Catalogue of best practices enhancing energy efficiency

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Contents

1 Introduction

The present document describes a selection of best practices identified in the frame of the preliminary activities of IMPAWATT project, representing a set of successful initiatives in facing and overcoming barriers for the implementation of energy efficiency measures in industry.

The collection includes different type of best practices, developed at different territorial levels (regional, national, european or extra-EU), considered as significant for the aims of IMPAWATT project for their approach to energy efficiency processes of organizations.

Three main types of best practices are included in the report:

- National programs and initiatives to promote energy efficiency of companies and SMEs
- Tools and guidelines
- Best practices in training and capacity building at company level

Best practices are related to three different topics:

- Promotion and facilitation in the adoption of technical measures for the improvement of energy efficiency
- Development of the energy culture
- Implementation of sustainable supply chains in the field of energy

2 Best practices enhancing energy efficiency

ADEME energy best practices

Topic

☒ Implementation of energy efficiency measures
☐ Development of energy culture
☐ Implementation of sustainable supply chains in the field of energy

Type of best practice

☐ National/Regional program or policy
☒ Tool / Guideline
☐ Best practice in training/capacity building at company level

Description of the best practice

The report, developed by the French Environment and Energy Management Agency (ADEME), is a collection of 49 best practices of enterprises which have successfully implemented energy efficiency measures in different categories:

- Building envelope
- Climatization of internal spaces
- Lightning
- Thermal energy consumption
- Transport and logistics
- Optimization of electrical equipment for production processes
- Energy management techniques
- Steam production and distribution
- Compressed air
- Refrigerating equipment

The report includes 13 different economic sectors and each sheet describes in detail:

- The content of the energy efficiency measure
- The energy saving reached through the implementation of the measure
- The economic and financial aspects
- The transferability level of the intervention

Web link : https://www.ademe.fr/49-exemples-bonnes-pratiques-energetiques-entreprise-tertiaire-industrie-agriculture

ADEME platform for energy audit collection

Topic
☒ Implementation of energy efficiency measures
☐ Development of energy culture
☐ Implementation of sustainable supply chains in the field of energy

Type of best practice
☒ National/Regional program or policy
☐ Tool / Guideline
☐ Best practice in training/capacity building at company level

Description of the best practice

Since 5th December 2015, large corporations have to conduct an energy audit every 4 years. ADEME (Energy Control and Environment Agency) has been appointed by the Energy Minister to make available a platform which gathers a collection of audits. The regulation leaves various means for companies to bring themselves up to standard: to conduct one or several audits and/or to obtain the ISO 50001 certification for the company activities. These implementations have to cover more than 80% of the company energy bill.

The collection of the audit results, reported annually by ADEME, provides a useful overview of the measures adopted by the companies included in the program, suggesting potential energy efficiency measures on the basis of barriers and obstacles tackled by the audited companies.

The compliance upgrade has been the main motivation for the audit (94% of the respondents). However, for 50% of the companies, this practice had been also carried out with the idea of reducing its energy consumption. For a minor part of participants, the audit comes within the scope of the application of an environmental policy. Generally, external auditors fulfilled the companies' expectations. To carry out the audits, 60% of the visits lasted between 1 and 5 days, and 64% had an average cost of 12.500€. More than 90% of respondents consider themselves as being able to make use of the results.

Main recommendations focused on the building (lighting), utilities (cold, compressed air, steam), process, transportation (vehicles, flow organisation) and energy management.

75% users are interested in renewing the package, in terms of statistical indicators. Users have an interest in the information about consumption items introducing more recommendations, energy consumption for each line of business and the most targeted energy purposes during audits.

Web link: https://www.ademe.fr/sites/default/files/assets/documents/bilan-ademe-audit-energie_2017.pdf

AFNOR NF EN 16247 energy audit report

Topic
☒ Implementation of energy efficiency measures
☐ Development of energy culture
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Type of best practice
☐ National/Regional program or policy
☒ Tool / Guideline
☐ Best practice in training/capacity building at company level

Description of the best practice

AFNOR (French Standardisation Association) made a study of 72 audits in 2015 in tertiary installations (energy issues regarding to building mostly) or industrial ones (energy used mostly in processes and utilities), to raise awareness of enterprises about the advantages to conduct an energy audit as the first step for planning and implementing energy efficiency measures.

Analysed audits brought out an average saving of the target market by 20% to 30% both in kWh and in €, and the identified saving actions have in average a 3-year internal rate of return.

The actions identified by AFNOR focus in particular on:

- The materials (88%): buildings, equipment, supplies. Especially in industry, 30% of actions are about utilities (compressed air, steam, cold) and 17% regard the process.
- Measurement and management (12%): consumption measure, staff awareness. Especially in tertiary sector, 51% of actions are about optimization and equipment control.

The study evidences that energy audits bring out:

- A detailed situational analysis at a given point
- A wake-up call regarding waste and possible benefits
- A general, independent and structured approach
- Well defined levers for improvement with a reliable internal rate of return.

The audit enables the company to create its proper energy team, to implement gradually its action plan, value its benefits, and little by little to go towards a continuous improvement approach.

Web link: https://www.afnor.org/presse_janvier2017/laudit-energetique-entreprise-genere-20-a-30-deconomies/

Best practices targeting behaviour change

Topic

☐ Implementation of energy efficiency measures
☒ Development of energy culture
☐ Implementation of sustainable supply chains in the field of energy

type of best practice

☐ National/Regional program or policy
☐ Tool / Guideline
☒ Best practice in training/capacity building at company level

Description of the best practice

This EEA report[1] provides a review of available literature on measures targeting consumer behaviour in order to achieve energy savings. The table below show the energy savings range for the different measures targeting behaviour

Intervention	Range of energy savings
Feedback	5–15 %
Direct feedback (including smart meters)	5–15 %
Indirect feedback (e.g. enhanced billing)	2–10 %
Feedback and target setting	5–15 %
Energy audits	5–20 %
Community-based initiatives	5–20 %
Combination interventions (of more than one)	5–20 %

Potential energy savings due to measures targeting behaviour

(source: EEA Technical report 05/2013, pag. 5)

Main outcomes of the report:

- Consumers need appropriate information and benchmarks in order to determine whether their energy consumption is excessive. Clearly communicated and continuous feedback is essential for a long-lasting change in consumer behaviour.
- Understanding the relationship between feedback measures, demand response measures and energy efficiency programs is important to avoid potential conflicts and ultimately failure to capture the full energy-saving potential available.
- The interaction with energy infrastructure needs to be considered, evaluating possible constraints (asymmetric information, unexpected capital costs, trade-offs to reach an optimal solution, etc.) and the ability of the consumer to deal with a new technology. The analysis of some national programs (CoolBiz and WarBiz in Japan) outlines that there is a special potential for behaviour changes related to space heating and cooling.

Web link: https://www.eea.europa.eu/publications/achieving-energy-efficiency-through-behaviour/file

[1] Achieving energy efficiency through behaviour change: what does it take? (EEA Technical report 05/2013)

De-risking Energy Efficiency Platform (DEEP)

Topic
☒ Implementation of energy efficiency measures
☐ Development of energy culture
☐ Implementation of sustainable supply chains in the field of energy

Type of best practice
☐ National/Regional program or policy
☒ Tool / Guideline
☐ Best practice in training/capacity building at company level

Description of the best practice

DEEP Platform has been implemented by EEFIG (Energy Efficiency Financial Institutions Group), established in 2013 by the European Commission Directorate-General for Energy (DG Energy) and United Nations Environment Program Finance Initiative (UNEP FI), in the frame of the EEFIG de-risking project. The EEFIG 2015 report[2] highlighted as main barriers for investments in energy efficiency measures the lack of evidence on the performance of energy efficiency investments and the lack of commonly agreed procedures and standards for energy efficiency investments.

The EEFIG de-risking project addresses the fundamentals of energy efficiency investments in the buildings and corporate sectors through:

- The creation of an open source database for energy efficiency investments performance monitoring and benchmarking
- Interpretation of gathered data and development of an investment risk/performance modelling methodology
- The development of common, accepted and standardized underwriting and investment framework for energy efficiency investing

DEEP is an open-source initiative to up-scale energy efficiency investments in Europe through the improved sharing and transparent analysis of existing projects in buildings and industry.

The DEEP platform offers the following services:

1. Key Figures: the service presents information about the current number of projects, median payback and median avoidance cost for buildings and industry projects for each country.

2. Data Overview: The Data Overview page provides a more comprehensive (but still aggregated) overview of the energy efficiency projects in the DEEP.

3. View Charts: The View Charts functionality allows the user to view and filter a number of predefined charts for buildings / industry energy efficiency projects e.g.:

- Energy saving potential for the projects included in the database (GWh/a) shown by average payback time (in years) and use of the building or industrial energy efficiency measure
- Payback time in years (distributed on 10%, 25%, 75% and 90% percentiles) per energy efficiency measure type or industrial energy efficiency measure type

[2] Energy Efficiency – the first fuel for the EU economy, how to drive new finance for energy efficiency investments. Final report covering buildings, industry and SMEs (February 2015), https://ec.europa.eu/energy/sites/ener/files/documents/Final%20Report%20EEFIG%20v%209.1%2024022015%20clean%20FINAL%20sent.pdf

- Avoidance cost in Eurocent/kWh (distributed on 10%, 25%, 75% and 90% percentiles) per energy efficiency measure type or industrial energy efficiency measure type
- Unit energy saving in EUR/m²/year (distributed on 10%, 25%, 75% and 90% percentiles) per energy efficiency measure type

4. Add and Manage Projects: Data providers can upload and manage energy efficiency projects with the Add and Manage projects service. This section presents the list of the current added projects connected to the users profile. Data providers can upload data for verification, where the administrators of the Deep Platform will examine and approve the data in order to include it in the overall analysis of the platform.

5. Analysis Toolbox: The analysis toolbox allows the creation of charts in a dynamic manner. Moreover, the user is able to create advanced, custom metrics by clicking the Define custom metrics button.

6. Benchmark your Projects: The benchmark service allows to benchmark the projects of the user against the projects of the Deep Platform database.

Web link: https://deep.eefig.eu/

“EnergieCHECK” tool

Topic

☒ Implementation of energy efficiency measures
☐ Development of energy culture
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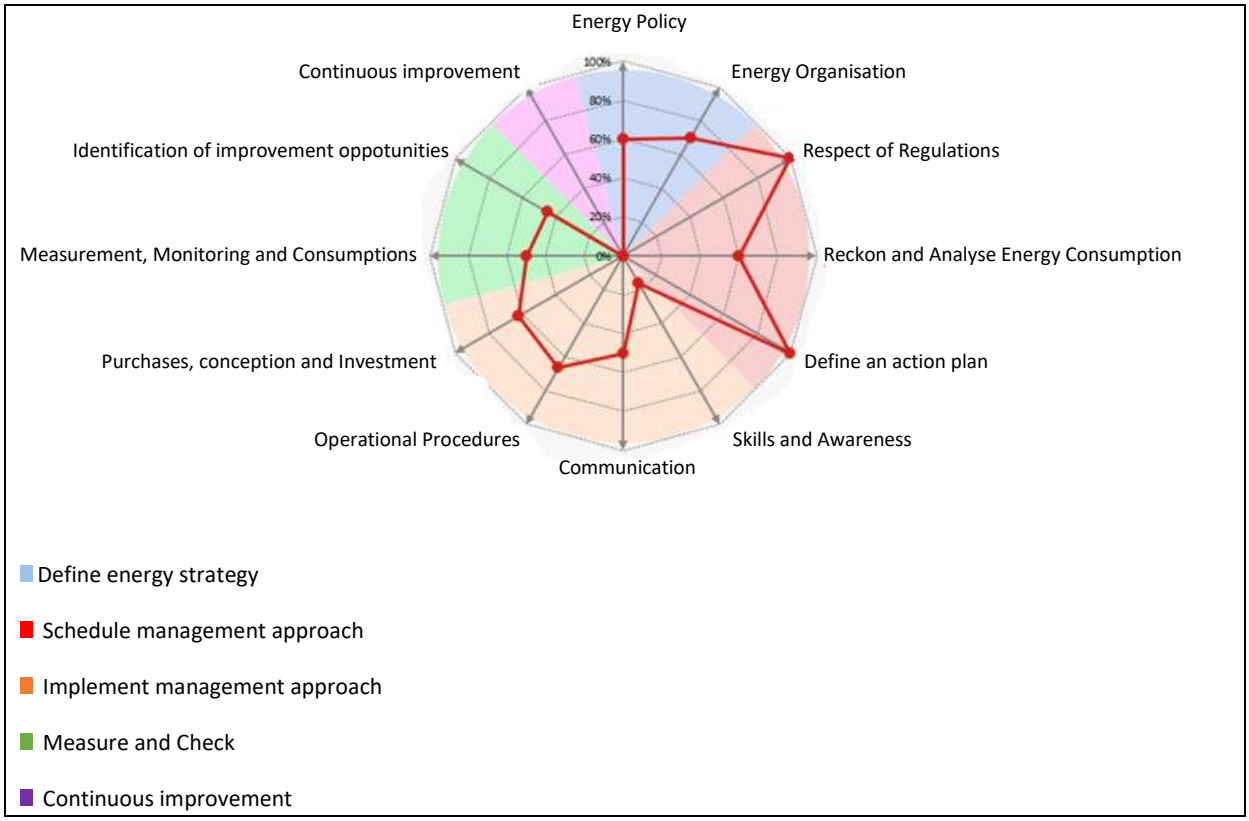
Type of best practice

☐ National/Regional program or policy
☒ Tool / Guideline
☐ Best practice in training/capacity building at company level

Description of the best practice

Under a 39-question checklist frame, « Energie Check » Excel tool enables the energy advisor to realise a self-assessment of the implemented energy management approach in the company according to ISO 50001 principles. The evaluation assessment allows the company to identify its strengh and areas of improvement in order to upgrae its energy management. Moreover, the tool allows the company to learn towards documentation, tools and best practices related with the areas of improvement retained by the company and identified as relevant by the ATEE (Association Technique Environnement Energie).



Outputs of the evaluation of the energy management approach (example)

Web link: http://atee.fr/management-de-lenergie-outils-du-responsable-energie/energiecheck-la-check-list-du-referent-energie

Energy Efficiency Agreements

Topic
☒ Implementation of energy efficiency measures
☐ Development of energy culture
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Type of best practice
☒ National/Regional program or policy
☐ Tool / Guideline
☐ Best practice in training/capacity building at company level

Description of the best practice

The Voluntary Agreement Scheme cover industrial, municipal, property and building as well as oil sectors with efficient use of energy as a main objective. During 2008-2016, it participated widely in Energy Efficiency Agreements. At the end of 2016, agreements covered over 65 percent of Finland's total energy use (371 TWh, 2016). It has been a proven way to implement EU energy efficiency obligations (Energy Efficiency Directive EED, 2012/27/EU) and follow-up on progress in fulfilling them in Finland. Moreover, they are alternative and complementary measures to regulations and represent a possibility for companies and municipalities to get government investment subsidies for conventional energy efficiency measures. Only participants in the Energy Efficiency Agreement Scheme can get investment subsidies for energy efficiency measures based on conventional technology. It would not be possible to grant corresponding investment subsidies under an energy efficiency obligation scheme. The possibility for investment subsidies is one essential motivator for participants to join the Agreement Scheme and an opportunity to implement energy efficiency measures that might otherwise not be taken.

A total of 667 companies, with about 5,000 sites, and 132 communities and joint municipalities participated in the Energy Efficiency Agreements in 2008-2016. During these years they implemented over 21,000 energy efficiency measures. Energy efficiency measures implemented in industries, municipalities as well as in property and building sector decreased Finland's annual energy consumption by almost 16 terawatt hours by the end of 2016. Of the saved energy, 11.9 TWh (75 %) was heat and fuels and the remaining 4 TWh (25 %) was electricity.

A new energy efficiency agreement programme for 2017–2025 has been established. As the former one, it concerns four sectors: industries (Energy intensive industry, Energy production, Medium sized energy users, Energy services), municipal sector, property/building (commercial and private housing) and oil sector (distribution of heating oils and oil heated real estates).

Web link:

- https://energyefficiencyagreements2008-2016.fi
- https://www.motiva.fi/files/1348/Finland_Energy_Efficiency_Agreements_2008-2016.pdf

Energy Efficiency Competitions

Topic
☒ Implementation of energy efficiency measures
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Type of best practice
☐ National/Regional program or policy
☒ Tool / Guideline
☐ Best practice in training/capacity building at company level

Description of the best practice

This report is intended to be used by entities planning to develop an energy efficiency campaign and competition for offices. This deliverable offers basic guidelines to develop a coherent strategy by setting clear and simple goals, defining a competition and its intended scope, identifying the necessary human and capital resources required, measuring tangible outcomes, planning the competition launch, communicating the required outcomes and potential opportunities and measuring the final achievement.

The proposed methodology is articulated in 2 steps :

- designing a proper energy campaign and competition (activities preliminary to the launch of the campaign)
- enabling change during the campaign and competition

The guideline is completed by a collection of best practices about:

- how to reach SMEs offices
- how to motivate employees

Web link (if available): http://www.enterprises-climate-cup.eu/fileadmin/user_upload/upload_all/Downloads/EECC_Best_practices_of_campaigning_2_pages_layout.pdf

Energy management and benchmarking platform

Topic
☐ Implementation of energy efficiency measures
☒ Development of energy culture
☐ Implementation of sustainable supply chains in the field of energy

Type of best practice
☐ National/Regional program or policy
☒ Tool / Guideline
☐ Best practice in training/capacity building at company level

Description of the best practice

The platform fosters the implementation of an energy management system in companies according to the international standard ISO 50001. It provides also the possibility of an energy benchmark for companies related to specific industry sectors e.g. woodworking and processing, hotel industry and gastronomy, plastics industry, metal processing, food and food industry.

Energy management and benchmarking are proven tools for improving energy efficiency in industrial and commercial enterprises. The basics of ISO 50001 are passed on to the advisor network in consultancy training courses and brought to a wider audience in various events.

The website provides an assessment check to determine the starting level for the introduction of the EMS.

Energy metrics provided are used to make an initial assessment of the energy situation of a production, a building, a vehicle, or a company as a whole. A calculation of the key figure over several months or years shows the development of the key figure over time.

The key figures presented on the website were determined for each sector on the basis of a selection of companies. In order to increase the comparability of the key figures for the companies, homogeneous groups were formed depending on the availability of the data (for example, according to sales categories, production quantities, products, etc.). The figures are indicative and show where the company relays in terms of energy efficiency compared to other companies.

Web link : http://www.energymanagement.at/index.php?id=22

Energy Scouts

Topic
☐ Implementation of energy efficiency measures
☒ Development of energy culture
☐ Implementation of sustainable supply chains in the field of energy

Type of best practice
☐ National/Regional program or policy
☐ Tool / Guideline
☒ Best practice in training/capacity building at company level

Description of the best practice

Under the SME Initiative « Energy Transition and Climate Protection » the Chambers of Commerce and Industry (CCIs) organization offers a qualification programme for trainees. The trainees are encouraged to work as energy scouts at their training companies to detect and document energy saving opportunities and to suggest improvements.

In addition to the advantages of optimizing energy consumption in the companies where trainees are trained, this qualification programme increases the attractiveness of a company in times where candidates for apprenticeships are rare.

The CCIs offer the participating companies several workshop modules.

The first module "Introduction to Energy Efficiency" provides a basic understanding of the subject of energy from production to consumption as well as knowledge about energy efficiency. The following modules deal with communication, project work and how to work with measuring instruments. From 2017 two additional modules on corporate mobility management and resource efficiency supplemented the range of content of this qualification programme.

An essential part of the training programme is a practical energy efficiency project, designed and implemented by the trainees together with their trainers or an energy manager in the company.

Web link : https://www.mittelstand-energiewende.de/en/our-services/energy-scouts-qualification-for-apprentices/

EPDs in the construction sector according to ISO 15804

Topic
☐ Implementation of energy efficiency measures
☐ Development of energy culture
☒ Implementation of sustainable supply chains in the field of energy

Type of best practice
☐ National/Regional program or policy
☒ Tool / Guideline
☐ Best practice in training/capacity building at company level

Description of the best practice

The energy included in the raw materials (embodied energy) and in the production process of the construction products, can represent a significant part of the total energy of a building, also for industry and tertiary sectors.

CEN Technical Committee TC 350 is responsible for the development of horizontal standardised methods for the assessment of the sustainability aspects of new and existing buildings and engineering works. These include standards for the environmental product declaration of construction products and construction works.

EN 15804 presents core rules for the environmental product declarations for the product category of construction products. The standard defines the horizontal rules for calculating the Life Cycle Inventory and the Life Cycle Impact Assessment and specifies the data quality and processes to be included in the life cycle stages. It also defines the parameters to be declared (environmental indicators) and the way in which they are collected and reported.

These standardised methods support building materials and product industry in considering sustainability aspects in product design and in all manufacturing processes. The environmental product declarations created in accordance with these methods support designers and contractors in comparing alternative products and selecting sustainable / low-energy / low-carbon products.

Web link:

- https://standards.cen.eu/BP/481830.pdf
- https://www.en-standard.eu/ilnas-en-15804-a1-sustainability-of-construction-works-environmental-product-declarations-core-rules-for-the-product-category-of-construction-products-1/?gclid=Cj0KCQjwz93cBRCrARIsAEFbWsjGfEHMYq6VaiThjYOyL5a-Fu9V4_xDGBSrukyglVbuy0u38YqjRWcaAsmnEALw_wcB

European Industrial Energy Efficiency good Practices (EIEEP) platform

Topic
☒ Implementation of energy efficiency measures
☐ Development of energy culture
☐ Implementation of sustainable supply chains in the field of energy

Type of best practice
☐ National/Regional program or policy
☒ Tool / Guideline
☐ Best practice in training/capacity building at company level

Description of the best practice

The EU-MERCI project, co-financed by the EU Horizon 2020 programme, is a guide to energy efficiency investments for the industrial sector. EU-MERCI stands for **EU** coordinated **ME**thods and procedures based on **R**eal **C**ases for the effective implementation of policies and measures supporting energy efficiency in the Industry. Its main aim has been to provide industrial enterprises and policy makers with best practices and tools to increase the competitiveness of the EU industry by improving the efficient use of energy.

Companies wishing to implement energy efficiency measures can rely on the wide set of products implemented by the project: factsheets for the main industrial sectors, reports on the potential in different EU countries and per industrial sector, opportunities linked to the policy measure available at EU level and, above all, the European Industrial Energy Efficiency good Practices (EIEEP) platform. After collecting around 2,900 projects in several EU countries (mainly Austria, Italy, Poland and United Kingdom), the project partners have created the EIEEP platform to provide companies, associations and practitioners with hints and information on the "Good Practices" for energy efficiency in the industrial sector.

The platform is divided into three main sections:

- "Database": contains data on the available energy efficiency measures, as identified and validated in EU-MERCI;
- "Library": highlights, for different sectors and manufacturing processes, the "Best Practices" from literature and the "Good Practices" identified in the EU-MERCI project; it also makes factsheets and country and sectoral reports available;
- "Surveys": presents the findings of the surveys carried out on various stakeholders (companies, ESCOs, sector associations).

EU-MERCI has identified good practices of implementation of energy efficiency projects, drawing from the experience of thousands real cases of application of energy efficiency support schemes in Europe, in order to support the effective implementation of the EU Energy Efficiency Directive. The "Good Practices" have been validated by various industrial actors, in order to assess their applicability and sustainability. Besides, they have been assessed according to the different EU policies, to understand which incentive mechanisms are available to promote their application.

Web link: http://www.eumerci.eu/

European Resource Efficiency Knowledge Centre (EREK)

Topic

☐ Implementation of energy efficiency measures
☒ Development of energy culture
☐ Implementation of sustainable supply chains in the field of energy

Type of best practice

☐ National/Regional program or policy
☒ Tool / Guideline
☐ Best practice in training/capacity building at company level

Description of the best practice

The EREK database contains 297 solutions for energy efficiency.
The user can browse through the platform with different modalities:

- Type of solution (good practice, measure, technology)
- Economic sector
- Estimated investment cost
- Other tags associated to the platform contents

The database also offers the possibility to access :

- A list of support programs, classified by country
- A self assessment tool, to test with a simplified procedure the energy performance of the organization

Web link: https://www.resourceefficient.eu/

Exemption from the CO_2 tax for SMEs as a financial incentive

Topic

☒ Implementation of energy efficiency measures
☐ Development of energy culture
☐ Implementation of sustainable supply chains in the field of energy

Type of best practice

☒ National/Regional program or policy
☐ Tool / Guideline
☐ Best practice in training/capacity building at company level

Description of the best practice

In order to reach the goal of CO_2 emission reduction in 2020 by 20 % below 1990 levels, the national Swiss federal legislation introduced (among others) a CO_2 tax on heating and process fuels.

The initial rate of the tax was set at CHF 12 per ton of CO_2 and has been increased over the years to CHF 96 per ton of CO_2 at the beginning of 2018. The revenue generated by the CO_2 tax is refunded to households and the production sector in proportion to their respective payments.

Greenhouse gas-intensive companies can be exempted from the CO_2 tax if they commit to a reduction in their greenhouse gas emissions in return. Large greenhouse gas-intensive companies that participate in the emissions trading scheme are also exempted from the CO_2 tax.

Small and medium-sized companies that are engaged in an activity referred to in Annex 7 (mainly energy and export intensive companies) of the CO_2 Ordinance and emit more than 100 tonnes CO_2eq per year can be exempted from the CO_2 tax without participating in the emissions trading scheme (non-ETS). In this case they have to set an emission target according to an simplified procedure (linear reduction course based on measures) or an individual reduction course.

In order to set these emissions target the companies have to make a target agreement on CO_2 reduction and energy efficiency. The targets are identified by an audit where the implementation of economically justifiable measures sets this target. Every year the energy performance and reaching of the target is monitored.

Web link (if available): https://www.bafu.admin.ch/bafu/en/home/topics/climate/info-specialists/climate-policy/co2-levy/exemption-from-the-co2-levy-for-companies.html

GREENFOODS WikiWeb and VEEC

Topic

☒ Implementation of energy efficiency measures
☐ Development of energy culture
☐ Implementation of sustainable supply chains in the field of energy

Select the type of best practice

☐ National/Regional program or policy
☒ Tool / Guideline
☐ Best practice in training/capacity building at company level

Description of the best practice

GREENFOODS provides information and tools for energy efficiency and renewable energy in the food and beverage industry: a branch concept linked to tools, resources and best practice examples on the way to a sustainable production.

Best practice examples are categorised by the industry subsectors and aim to show potentials for energy and resource efficiency improvements.

Under a *Branch Concept*, the following innovative contents have been developed by the project:

- *GREENFOODS WikiWeb*: a WIKI-based data system for energy efficiency and renewable energy in the food and beverage sector. The GREENFOODS WikiWeb is a free online compendium of energy efficiency measures and integration of renewable energy at the process and system levels. This living document compiles tailor-made information about process and unit operations, alternative techniques for energy efficiency and renewable energy, case studies, etc. specific for the various sub-sectors of the food and beverage industry as the milk industry, bakeries, meat processing, fruit and vegetable processing, breweries and others. The main structure of GREENFOODS WikiWeb is a matrix where different unit operations are listed as they occur in the sectors of the food and beverage industry. The WikiWeb is linked to the GREENFOODS branch concept including the handbook and provides information on listed GREENFOODS experts, trainings, events and case studies. In this way the information is collected in a central repository, can easily be accessed by members and users and will immediately be notified if changes have been made. All interested are invitied to participate as active users and information providers.
- *A network of VECC (Virtual Energy Competence Centre)*: GREENFOODS has established a network of national Virtual Energy Competence Centres (VECC) in Austria, France, Germany, Poland, Spain and the UK. These Centres are acting as one-stop-shops offering information for interested SMEs, consultants and managers on available trainings, optimization measures, knowledge transfer, measurement equipment rental, funding, consultancy, networking, etc. The Virtual Energy Competence Centres offer interested people of the target group information and support for steps to increase energy efficiency in the European food and beverage industry. They are the first address/entry point for request related to energy in the food and drink industry. Due to the fact that these centres are integrated within a European network of experts the food and drink industry should receive fast and high quality support.
- *A Mapping of Funding/Financing Opportunities*: One target of the GREENFOODS project was the development of an ideal funding programme for energy-efficiency and/or measures for the supply of energy based on renewable sources. All GREENFOODS partners conducted a

detailed mapping of existing funding programmes and financing instruments in their country in 2013. More than 78 different funding and financing schemes (incl. the contact data) from Poland, Germany, Austria, UK, France and Spain are now available in the Report on Mapping of Funding/Financing Opportunities. Based on an analysis of this information, recommendations for funding programmes were developed, in order to facilitate the implementation of identified energy efficiency potentials and renewable energy sources in SMEs.

Web link (if available): http://www.green-foods.eu/

Guidelines for energy saving opportunities in SMEs offices

Topic
☒ Implementation of energy efficiency measures
☐ Development of energy culture
☐ Implementation of sustainable supply chains in the field of energy

Type of best practice
☐ National/Regional program or policy
☒ Tool / Guideline
☐ Best practice in training/capacity building at company level

Description of the best practice

The report, developed by Projects in Motion (Malta), summarizes experiences and best practices for energy efficiency monitoring and measures in offices. The report mainly addresses architects, designers, contractors, developers, owners and energy building managers who want to learn about the current state of art of potential energy savings and low energy building approaches, with a particular focus on the southern Mediterranean context.

The following issues are included in the guidelines:

- How to carry out an energy walk around in the building
- Heating and cooling assessment
- Thermal comfort
- Lightning in office buildings
- Office equipment
- Green procurement
- Understanding bills and meter readings to investigate energy use at the office
- Employee motivation
- Renewable energy use
- Cost optimization and payback periods of energy saving retrofit measures
- Potential measures and materials
- Potential energy goals and strategies

Web link : http://www.enterprises-climate-cup.eu/fileadmin/user_upload/upload_all/Downloads/EECC_saving_opportunities_v17.pdf

Industrial Assessment Centers

Topic

☒ Implementation of energy efficiency measures
☐ Development of energy culture
☐ Implementation of sustainable supply chains in the field of energy

Type of best practice

☐ National/Regional program or policy
☐ Tool / Guideline
☒ Best practice in training/capacity building at company level

Description of the best practice

The USDOE Industrial Assessment Centers (IACs) can help small and medium sized US manufacturers save energy, improve productivity, and reduce waste by providing no-cost technical assessments conducted by university based teams. IACs's site contains a database of recommendations associated with the companies analyzed. For each company it is possible to open a form that lists the recommendations, the potential for energy savings and the level of implementation achieved. The efficiency improvement process is monitored and supported by an Industrial Assessment Centers network, the latter is established by the universities of the country. IACs provide case studies, related papers & publications, software tools, technical documents and assessments which cover all manufacturing sectors in U.S.

The online tools, designed to help manufacturers in improving the efficiency of their plants and equipment. Some of these are :

Steam System Modeler – The properties and equipment calculators in this tool allow the user to input the metrics of their system, generate a list of detailed steam specific steam properties, and test a variety of adjustments on individual equipment. The modeler allows the user to create up a 3-pressure-header basic model of the current steam system.

Process Heating Assessment and Survey Tool (PHAST) – It introduces methods to improve thermal efficiency of heating equipment. This tool helps industrial users survey process heating equipment that consumes fuel, steam, or electricity, and identifies the most energy-intensive equipment. The tool can be used to perform a heat balance that identifies major areas of energy use under various operating conditions and test "what-if" scenarios for various options to reduce energy use.

Process Heating Assessment and Survey Tool (PHASTEx v1.01) - PHASTEx software tool is designed to improve energy efficiency and save energy for industrial heating systems. Industrial heating systems include all commonly used heating equipment such as furnaces, melters, ovens, heaters, dryers, and boilers used in industrial facilities.

AIRMaster+ – It helps users analyze energy use and savings opportunities in manufacturing compressed air systems.

Pump System Assessment Tool (PSAT) – This tool helps manufacturers assess the efficiency of pumping system operations.

Fan System Assessment Tool (FSAT) – This tool helps manufacturers quantify energy use and savings opportunities in manufacturing fan systems.

Web link: https://iac.university/

Investor Confidence Project (ICP)

Topic
☒ Implementation of energy efficiency measures
☐ Development of energy culture
☐ Implementation of sustainable supply chains in the field of energy

Type of best practice
☐ National/Regional program or policy
☒ Tool / Guideline
☐ Best practice in training/capacity building at company level

Description of the best practice

Access to financing and subsidies is one of the most common barriers identified by companies and SMEs for the implementation of energy efficiency measures.
The standardization of the detail of the measures and its presentation to financing organizations is in fact a key step in the implementation process.

The Investor Confidence Project (ICP) is a global initiative that focuses on increasing energy efficiency deal flow by ensuring that projects are engineered robustly, financial returns are predictable, and project underwriting can be streamlined. The ICP system is comprised of the ICP Protocols and the Investor Ready Energy EfficiencyTM Certification which offer a standardised roadmap for project developers, a market tested methodology for programme administrators, and a certification system for investors and facility owners to accurately and efficiently manage project risk.

Investor Ready Energy Efficiency™ (IREE) is a certification awarded to retrofit projects that conform to the requirements of the ICP Protocols, were originated under the direction of ICP developers, and certified through independent review by an ICP Quality Assurance Assessor. IREE projects provide investors, facility and network owners, and other stakeholders with a new level of confidence in project quality.

For the industry and service sector two different protocols are available, depending on the kind of measures, together with a project development specification (PDS) document which provides essential information about the protocol's requirements, best practices, quality management tasks, and references to ensure that all stakeholders are operating from a common set of requirements and practices.

Web link:

- http://europe.eeperformance.org/uploads/8/6/5/0/8650231/icp_industrial_and_energy_supply_complex_v1.3_issued.pdf
- http://europe.eeperformance.org/uploads/8/6/5/0/8650231/icp_industrial_and_energy_supply_targeted_v1.3_issued.pdf
- http://europe.eeperformance.org/uploads/8/6/5/0/8650231/icp_pds__v1.1.pdf

ISO 50001 success stories in France

Topic
☒ Implementation of energy efficiency measures
☐ Development of energy culture
☐ Implementation of sustainable supply chains in the field of energy

Type of best practice
☐ National/Regional program or policy
☐ Tool / Guideline
☒ Best practice in training/capacity building at company level

Description of the best practice

An effective energy management enables organisations to save and reduce their consumption and tackle global warming. ISO 50001 norm guides companies, whatever their line of business is, in the implementation of an energy management system which will allow them to use energy responsibly.

Two French companies from Rhône-Alpes region, in France, represent a good example of how to approach ISO 50001: Becker Industrie (producer of industrial liquid painting) and Nigay (producer of caramel for food and drinks).
The experience of the two companies demonstrates that the ISO 50001 approach to energy management contributes to reduce costs but also to improve the company image towards the market and its partners by reducing the carbon footprint.

Sharing knowledge and tools among the groups inside the organizations allowed an upgrade in the energy management system of each company. Beyond technical matters, this collective project made it possible to go further and reach a new expertise in the management field.
The technical approach adopted enabled first to establish a state of the energy consumption, then to point out their impact on the company profitability and to offer a relevant approach in the implementation of solutions.

Web link:

- http://www.beckers-group.com/sustainability/partners-standards/
- https://www.nigay.com/societe/engagements-qhsee-dd

Klimaaktiv – energy efficiency in businesses

Topic
☒ Implementation of energy efficiency measures
☐ Development of energy culture
☐ Implementation of sustainable supply chains in the field of energy

Type of best practice
☒ National/Regional program or policy
☐ Tool / Guideline
☐ Best practice in training/capacity building at company level

Description of the best practice

Klimaaktiv's energy-efficient business programme supports industrial manufacturing businesses as well as commercial businesses in the planning and implementation of energy efficiency measures. To support the Austrian SMEs and even large companies, the programme provides:

- a simple energy efficiency benchmarking tool
- analysis tools, sector concepts, and technology guides
- staff and energy consultants trainings
- a network of klimaaktiv consultants and technology partners in cooperation with the federal states for implementing energy efficiency measures
- awards for best practice examples
- implementation of the basic principles of an energy management system according ISO 50001
- a standardized procedure for energy audits based on training courses, audit guides, and report templates

An important part of the programme is also to support companies in working continuously on their improvement of energy efficiency by implementing an energy management system and by encouraging their staff in an active involvement in their energy efficiency efforts.

One of the key information needed for the evaluation of energy savings and recommendation for further activities are the energy demand of different machines and/or technologies within the company, the condition of these technologies, and expected energy saving potentials. Usually, this information is not available in companies, especially, if they just start dealing with energy efficiency improvements.

klimaaktiv developed an excel tool, the so-called "ProTool", and an "Energy Check Simple" tool, which is a checklist containing the main energy-saving possibilities of a company in different technologies. As a result, the companies get an estimation of their saving potentials from the ProTool. This is the basis for a detailed analysis of the technology or process with the highest energy-saving potential according to the developed technology guidelines.

Training keeps energy consultants and energy managers at the cutting edge of technology. The training of energy consultants and energy managers and engineers of the companies is another important component of the programme. The trainings consist of the "basic training" with the central ProTool and basics on energy management systems and of targeted trainings in the various technologies e.g compressed air systems, pump systems, fans and ventilation systems, lighting systems, cooling systems, waste heat recovery, etc.

To support the companies in finding more information on concrete energy-saving measures, the klimaaktiv programme also offers “sector studies” and a “collection of implemented energy efficiency measures”.

In the framework of the klimaaktiv programme, the AEA invites companies to report on their successfully implemented energy efficiency projects on an annual basis. The best examples are selected and are awarded by the Minister of Environment (Minister of Sustainability and Tourism as of January 2018). In conjunction with this ceremony, the Austrian Energy Agency organises an annual conference for energy efficiency in production companies. From 2008–2017, more than 250 companies reported best cases amounting to total energy savings of 890 GWh/a electricity and heat, corresponding to 284,000 tonnes of CO2.

Web link (if available): https://www.klimaaktiv.at/unternehmen/produktion.html

LCA in cement sector – the case of Finnsementti company

Topic

☐ Implementation of energy efficiency measures
☐ Development of energy culture
☒ Implementation of sustainable supply chains in the field of energy

Type of best practice

☐ National/Regional program or policy
☒ Tool / Guideline
☐ Best practice in training/capacity building at company level

Description of the best practice

Finnsementti is the only Finnish manufacturer of cement.

Finnsementti uses a specific applied tool for doing life cycle assessment for its products, the VTT's LCA CEMENT software. The calculation includes the procurement of raw materials, transport of raw materials and manufacture of cement, i.e. the environmental impacts of cement up to the factory gates.

The tool and the results calculated with the tool support the manufacturer to compare the effect of different choices and decisions on the environmental impacts of the products.

The environmental declarations for Finnsementti's cements contain all of the necessary information for calculating the carbon footprint and water footprint. The EPDs support the manufacturers' of concrete, designers of buildings and engineering works and clients over value chain to take into account the aspects of energy and greenhouse gases.

Web link: http://www.finnsementti.fi/en/cement/environmental-impacts/life-cycle-analysis

LEEN (Learning Energy Efficiency Networks)

Topic

☐ Implementation of energy efficiency measures
☒ Development of energy culture
☐ Implementation of sustainable supply chains in the field of energy

Type of best practice

☐ National/Regional program or policy
☐ Tool / Guideline
☒ Best practice in training/capacity building at company level

Description of the best practice

LEEN GmbH is a joint venture between IREES GmbH and Fraunhofer Gesellschaft e.V. LEEN is developing and marketing the LEEN Management System, a tool for Learning Energy Efficiency Networks.

Organization and implementation of a LEEN network are in the hands of three actors: network carrier (administration, public relations), moderator (organization and management of the network meetings) and energy technology consultant (initial consultation, monitoring). The LEEN management system supports the protagonists with extensive material (samples, templates) and ensures a minimum quality standard through various specifications. The initiation phase describes the structure of the network. It ends with the kick-off event and enters the phase of Energy Efficiency and Initial Consultations. A certified energy technology consultant identifies existing savings potential in the area of cross-sectional technologies. He can support the company with an investment calculation tool developed in a pilot project. It builds on the data collected by the company (data collection sheet based on Excel).

Templates, such as Sample Initial Consultation Report and Policy Tool, are designed to meet the minimum quality standard and are ISO 50001 compliant. The efficiency objectives of the participants until the end of the network's at least three-year term will be condensed to a common energy efficiency and CO_2 reduction target of the network and reviewed in the annual monitoring. Three to four times a year, the LEEN-certified moderator prepares and moderates the energy efficiency tables.

They take place at one of the companies, so that measures taken at the factory can be discussed on site. Lectures and, as a central element, the exchange of information between the companies make it easier to develop suitable ways of implementing efficiency measures, to recognize difficulties and to avoid mistakes. The intensive exchange within the protected framework of the network meetings enables the building of mutual trust, regional competence and cooperation beyond networking.

The initial consultations illustrate the current status of the companies energy system and then identify, discuss and (as far as possible) quantify measures to increase energy efficiency. The focus of the initial consultation relies on the cross-sectional technologies, which are used across industries. These are, for example: heat and cold generation and distribution, compressed air, ventilation / air conditioning, lighting, electric drives, etc.

The results of the network are directly visible and provide an overview of the course of the year. At the end of the planned term, the companies decide on the continuation of the network. The monitoring result of the companies currently participating in the network is an arithmetic average of around 8.8% energy efficiency increase and about 11.4% for the reduction of specific CO_2 emissions.

Web link (if available): http://leen.de/en/

MURE energy efficiency database

Topic

☐ Implementation of energy efficiency measures
☒ Development of energy culture
☐ Implementation of sustainable supply chains in the field of energy

Select the type of best practice

☒ National/Regional program or policy
☐ Tool / Guideline
☐ Best practice in training/capacity building at company level

Description of the best practice

MURE (Mesures d'Utilisation Rationnelle de l'Energie) provides information on energy efficiency policies and measures that have been carried out in the Member States of the European Union. The information is accessible by query in the database. The distribution of measure by type can be visualized through radar graph. Finally several facilities enable specific queries.

42 measures have been identified for industrial sector, in the category "Information/Education/Training" (information campaigns, information-training for top level management and energy managers, regional info centers).

Web link: http://www.measures-odyssee-mure.eu/

Nordic Swan – Ecolabelling scheme for products and services

Topic
☐ Implementation of energy efficiency measures
☐ Development of energy culture
☒ Implementation of sustainable supply chains in the field of energy

Type of best practice
☒ National/Regional program or policy
☐ Tool / Guideline
☐ Best practice in training/capacity building at company level

Description of the best practice

The Swan is the official Nordic Ecolabel[3], introduced by the Nordic Council of Ministers back in 1989. The target is to promote sustainable choices in all steps of supply chain and especially support consumers in making environmentally benign choices. The label is granted on the basis of product-group specific criteria, which take into account the most important environmental aspects of these products considering the overall value chain.

Material and energy efficiency throughout the life cycle are important criteria in Swan labelling scheme. Especially for energy-intensive products, the labelling requirements set demanding limits for energy consumption, greenhouse gas emissions and promote the use of renewable energy and renewable materials.

The Swan symbol and 58 sets of related criteria are now available for more than 200 product groups. Examples of product groups, where the energy efficiency and related impacts throughout lifecycle are important criteria include for example heat pumps, floorings, furniture, dry cleaning, disposables for food, durable/resistant wood for outdoor use, , houses/buildings, hotels, white goods, imaging equipment, copy and printing paper, tissue papers, construction and façade panels/boards, and computers.

The Nordic Swan Ecolabel checks that products fulfill the published criteria using methods such as test reports from independent laboratories, certificates and control visits.

The label is usually valid for three years, after which the criteria are revised and the company must reapply for a license. This ensures that the requirements are updated, the products are constantly developed and thus better suited to the environment.

Web link: http://www.nordic-ecolabel.org/

[3] https://joutsenmerkki.fi/briefly-in-english/

SPICE platform

Topic
☒ Implementation of energy efficiency measures
☐ Development of energy culture
☐ Implementation of sustainable supply chains in the field of energy

Type of best practice
☐ National/Regional program or policy
☒ Tool / Guideline
☐ Best practice in training/capacity building at company level

Description of the best practice

The SPICE (Sectoral Platform in Chemicals for Energy Efficiency Excellence) platform is an interesting example of an initiative aimed to provide several different sectors and SMEs focused specific resources and tools to promote energy efficiency, based on a coordinated approach using both top-down (the platform) and bottom-up (workshops and training) measures.

The main contents are articulated in the following sections :

- Energy facts and support (links to local and european initiatives, funding, legislation)
- Training materials
- Resources for energy efficiency
    - Case studies
    - Tools
    - Best practices in the field of technologies for energy efficiency

An innovative tool is represented by the PEEK (Profile your Energy Efficiency Knowledge) profiler. It allows to access the platform through a preliminary assessment of the knowledge level of the user, helping to select the relevant parts of the system that need attention and showing where to find tailored information on the platform.

Web link: www.spice3.eu

SULCA – Life Cycle Assessment tool for industry

Topic

☐ Implementation of energy efficiency measures

☐ Development of energy culture

☒ Implementation of sustainable supply chains in the field of energy

Type of best practice

☐ National/Regional program or policy

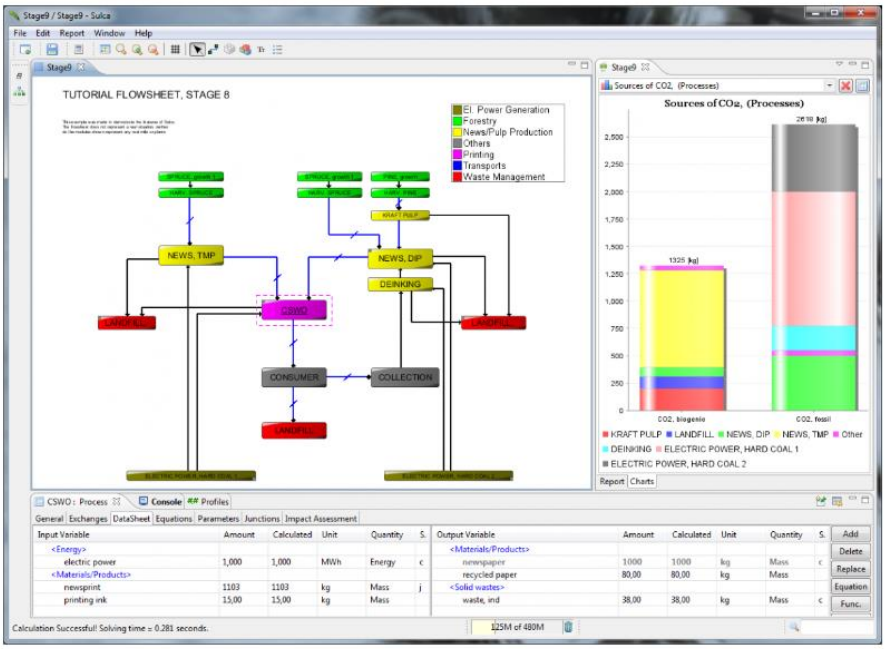
☒ Tool / Guideline

☐ Best practice in training/capacity building at company level

Description of the best practice

Life cycle assessment tools - such as SULCA - help industry to consider energy and greenhouse emissions in the development of processes and products. The software supports the evaluation of sustainability and environmental performance of a product, process, technology or any other system. The software is used in over 15 countries by industry, universities, research institutes, and others.

SULCA software allows the user to perform various kinds of Life Cycle Assessments (LCA). The software supports to perform life-cycle inventory (LCI) and impact assessment (LCIA) calculations. Environmental, carbon and water footprints can be calculated in a transparent and user-friendly way. The result can be presented with the help of reports and charts supporting the interpretation of the assessment. SULCA is compatible with Ecoinvent database and supports comprehensive Excel import and export.



Web link: https://www.simulationstore.com/sulca

Target Agreements

Topic

☒ Implementation of energy efficiency measures
☐ Development of energy culture
☐ Implementation of sustainable supply chains in the field of energy

Type of best practice

☒ National/Regional program or policy
☐ Tool / Guideline
☐ Best practice in training/capacity building at company level

Description of the best practice

By concluding a Target Agreement, establishments comply with federal and cantonal statutory provisions and can access incentives and exemptions from taxes for the implementation of energy savings measures. The Target Agreement forms the basis for exemption from Cantonal detailed provisions (large-scale consumer legislation), the CO_2 tax (CO_2 Act 2013 to 2020) and the network surcharge (including the levy to support the «feed-in remuneration at cost» (KEV) scheme).

Legislation governing large-scale consumers in the cantons:

Based on cantonal energy legislation, large-scale energy consumers may be required to improve operational energy efficiency. Large-scale consumers are establishments with heating consumption of more than 5 Gigawatt hours and/or **electricity consumption of more than half a gigawatt hour per year** at one consumption location or at the relevant point of measurement. Concluding a Target Agreement releases large-scale consumers from cantonal detailed provisions such as a maximum component of non-renewable energy sources. Instead, the canton determines an overall increase in energy efficiency. To implement the legislation, an individual reduction target is set for each establishment. The average target to be aimed for is roughly 2 per cent per year over a period of 10 years[4].

The Energy Agency for Industry (Energieagentur der Wirtschaft, EnAW) and Cleantech Agentur Schweiz ACT are responsible to support companies in developing target agreements. Both assist to formulate specific company-related targets up to 2020 either on the basis of CO2 emissions or energy efficiency including electricity) which both can be met through the implementation of economically viable measures.

The target agreement is mainly based on an energy audit defining the target with the economically viable measures (payback time of 4 (process related) and 8 (infrastructure related) years) and a yearly monitoring (assessing if the targets are met and some further energy advises).

For example, the EnAW have different target agreement models according the company size (e.g. SME model). Note that for some models (Energy Model), companies can build groups to reach the target together, the companies also meet regularly for experience exchange and capacity building on energy efficiency (similar to learning energy efficiency networks).

The target agreements up to 2012 were intended to save about up to 15% of energy in ten years. Based on the latest assessment by EnAW, the target was overachieved by 25% (EnAW 2014).

Web link: https://www.zhaw.ch/storage/sml/institute-zentren/cee/upload/betz_2-331-15.pdf

[4] Cited From https://enaw.ch/wp-content/uploads/2016/10/brochure-e.pdf

The Carbon Handprint

Topic

☐ Implementation of energy efficiency measures
☐ Development of energy culture
☒ Implementation of sustainable supply chains in the field of energy

Type of best practice

☐ National/Regional program or policy
☒ Tool / Guideline
☐ Best practice in training/capacity building at company level

Description of the best practice

Life cycle assessment (LCA) methods are commonly applied to measure environmental impacts of goods and services. However, LCA and related methods such as carbon footprint and water footprint focus on measuring negative impacts. To encourage companies in transition towards less polluting and more energy-efficient practices, we need methods that encourage for low-carbon innovations with the help of positive measures. Especially forerunners need methods with the help of which they can communicate the positive impacts of innovations. Measuring positive contribution towards sustainable and low-carbon solutions would be useful also for SME's and start up's, which focus their business around environmental innovations.
Carbon handprint is a concept that has been proposed as a measurement of beneficial environmental impact and net positive action.
Carbon handprint refers to benefits related to climate change. The calculation of a handprint can be done by comparing the beneficial actions against the business as usual. By using carbon handprints, companies can take a proactive role and demonstrate leadership in addressing climate change challenges, reduction of GHG emissions and promotion of carbon neutral or low-carbon products, solutions and services.

Web link: https://www.sitra.fi/en/publications/carbon-handprint/

TOPMOTORS

Topic
☒ Implementation of energy efficiency measures
☐ Development of energy culture
☐ Implementation of sustainable supply chains in the field of energy

Type of best practice
☐ National/Regional program or policy
☐ Tool / Guideline
☒ Best practice in training/capacity building at company level

Description of the best practice

The barrier addressed is the lack of technical knowledge.

Topmotors is an implementation program for efficient motor driven systems in Switzerland, developed to reduce the lack of technical knowledge in this specific cross sectoral energy efficiency measure.

Topmotors offers professional support through fact sheets, continuing education courses, workshops, newsletters, webinars and organizes an annual Motor Summit. Topmotors has developed a 4-step audit method, the Motor-Systems-Check (incl. software tools), to analyze existing motor driven systems. Topmotors also provides information on the current standards and regulations in Switzerland and the European Union.

Web link (if available): http://topmotors.ch/en

UK Energy Savings Opportunity Scheme (ESOS)

Topic
☒ Implementation of energy efficiency measures
☐ Development of energy culture
☐ Implementation of sustainable supply chains in the field of energy

Type of best practice
☒ National/Regional program or policy
☐ Tool / Guideline
☐ Best practice in training/capacity building at company level

Description of the best practice

ESOS is a mandatory energy assessment scheme for organisations in the UK that meet the qualification criteria. The Environment Agency is the UK scheme administrator. Organisations that qualify for ESOS must carry out ESOS assessments every 4 years. These assessments are audits of the energy used by their buildings, industrial processes and transport to identify cost-effective energy saving measures.

The adhesion of large companies to the scheme is regulated by a guidance document, which details:

- which organisations qualify for this mandatory scheme
- what qualifying organisations need to do to comply
- how organisations should notify the Environment Agency that they are compliant
- when the compliance deadline is
- what the penalties are for not complying

In the Appendix A of the guidance document additional information is provided for participants on the approaches they might take to comply with ESOS in order to help them maximise the benefit to their organisation. In particular, paragraphs A.6 and A.7 are respectively focused on measuring the benefits of energy saving opportunities and implementing energy efficiency opportunities.

A.6 Measuring the benefits of energy saving opportunities *Using a life-cycle cost analysis (LCCA) or simple payback period (SPP)*

ESOS suggests to assess the costs and benefits from energy saving measures company identify using a life-cycle cost analysis (LCCA). In fact, for more costly measures and measures that might be more complicated to implement, an LCCA may be necessary to make a sound decision. LCCAs are financial decision making methods that consider all costs and benefits over the lifetime of the project.

It may be more appropriate to apply an LCCA where the energy saving measure identified has, for example: a long asset life; a high upfront capital cost; an initial downtime period (that is, a process has to be shutdown to implement the measure); additional quantifiable benefits other than reduced energy consumption; associated maintenance costs; a usage profile of the process/equipment that is likely to change (for example, increased usage of a new production line).

LCCAs are a way to consider if an investment will be economical over its entire life by predicting how much it will ultimately cost. LCCAs are particularly useful when implementing an identified energy saving measure that involves significant capital investment. The ultimate aim is to calculate the net present value (NPV). An acceptable NPV will be specific to the organisation.

A.7 Implementing energy efficiency opportunities

ESOS is intended to provide high quality and targeted advice to large enterprises on cost-effective energy efficiency opportunities, which will ultimately lead to financial savings. If company invests

more time and efforts into company ESOS energy audit, it is more likely to identify ways that it can save money through reducing energy consumption.

Suggestions in ESOS guidance include:

- Board level engagement
- Presenting findings and recommendations affectively
- Overcoming potential barriers to implementation:
    - *Split financial incentives*. In lot of organisations, the team responsible for paying utility bills may not be responsible for selecting and replacing plant or other equipment. ESOS provides information to ensure that investment decisions and equipment replacement or maintenance decisions consider the full cost to the organisation, foe example ensuring that energy budgets are delegated appropriately.
    - *Undervaluing energy efficiency opportunities*. ESOS encourages to present financial savings that can arise from energy efficiency in terms familiar to the board – such as equivalents in increased turnover. Energy audits should also ensure that all the potential costs and benefits of recommendations are captured (for example, reduced tax liabilities, reduced waste, greater energy security and reduced exposure to future price shifts).
    - *Lack of access to trusted information*. ESOS provides tool to overcome this barrier by ensuring that audits are undertaken or approved by a suitably qualified lead assessor.

Web link: https://www.gov.uk/guidance/energy-savings-opportunity-scheme-esos

Velani project

Topic
☒ Implementation of energy efficiency measures
☐ Development of energy culture
☐ Implementation of sustainable supply chains in the field of energy

Type of best practice
☐ National/Regional program or policy
☒ Tool / Guideline
☐ Best practice in training/capacity building at company level

Description of the best practice

The barrier addressed is lack of technical knowledge and saving potential knowledge.

The aim of the Velani project supported by the Swiss Federal Office of Energy is the creation of a tool supporting the implementation of energy saving measures for electrical drives, increasing technical knowledge and saving potential awareness.

The tool has three main parts:

1. The first part allows roughly assessing the energy saving potential of the different drives by entering a list of drives with some basic data (age, nominal rated power,etc.). The result is a ranked list of the electrical drives with the highest energy saving potential. Thanks to those ranking the company can easily assess for which drives an action make sense.
2. The most promising drives selected in the first part, can now be chosen to perform a detailed analyse on the drives (mostly including measurements including system aspects). This part is generally done by a specialist (e.g. energy adviser). The tool supports the specialist with a defined methodology to assess recommendation for energy saving measures.
3. Finally, the last part of the tool, allows entering the result of the detailed analysis in standard way allowing to enter the results in a database.

"Electric motor driven systems represent around 70 % of electric energy consumption in the industry and service sectors. With more efficient motors, integrated systems and their optimised operation, this consumption can be reduced by 20 % to 30 % – a significant untapped savings potential from which the economy and the environment can benefit."[5]

In this context, this tool enables finding the most interesting optimisation.

Web link (if available): http://topmotors.ch/en

[5] https://www.topmotors.ch/sites/default/files/E_TM_Topmotors_in_short.pdf

ANNEX – SUMMARY TABLE

Title	Topic			Type			Available languages	Description
	Implementation of energy efficiency measures	Development of energy culture	Implementation of sustainable supply chains in the field of energy	National/Regional program or policy	Tool / Guideline	Best practice in training/capacity building at company level		
ADEME energy best practices	■				■		FR	Collection of 49 best practices of enterprises which have successfully implemented energy efficiency measures
ADEME platform for energy audit collection	■			■			FR	Report and guidelines for energy auditing
AFNOR NF EN 16247 energy audit report	■				■		FR	Collection of best practices in energy auditing
Best practices targeting behaviour change		■				■	EN	Review of available literature on measures targeting consumer behaviour
De-risking Energy Efficiency Platform (DEEP)	■				■		EN/ES/IT/ DE/FR/PL	Sharing platform of existing projects in buildings and industry
EnergieCHECK Tool	■				■		FR	Excel tool to realise a self-assessment of the implemented energy management approach
Energy Efficiency Agreements	■			■			FI/EN	Voluntary Agreement Scheme of Finland for energy efficiency
Energy Efficiency Competitions	■				■		EN	Tool to prepare an energy efficiency campaign for offices
Energy management and benchmarking platform		■			■		DE	Platorm supporting the implementation of energy management systems

Title	Topic			Type			Available languages	Description
	Implementation of energy efficiency measures	Development of energy culture	Implementation of sustainable supply chains in the field of energy	National/Regional program or policy	Tool / Guideline	Best practice in training/capacity building at company level		
Energy Scouts		■				■	EN/DE	Qualification programme for young workers
EPDs in the construction sector according to ISO 15804			■		■		EN	Technical standard for type III environmental product labels certification
European Industrial Energy Efficiency good Practices (EIEEP) platform	■				■		EN	Collection of good practices for energy efficiency in industrial sector
European Resource Efficiency Knowledge Centre (EREK)		■			■		All	Database of solutions and supporting programs for energy efficiency
Exemption from the CO_2 tax for SMEs as a financial incentive	■			■			DE/FR /IT/EN	National Swiss program for CO_2 emission reduction
GREENFOODS WikiWeb and VEEC	■				■		EN	On line platform for energy efficiency in food and beverage sector
Guidelines for energy saving opportunities in SMEs offices	■				■		EN	Practical tipos for enegy seving in offices
Industrial Assessment Centers	■					■	EN	Database of recommendations and tools to improve the efficiency of their plants and equipment
Investor Confidence Project (ICP)	■				■		EN	Protocol and certification scheme for energy efficiency projects in industrial sector
ISO 50001 success stories in France	■					■	EN	2 french success stories of ISO 50001 implementation
Klimaaktiv – energy efficiency in businesses	■			■			DE	Austrian programme for energy efficiency in industrial and commercial businesses
LCA in cement sector – the case of Finnsementti company			■		■		FI/EN	LCA example for cement sector

Title	Topic			Type			Available languages	Description
	Implementation of energy efficiency measures	Development of energy culture	Implementation of sustainable supply chains in the field of energy	National/Regional program or policy	Tool / Guideline	Best practice in training/capacity building at company level		
LEEN (Learning Energy Efficiency Networks)		■				■	EN/DE	Tool supporting energu management through learning energy efficiency networks
MURE energy efficiency database		■		■			EN	Database of EU measures and programs for energy efficiency in industrial sector
Nordic Swan – Ecolabelling scheme for products and services			■	■			EN	Ecolabel of Nordic countries, certifying the environmental and energy efficiency performance of several energy related products
SPICE platform	■				■		All	Platform providing resources for energy efficiency in the chemical sector
SULCA – Life Cycle Assessment tool for industry			■		■		EN	Life Assessment Cycle Tool for industrial sector
Target Agreements	■			■			EN	Swiss subsidies programme for CO_2 reduction
The Carbon Handprint			■		■		FI/SV/EN	Tool for the measurement of positive impacts of low carbon measures in industrial sector
TOPMOTORS	■					■	DE/FR/EN	Implementation program for efficient motor driven systems in Switzerland
UK Energy Savings Opportunity Scheme (ESOS)	■			■			EN	Mandatory energy assessment scheme for organisations in the UK
Velani project	■				■		DE/FR/EN	Tool supporting the implementation of energy saving measures for electrical drives