STREAMSAVE DIALOGUE GROUPS

‘MORE ENERGY SAVINGS? YES, WE CAN!’

MINUTES OF THE FINAL DIALOGUE MEETING OF WEDNESDAY 17 MAY 2023

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www.streamsave.eu
contact@streamsave.eu

Summary

This meeting summarized what we learnt from the exchanges in the two cycles of dialogue meetings, as well as further types of energy saving actions in view of new energy savings targets. Key points highlighted in the discussions:

Energy savings opportunities in data centres:

- Data centres are a major source of increase in energy consumption, targeted by the new Article 12 in the recast of the Energy Efficiency Directive.
- Significant energy savings can be achieved by applying a holistic approach to cooling management, and adapting cooling solutions to the shift from cloud computing to edge computing (i.e. with solutions for decentralized systems).
- Using waste heat from data centres is another major potential, that may require different technologies and approach according to the location, type of data centres, etc. Data centres can indeed be key components in electric and thermal microgrids.
- A comprehensive optimisation of energy efficiency in data centres requires tailored strategies, considering the specificities and opportunities of each case.

Energy savings opportunities in existing residential buildings:

- Most of the improvements made to buildings so far have been shallow renovations, while improvements reaching the deep renovation standards were a small share.
- Financial incentives now tend to prioritize renovation projects achieving at least 30% of energy savings or more, leaving untapped energy savings potentials as complementary renovation measures are then not eligible.
- Building renovation passports or other assessment tools or criteria could help implementing schemes that would address buildings where complementary measures would be relevant.

About decarbonization of industrial heating processes:

- Two-thirds of industrial processes energy consumption is for heating, whose 80% still comes from fossil fuels: this a major energy and CO_2 savings' potential.
- The broad spectrum of temperatures and applications means distinct energy requirements and thereby solutions, sometimes already available, sometimes still needing research and development.
- Real-world examples already demonstrate the substantial energy and CO_2 savings from electro technologies that have higher efficiency than fossil fuel technologies.
- Heat pumps for industry can be used for higher temperature ranges, from 90 to 160 °C. This can achieve large energy and CO_2 savings, by integrating heat upgrade technologies in existing industrial processes. Demonstrations in real conditions are developing to assess feasibility and viability, as barriers are not technical only.
- Ongoing developments in using natural refrigerants aim at reducing environmental impact of heat pumps' refrigerants.
- A key issue when estimating savings for heat upgrade technologies is related to diverse nature of industrial installations. This can be addressed by classifying technologies by industry and using real-time monitoring data to improve accuracy.

About energy savings' potential from e-bikes:

- Standardised calculation methods for mobility remain a challenge, with the exception of vehicle replacement (see e.g. case of electric vehicles covered in streamSAVE). Partly because the energy efficiency community has less experience in dealing with transport, compared with buildings or industry.
- The Austrian EEOS included a method for e-bikes, built on a previous method used for car replacement, and using information specific to e-bikes about average mileage, average specific energy consumption (kWh/100km), and a factor assessing the share of distances travelled with e-bikes that substitute the use of cars.
- This factor is the most challenging to assess, and is essential. As the electricity consumption used for distances travelled where there is no modal shift should be deducted from the energy savings calculated about the distances with modal shift.
- The method was little used, probably because the ratio of savings per action is much smaller than for other action types.
- The overall energy savings' potential from e-bikes cannot be assessed from the actions reported to the EEOS. A specific analysis considering various assumptions about modal shift rates for different ranges of commuting distances found a potential of 124 GWh/year for the range with maximum effect (5 to 10 km). Which remains very small (0.04%) compared to the total national energy consumption.

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Agenda

14:00	Introduction to the meeting, Václav Šebek (SEVEn)
14:05	PART 1: Overview and lessons learnt from the streamSAVE methodologies
	Take away's from the 10 Priority Actions covered in streamSAVE, by Elisabeth Böck (AEA – Austrian Energy Agency)
	Lessons learnt from applying the streamSAVE methodologies in 10 countries, by Christos Tourkolias (CRES – Greek Centre for Renewable Energy Sources and Savings)
	PART 2: Further energy savings opportunities
14:30	*Two breakout groups on buildings & industry:*

BUILDINGS Moderator: Dr. Matevž Pušnik, JSI	INDUSTRY Moderator: Diedert Debusscher, ECI
Achieving Sustainable Digitalization: Strategies for Energy Savings in Data Centres, by Çağatay Yılmaz (Research Institutes of Sweden, project coordinator of the ECO-Qube project) **Complementary measures for building renovations**, by Václav Šebek and Jiří Karásek (SEVEn)	**Decarbonization of industrial heating processes using electrotechnologies: potentials and challenges**, by Pr. Egbert Baake (Leibniz Universität Hannover) **Deploying heat pump heat upgrading technologies: insights from PUSH2HEAT**, by Sanjay Vermani (VITO/EnergyVille)

15:00	*Bonus plenary presentation about transport:* **Assessing energy savings from policy measures promoting modal shift to e-bikes: the Austrian experience**, by Gregor Thenius (Austrian Energy Agency)
15:10	Conclusions and what's next! Jean-Sébastien Broc (IEECP) and Nele Renders (VITO)

(All times are in CEST)

PART 1: Overview and lessons learnt from the streamSAVE methodologies

Take away's from the 10 Priority Actions covered in streamSAVE, by Elisabeth Böck (AEA – Austrian Energy Agency)

(See presentation file available on the streamSAVE Knowledge and support facility)

Elisabeth Böck provided an overview of the methodologies developed in streamSAVE, their contents and the 10 Priority Actions covered, also reminding the guest presentations made about each Priority Action in the dialogue meetings.

The methodologies on **heat recovery in industry** dealt with the use of excess heat, considering three different situations depending on how/where the excess heat is used. Heat recovery represents a large potential to reduce fuel inputs and energy costs of industrial processes. A key point of the streamSAVE methods is that they help identify what energy streams need to be considered in the savings calculations and how to normalize measured data.

BACS (Building Automation and Control Systems) dealt with optimizing the use of energy in buildings, also representing a significant potential of cost-effective energy savings. BACS can help detect sources of inefficient operation. One challenge for standardized methods in this field is to assess the baseline (current equipment with BACS).

Industrial & Commercial Refrigeration dealt with the replacement of old refrigeration units with more efficient equipment. Key efficiency indicator is the Seasonal Energy Performance Ration (SEPR). The streamSAVE methodology heps identify the baseline to be considered, taking into account relevant Ecodesign regulations.

Electric Vehicles dealt with fuel switching between conventional and electric vehicles. The streamSAVE methodology considers different types of vehicles (cars, vans, buses and trucks) and different options (including hybrid options.

Public lighting dealt with two options for assessing energy savings of high efficiency lighting, using either a simplified approach (and indicative values), or an engineering approach (with data specific to the projects implemented). This makes possible to cover different situations in terms of data availability.

Anticipated motor replacement dealt with the case of electric motors replaced before their assumed end of lifetime. The potential is large, as electric motors tend to be used for longer time than anticipated by the manufacturers. This method illustrates the case of early replacement, and especially how the baseline should be defined in this case. The streamSAVE methodology also enables to consider energy savings from installing variable speed drive.

Behavioural changes dealt with actions that do not need an investment, focusing on the residential sector. The streamSAVE methodology provides average energy consumption per household in EU countries, as well as benchmarks for energy savings from behavioural changes. However, it is recommended to determine energy savings from randomized control trials (or other experimental methods), as energy savings can change significantly depending on the type of behavioural intervention and the target groups.

Actions alleviating energy poverty dealt with building renovation, renewable heating systems and behavioural changes for households at risk of energy poverty. The streamSAVE methodology discussed the differences in average energy consumption between energy poor households and other households, especially due to the prebound effect (lower initial energy consumption due to restrictions).

Modal shift in freight transport dealt with assessing the potential for shifting freight from road to rail. European indicative values cannot be defined in this field, due to the differences in distances and rail network density among others. Nevertheless, the streamSAVE methodology provides useful values for benchmarking and having a view of the potential per country.

Small-scale renewable heating technologies dealt with the replacement of conventional heating systems with heat pumps or biomass boilers. The streamSAVE methodologies provide standardized calculation formula together with EU indicative values for the baseline and the efficiency of new heating systems.

Elisabeth Böck also reminded the participants about the Training Module available on the streamSAVE platform, and enabling to use the calculation methods directly online.

Lessons learnt from applying the streamSAVE methodologies in 10 countries, by Christos Tourkolias (CRES – Greek Centre for Renewable Energy Sources and Savings)

(See presentation file available on the streamSAVE Knowledge and support facility)

Christos Tourkolias presented the experience of the Capacity Support Facility (CSF) that tested in real conditions the streamSAVE methodologies. This involved 30 policy officers from 18 public bodies and 10 countries. The presentation summarized the main lessons learned from the CSF activities.

About the case of **BACS**, difficulties were encountered in using the method for non-residential buildings due to the differences in the various segments of the service sector and lack of data.

About **EVs**, the tests revealed a diversity of practices among Member States, as regards assumptions, compliance with additionality criteria, lifetime values. One common difficulty is that relevant data sources are not easily accessible. Therefore, a standardized data collection mechanism would be beneficial.

About **heat recovery**, there was a preference for deemed methods vs. metered methods, to minimize administrative burden. However, using deemed methods is not always easy, as it can be difficult to specify indicative values considering the diversity in types of industrial units. This is why the metered methods can be more appropriate in industry. The use of metered methods then requires to provide technical specifications about metering systems.

About **modal shift for freight transport**, a lack of data at national level hindered the implementation of the streamSAVE methodology. Control and verification procedures about shifted tonne-kilometers are an important issue that would need more support. More generally, procedures for data collection would be useful. This is important, as energy savings from freight represent a large and cost-effective potential.

About **early motor replacement**, the streamSAVE method was found to be easy to adapt to national conditions. The indicative values are useful for benchmarking and for cost-benefit

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analysis. Experience also shows that extending the scope of intervention beyond the replacement of the motor itself can generate substantially higher energy savings, with a holistic approach of the whole motor system.

About **behavioural measures**, the streamSAVE calculation methodology was found to be similar to Member States' practices. However, assumptions on lifetimes show discrepancies. Using standardized methods about behavioural changes would imply to standardize the behavioural interventions. However, these intereventions need to be tailored to the target groups. Using randomized control trials can therefore be a way to improve effectiveness of behavioural interventions (and of their monitoring).

About **actions to alleviate energy poverty**, the streamSAVE methodology requires the collection of data not always easily available and accessible, highlighting the need for appropriate data collection procedures. The definition of energy poverty was discussed, as income levels are usually not enough to effectively target and monitor energy poor households.

About **small-scale renewable energy technologies**, the streamSAVE methodology facilitates the comparison of different options. The EU average indicative values are a useful benchmark to compare with national values, that remain essential for accurate estimates. It would be useful to expand the methodology to space cooling. However, there is a lack of data about cooling demand. And cooling devices should remain the last resort when passive measures cannot be used or are not enough.

Overall, there is a clear link between the calculation methods and data collection / data issues. Having well-defined calculation methods help specifying MRV procedures, and coordinate when several public bodies are responsible for monitoring energy efficiency policies and programmes.

The development of calculation methodologies contribute to improving the definition of national values, processes for data collection, MRV procedures, compliance with quality requirements, and consequently overall the fulfilment with the EED requirements.

PART 2-1: Further energy savings opportunities | Buildings

Achieving Sustainable Digitalization: Strategies for Energy Savings in Data Centres, by Çağatay Yılmaz (Research Institutes of Sweden, project coordinator of the ECO-Qube project)

(See presentation file available on the streamSAVE Knowledge and support facility)

Çağatay Yılmaz discussed opportunities to improve energy efficiency of data centers from the findings of the ECO-Qube project. He reminded the escalating energy demand of data centers and the critical need for sustainable practices to counteract this trend. The upcoming EU regulations demanding greater transparency in energy efficiency practices for data centers were also highlighted (especially the new Article 12 in the recast of the Energy Efficiency Directive), emphasizing the urgency for action. Addressing the multifaceted challenges in this realm, Mr. Yılmaz brought attention to two major areas: cooling mechanisms and waste heat utilization (as more than 99% of the electricity used by typical data centres ends into waste heat).

Cooling, a significant contributor to energy consumption in data centers, was spotlighted as an essential area for improvement. The presentation showcased how conventional cooling systems can lead to inefficiencies, emphasizing the importance of better understanding data center needs and applying a holistic approach to cooling management. By effectively monitoring various parameters and adjusting cooling strategies accordingly, it is possible to significantly enhance energy efficiency. The paradigm shift from cloud computing to edge computing presents a new set of challenges for data centers. With the push to bring data centers closer to end-users, there is a growing **need for efficient cooling solutions in decentralized locations.** This shift underscores the necessity for adaptable and versatile energy-efficient strategies to cater to the specific demands of these distributed computing setups.

Furthermore, the Ecocube project was introduced as a comprehensive effort to improve energy efficiency in data centers. This project centers around the implementation of a smart virtualization layer and the **integration of data centers into microgrids, both electric and thermal**. The presenter underscored the significance of these efforts in mitigating the environmental impact of data centers and the broader energy sector. Two specific projects were highlighted as concrete examples of the Ecocube initiative.

One project centered on the integration of a data center into building heat and cooling systems, aiming to **use the waste heat effectively**. Another project ingeniously employed fuel cell technology to manage waste heat and redirect it to a high-temperature distribution network. These projects demonstrated the creativity and innovation needed to optimize energy efficiency and sustainability in data centers.

In conclusion, the presentation emphasized that a one-size-fits-all approach does not suffice for addressing the energy efficiency challenges faced by data centers. Instead, a **tailored strategy**, based on thorough assessments, simulations, and collaboration among experts, is essential to maximize efficiency and minimize environmental impact. The intricate interplay of variables, such as geographic location, load characteristics, and available technologies, underscores the complexity of achieving optimal energy efficiency in data centers while adapting to evolving technology trends.

Further references or projects mentioned in the presentation:

- 2023 Best Practice Guidelines for the EU Code of Conduct on Data Centre Energy Efficiency (JRC report)
- W.E. District projet (Smart and local reneWable Energy DISTRICT heating and cooling solutions for sustainable living)

Complementary measures for building renovations, by Václav Šebek and Jiří Karásek (SEVEn)

(See presentation file available on the streamSAVE Knowledge and support facility)

The presentation discussed the cases where buildings have already been partially improved (from an energy efficiency viewpoint), but that significant energy savings could still be achieved with complementary renovation measures. Jiří Karásek highlighted the outcomes of the Green Deal 4 Buildings project and emphasized the potential for energy savings within the construction industry.

Jiří Karásek reminded the prevalence of shallow renovations in residential building retrofits, with only a small portion achieving the deep energy renovation standard. At the same time, financial incentives now often prioritized renovation projects that can achieve at least 30% savings, leaving untapped energy-saving potential. A case study focused on the Czech Republic showed that more than 50% of buildings could benefit from complementary renovation measures not currently eligible to these financial incentives.

An overview of household energy consumption in 2020 showed the breakdown of consumption in different energy sources. The analysis of building insulation methods revealed that a significant number of buildings underwent partial renovations, such as wall and roof insulation, but a considerable percentage still lacked comprehensive renovations.

The concept of a step-by-step retrofit was introduced, outlining the process of building assessment, planning of measures, implementation, and incorporation of energy-efficient technologies.

Lighting retrofit was also highlighted as a significant opportunity, with potential electricity savings ranging from 50% to 75% of the lighting consumption.

The presentation stressed the potential for energy savings in buildings that have undergone partial renovations. It was noted that the current financial support and operational programs often limit the scope of energy-saving measures, leaving a substantial untapped potential for energy savings through building insulation and technologies.

The idea of linking the step-by-step retrofit approach with building renovation passports was proposed as a means of documenting and verifying the implementation of energy efficiency measures.

The discussion then raised challenges related to additionality, calculation formulas, and avoiding double counting of measures. This can be addressed through informed discussions. Overall, the presentation underscored the need to harness the unrealized potential for energy savings in building renovations and emphasized the importance of coordinated efforts, policy support, and proper documentation to achieve significant energy efficiency improvements.

Q&A

- *About energy consumption monitoring in data centers*

When discussing the impact of new energy efficiency provisions for data centers, Çağatay Yılmaz acknowledged potential challenges. He noted that data center managers historically prioritized operational uptime over efficiency. However, the introduction of open-source solutions and EU projects like ECoQUBE aims to assist managers in transparently collecting and sharing energy consumption data. While this shift poses challenges, he believes it is necessary for overall energy efficiency improvement

- *About energy consumption related to Artificial Intelligence applications*

A question about the energy consumption of servers running AI, such as those powering models like ChatGPT, was raised. Çağatay Yılmaz, though a physicist and not a software expert, explained that efforts are directed at assessing efficiency across all applications, including AI and big data processes. Software teams are actively working to optimize these applications in line with the comprehensive approach to energy efficiency.

- *About innovation in data centres*

The discussion touched on the future of data centers and potential innovation needs. The presenter highlighted that classical hyperscale data center designs have achieved a certain efficiency level. However, the emergence of edge computing, involving smaller and distributed data centers, necessitates novel design, cooling, and power distribution approaches. He emphasized ongoing endeavors to enhance energy efficiency in both large-scale and edge data centers.

- *About Complementary Measures for Renovations*

In response to a query about targeting eligibility for complementary measures in building renovations, Jiří Karásek recommended prioritizing buildings that have undergone some degree of renovation. He expressed a preference for simultaneous improvements in building envelope and technology rather than incremental retrofits. This approach minimizes risks, offers financial advantages, and simplifies the process for building owners.

The Q&A session showcased the presenter's insights into challenges and opportunities tied to energy efficiency in data centers and buildings. It underscored the importance of collaborative endeavors, technological advancements, and policy frameworks to drive positive transformations in energy consumption patterns in these critical sectors.

PART 2-2: Further energy savings opportunities | Industry

Decarbonization of industrial heating processes using electrotechnologies: potentials and challenges, by Pr. Egbert Baake (Leibniz Universität Hannover)

(*See presentation file available on the streamSAVE Knowledge and support facility*)

In the realm of **industrial processes**, **two-thirds** of energy consumption is attributed to **heating**. A crucial endeavor in this domain is the decarbonization of industrial heating processes, given that **over 80%** of these processes still rely on **fossil fuels**, contributing significantly to carbon emissions. The potential for energy savings and emissions reduction is immense. Addressing this challenge requires an understanding of the multifaceted industrial heating landscape.

These processes encompass a **broad spectrum of temperatures and applications**, from food and textile industries to iron, steel, and ceramics. Each process possesses distinct requirements, materials, and power demands. Overcoming these challenges requires reliable energy sources, technological advancements, and economic viability.

To tackle the transition, a **classification** emerges. First, some strategies are technically feasible and economically sound today, merely requiring knowledge dissemination to industry and policymakers. Second, certain solutions are viable but not yet economical due to existing energy price structures. Lastly, entirely novel technical solutions are essential and demand research and development efforts.

Amid this landscape, **electro technologies** emerge as a **transformative solution**. These technologies harness renewable electrical energy to provide efficient heating across a range of industries. They offer benefits such as high temperatures, process reliability, energy efficiency, and rapid processing. These advantages pave the way for sustainable decarbonization of industrial heating processes. **Hybrid** heating solutions present an **intermediate step**, combining various energy carriers to optimize flexibility and efficiency.

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Real-world examples abound, from electrode boilers in steam generation to induction melting furnaces in metal processing. These instances underscore the potential for substantial energy savings and emissions reduction by embracing electro technologies.

In conclusion, the decarbonization of industrial heating processes is a vital step toward a sustainable future. Electro technologies offer a direct path to efficient and eco-friendly heating solutions. To fully realize these benefits, a comprehensive approach is required: disseminating knowledge, addressing economic barriers, and creating policies that promote the adoption of climate-neutral technologies. By integrating these strategies, we can effectively transform industrial heating, making substantial strides towards a greener and more sustainable industrial landscape.

Deploying heat pump heat upgrading technologies: insights from PUSH2HEAT, by Sanjay Vermani (VITO/EnergyVille)

(*See presentation file available on the streamSAVE Knowledge and support facility*)

Sanjay Vermani from VITO's Thermal Energy Systems Group provided an overview of the Push2Heat project that addresses the crucial challenge of enhancing energy efficiency in industrial processes, particularly by leveraging heat pump technologies.

The project aims to revolutionize the way industries access and utilize thermal energy, primarily by employing heat pumps. Sanjay Vermani highlighted the project's emphasis on **expanding the application of heat pumps to higher temperature** ranges, specifically between 90 and 160 degrees Celsius. This expansion carries immense potential for energy savings and greenhouse gas reductions, making it a compelling avenue for advancing sustainable industrial practices. The Push2Heat project has clear objectives that encompass both technical advancements and practical implementation.

The first set of objectives focuses on developing **heat upgrade technologies** that are seamlessly integrated into existing industrial processes. Through innovative approaches like modular design, optimized heat pump control, advanced bearing systems, and improved heat exchanger designs, the project strives to overcome technical barriers.

The second set of objectives pertains to the **real-world demonstration** of these technologies. The project involves collaborations with diverse industries, each showcasing different applications of heat pumps. By practically demonstrating the feasibility and efficacy of these technologies in real-world scenarios, the project intends to inspire wider adoption.

The project's scope extends beyond technology and demonstration. It encompasses the development of successful business models and roadmaps for the broader deployment of heat upgrade systems. This approach acknowledges the importance of not only technical feasibility but also economic viability and market penetration.

By extrapolating from the demonstration sites, the project envisions significant energy savings and CO_2 emissions reductions. This underlines the far-reaching implications of incorporating heat upgrade technologies across industries.

The collaborative nature of the project's consortium, which brings together research entities, manufacturers, policymakers, and engineering associations, ensures a holistic approach to addressing the challenges at hand. Through shared expertise and perspectives, the project aims to develop comprehensive solutions that can reshape the industrial energy landscape.

In conclusion, the presentation highlighted how the Push2Heat project is poised to revolutionize industrial heating processes by harnessing the power of heat pump technologies. By expanding their capabilities and effectively integrating them into existing processes, the project offers a promising pathway toward a more sustainable and energy-efficient industrial sector.

Q&A

- *About implementation barriers and examples*

Questions arose regarding the categorization of heat upgrade technologies based on technical and economic feasibility. Examples provided highlighted the challenges of transitioning industries to adopt new technologies due to factors like knowledge gaps or energy price structures.

- *About electricity vs. gas prices*

The fluctuating dynamics of electricity and gas prices were discussed, with attention drawn to the need for competitive electricity pricing. The recent rise in gas prices prompted discussions on the balance between the two energy sources

- *About environmental impact of refrigerants*

Participants inquired about the environmental impact of refrigerants used in heat pumps. The discussion acknowledged the ongoing developments in using natural refrigerants and emphasized the importance of considering ecological impacts in technology comparisons.

- *About estimating energy savings*

A question centered on the challenge of estimating savings for heat upgrade technologies due to the diverse nature of industrial installations. Such complexity was acknowledged. The discussions mentioned possible approaches like classifying technologies by industry and using real-time monitoring data for more accurate estimations.

Overall, the Q&A session enhanced the understanding of the technical aspects, challenges, and potential outcomes of decarbonising heat in industrial processes.

PART 2-3: Further energy savings opportunities | Transport

Assessing energy savings from policy measures promoting modal shift to e-bikes: the Austrian experience, by Gregor Thenius (Austrian Energy Agency)

(See presentation file available on the streamSAVE Knowledge and support facility)

Austria has implemented an Energy Efficiency Obligation Scheme (EEOS) from 2015 to 2020. Many stakeholders involved in the EEOS wanted the scheme to include standardised methods for action types they promote. Public authorities were also willing to have a catalogue offering as many options as possible. However, methods for mobility remain a challenge, with the exception of vehicle replacement. Partly because the energy efficiency community has less experience in dealing with transport, compared with buildings or industry.

The bottom-up method for e-bikes was built on a previous method for car replacement. Specific information was needed about e-bikes: average mileage, average specific energy consumption (kWh/100km), and probably most challenging, potential for e-bike to replace car-driven mobility. The data could be found in a study previously done on e-bikes in Austria.

The calculated energy savings take into account the energy saved from distances travelled with e-bikes instead of cars, minus the energy used for distances travelled with e-bikes and when these do not replace the use of car. The factor assessing the share of distance with or without modal shift is therefore an essential parameter. The previous study estimated a factor of about 34% of distances with modal shift, resulting in about 273 kWh saved per year (per e-bike). This is for private e-bike. In case of company e-bike, a company specific study was required.

The method does not consider possible rebound effects (i.e. in case the use of e-bikes would result in larger distances travelled).

The method was used by obligated parties and some municipalities. The main instrument used by stakeholders promoting e-bikes was purchase subsidies. Overall, the energy savings reported to the EEOS from e-bikes amounted to 20.8 MWh/year (i.e. less than 80 e-bikes), which represented a negligible share of the total savings of the EEOS for 2015-2020.

Possible reasons for the low use of the e-bikes' method include that other action types are more attractive to stakeholders (e.g. much higher ratio of savings per action), administrative burden (also related to the low ratio of savings per action) and low cost-efficiency for an obligated party to achieve its target.

Reported savings to the EEOS cannot be used to assess future potential. The number of e-bikes reported to the EEOS does not capture the number of e-bikes sold in Austria, nor promoted by subsidies (probably by far).

Another study looked at the potential of e-bikes for commuting (home-to-work). The main effect of e-bikes for commuting is for the range 5 to 10 kilometres between home and work. Several scenarios were analysed, considering various assumptions of modal shift rate according to ranges of commuting distance. With the highest assumption of 20% modal shift, the energy savings for distances within 5 to 10 km would amount to 124 GWh/year, i.e. about 0.04% of total Austrian energy consumption.

Q&A

- *Was there at the same time a national public incentive for e-bikes (for example as part of Klima:aktiv)?*

Not at that time. The national support scheme came later. The national monitoring body also collects data and monitor energy savings from the alternative measures, including Klima:aktiv.

The method was first proposed by KTM, the main producer of e-bikes in Austria. So this proposal of method really came from the market.

List of participants

43 participants

Name	First name	Organisation	Country
Agius	Matthias	The Energy and Water Agency	Malta
Anand	Nitish	VITO	Belgium
Baake	Egbert	Leibniz University Hannover, Institute of Electrotechnology	Germany
Balčius	Algimantas	Kaunas University of Technology	Lithuania
Barrella	Roberto	Comillas Pontifical University	Spain
Borragán Pedraz	Guillermo	VITO- Energy Ville	Belgium
Cin	Rabia	Istanbul Technical University	Turkey
Demirel	Ender	ESOGU	Turkey
Doktor	Frantisek	ViaEuropa Competence Centre	Slovakia
Façanha	Islene	ZERO	Portugal
Fonseca	Paula	ISR	Portugal
Font	Sara	Escan s.l.	Spain
Holmberg	Rurik	Swedish Energy Agency	Sweden
Karásek	Jiří	SEVEn	Czech Republic
Kohoutek	Radim	Association of Energy Services Providers	Czech Republic
Krivošík	Juraj	SEVEn Energy	Czech Republic
Ksiazczak	Eva	APES	Czech Republic
Kulevska	Tsvetomira	Sustainable Energy Development Agency (SEDA)	Bulgaria
Lindus	Ketli	Ministry of Economic Affairs and Communications	Estonia
Lionggo	Indriany	Institute for European Energy and Climate Policy	Netherlands
Maclagan	Lucinda	Netherlands Enterprise Agency	Netherlands
Magyar	Jan	Slovak Innovation and Energy Agency	Slovakia
Majtner	Tomas	SPS	Czech Republic
Masiulionis	Ričardas	Lithuanian Energy Agency	Lithuania
Matteini	Marco	UNIDO	Italy
Pisano	Julie	ATEE	France
Rienstra	Jorieke	RVO	Netherlands
Simader	Guenter	Austrian Energy Agency	Austria
Stoniene	Agne	Public Institution Lithuanian Energy Agency	Lithuania
Tafula	Jose	Universidade de Aveiro	Portugal
Tamm	Riina	CPTRA	Estonia
Thenius	Gregor	Austrian Energy Agency	Austria
Toum	Solenne	ATEE	France
Vaitulevice	Asta	Ignitis Group	Lithuania
van Duijn	Diandra	Ministery of Economic affairs and Climate	Netherlands

Name	First name	Organisation	Country
Vermani	Sanjay	VITO NV	Belgium
Yilmaz	Cagatay	Research Organisations of Sweden	Sweden
Project dialogue team (organisation)			
Böck	Elisabeth	Austrian Energy Agency	Austria
Tourkolias	Christos	CRES	Greece
Debusscher	Diedert	European Copper Institute	Belgium
Šebek	Václav	SEVEn Energy	Czech Republic
Pusnik	Matevz	JSI	Slovenia
Broc	Jean-Sébastien	IEECP	France
Renders	Nele	VITO	Belgium