

IEA EUWP

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Governing Board

The Standing Group on Emergency Questions (SEQ)

The Standing Group on the Oil Market (SOM)

The Standing Group on Long-Term Co-operation (SLT)

Working Party on Energy Efficiency

The Standing Group for Global Energy Dialogue (SGD)

The Committee on Energy Research and Technology (CERT)

Working Party on Fossil Fuels

Working Party on Renewable Energy Technologies

Working Party on Energy End-Use Technologies

Fusion Power Co-ordinating Committee

The **Working Party on Energy End-Use Technologies** (EUWP) was established on 1 April 1981.

Since then it has served as the principal advisory body to the Committee on Energy Research and Technology (CERT) on all matters relating to energy end-use technologies.

The EUWP oversees, supports and adds value to the RD&D efforts of 16 end-use Implementing Agreements – the largest number of Agreements assigned to a CERT Working Party.

The EUWP also serves as a reference body for end-use technology issues within the IEA Secretariat.

The EUWP is the focus for the IEA's extensive international network for RD&D of technologies to increase the efficiency of energy end use.

The network comprises 16 **Implementing Agreements** on individual technologies, for cooperative research, development and demonstration in buildings, industry, transport and electricity network technologies.

The network has more than 150 contracting parties from more than 30 countries world wide to guide the work. Under their leadership national experts collaborate on joint research projects. Outreach to industry and other experts involve thousands in research activities.

End Use Technologies - Buildings

Buildings and Community Systems – ECBCS

District Heating and Cooling - DHC

Efficient Electrical End-Use Equipment – 4E

Energy Storage - ECES

Heat Pumping Technologies/Heat Pump Programme – HPT/HPP

End-Use Technologies - Industry

Industrial Energy-Related Technologies and Systems - IETS

Emissions Reduction in Combustion

End-Use Technologies - Transport

Advanced Fuel Cells – AFC

Advanced Materials for Transportation - AMT

Advanced Motor Fuels - AMF

Hybrid and Electric Vehicles – HEV

End-Use Technologies - Electricity

Demand-Side Management - DSM

Electricity Networks Analysis, Research & Development - ENARD

High-Temperature Superconductivity – HTS

Cross Cutting IAs

Energy Technology Data Exchange – ETDE

Energy Technology Systems Analysis Programme – ETSAP



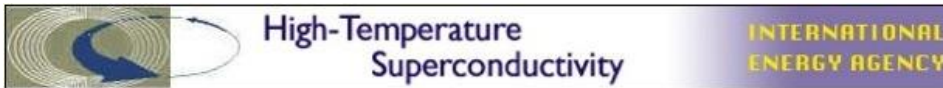
IEA Implementing Agreement on **Advanced Motor Fuels**



IEA-IA-AMT.org
Implementing Agreement on Advanced
Materials for Transportation Application



IEA DHC|CHP



- **End-Use Technologies / Buildings**

Buildings and Community Systems – ECBCS with
Air Infiltration Centre and Future Buildings Forum FBF

District Heating and Cooling - DHC

Efficient Electrical End-Use Equipment – 4E

Energy Storage - ECES

Heat Pumping Technologies – HPT with
Heat Pump Centre

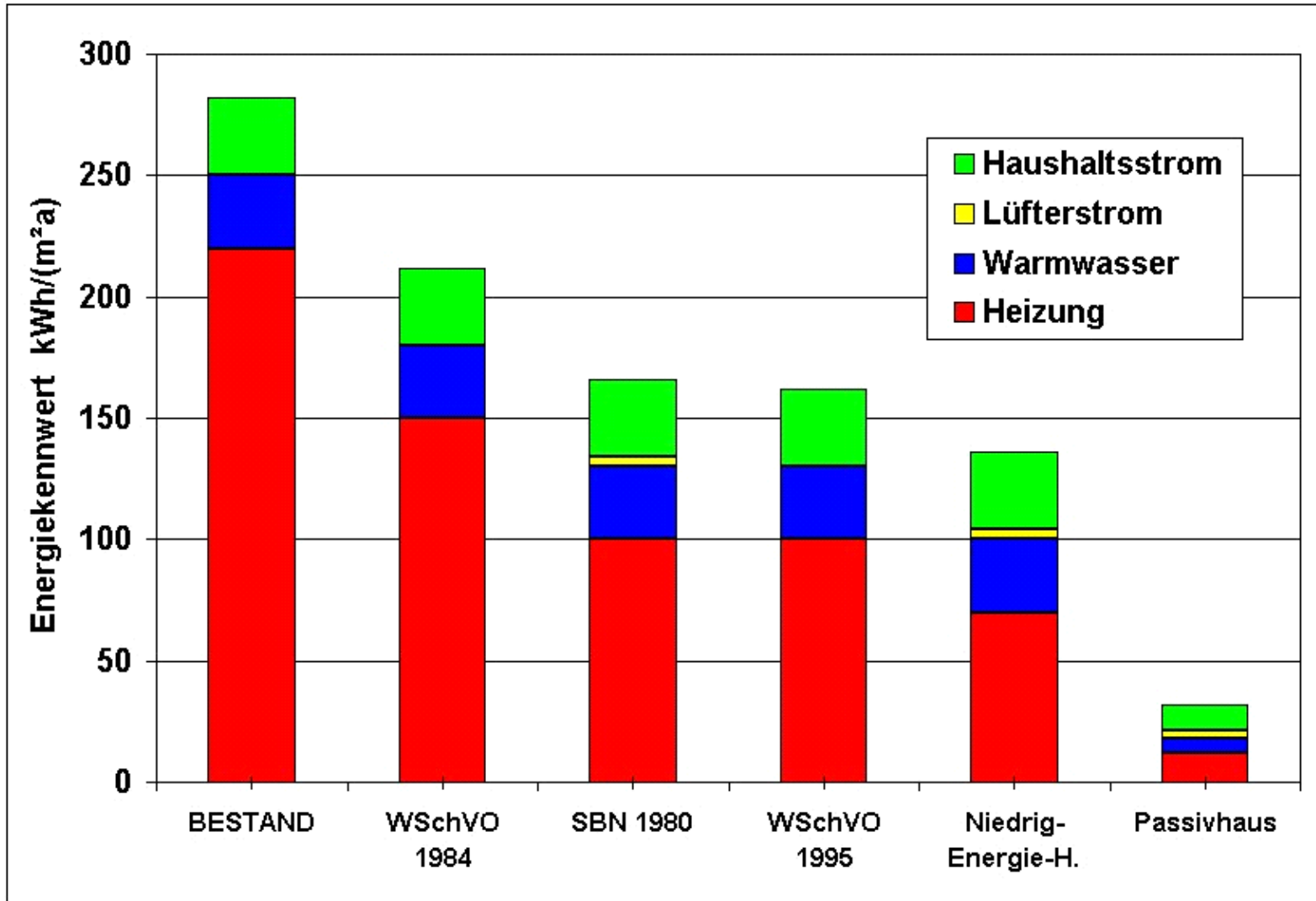
Buildings Co-ordination Group – BCG additionally with

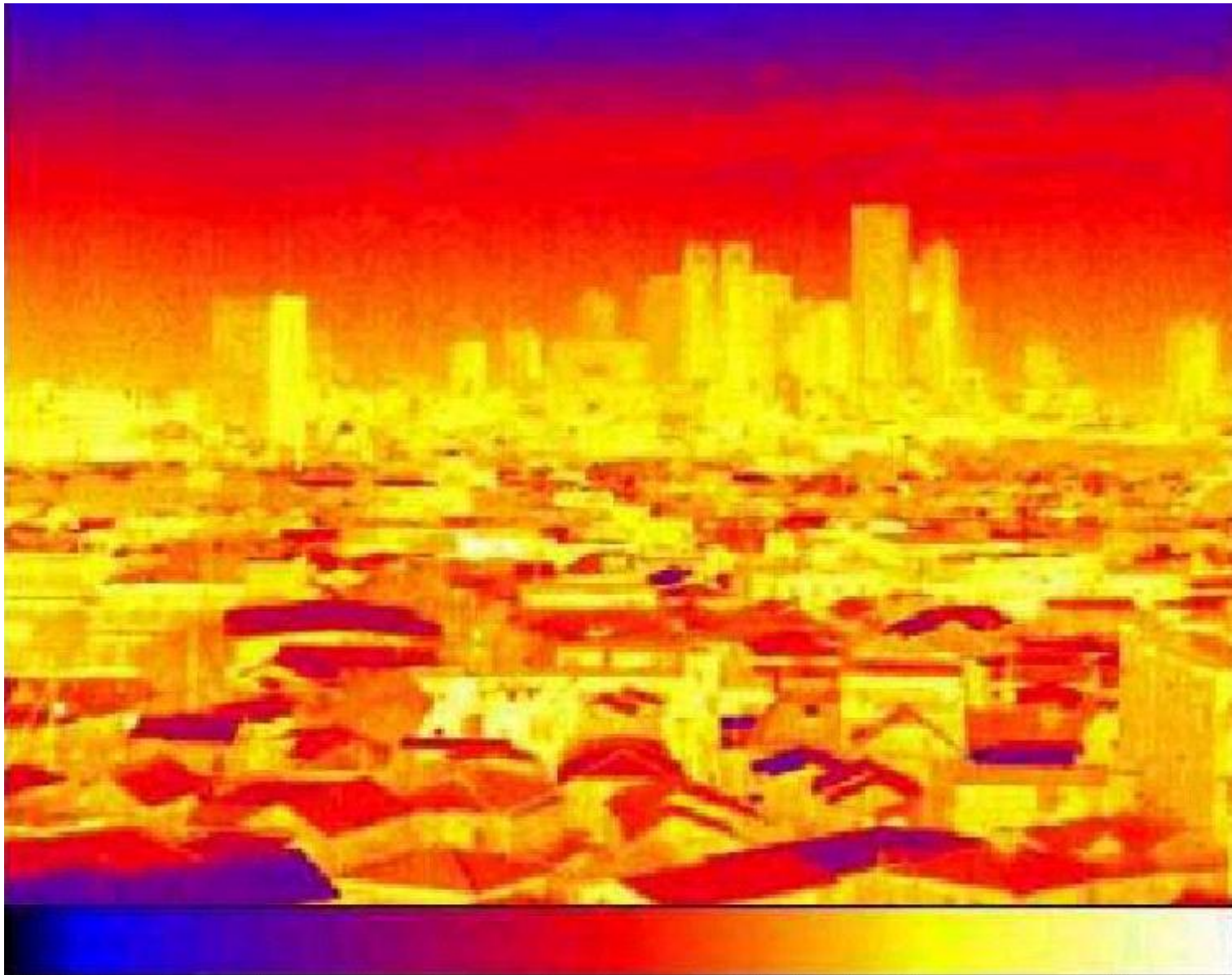
Demand-Side Management - DSM

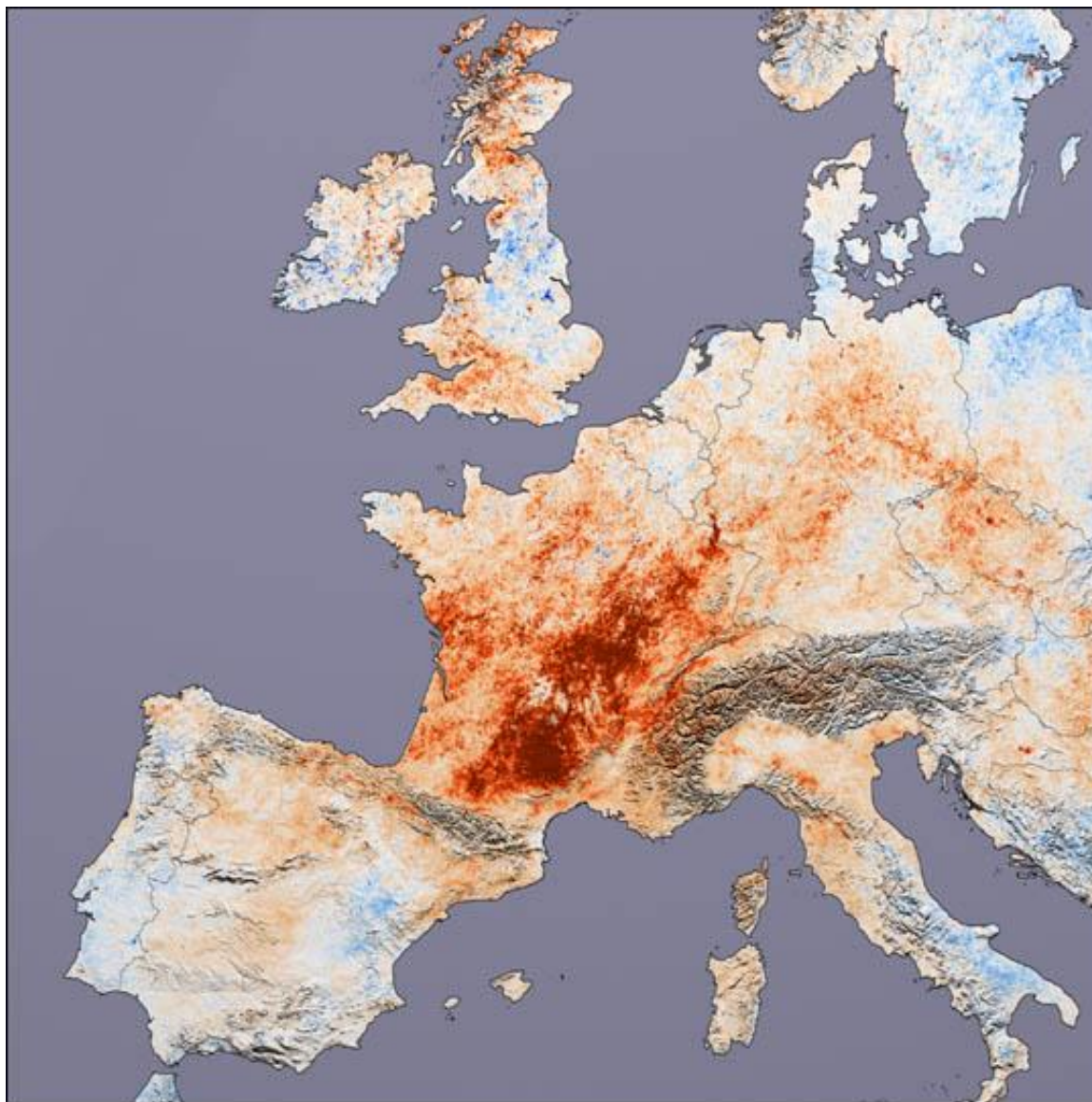
Photovoltaic Power Systems - PVPS

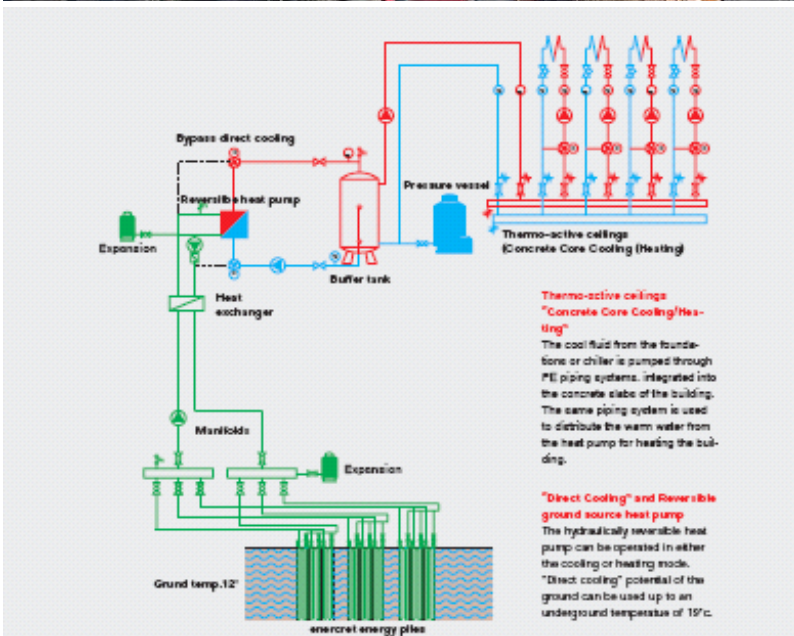
Solar Heating and Cooling - SHC









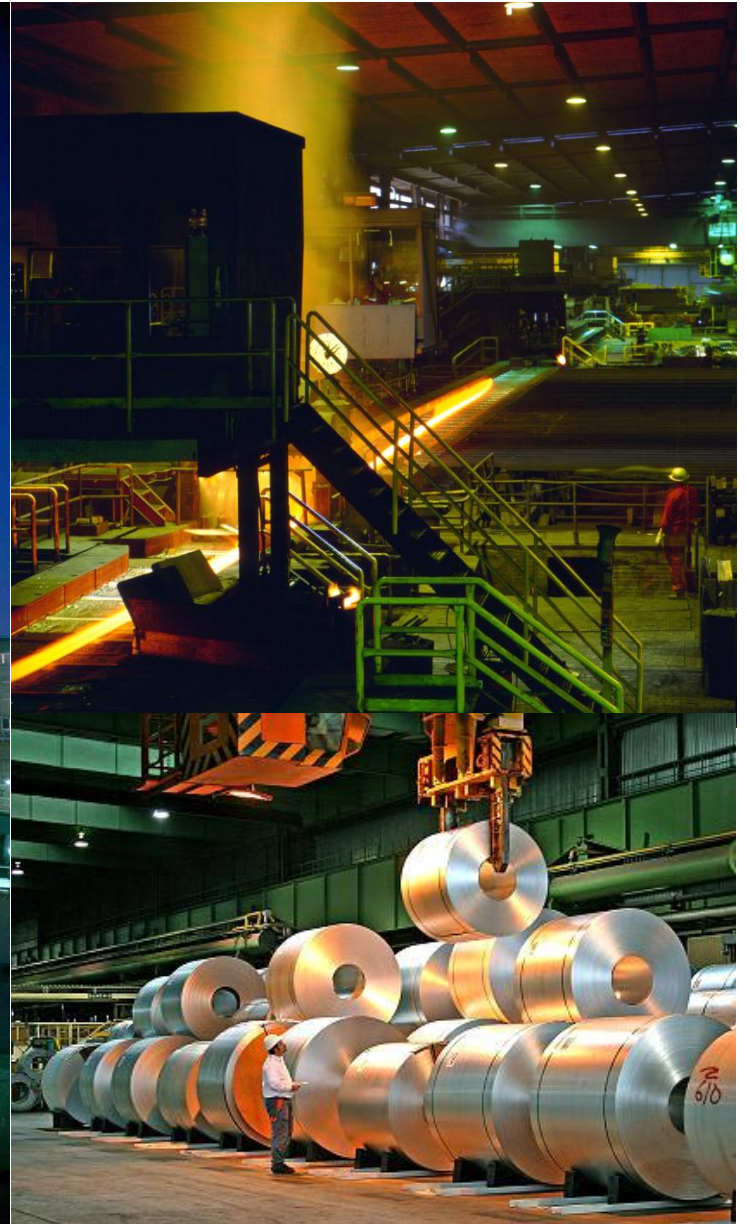


- **End-Use Technologies / Industry**

Industrial Energy-Related Technologies and Systems - IETS

Emissions Reduction in Combustion

Energy Technology Data Exchange - ETDE



- **End-Use Technologies / Transport**

Advanced Fuel Cells - AFC

Advanced Materials for Transportation - AMT

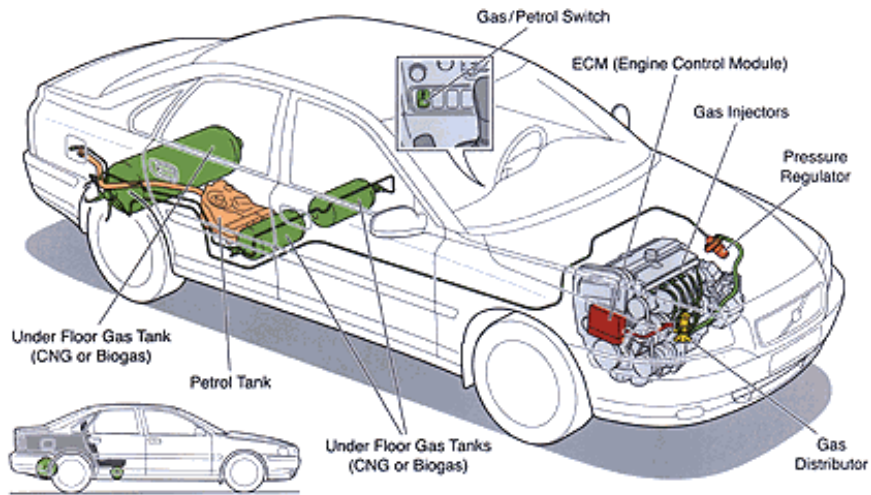
Advanced Motor Fuels - AMF

Hybrid and Electric Vehicles – HEV

Transport Co-ordination Group – TCG additionally with

Bioenergy

Renewable Energy Technology Deployment - RETD



- **End-Use Technologies / Electricity**

Demand-Side Management - DSM

Electricity Networks Analysis, Research & Development - ENARD

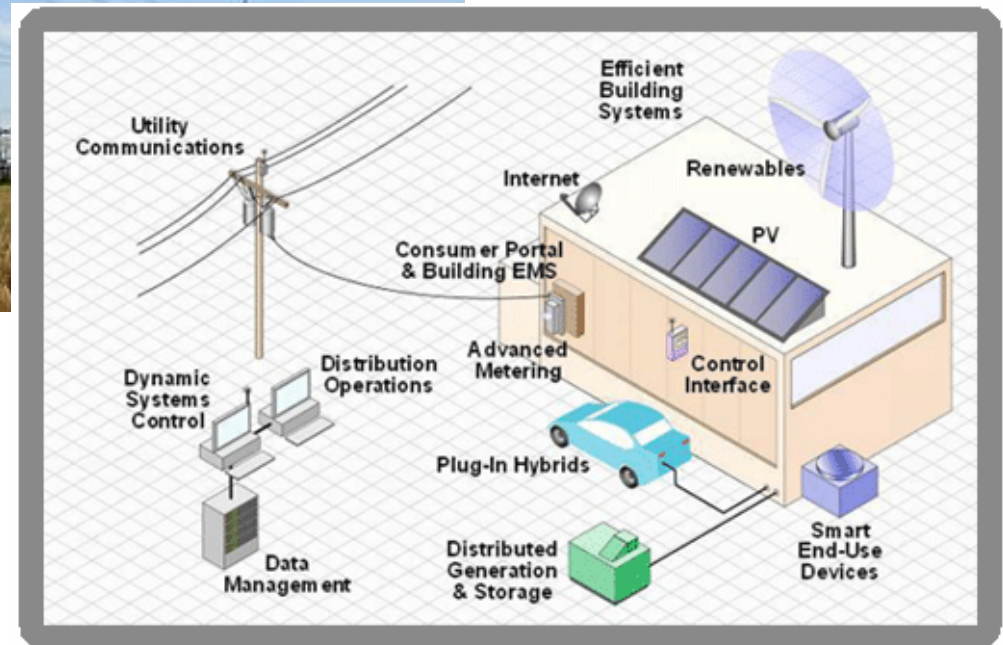
High-Temperature Superconductivity on the Electric Power Sector – HTS

Energy Technology Systems Analysis Programme - ETSAP

Electricity Co-ordination Group – ECG additionally with

Energy Storage

Wind



EUWP ACHIEVEMENTS AND ACTIVITY REPORT 2007-2009

Four principal objectives and several associated activities were identified to carry out the EUWP mission 2007-2009:

- Objective 1: Strategic guidance on end-use technology RD&D
- Objective 2: A well functioning End-Use Implementing Agreement Network
- Objective 3: Good communication with CERT and Member Countries
- Objective 4: Strengthened relations with NMCs

EUWP ACHIEVEMENTS AND ACTIVITY REPORT 2007-2009

Objective 1: Strategic guidance on end-use technology RD&D

To identify those end-use technologies that are expected to respond most efficiently and effectively in the short and longer term to energy security concerns, and environmental and economic goals of Member countries.

EUWP has convened a series of workshop with the IA community to identify key end use technologies and discuss how to advance development and deployment of these through enhanced international collaboration, including workshops on :

- Towards Zero Energy Buildings in OECD countries
- Long Term Perspectives in the End Use sector
- Electric Vehicles and related grid issues

EUWP ACHIEVEMENTS AND ACTIVITY REPORT 2007-2009

G8 recommendations on Energy Efficiency in Buildings:

The building-related Implementing Agreements played a major role in the 2007 CERT/SLT workshop by identifying the recommendations which were endorsed by the GB.

Electricity storage:

Flexibility and storage capacity will be a crucial feature of future power systems with large-scale integration of intermittent and dispersed power production units. EUWP has identified at the 2008 Berlin workshop electricity storage as a crucial area to develop and enhance international technology collaboration.

Electrical appliances:

EUWP identified electrical appliances as a key area to develop international collaboration due to the current and future growth of this end use segment worldwide. EUWP has actively initiated and supported creation and upstart of the 4E IA. The IA is operating extremely well with 4 annexes in the first year.

EUWP ACHIEVEMENTS AND ACTIVITY REPORT 2007-2009

EUWP has evaluated RD&D priorities as part of EoT procedure for a number of IA's.

EUWP has also to some extent reviewed end-use technology analysis from the Secretariat. EUWP has not done this activity as systematically as we could.

We could convene another “White Spots” meeting as EUWP did in Vienna several years ago, and make an effort to better identify and communicate RD&D priorities as part of fall workshops.

In 2007 the Future Buildings Forum (FBF) input and leadership by the EUWP Vice Chair for Buildings and the EUWP Secretary led to a long term R&D agenda for the IEA building research community. The strategy has since been used to shape R&D collaborative strategies for implementing agreements, e.g. the ECBCS Strategic Plan 2008-2012.

EUWP ACHIEVEMENTS AND ACTIVITY REPORT 2007-2009

EUWP reviewed ETP2008 end-use technology analysis at meetings 2008 in Paris and Berlin.

EUWP has facilitated IAs contribution and has solicited comments from experts in our home countries.

EUWP has to a lesser extent provided input to specific end use analysis e.g. indicator analysis, transport analysis, and industry analysis carried out.

The Coordination Groups on buildings, electricity grids and transport have been useful instruments to review material and engage/coordinate IA input. At the first Electricity Coordination Group meeting, feedback was given to ETP08 and planning for ETP10.

EUWP could contribute more if it was more active in getting analysts to present work, or if the EUWP was involved at an earlier stage by the Secretariat.

EUWP ACHIEVEMENTS AND ACTIVITY REPORT 2007-2009

Objective 2: A well functioning Implementing Agreement network

EUWP Chair and Vice Chairs have regularly contacted ExCo chairs and secretaries and have participated in a number of ExCo meetings (15), have offered views on EoT and strategy plans, and have advised on recruiting new members. Vice Chairs have been in contact with IAs on at least a biannual basis to learn of

- progress on modifications in IA/annex objectives;
- closing and opening of annexes;
- co-ordination and co-operation with other IAs and or institutions;
- summary on activities (including dissemination); and
- challenges.

This updated is presented to EUWP and is available for Delegates, CERT and others at the CERT/EUWP homepage.

EUWP ACHIEVEMENTS AND ACTIVITY REPORT 2007-2009

EUWP reviewed EoT and strategies of 10 Implementing Agreements during 2007-2009. This involves an international collaborative research portfolio of more than 30 research projects (annexes).

EUWP has thoroughly reviewed their recent activities and results, their planned collaborative research projects, and provided recommendations to CERT.

EUWP has identified gaps in several areas and has been active in stimulating new collaborative activities, e.g. through establishing new IAs.

EUWP has encouraged several IA's to be active in delivering policy recommendations, but there has been no follow-up.

Some have developed policy papers (e.g. Heat Pump Programme), but it seems that it has been difficult to ensure communication to the right stakeholders.

EUWP ACHIEVEMENTS AND ACTIVITY REPORT 2007-2009

Workshops involving EUWP, EUWP IAs, IEA Secretariat, and other international experts:

- Communicating R&D, September 26, 2007, Amsterdam, Netherlands
- Long Term Technology Perspectives in the End Use Sector, October 16 2008, Berlin, Germany
- Electrical Transport and Grid Related Issues. 17 September 2009, Stockholm, Sweden

On industry technologies the Vice Chair has suggested a workshop for industry related IAs across the three relevant WPs. This was agreed to but has not been done yet.

A Storage Forum (like the FBF – Future Buildings Forum) has been proposed, a first workshop took place in Bad Tölz, Germany, October 2009.

EUWP ACHIEVEMENTS AND ACTIVITY REPORT 2007-2009

EUWP has not achieved to ensure Desk Officer attendance at IA ExCo meetings. More should be done.

Desk officers have been quite active in participating in Coordination Group meetings.

EUWP is also working towards encouraging national EUWP members to attend ExCo meetings in their countries and provide information on relevant IEA and WP activities.

EUWP ACHIEVEMENTS AND ACTIVITY REPORT 2007-2009

EUWP has actively supported the NEET initiative and IA participation in this.

Vice Chairs have encouraged contact with NMCs.

ETDE was encouraged to discuss cooperation with APEC and have done so. This contact will be expanded as further discussions between the IEA and APEC at least.

Interaction with the private sector is very common in IAs, many Annexes are performed with participants from industry. More could be done to improve this activity.

EUWP ACHIEVEMENTS AND ACTIVITY REPORT 2007-2009

Objective 3: Good communication with CERT and Member Countries

A report from the CERT Liaison officer is a standard item of EUWP meetings.

EUWP provides an annual EUWP status report to CERT.

EUWP informed CERT about all workshops and invited them to participate or designate relevant experts.

EUWP discussed developing a communication strategy and decided to only focus on information and communication within our own remits – not to provide advice to CERT and Secretariat on general communication.

EUWP has recommended that ETDE be on the Steering Committee for the communication strategy and ETDE has agreed.

EUWP ACHIEVEMENTS AND ACTIVITY REPORT 2007-2009

EUWP has actively used the Cutting Edge and OPEN Bulletin and encouraged the EU IA network to do so, to communicate workshops, results etc.

EUWP members are also actively communicating through other events, not necessarily IEA.

Many of the IA's organise or co-organise conferences which attract numerous experts from around the world.

EUWP has encouraged closer cooperation with the EEWP. EUWP Chair Peter Cunz participated in the October 2007 EEWP meeting.

Energy Efficiency Week 2009 was a direct outcome of this effort focused on advancing zero energy buildings and improving evaluation of EE (incl. end use technology) policies and programmes.

EUWP ACHIEVEMENTS AND ACTIVITY REPORT 2007-2009

Objective 4: Strengthened relations with NMCs

There have been limited efforts in encouraging NMC experts, but possibilities for this will increase with the observer status of countries like Brazil India, China, Russia at CERT meetings.

In general EUWP is active in encouraging IAs to reach out to NMC.

EUWP has not been very active in inviting NMC participation to EUWP meetings or workshops.

EUWP ACHIEVEMENTS AND ACTIVITY REPORT 2007-2009

EUWP has supported the NEET initiative in several ways. EUWP was represented at several NEET events. EUWP Chair Peter Cunz participated and played an active role in the NEET workshops in:

- 2007 Johannesburg
- 2007 Brasilia

EUWP has supported and facilitated strong participation of end use IA's in four main NEET events:

- South Africa (focused on renewables and fossil fuel IAs): ETSAP, ETDE
- China: Heat Pump Programme, ETSAP
- Brazil: Demand Side Management, Energy Storage, ETSAP
- Russia: Transport (Adv. Fuel Cells, Adv. Motor Fuels, Hybrid/Electric Vehicles), Electricity (Demand Side Management, Energy Storage, High-Temperature Superconductivity), ETDE, ETSAP

EUWP ACHIEVEMENTS AND ACTIVITY REPORT 2007-2009

There is already strategic partnership of some IAs with multilateral organisations (for example HPT with IIR/IIF - International Institute of Refrigeration and EHPA - European Heat Pump Association).

EUWP has encouraged IA's to cooperate with other multinational organisations (e.g. ETDE and APEC).

Expect that opportunities will increase with IEA talking to APEC, IPEEC, IRENA.

EUWP has been active in supporting the establishment of IPEEC.

EUWP Chairs have participated in several preparatory meetings at the IEA Secretariat.

EUWP Strategic Plan 2010-2012

Mission

The mission of the EUWP is to ensure the availability of the scientific and technological knowledge base to achieve, in a professional and effective manner, steady and significant increases in energy end-use efficiency by:

- supporting the leadership efforts of the IEA Secretariat, Committees, Working Parties and Expert Groups;
- supporting CERT to provide international leadership on end-use technology and policy issues;
- supporting and adding value to Implementing Agreements;
- **sharing experience of energy end-use science and technology policy (research, development, demonstration, and technology deployment);**
- **vetting best-practice and guidance on policies that accelerate technology deployment; and**
- collaborating with other public institutions, the private sector, and multilateral organisations in IEA member and non-member countries.

EUWP Strategic Plan 2010-2012

Vision

The continued development, application and deployment of energy efficient end-use technologies has the potential to significantly reduce energy consumption and greenhouse gases in the buildings, electricity generation, industry, and transport sectors.

Objectives

Four principal objectives and several associated activities were identified to carry out the EUWP mission 2007-2009:

Objective 1: Strategic guidance on end-use technology RD&D

Objective 2: A well functioning End-Use Implementing Agreement Network

Objective 3: Good communication with CERT and Member Countries

Objective 4: Strengthened relations with NMCs

EUWP Strategic Plan 2010-2012

Resources available to CERT

The EUWP provides end-use technology expertise and access to networks - resources which CERT can draw upon to achieve its objectives:

- End-use technology expertise
- End-use technology policy implications
- Capacity to guide international collaboration
- Close contact with the network
- Close contact with IEA member countries
- Outreach to IEA non-member countries

EUWP Strategic Plan 2010-2012

In addition to highlighting the resources available to the CERT and Implementing Agreements, the EUWP has identified several resource limitations.

They include:

- Limited time to carry out duties
 - o Chair
 - o Vice Chairs
 - o Delegates
 - o IEA Secretariat

- Limited travel funds
- Excessive fluctuation in delegates
- Delegates with limited interest, expertise or active involvement
- Lack of Working Party stamina
- Mandate may limit ambitions

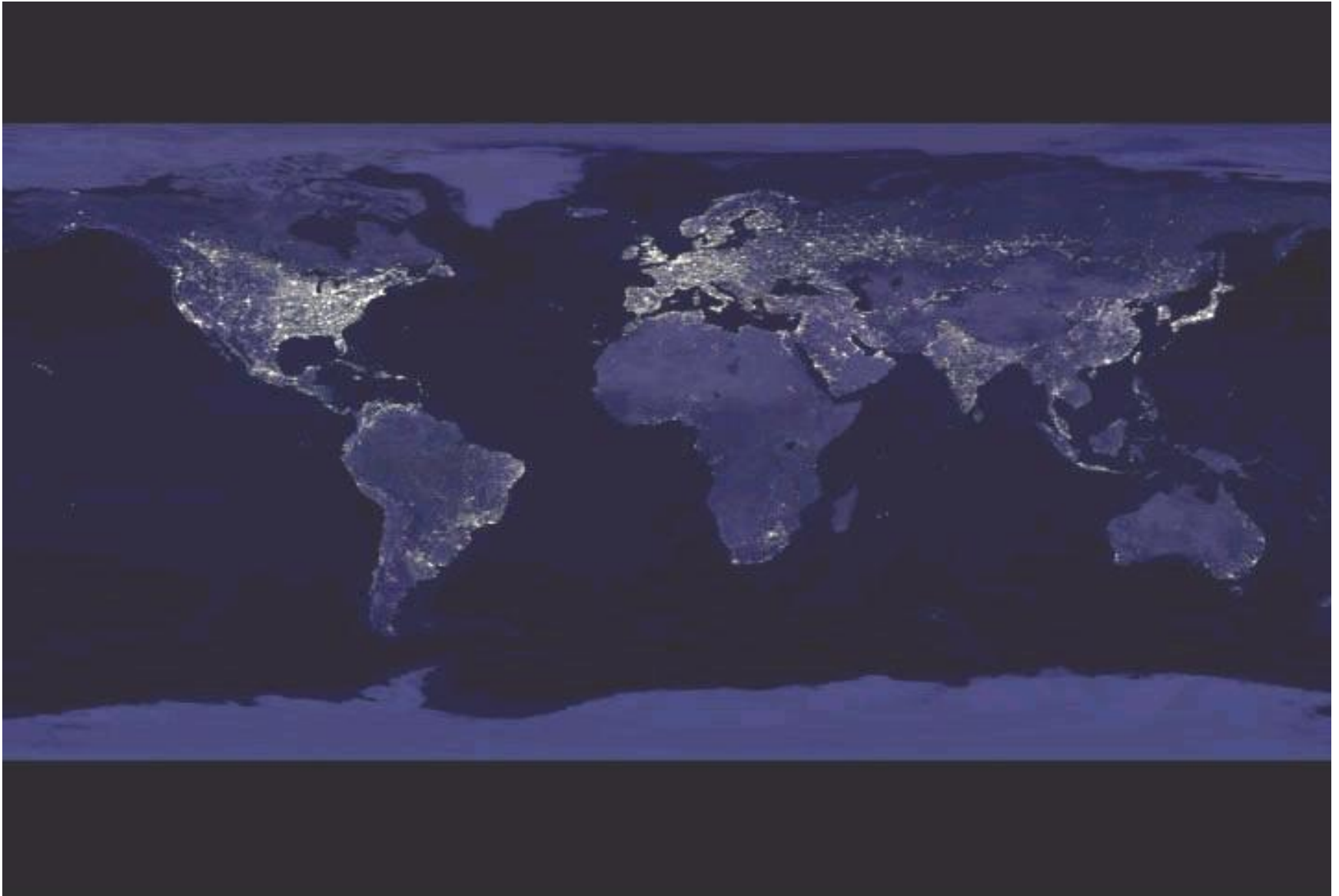
EUWP Strategic Plan 2010-2012

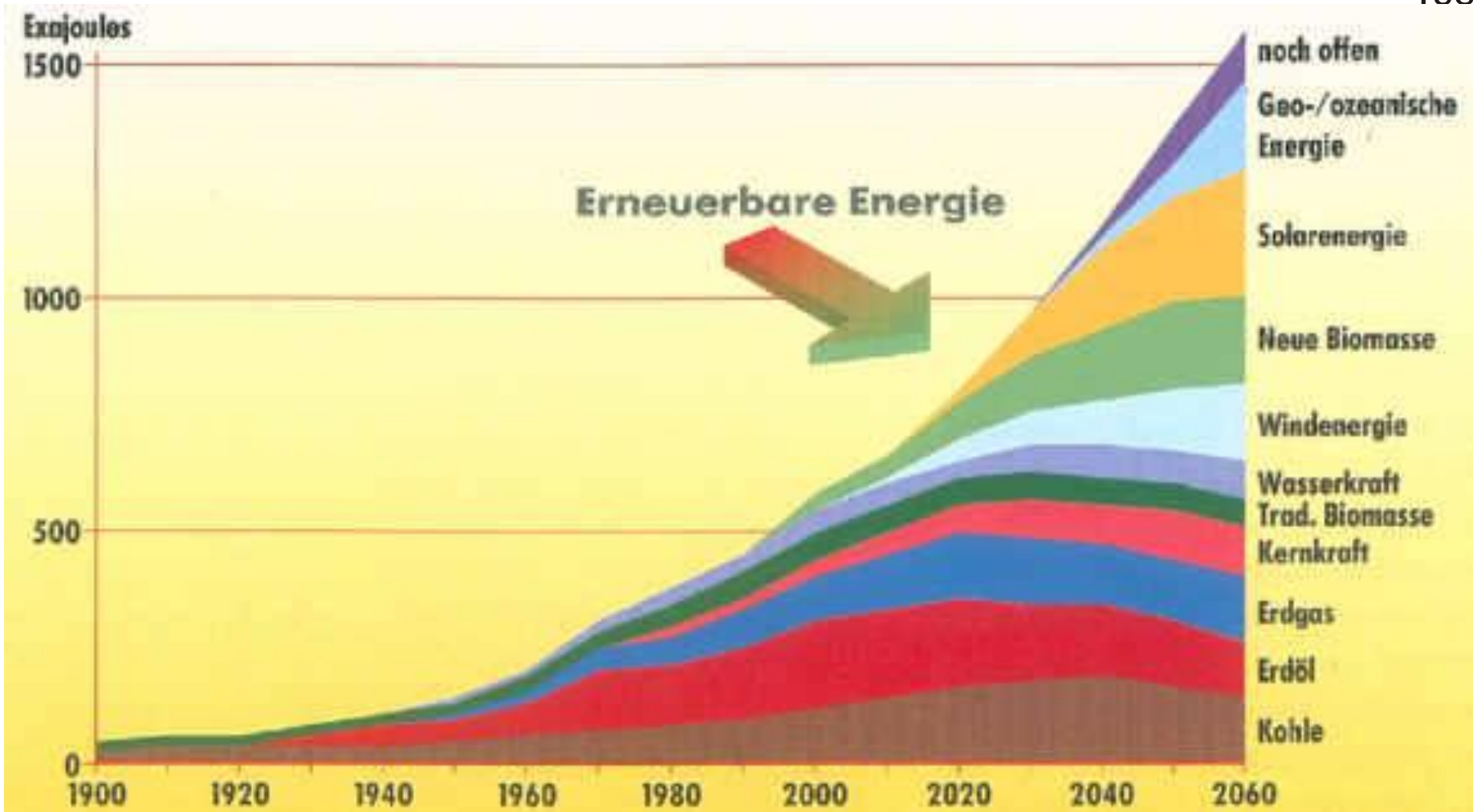
Performance Management

The EUWP is committed to carrying out an annual performance evaluation which compares outcomes of the past year's activities to the objectives set forth in the EUWP Strategic Plan. The results are reported to the CERT each year.

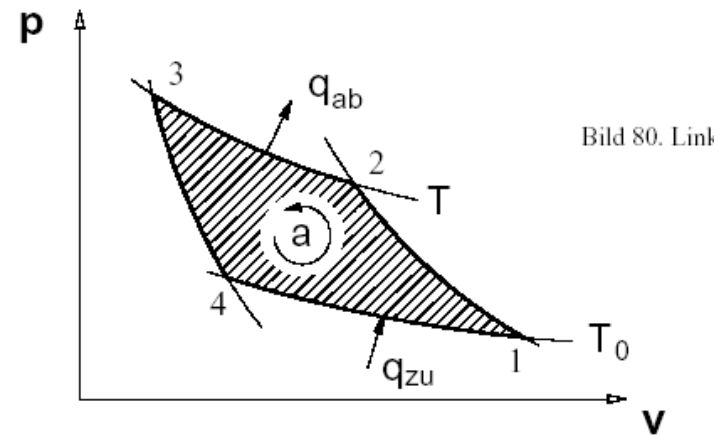
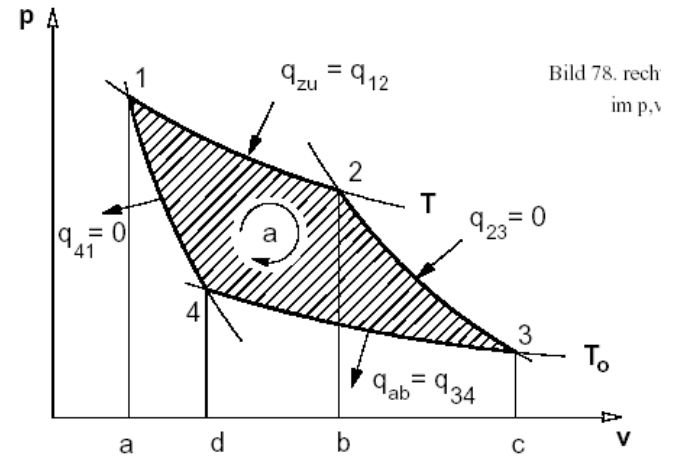
The evaluation includes quantitative measures of progress such as Implementing Agreement activity and specific Working Party tasks. In addition, the views of EUWP delegates are solicited in order to verify whether the Working Party continues to provide an effective forum for highlighting energy technology issues and suggesting solutions.

Following the internal review and report to the CERT, the Working Party may amend the work programme, practices, structure, and functions as appropriate and where necessary, adjust the Strategic Plan and make recommendations for changes to the Mandate.

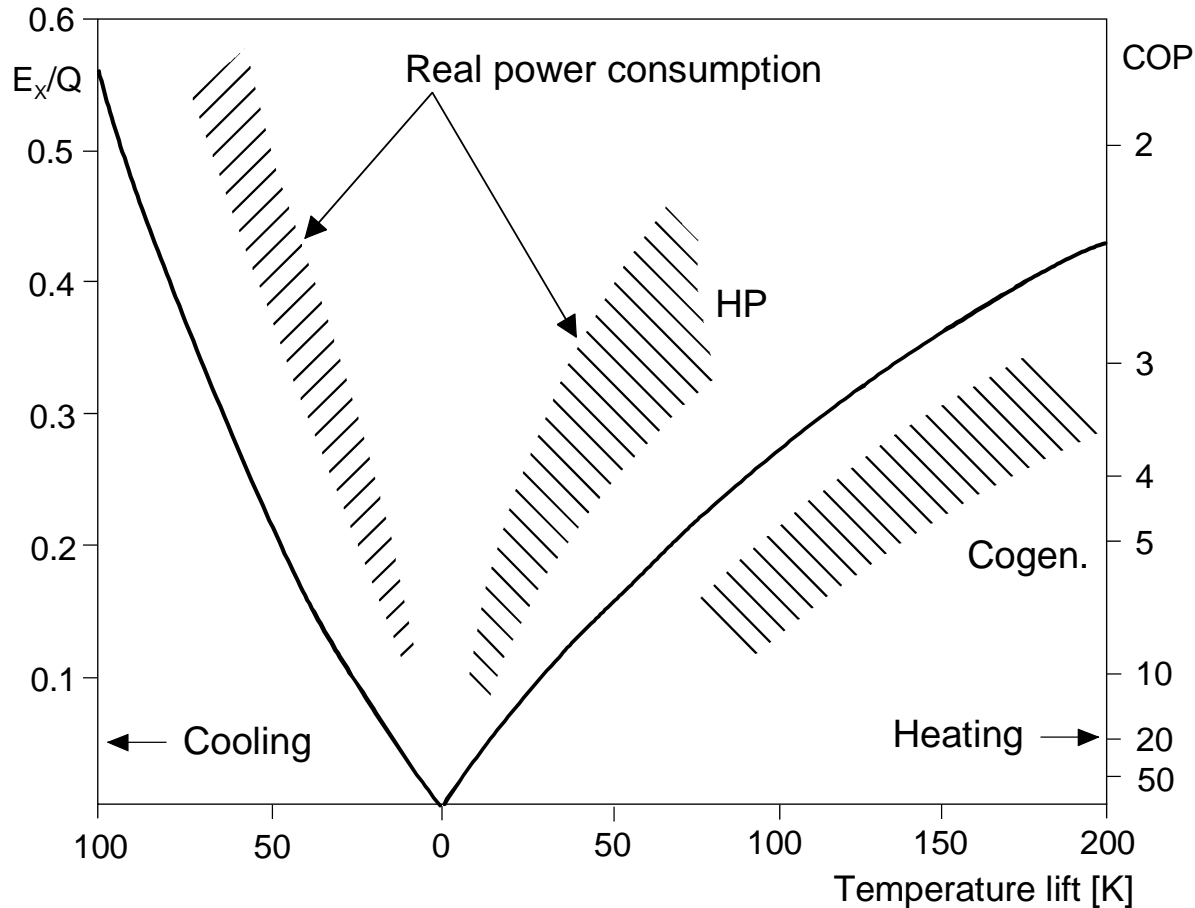




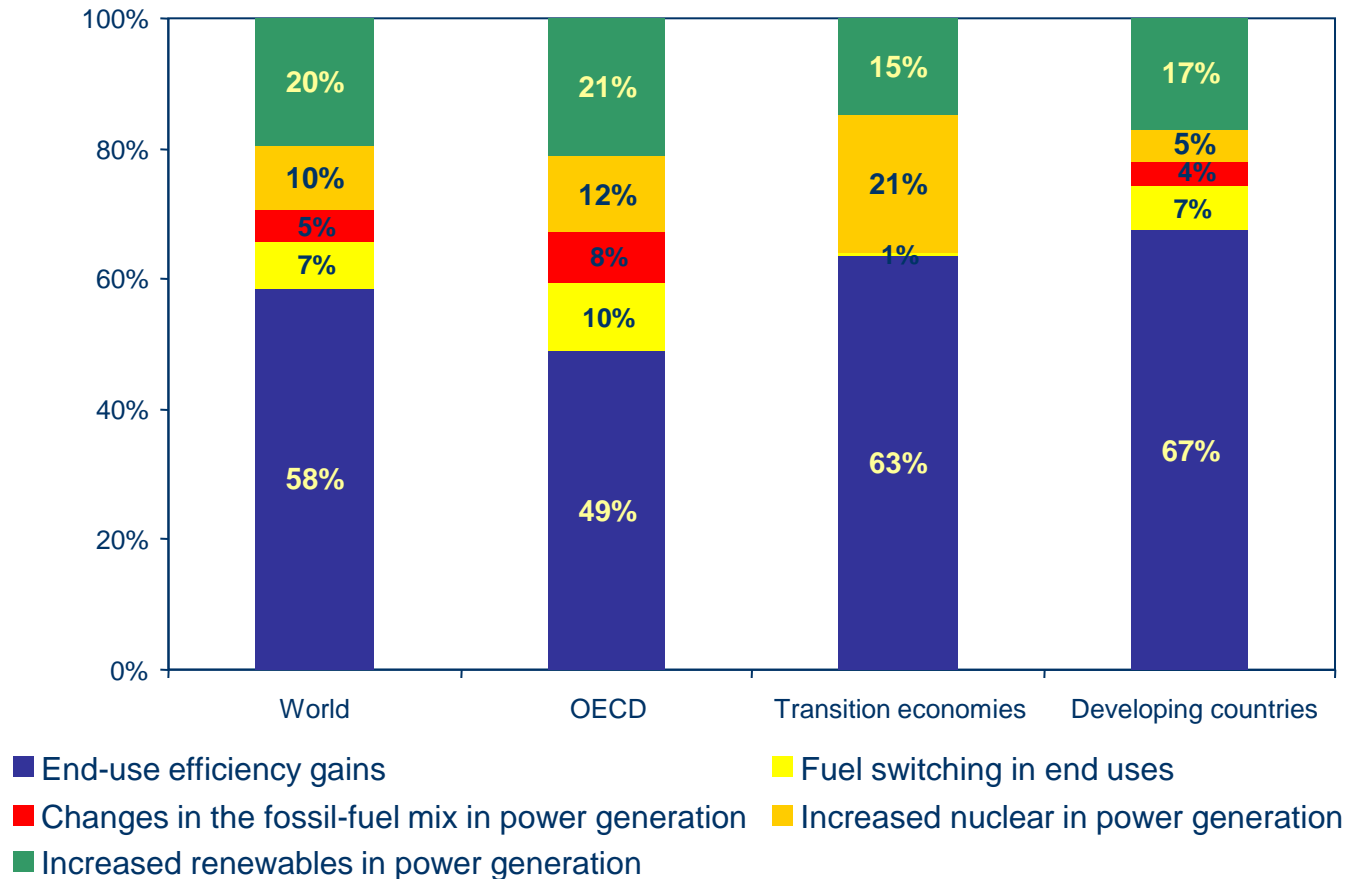
Carnot, Sadi (1796-1832)



Ideal and Real Power Consumption E_x/Q for Refrigeration and Air Conditioning and Space Heating by Heat Pumps and by Cogeneration



Contributory factors in CO2 reduction, 2002-2030



Improvements in end-use efficiency contribute for more than half of decrease in emissions, and renewables use for 20%