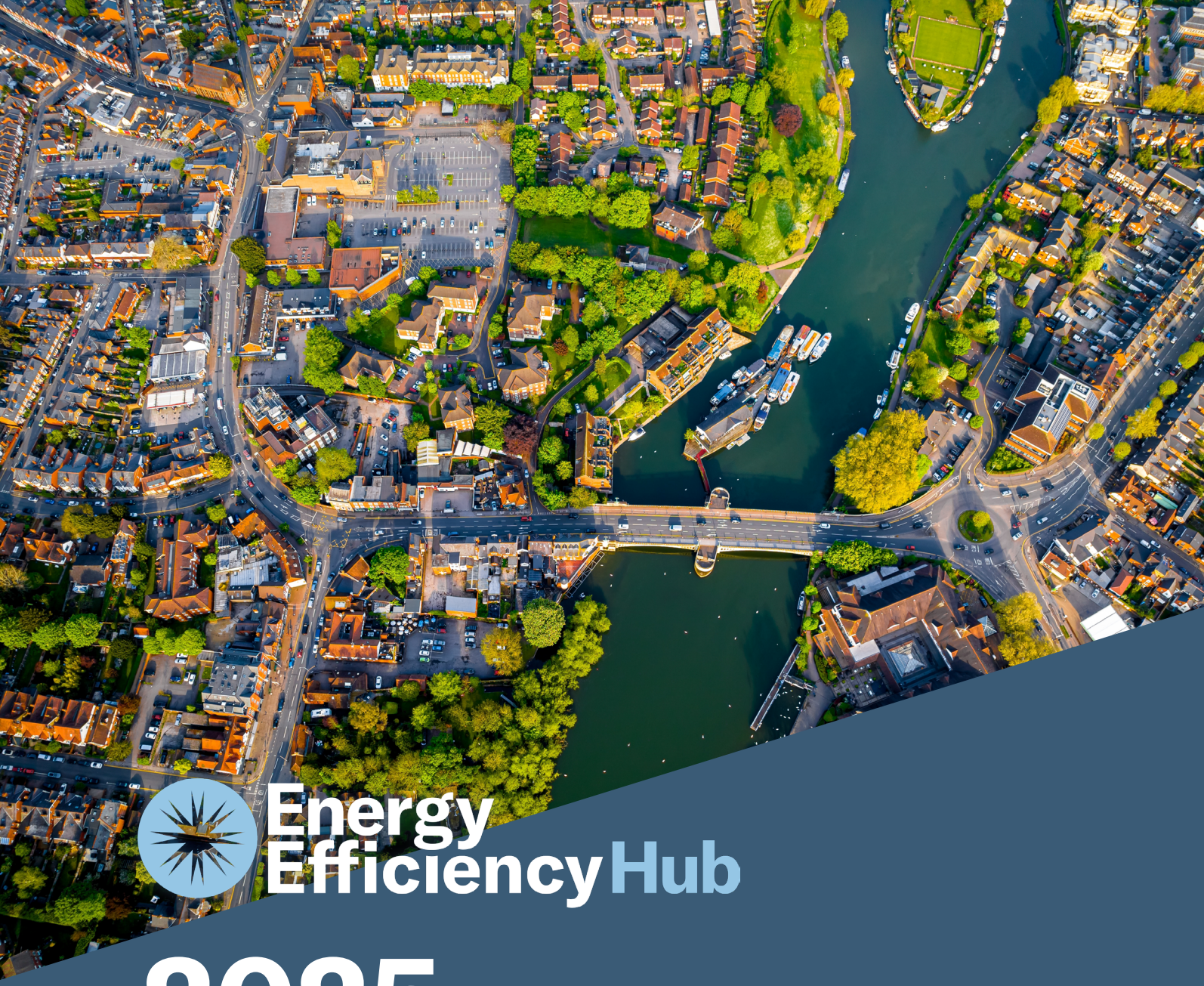


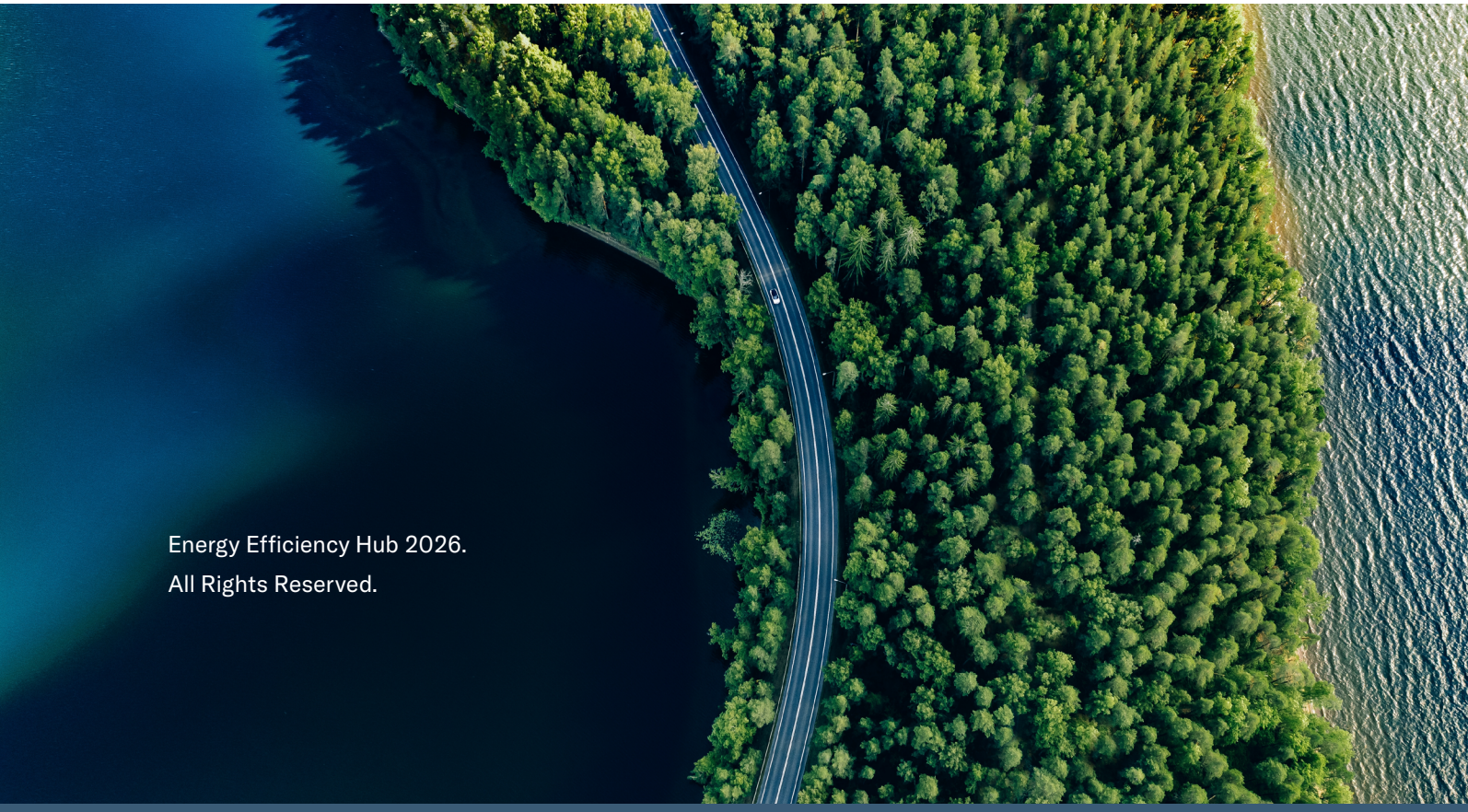
Energy Efficiency Hub

2025 Annual Report

The Energy Efficiency Hub is a government-to-government platform for global collaboration on energy efficiency.

Hub members

Argentina
Australia
Brazil
Canada
People's Republic of China
Denmark
European Commission
France
Germany
India
Japan
Korea
Luxembourg
Russian Federation
Saudi Arabia
United Kingdom
United States



Energy Efficiency Hub 2026.
All Rights Reserved.

Energy Efficiency Hub

Table of Contents

4 Abbreviations and acronyms

5 Message from the Hub Chair

6 The Hub in 2025

7 A global community of practice for governments

8 Helping each other find solutions

9 Strengthening the dialogue

10 Collaborating with international organisations

11 Sharing lessons from Members

15 Digitalisation Working Group

16 Energy Efficiency in Buildings Task Group

19 Super-efficient Equipment and Appliances Deployment

21 Top Ten Energy Efficiency Best Available Technologies and Best Practices Task Group

22 Exchanging policy lessons in Member workshops

24 Energy Efficiency for Affordable Homes and Workplaces

26 Energy Footprint and Sustainability of Data Centres

28 Retrofitting Buildings for an Energy-Efficient, Low-Carbon Future

31 Communications

32 Hub governance and operations

Abbreviations and acronyms

Energy Efficiency Hub Task Groups

DWG	Digitalisation Working Group
EEB	Energy Efficiency in Buildings
EMAK	Energy Management Action Network (Activities suspended in 2024)
SEAD	Super-efficient Equipment and Appliance Deployment
TOP TENs	Top Ten Energy Efficiency Best Available Technologies and Best Practices

Task Group Operating Agents and Coordinators

CQC	China Quality Certification Centre – TOP TENs
dena	German Energy Agency (Deutsche Energie-Agentur) – EEB
IEA	International Energy Agency – SEAD
CNIS	China National Institute for Standardization – DWG

Other Organisations and Terms

3DEN	Digital Demand-Driven Electricity Networks
4E	Energy Efficient End-Use Equipment (IEA TCP)
AI	artificial intelligence
APEC	Asia-Pacific Economic Cooperation
CEM	Clean Energy Ministerial
CEM SOM	Clean Energy Ministerial Senior Officials' Meeting
CLASP	Collaborative Labelling and Appliance Standards Program
EBC	Energy in Buildings and Communities (IEA TCP)
EEIT	Office of Energy Efficiency and Inclusive Transitions (IEA)
EEWP	Energy Efficiency Working Party (IEA)
EGEEC	Expert Group on Energy Efficiency and Conservation (APEC)
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
GlobalABC	Global Alliance for Buildings and Construction
HPT	Heat Pumping Technologies (IEA TCP)
IETS	Industrial Energy-Related Technologies and Systems (IEA TCP)
ISGAN	International Smart Grid Action Network (IEA TCP)
MI	Mission Innovation
NCTIGB	National Center of Technology Innovation for Green and Low Carbon Building
PEEB	Partnership for Energy Efficiency in Buildings
RI.SE	Research Institutes of Sweden
RMI	Rocky Mountain Institute
TCP	Technology Collaboration Programme (IEA)
TERI	The Energy Resources Institute
U4E	United for Efficiency (UNEP)
UNEP	United Nations Environment Programme
UsersTCP	User-Centred Energy Systems (IEA TCP)
WBCSD	World Business Council for Sustainable Development
WorldGBC	World Green Building Council

Message from the Hub Chair

Energy efficiency continues to grow in importance as Members seek practical solutions for sustainable growth. Within this evolving landscape, the Hub has become a trusted place where Members and partners can come together to share knowledge, discuss how to strengthen policies, and build relationships that make a lasting difference.

Welcoming **India as our newest Member** has been a highlight. Their advances in appliance standards and broader efficiency policies have enriched our collective work, while the **SEAD Initiative** and other Hub platforms have amplified these exchanges.

The **Energy Efficiency in Buildings Task Group** made financing retrofits its focus, reminding us that — while capital is essential — it is collaboration, policy alignment, and shared learning that unlock real transformation.

Our first large in-person event in China brought together over 80 participants from governments, international organisations, the private sector, and research institutions. *The Retrofitting Buildings for an Energy-Efficient, Low-Carbon Future* **Forum** was not just a meeting, it was proof of the Hub's purpose: to connect people, share solutions, and build relationships that endure.

The **TOP TENs Task Group** identified another set of national best available technologies, with Germany's leadership standing out. Engagement with Members and outreach beyond the Hub has expanded, strengthening the global network of best practices.

Meanwhile, the rise of **artificial intelligence** has opened new horizons. AI promises efficiency gains across entire energy systems, and I am pleased that the **Digitalisation Working Group** had a successful event on the sustainability of data centres during European Sustainable Energy Week in Brussels, and will dedicate 2026 to exploring its role in energy end-uses.

Still, challenges remain. The **IEA market report** shows the world is not yet on track to meet the COP28 target of doubling energy intensity improvement. Despite evidence of the growing benefits of energy efficiency improvements for energy security, affordability, and sustainability, political attention does not always reflect its importance. The Hub must help reverse this situation through its activities and by raising awareness of how efficiency supports the goals countries care about most.

In this effort, our collaboration with the **International Energy Agency** and a widening circle of international organisations will be critical. The Secretariat has ensured that our exchanges draw on the expertise of these bodies, strengthening our collective capacity to foster efficiency deployment.

As we enter 2026, I look forward to continuing this journey with all of you — widening our membership, deepening our partnerships, and ensuring that energy efficiency remains at the heart of the global energy and climate agenda.

Dr Tudor Constantinescu

Principal Adviser to the Director–General for Energy, European Commission



The year in a nutshell

The Hub in 2025

The Energy Efficiency in Buildings (EEB) Task Group organised several external and internal events on financing energy efficiency at high-profile events such as the Berlin Energy Transition Dialogue, the IEA 10th Annual Global Conference on Energy Efficiency, and COP30. The resulting overview of financing mechanisms was published as the Energy Efficiency Financing for Buildings webpage, launched on the Hub website for use by governmental stakeholders.

The Digitalisation Working Group (DWG) participated in a session during European Sustainable Energy Week in Brussels, *Energy footprint and sustainability of data centres*, with speakers from Canada, the European Commission, Germany, Ireland, and Digital Europe, covering regulation, monitoring, and benchmarking data centres' energy consumption.

The Top Ten Energy Efficiency Best Available Technologies and Best Practices (TOP TENs) saw one its Task Group members, Germany, complete its first list of top technologies and practices in 2025, contributing to the effort to build towards updated international lists.

Super-efficient Equipment and Appliances Deployment (SEAD) Task Group held a number of side-events at international conferences, including two events at the Clean Energy Ministerial and a side-event at COP30 in Belém, *Efficient Cooling and Ventilation for Comfort and Decarbonization*, co-organised by Daikin, GlobalABC, and UNEP-United for Efficiency (U4E).

The Hub organised a Thematic Session, *Energy Efficiency for Affordable Homes and Workplaces*, at the IEA 10th Annual Global Conference on Energy Efficiency in June in Brussels, bringing together speakers from government and the private sector to discuss policies, best practices, and digital solutions.

With support from China's Ministry of Housing and Urban-Rural Development, the Hub organised a domestic and international forum in Beijing, *Retrofitting Buildings for an Energy-Efficient, Low-Carbon Future*, bringing together government officials and experts from the private sector, international organisations, and research institutions for a two-day event with site visits and panel discussions on existing and emerging practice.

The Hub Secretariat organised five Policy Exchange Workshops on industry, buildings, and cross-cutting topics, bringing together over 100 attendees from Hub Members and Observers.

Two joint workshops were organised by the Hub and the IEA Energy Efficiency Working Party (EEWP), one covering financing for energy efficiency upgrades in buildings and light industry, and the other on the use of AI and digitalisation to scale energy efficiency across buildings and industry.

Three Steering Committee meetings were held, featuring Task Group reports, policy updates from Members, and overviews on global development from the IEA.

A global community of practice for governments

Since it was established in 2019, the Energy Efficiency Hub has fostered and broadened global dialogue among governments to strengthen deployment of energy efficiency. The Hub now comprises 17 Members: Argentina, Australia, Brazil, Canada, China, Denmark, the European Commission, France, Germany, India, Japan, Korea, Luxembourg, the Russian Federation, Saudi Arabia, the United Kingdom, and the United States. Its Secretariat is hosted by the International Energy Agency (IEA) in Paris.

All Hub Members are pursuing ambitious energy efficiency agendas. Membership provides access to flexible, informal work processes, dynamic exchanges, and opportunities for dialogue among officials who might not otherwise meet, generating new insights.

Hub discussions are practical and apolitical, focusing on what works and lessons from what has been less successful. Members share experience and discover new ways to advance common goals, regardless of their different stages in design and implementation of particular policies.

Enhancing collaboration with the IEA, with other international organisations, and with a range of other countries is central to the Hub's mission. The Hub also raises the visibility of outputs from its thematic Task Groups. In 2025, the Hub strengthened global engagement through major international events.



The Hub's Reach in 2025

- Attracted a total audience of almost 1 400 for external events
- Brought together around 500 participants at 14 closed Hub meetings and events
- Received over 8 600 website visits from 126 countries
- Posted 20 videos from Hub events.

Helping each other find solutions

The Hub takes on issues important to its Members through thematic Task Groups. These are Member-led standing bodies in which any Member may participate. They coordinate activities with other international organisations and private stakeholders working in the same fields. Most Members belong to several Task Groups, which currently include:



Digitalisation Working Group (DWG):

A group that shares experience to inform participants' advances in policy concerning the digitalisation of energy-efficient technologies.



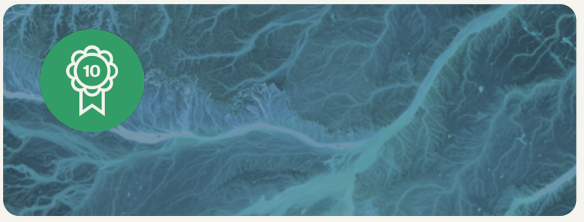
Energy Efficiency in Buildings (EEB):

A platform to exchange information and practices in areas of current relevance to building energy policy.



Super-efficient Equipment and Appliances Deployment (SEAD):

An intergovernmental initiative to promote the manufacture, purchase, and use of super-efficient appliances, lighting, and equipment worldwide.



Top Ten Energy Efficiency Best-Available Technologies and Practices (TOP TENs):

A Task Group that highlights both best available energy efficiency technologies and best practices that governments can promote.

In 2025, to complement the work of the Task Groups, the Hub held internal workshops on a range of industry, buildings, transport, and cross-cutting topics. Industry-focused sessions examined energy management systems in light industry, policies and measures to support SMEs, and strategies for accelerating private investment. Other workshops addressed district heating, appliance standards, and financing for energy transitions. Officials with relevant responsibilities from Member governments shared practical experiences and explored emerging solutions in sessions that strengthened their communities of practice.

Strengthening the dialogue

The Hub's membership spans countries worldwide. Its Member-driven approach ensures discussions focus on the most relevant topics for those responsible for day-to-day implementation. Activities in 2025 reinforced the Hub's position as a trusted platform for collaboration and sharing solutions.

Over the course of the year, the Hub welcomed a new Member and Observers into its community of practice. India joined in January, substantially adding to the expertise and knowledge that all Members can draw on and enlarging the scope of exchanges. Ireland and South Africa joined several events, and Kazakhstan and Pakistan contributed its perspective to Task Groups.

The Hub convened governments, industry leaders, and experts at major international platforms. At COP30, the Hub hosted a session on retrofitting real estate and promoting energy-efficient practices. At the forum in Beijing, participants from Hub Members and elsewhere highlighted innovative financing models, business solutions for low-carbon buildings, and strategies to mobilise private investment in efficient equipment. The DWG hosted an event in Brussels in June that advanced discussions on the energy footprint of data centres, showcasing good practices for sustainable digital infrastructure.



Being part of the Energy Efficiency Hub has been a great opportunity to stay informed about international energy efficiency policy trends and to connect with other Members on shared priorities, such as energy efficiency in data centres, and emerging developments in industrial energy efficiency. The Hub also provides a valuable platform for learning about relevant work in other international organisations and for aligning efforts throughout the global energy efficiency community."

Ben Copp, Director General, Office of Energy Efficiency, Natural Resources Canada



Collaborating with international organisations

By connecting governments, industry, and international organisations, the Hub fosters practical exchanges that accelerate progress toward the global goal of doubling energy efficiency improvements by 2030.

The Hub expanded cooperation with international organisations in 2025. These included, among others, the ASEAN Centre for Energy, CLASP, Climate Bonds Initiative, GlobalABC, Green Finance Institute, the IEA, OECD's Clean Energy Finance and Investment Mobilisation, Partnership for Energy Efficiency in Buildings (PEEB), Rocky Mountain Institute, UNEP, UNIDO, the World Bank, and the World Green Building Council (WorldGBC).

Representatives of international organisations and the private sector joined Steering Committee meetings. The Energy Efficiency Movement, Euroheat & Power, Research Institutes of Sweden, Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), the Fraunhofer Institute for Systems and Innovation Research, and others, shared their work during sessions aiming to inform Members and identify opportunities for collaboration.

Colleagues from the IEA contributed to Hub workshops, sharing expertise and strengthening collaboration across membership. Two joint IEA-Hub workshops took place alongside the IEA EEWP meetings, attracting significant in-person attendance.

To foster connections between Hub Task Groups and IEA Technology Collaboration Programmes (TCPs), the Heat Pumping Technologies, Energy in Buildings and Communities, Industrial Energy-Related Technologies and Systems, and Energy Efficient End-Use Equipment TCPs joined sessions to share their activities and events with Hub Task Groups.

As in previous years, the Hub Secretariat provided updates to the Asia-Pacific Economic Cooperation (APEC) Expert Group on Energy Efficiency and Conservation (EGEEC) on the work of Task Groups and Hub events.

Sharing lessons from Members



The Hub holds and participates in selected events to raise awareness of Task Group activities and to spotlight lessons emerging from Members' experience. In 2025, the Hub was involved in the following events:

March

The joint **Hub-IEA Energy Efficiency Working Party Workshop** focused on scalable financing approaches for building energy retrofits and explored models that overcome investment barriers in light industry. Speakers described financing models, policy solutions, and business models to ease access to financing in diverse contexts.

EEB

EEB held an event at the Berlin Energy Transition Dialogue, *Financing Building Energy Retrofits*, on solutions to speed up investment in building retrofits. The Hub Chair and the co-lead of the EEB opened the session, followed by speakers from dena, Global New Energy Finance, and the IEA, who covered key financing mechanisms and discussed implementation.

DWG EEB TOP TENs

The Hub Secretariat held a webinar to introduce three Hub Task Groups, **DWG**, **EEB**, and **TOP TENs**, to several IEA Technology Collaboration Programmes (TCPs) working in the same fields to foster connections, share information about outputs and events, and identify opportunities for collaboration.

SEAD

The Hub Secretariat organised its first public Policy Exchange Workshop on energy-efficient appliances and equipment, *Consumer Information and Engagement*. The European Commission, Saudi Arabia, and Ghana, alongside CLASP and **SEAD**, shared experience with policies and measures to encourage energy efficiency and demand-side flexibility of appliances.

TOP TENs ISH

The China Quality Certification Centre (CQC), the operating agent for **TOP TENs**, discussed heat pump technologies at the International Sanitation and Heating 2025 Frankfurt conference and visited district heating projects in Denmark.

April

EEB

EEB held a webinar on green mortgages, ESCOs, and climate bonds. EnergyPro introduced ESCO principles and challenges, the Green Finance Institute spoke on progress with green mortgages, and the Climate Bonds Initiative discussed how green bonds can support retrofits.

SEAD cem

SEAD hosted a side event at the CEM Senior Officials' Meeting in Seoul, Korea, *A Vision for Deploying Smart Cooling Technology*. Manufacturer and government representatives discussed the state of technology and future ambitions for smart air conditioners. The session outlined policy options to ensure consumer access to affordable, smart cooling appliances equipped with essential interoperability and demand flexibility features.

The Secretariat attended the 8th Annual Sustainable Investment Forum Europe, organised by the Climate Action, in partnership with UNEP Finance Initiative. The Forum featured discussions on the government leadership and stable policies needed for investors to make long-term commitments to sustainability.

May

EEB

The EEB hosted a webinar on taxonomy, concessional loans, and de-risking instruments. Following opening remarks from the EEB co-chairs and dena, expert speakers presented: the WorldGBC on taxonomy, PEEB on concessional loans, and NYSERDA on de-risking strategies.

June

SUSTAINABLE ENERGY WEEK

The Hub held a session on data centres at **European Sustainable Energy Week** in Brussels, *Energy footprint and sustainability of data centres: Good practices for a global challenge*. The session gathered policy makers, industry stakeholders, and experts from Canada, China, the European Commission, Germany, Ireland, and Digital Europe. After a presentation from the DWG, participants highlighted opportunities to support the decarbonisation of data centres through cooling technologies, co-location, reutilisation of waste heat, utilisation of data centres' storage, and battery capacity for grid flexibility services.

iea

The Hub organised a session, *Energy Efficiency for Affordable Homes and Workplaces*, at the **IEA 10th Annual Global Conference on Energy Efficiency** in Brussels. The event was co-organised by the IEA, **EEB**, GlobalABC, UK Carbon Trust, World Green Building Council, and the Partnership for Energy Efficiency in Buildings. Speakers called attention to policies and implementation tools underpinning the building sector's contribution to doubling the rate of energy efficiency improvement through 2030, and to energy security, affordability, and competitiveness.

July

TOP TENs

TOP TENs participated in multilateral dialogues at the **2025 International Zero-Carbon Cities, Villages, and Buildings Conference and Expo** in Beijing, giving presentations on evaluation of operational energy efficiency and carbon reduction in heat pump systems in buildings and zero carbon industrial parks.

August

SEAD cem

SEAD co-organised a side event, *Flexibility for Power Systems*, at the 16th Clean Energy Ministerial in Busan, Korea, in August with the Rocky Mountain Institute (RMI). High-level participants worked towards a shared understanding of demand response, its role in enhancing system flexibility, and its integration into power system strategies.

September

iea

The joint **Hub-IEA Energy Efficiency Working Party Workshop** focused on harnessing AI and digitalisation to scale up energy efficiency in buildings and industry. Participants explored government approaches to enable and deploy digital technologies in buildings and industry, and shared real-world examples of how digitalisation and AI can improve energy efficiency.

October

China held with the Hub an international and domestic forum in Beijing, *Retrofitting Buildings for an Energy-Efficient, Low-Carbon Future.* The two-day forum brought together government officials and experts from the private sector, international organisations, and research institutions to discuss existing and emerging practice.

November

DWG Enlit Europe

The Hub Secretariat moderated a session at *Enlit Europe, Optimising Green Data Centres*, and introduced the **DWG** survey of Hub Members' regulatory and policy approaches to foster energy efficiency and carbon reduction in data centres. Speakers from Siemens Energy, Schneider Electric, Iberdrola's CDP4Green, Research Institutes of Sweden (RISE), and 2G Energy offered diverse perspectives on technology, policy, and operational strategies for sustainable data centres.

SEAD COP30

SEAD co-organised a side-event at **COP30** in Belém, Brazil, *Efficient Cooling and Ventilation for Comfort and Decarbonization: Highlights from COP30*. Co-organisers included Daikin, GlobalABC, and UNEP's United for Efficiency (U4E), with participation from the Cool Coalition, the Government of Nigeria, the ASEAN Centre for Energy, Metrus Energy, and The Energy Resources Institute (TERI).

EEB COP30

EEB co-hosted a session at the Building and Cooling Pavilion during COP30 in Belém, Brazil, *Retrofitting Real Estate*. Businesses, technology providers, and policy makers showcased best practices in financing resilient buildings, advancing high-impact decarbonisation technologies, and promoting innovative solutions. It was organised in collaboration with the European Commission, GlobalABC, the World Business Council for Sustainable Development (WBCSD), Jones Lang LaSalle (JLL), Trane Technologies, and dena, representing the EEB Task Group.

December

SEAD

SEAD held a webinar, *Product registry and data collection*, at which speakers from Australia, Europe, Indonesia, and Saudi Arabia presented their respective systems for product registration.

EEB

The Hub Secretariat presented the work of **EEB** at a webinar for leaders advancing Europe's energy efficiency deployment, *The Future of Energy Efficiency Financing*. Organised by SEFA, the session highlighted practical business models, financial approaches, and real-world project experience driving the clean energy transition. It offered insights on how to turn market potential into actual investments.

EGEEC

The Secretariat provided updates on Hub activities and events at the 64th and 65th meetings of the **APEC Expert Group on Energy Efficiency & Conservation.**



A strength of the Energy Efficiency Hub is its ability to provide Members with policy insights grounded in real-world experience. They draw on experts and facilitate peer exchanges to help shape more effective energy efficiency policies and support their implementation."

Sophie Attali, Energy Efficiency Policy Analyst, International Energy Agency

Task Group

Digitalisation Working Group



Lead	Members	Operating Agent
China	Canada, European Commission, France, Germany, Saudi Arabia	China National Institute of Standardization

The Digitalisation Working Group (DWG) contributes to the integration of digital technologies into energy efficiency. This Task Group offers a platform for Hub Members to share experiences, tackle common challenges, and advance digital solutions. The multi-year initiative promotes international cooperation on energy efficiency and demand flexibility by exchanging policy lessons, replicating best practices, and developing tools to enhance digital technology performance.

In 2025, the Task Group focused on exploring regulatory frameworks and ways to monitor practices for data centre energy consumption. Preliminary results showed that data centres do not fit neatly into a single regulatory category. Instead, they are subject to multiple policies and requirements that span multiple domains.

A comprehensive survey of existing policies among Hub Member economies, combined with a literature review, informed the forthcoming report, Policy and Regulatory Frameworks for Energy Efficiency in Digital Technology. The report analyses existing policy frameworks, standards and labelling, investment incentives, voluntary agreements, energy management, capacity building, and public information campaigns.

DWG shared data centre regulation policies during a session at the European Sustainable Energy Week in Brussels, *Energy footprint and sustainability of data centres: Good practices for a global challenge*. CNIS also welcomed the Hub Secretariat to their office in Beijing on the sidelines of the forum, *Retrofitting Buildings for an Energy-Efficient, Low-Carbon Future* in October. Resulting discussions reinforced the Task Group's aim to facilitate collaboration on policy frameworks advancing energy-efficient digital infrastructure.

The initial report findings and stakeholder perspectives were presented during an event at Enlit Europe in November, *Optimising Green Data Centres*. The session featured speakers from Siemens Energy, Schneider Electric, Iberdrola's CDP4Green, Research Institutes of Sweden (RI.SE), and 2G Energy, offering diverse perspectives on technology, policy, and operational strategies for sustainable data centres.

In 2026, the DWG plans to focus on energy efficiency solutions enabled by digitalisation, targeting selected sectors where these technologies can have the greatest impact.

Since its inception, DWG members have played an active role in promoting best practices and supporting policy makers and industry stakeholders across energy-intensive sectors. Their efforts are helping to build a foundation for greener, more efficient digital infrastructure worldwide.

Task Group

Energy Efficiency in Buildings

Leads	Members	Observers	Operating Agent
European Commission, Germany	Argentina, Brazil, China, Korea, Saudi Arabia	Australia, Canada, France, United States	German Energy Agency (dena)

The Energy Efficiency in Buildings (EEB) Task Group serves as a collaborative platform for exchanging policy insights and promoting best practices to improve energy efficiency in buildings. It fosters international cooperation, enabling participants to discuss priorities and challenges and share lessons learned to enhance policy development and implementation.

Following the momentum of COP29, EEB offered participants an opportunity to exchange best practices for financing energy efficiency building retrofits. Experts shared insights on a variety of efficiency financing mechanisms and strategies to improve access to affordable finance. Emphasis was placed on internal capacity-building and proven financing tools to achieve scale. EEB aimed to answer the following questions:

- What financing mechanisms are available to support energy efficiency building retrofits?
- How can public funds be used most effectively to foster building retrofits?
- What strategies can mobilise private finance either by leveraging public funds or without them entirely?

To that end, EEB held several internal and external events and developed a dedicated webpage outlining various financing instruments on the Hub website.

These workshops, described below, provided EEB participants and Observers an opportunity to support their decision-making regarding the most effective use of public funds.



The EEB's diverse membership brings valuable insights from various corners around the globe. By learning directly from one another, we intend to turn shared experience into effective policies that help drive meaningful, lasting improvements in the building sector."

Ludwig Labuzinski, Senior Expert, German Energy Agency

March

EEB held a hybrid event at the Berlin Energy Transition Dialogue, *Financing Building Energy Retrofits*. During the session, participants discussed solutions to speed up investment in building retrofits and shared examples of energy efficiency funds, credit lines, and service programmes. The Hub Chair and the co-lead of EEB from the Federal Ministry for Economic Affairs and Climate Action opened the session. Presentations followed from dena, Global New Energy Finance, and the IEA. Policy makers, business leaders, researchers, and civil society representatives heard an overview of the major types of financing mechanisms and discussed how to implement programmes and enable policies.

April

The Task Group held a closed-door webinar for Hub Members and Observers to feature expert presentations on **green mortgages, ESCOs, and climate bonds**. EEB co-leads opened the session with remarks and a recap of the Berlin session in March. EnergyPro reviewed ESCO principles and current challenges, then the Green Finance Institute discussed progress of green mortgages. The Climate Bonds Initiative concluded with insights on the role of green bonds in retrofitting, supported by case studies.

May

EEB held a closed-door webinar on taxonomy, concessional loans, and de-risking instruments. After opening remarks from the EEB co-leads, dena presented key updates. Expert contributions covered taxonomy by the World Green Building Council, concessional loans by the Partnership for Energy Efficient Buildings, and de-risking strategies by the New York State Energy Research and Development Authority.





June

> The Task Group participated in a session at the IEA 10th Annual Global Conference on Energy Efficiency in Brussels, *Energy Efficiency for Affordable Homes and Workplaces*, co-hosted by the IEA and the European Commission. This session spotlighted policies and implementation tools underpinning the building sector's contribution to doubling the rate of energy efficiency improvement between now and 2030, and to energy security, affordability, and competitiveness.

October

> At the *Retrofitting Buildings for an Energy-Efficient, Low-Carbon Future* forum in China, EEB led a deep dive into **ESCO financing**. The session opened with addresses from the German Federal Ministry for Economic Affairs and Energy, the Hub Chair, and the German Embassy in China. A scene-setting presentation by the UNESCO Network Chair was followed by a panel session with government representatives from Australia, China, the European Commission, and Saudi Arabia, in addition to private sector leaders, including the ESCO Committee of the China Energy Conservation Association, Asia Clean Energy Partners, and Towngas Hong Kong. Discussions highlighted diverse perspectives on the role of ESCOs in advancing building retrofits.

November

> Aligned with these initiatives, the EEB co-hosted a session at the Building and Cooling Pavilion at COP30 in Belém, Brazil. The *Retrofitting Real Estate* session gave businesses, technology providers, and policy makers an opportunity to showcase best practices. The session supported the Pavilion's key priorities, such as financing resilient buildings, advancing high-impact decarbonisation technologies, and promoting innovative solutions. The event was organised in collaboration with GlobalABC, the World Business Council for Sustainable Development, the European Commission, Jones Lang LaSalle, Trane Technologies, and dena, representing EEB.

These workshops culminated in the publication of a dedicated Energy Efficiency Financing for Buildings webpage, which provides explanations of financing mechanisms, identifies barriers, and offers case studies and tools for policy makers, investors, and project developers to bridge the gap between ambition and implementation.

In September, the Hub Steering Committee extended the Task Group's mandate for three more years. The 2026 work plan has two work streams: life-cycle perspectives and regulatory and incentive-based approaches to retrofitting. EEB's work will continue aligning with the work of the IEA and other relevant international organisations to enhance synergies and avoid duplication.



TASK GROUP

Super-efficient Equipment and Appliances Deployment

Leads

European Commission, India, Sweden, United Kingdom

Energy Efficiency Hub Members

Argentina, Australia, Brazil, Canada, China, Denmark, Germany, Japan, Korea, Russia, Saudi Arabia, United States

Non-Hub Task Group members

Chile, Colombia, Ghana, Indonesia, Mexico, Nigeria, Panama, South Africa, Türkiye

Coordinator

IEA





SEAD brings governments together to drive global market transformation toward energy-efficient products. Operating as both a Task Group within the Hub and an initiative under the Clean Energy Ministerial (CEM), SEAD brings together 23 participating governments to accelerate and strengthen the development and implementation of appliance energy efficiency policies and related measures.

In 2025, SEAD played an active role in advancing the Energy Efficiency Appliance Policy. During the IEA 10th Annual Global Conference on Energy Efficiency in June, SEAD held an event on future-proofing appliance policy. In October, SEAD officially launched the Appliance Energy Efficiency Policy Online training course regionally in Spanish and Portuguese.

SEAD contributed to three successful IEA training weeks on energy efficiency policies, each featuring a dedicated course on appliances and equipment, in Paris (France), Accra (Ghana), and Hanoi (Vietnam). Nearly 100 policy makers and experts participated in the appliance sessions, engaging in discussions on the fundamentals of designing and implementing effective energy efficiency policy packages.

SEAD participated in the Hub's first Policy Exchange Workshop that was open to the public in March, *Consumer Information and Engagement*. The European Commission, Saudi Arabia, and Ghana shared experiences on policies and measures that encourage improved energy efficiency and promote demand-side flexibility potential of appliances.

Beyond providing policy advice and facilitating knowledge-sharing among SEAD members, the Task Group co-organised several events:

- *A Vision for Deploying Smart Cooling Technology* was held in April at the Clean Energy Ministerial Senior Officials' Meeting (CEM SOM) in Seoul. Manufacturers and government representatives discussed the current state of technology and future ambitions for smart air conditioners. They presented potential policy approaches to ensure consumer access to affordable smart cooling appliances equipped with essential interoperability and demand-side flexibility.





- SEAD co-organised a side-event at the 16th Clean Energy Ministerial in Busan in August alongside the Rocky Mountain Institute. This session, *Flexibility for Power Systems*, provided a platform for high-level participants to establish a shared understanding of demand response, its role in enhancing system flexibility, and the importance of its integration into power system strategies.
- At COP30 in Belém, SEAD joined the side-event *Efficient Cooling and Ventilation for Comfort and Decarbonisation: Highlights from COP30*, which was co-organised by Daikin, the GlobalABC, and UNEP's United for Efficiency (U4E), with participation from the Cool Coalition, the Government of Nigeria, the ASEAN Centre for Energy, Metrus Energy, and the Energy Resources Institute (TERI).
- The Task Group organised a series of webinars addressing key challenges for data centres in collaboration with Technology Collaboration Programmes (TCP) Energy Efficient End-use Equipment (4E) and Digital Demand-Driven Electricity Networks (3DEN). Sessions included *Unlocking Demand Flexibility through Digital Tools* (May), *Understanding Data Centre Electricity Use in the AI Era* (June), and *The Race between Consumption and Efficiency: A Retrospective View of Data Centre Server Architecture* (September).
- In December, the SEAD Working Meeting, *Comparing Fuels*, provided an opportunity for peer-to-peer exchange on the challenges experienced during the design of labels comparing the energy performance of appliances powered by various fuels.
- SEAD closed 2025 with a webinar, *Product Registry and Data Collection*, in December. Speakers from Australia, Europe, Indonesia, and Saudi Arabia presented their respective systems for product registration. Members expressed their wish to hold a complementary webinar in 2026 to explore how these product registries are used in different regions to support the policy process.

TASK GROUP

Top Ten Energy Efficiency Best Available Technologies and Best Practices Task Group

Lead	Members	Operating Agent
China	Germany, Japan, Korea	China Quality Certification Centre

The Top Ten Energy Efficiency Best Available Technologies and Best Practices Task Group (TOP TENs) evaluates energy-efficient technologies and best practices and produces lists of those that are outstanding. The lists include top-rated energy-efficient technologies and practices coming from key energy-consuming sectors that can be considered by governments as targets of policies and programmes to stimulate uptake.

Over the past decade, TOP TENs has published two comprehensive sets of international and national lists, highlighting cutting-edge technologies and best practices with real-world case studies. To start a third round, China published at the end of 2024 selections of energy-saving technologies and practices in four sectors: industry, buildings, transportation, and public services. Examples included measures in hospitals, clean heating solutions, low-grade thermal refrigeration technology, and intelligent, green operations in data centres.

In 2025, Germany selected sets of technologies and practices as well, contributing to the effort to build towards updated international lists. TOP TENs also facilitated bilateral exchanges with Denmark, Germany, and Japan, and engaged with Observer Kazakhstan. The Task Group participated in multilateral dialogues during major events such as the 2025 International Zero-Carbon Cities, Villages, and Buildings Conference and Expo, as well as an IEA Energy Efficiency Policy Training Week.

Efforts to strengthen the Task Group continued throughout 2025. CQC visited district heating projects in Denmark and held discussions on heat pump technologies at the International Sanitation and Heating Frankfurt conference in March. TOP TENs hosted the Hub Chair and Secretariat in Beijing following the *Retrofitting Buildings for an Energy-Efficient, Low-Carbon Future* forum in Beijing. The IEA also visited CQC's headquarters to explore potential collaboration on policy research, standards coordination, capacity building, and outreach.

TOP TENs maintained a strong presence at leading global events on energy efficiency. The Task Group attended the IEA 10th Annual Global Conference on Energy Efficiency in Brussels and the Berlin Energy Transition Dialogue. During both, TOP TENs held meetings with key stakeholders to discuss topics ranging from technology transfer and capacity building to industrial efficiency and the development of the upcoming international list.

To enhance global visibility, TOP TENs unveiled a new logo, with further design enhancements planned in the near future.



Exchanging policy lessons in Member workshops

Hub Members regularly exchange experiences through internal Policy Exchange Workshops. These 90-minute sessions offer an opportunity for experts nominated by Hub Member representatives to explore specific topics related to energy efficiency in buildings, transport, or industry in more detail. These sessions feature overviews of national policies and discussions among officials responsible for policy making and implementation, with scene-setting presentations from IEA experts.

Hub Members participate in sessions aligned with their policy priorities; in some cases, experts from agencies and national labs are nominated to join the workshops. After each session, the Secretariat produces a written summary, complemented by a video recording. These summaries can be shared internally by Members in their respective ministries, departments, and offices.

Five Policy Exchange Workshops were held online in 2025. Topics included energy management systems in light industry, energy-efficient appliances and equipment, policies and measures to support SMEs, energy efficiency investment, and district heating.

Topic	Date	Speakers	Guest Speakers	Participants
Industry: Energy Management Systems in Light Industry	23 January	France, Germany, Saudi Arabia, United States	IEA, UNIDO	Australia, Brazil, Canada, China, European Commission, France, Germany, Japan, Saudi Arabia, South Africa, United States
Appliances and Equipment: Consumer Information and Engagement	20 March	European Commission, Ghana, Saudi Arabia	CLASP, IEA	Belgium, Brazil, Canada, France, Ghana, Saudi Arabia, South Africa, Türkiye, United Kingdom, United States, CLASP, IEA
Industry: Policies and Measures to Support SMEs	12 May	Brazil, European Commission, South Africa	IEA	Belgium, Canada, China, France, Germany, Italy, Japan, United States
Cross-cutting: Accelerating Energy Efficiency Investments	28 October	Brazil, India, Japan	IEA, World Bank	Brazil, Canada, European Commission, Germany, India, Japan, IEA, World Bank
Cross-cutting: District Heating	26 November	China, Denmark, France, Germany	Euroheat & Power, IEA	Argentina, Canada, China, European Commission, France, Germany, India, Ireland, Kazakhstan, Luxembourg, United States, IEA, UNIDO

In 2025, for the first time the Hub opened one of its Policy Exchange Workshops to the public, on the topic of consumer information and engagement. This created an open forum for governments, experts, and stakeholders to share practical approaches to improving consumer uptake of energy-efficient appliances and equipment.

To further facilitate collaboration with the IEA, the outputs from Policy Exchange Workshops were shared with colleagues from the Office of Energy Efficiency and Inclusive Transitions. The summaries were also used to inform workshops on industrial energy efficiency.



The Energy Efficiency Hub really provides its Members with opportunities to explore in detail how to develop more effective energy efficiency measures across sectors. Last year, for example, discussions on less energy-intensive industry provided valuable insights, and discussions on AI and data centres were central to identifying opportunities to enhance energy efficiency in this rapidly evolving field."

Angélique Lequai, Energy Efficiency Policy Officer, Ministry for Economy, Finance, Industrial, Energy, and Digital Sovereignty, France

13 June 2025 | Brussels, Belgium

Energy Efficiency for Affordable Homes and Workplaces

As part of the IEA 10th Annual Global Conference on Energy Efficiency, co-hosted by the European Commission, the Energy Efficiency Hub organised a thematic session on energy efficiency in buildings - a cornerstone for achieving global energy and climate goals. The conference gathered over 700 participants from more than 50 countries, with nearly 90 000 online viewers, reinforcing its status as the premier global platform for energy efficiency dialogue.

During this session, speakers from Brazil, Canada, China, Costa Rica, the European Commission, Germany, India, Mexico, the United Kingdom, the African Energy Commission, the Energy Efficiency Hub, the IEA, and industry representatives shared global perspectives.

Session Objectives

The session focused on:

- Accelerating energy efficiency improvements in homes and workplaces to meet the target of doubling the global rate of improvement by 2030.
- Highlighting the role of buildings in energy security, affordability, and competitiveness.
- Showcasing policy frameworks and digital solutions that simplify retrofits and enhance compliance.

Key Takeaways

Speakers covered a range of topics, featuring policy and implementation tools to overcome barriers to energy efficiency adoption in buildings:

- China is implementing a national plan to tighten building energy standards and expand retrofits across its building stock. Electrification and digital building-management platforms help to improve performance and support carbon reductions.
- Canada's affordability programmes emphasise up-front, province-delivered support. Deep-retrofit accelerators for multifamily buildings play an important role in catalysing the renovation market.
- The European Commission has set EU-wide building standards and rolled out digital compliance tools to help lower household energy costs and speed up renovations. The updated Energy Performance of Buildings Directive and national renovation plans remain key policy tools. Guidance, onestop shops, and blended finance help turn targets into actual projects.
- Australia retrofitted Quay Quarter Tower in Sydney, demonstrating how reusing existing structures can cut embodied carbon and shorten construction time while still achieving high performance.

- Mexico upgraded more than 7 000 social housing units, strengthening social inclusion through targeted access to finance.
- India is focusing on grid-interactive buildings, emphasising the importance of integrating renewables to turn buildings into prosumers, and on developing its smart building code. A flagship pilot at IIT Delhi will model a grid-interactive neighbourhood that could then be scaled up to cities.
- The African Energy Commission highlighted the importance of energy efficiency standards for new buildings and the adoption of minimum energy performance standards for household appliances.
- The World Green Building Council called for strong policy, financing, and better labelling to mobilise stakeholders and scale action in the building sector.

The keynote address was delivered by Brian Motherway, Head of Energy Efficiency and Inclusive Transitions (EEIT) at the IEA. Closing remarks by the Hub Chair, Tudor Constantinescu, emphasised the urgency of coordinated action.

Strategic Outcomes

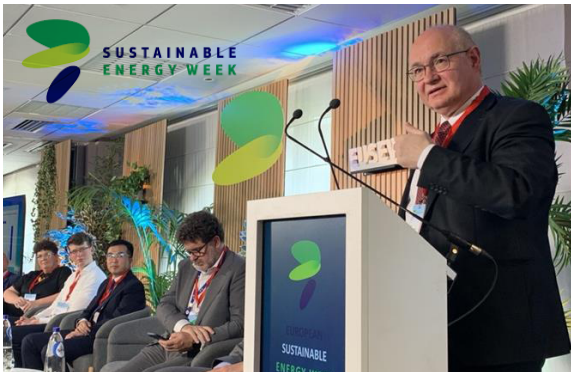
- The session underlined the building sector as a critical enabler of household and business affordability and energy security, and demonstrated how targeted policies and practical tools can deliver measurable results at scale.
- The session identified ways to strengthen collaboration on digitalisation, retrofit policy design, and implementation support, including opportunities for joint events and Task Group activities.
- The session enhanced the Energy Efficiency Hub's visibility, actively engaging key stakeholders from China, Europe, India, and elsewhere, opening pathways for deeper cooperation on buildings and digital solutions.

The session contributed to the broader success of the Global Conference, which concluded with nearly 50 governments endorsing energy efficiency as a driver of affordability and competitiveness through a joint Ministerial Outcome Statement.



11 June 2025 | Brussels, Belgium

Energy Footprint and Sustainability of Data Centres: Good Practices for a Global Challenge



As part of the European Sustainable Energy Week (EUSEW) policy conference, the Energy Efficiency Hub organised a high-level session on the energy footprint and sustainability of data centres, which is a critical and growing challenge worldwide. The event convened around 80 participants and was livestreamed to a broader audience, attracting policy makers, industry leaders, and technical experts.

Session Objectives

Data centres are essential for the digital economy but are large and growing energy consumers. The session aimed to:

- Explore strategies to reduce growth of energy consumption and carbon emissions associated with data centres.
- Highlight global best practices for improving efficiency and resilience.
- Discuss how data centres can contribute to grid flexibility and energy system reliability.



Key Takeaways

Speakers from Canada, China, the European Commission, Germany, Ireland, Digital Europe, and the IEA, shared perspectives on emerging solutions and policy approaches. Discussions centred on:

- Advanced cooling technologies to minimise energy use in high-density facilities.
- Co-location and waste heat recovery, enabling integration with district heating and urban energy systems.
- Battery and storage capacity utilisation for grid flexibility services, turning data centres into active participants in energy markets.
- Policy frameworks and incentives to accelerate adoption of sustainable practices while maintaining reliability and security.

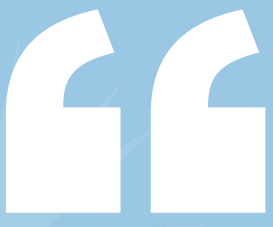
The session underscored the need for a multi-pronged approach to decarbonise data centres, combining technological innovation, regulatory support, and collaboration between governments and industry.

Strategic Outcomes

This session:

- Reinforced the Hub's role as a platform for international knowledge-exchange on energy efficiency in emerging sectors.
- Strengthened engagement with European stakeholders and global partners on digitalisation and energy resilience.
- Positioned data centre sustainability as a priority area for future Hub activities, including potential Task Group initiatives and collaborative workshops.

The Hub Chair delivered closing remarks, emphasising the importance of global cooperation to address the energy challenges posed by digital infrastructure.



The Hub is an important global platform for policy makers on energy efficiency. The IEA and the Hub are natural partners, and working alongside each other as colleagues enhances our ability to support governments in their energy efficiency goals."

Brian Motherway, Head of the Office of Energy Efficiency and Inclusive Transitions, International Energy Agency

16–17 October 2025 | China

Retrofitting Buildings for an Energy-Efficient, Low-Carbon Future: Forum on Domestic and International Practice

On 16–17 October 2025, The Energy Efficiency Hub, in collaboration with China's Ministry of Housing and Urban-Rural Development (MOHURD) and affiliated agencies, co-organised a two-day international forum focused on retrofitting buildings for energy efficiency and carbon reduction. Hosted by the National Center of Technology Innovation for Green and Low-Carbon Building (NCTI-GB), the event marked the first Hub event in China and demonstrated the country's strong commitment to international cooperation on energy efficiency.

The event convened over 80 participants from governments, international organisations, private sector firms, and research institutions across China and more than a dozen countries, underscoring the global importance of accelerating building retrofits. The following Hub Members attended the event: European Commission, France, Germany, Korea, Luxembourg, Saudi Arabia, and the United States.

Session Objectives

The building sector is pivotal to achieving global energy efficiency targets. Existing buildings pose unique challenges, requiring innovative solutions and international collaboration. The forum aimed to:

- Showcase China's experience with retrofit policies, technologies, and financing instruments.
- Share replicable international best practices.
- Explore emerging technologies and strategies for scaling retrofits.





Day 1: Site Visits

Participants toured four exemplary sites in Beijing:

- Beijing Research & Development Center of Building Energy Efficiency – a 1987 building transformed into a net zero, carbon-absorbing facility through advanced insulation, electrification, and smart energy management.
- China Architectural Design and Research Group BIM Building – a smart, efficient green building designed with Building Information Modelling, offering lessons for digital retrofits.
- Beijing Planning Exhibition Hall – showcasing green urban planning strategies while preserving cultural heritage.
- Daji Lane Residential District – Beijing's first large-scale zero-carbon commercial district, integrating photovoltaics, energy storage, and grid interaction.

These visits highlighted practical applications of retrofit technologies and urban decarbonisation strategies.

Day 2: Forum Sessions

The second day featured high-level panels and discussions structured around four themes:

- Technologies for Building Retrofits: Experts from Midea Group, Schneider Electric, and Tsinghua University presented on innovations in cooling systems, smart controls, and grid-interactive appliances.
- Keys to Implementing Retrofit Policies: The IEA emphasised integrated policy packages combining regulations, incentives, and information tools. China, France, and Korea shared national experiences.
- Scaling Financing for Green and Efficient Buildings: The Asian Development Bank showcased district heating projects reducing coal use, while GIZ and ICLEI discussed blended finance and risk mitigation for cooling retrofits.
- Deep Dive on ESCO Financing: A hybrid session explored energy service company models, featuring perspectives from Australia, the European Commission, and Saudi Arabia.





Key Takeaways

- Retrofitting is essential for achieving energy and climate goals. Operational improvements consistently deliver 10–30% energy savings.
- Financing remains a major barrier, requiring innovative models such as concessional loans and performance-linked grants.
- Digitalisation is critical for optimising building performance, with smart meters and AI-driven platforms enabling real-time energy management.
- International collaboration accelerates progress, and the Hub was recognised as a key platform for knowledge exchange and policy support.

Strategic Outcomes

The forum strengthened ties between Chinese and international institutions, paving the way for:

- Collaborative workshops on retrofit financing and building digitalisation.
- Deeper engagement with Hub Task Groups on energy efficiency in buildings and digitalisation.
- Bilateral discussions with MOHURD and NDRC on integrating energy efficiency into China's upcoming 15th Five-Year Plan and establishing the forum as an annual event.

Communications

The Hub uses a range of communication tools to keep Members informed and to build public awareness of its activities and accomplishments. The Secretariat reviews its communications plan annually and regularly updates both the external website and the Members' Portal.

In 2025, the Hub continued to prioritise strong internal communications, supporting Member-to-Member collaboration through the Members' Portal, which was actively used throughout the year for accessing documents, videos, and other internal resources.

Engagement across external channels also grew, with the highest website traffic originating from China, the United States, France, Singapore, and Germany, reflecting the Hub's expanding global visibility. Social media activity in 2025 centred on promoting public events. The Hub's use of LinkedIn, YouTube, and X helped increase visibility, raise awareness of upcoming activities, and disseminate materials, reports, and recordings.





To build a broader community of practice, the Secretariat strengthened collaboration with international organisations, including through cohosted events and by inviting partners to join Steering Committee and Task Group discussions. The Secretariat also supported Task Groups in presenting their outcomes and key messages at high-profile external events, amplifying their impact.

Looking ahead, the Secretariat is developing new pages for and reorganising the external website to better showcase lessons and best practices from Members, highlight policy insights, and raise awareness of upcoming events and activities.

Hub governance and operations

Hub Members oversee and direct the Hub through a Steering Committee, composed of one representative from each Member.

The Chair is appointed by the Steering Committee to set direction for the Hub and guide its substantive work. In 2025, the Hub was Chaired by the European Commission.

In 2025, the Hub also had two Vice Chairs: China and the United States. Vice Chairs are appointed by the Steering Committee to advise and support the Chair between Steering Committee meetings.

The Secretariat serves the Members and benefits from strong engagement and synergies with the IEA, where it is hosted.

Funds for Hub operations are provided by its Members on a voluntary basis.

Governments interested in joining the Hub are invited to direct inquiries to secretariat@energyefficiencyhub.org.

Energy Efficiency Hub Secretariat
9 rue de la Fédération
75739 Paris CEDEX 15
France

Website: www.energyefficiencyhub.org
Email: secretariat@energyefficiencyhub.org






Energy
Efficiency Hub