policies applicable to an expanded range of motor systems. In particular, EMSA will use its technical knowledge and policy implementation experience in the international standards development arena to promote more robust, globally aligned and effective policy outcomes for fans, pumps and compressors.

3.1.2 Solid State Lighting (SSL) Annex

Background: The SSL Annex serves as a hub for information exchange and the coordination of research into topics relating to the performance of light-emitting diodes (LEDs), which offer considerable opportunities for increased energy efficiency. Member governments, and many other organisations promoting more efficient lighting, make use of the Annex research and expert resources in developing policies addressing the quality and performance of LED lighting.

During 2019-2024: SSL Annex will support the development of government policy in this important sector by improving the global capacity of laboratories to test LEDs, and by ensuring that policy guidance on key performance levels keeps pace with technological advances.

3.1.3 Electronic Devices and Networks Annex (EDNA)

Background: EDNA is the sole international platform for government policy makers to discuss the energy implications and opportunities presented by connected devices. Almost all equipment will eventually be connected, and while this brings opportunities for improved energy management, there will be an energy cost. As indicated by the IEA's Digitalisation and Energy Report, the need for policies to ensure overall positive energy efficiency outcomes from digitalisation makes the role of EDNA increasingly important.

During 2019-2024: EDNA will undertake further research into the technical and policy aspects of the internet of things (IoT), network standby energy consumption and intelligent efficiency, and share results with governments and other key stakeholders.

3.2 Potential New Annexes

Power semiconductors are a horizontal technology used globally for a wide range of applications, including end-use equipment. There is the potential for technological improvement leading to significant energy savings, however there are few policy drivers in this field, and no overall roadmap to guide further research. Switzerland will lead a new 4E TCP Annex on Power Electronic Conversion Technology (PECTA) to be launched in 2019.

3.3 Major Projects

3.3.1 Product Energy Efficiency Trends

During 2019-2024, the 4E TCP will build on key strengths of 4E TCP members and Annexes, and our collective experience to research and analyse the energy efficiency trends of major appliances and related policy development on an annual basis. Also included will be an assessment of the potential for future technologies to generate significant energy savings. The outputs from this project will be included in a new 4E TCP flagship publication and used to support IEA publications.

3.3.2 Regulators Forum on Monitoring, Verification and Enforcement (MV&E)

MV&E ensures that expected energy efficiency gains from regulatory policies are realised in practice. In the wake of the defeat software in the automotive sector (Volkswagen case), 4E TCP members find there is a need for ongoing vigilance to maximise savings from programs. The 4E TCP provides a unique mechanism for national regulators to raise issues of concern and share approaches to market surveillance and enforcement, meeting face-to-face alongside each ExCo.

3.3.3 Input to IEA analysis

The 4E TCP has provided research and analysis to previous editions of the *Energy Efficiency Market Report*, *More Data Less Energy*, *Digitalisation and Energy*, the *World Energy Outlook* and others. During 2019-2024 the 4E TCP will build on this effective collaboration and explore opportunities for further contributions with the IEA Secretariat on key publications, including potential new joint reports.

3.3.4 G20 Connected Devices Alliance (CDA)

The Connected Devices Alliance (CDA), one of six key energy efficiency initiatives under the G20, provides a unique forum for dialogue between a network of 350 government and industry participants on this issue of global significance. During 2019-2024 the 4E TCP will continue to provide Secretariat support for the CDA, expanding leadership beyond the United Kingdom and the IEA to include Canada, and the Netherlands. Amongst several projects, the CDA will champion the Voluntary Principles for Energy Efficiency Connected Devices, and manage the CDA Centre of Excellence.

3.3.5 Key Strategic Publications

The 4E TCP shall investigate issues which support member's policy development aspirations. Two recent examples include: the report on *The Role of Voluntary Agreements* (a study of a type of policy measure under consideration by many member governments); and *Achievements of Appliance Energy Efficiency Standards and Labelling Programs – A Global Assessment*, which summarised the factual results of existing programs.