



Coordination and Support Action
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Public synthesis of bi-annual summaries from the first cycle of dialogue meetings

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Abbreviations and acronyms

Acronym	Description
BACS	Building Automation & Control Systems
DHW	Domestic Hot Water
EED	Energy Efficiency Directive
EEOS	Energy Efficiency Obligation Schemes
EPBD	Energy Performance of Buildings Directive
EPC	Energy Performance Certificates
ESEER	European Seasonal Energy Efficiency Ratio
EV	Electric Vehicle
HVAC	Heating, Ventilation and Air Conditioning
M&V	Monitoring & Verification
PA	Priority Action
SEPR	Seasonal Energy Performance Ratio
TCO	Total Cost of Ownership
WP	Work Package



Summary

[streamSAVE](#) is a 36-month Horizon 2020 project aiming to streamline energy savings calculations under Articles 3 and 7 of the Energy Efficiency Directive (EED). The project is working on calculation methods for a selection of **Priority Actions**. These are technical energy saving solutions with high energy savings potential selected based on stakeholder needs.

One of the core activities of streamSAVE is to foster experience sharing. **Dialogue groups** have then been set up to gather experts and policy officers from various EU Member States, for them to share experiences and discuss technical and economic issues related to the savings calculations for each Priority Action. The streamSAVE consortium facilitates the exchanges by organising dialogue meetings, providing an online forum and summarising the main lessons learnt from the discussions.

The **bi-annual summaries** provide an overview and key information from the dialogue meetings for each semester of the project. This report includes a synthesis of the two bi-annual summaries of 2021, corresponding to the first cycle of dialogue groups.

The first cycle's dialogue groups discussed methodologies and issues related to the calculation of energy savings from five Priority Actions:

- Building Automation and Control Systems (BACS);
- Public lighting.
- Electric vehicles (private & public EVs);
- Heat recovery (district heating and excess heat from industry);
- Commercial and Industrial refrigeration systems.

A new set of Priority Actions will run from Spring 2022 for which a new series of dialogue activities will be organized.





Keywords

Peer-to-peer dialogue, experience sharing, energy savings calculations, stakeholder engagement.



Introduction

[streamSAVE](#) is a 36-month Horizon 2020 project aiming to streamline energy savings calculations under Articles 3 and 7 of the Energy Efficiency Directive (EED).

What are Priority Actions?

The project is working on calculation methods for a selection of Priority Actions. These are **technical energy saving solutions** with high energy savings potential selected based on stakeholder needs. streamSAVE will target a total of **10 Priority Actions over two cycles** of experience sharing and capacity building.

What is a Dialogue Group?

A Dialogue Group gathers **experts and policy officers from various EU Member States** to **share experience and discuss** technical and economic issues related to the savings calculations for a given Priority Action. The streamSAVE team facilitates the exchanges by organising web-meetings, providing an online forum and summarizing the main lessons learnt from the discussions.

The 5 Priority Actions addressed in the first cycle of Dialogue Groups



HEAT
RECOVERY



BUILDING
AUTOMATION
& CONTROL
SYSTEMS



REFRIGERATION
SYSTEMS



ELECTRIC
VEHICLES



LIGHTING
SYSTEMS

Duration of the first cycle of dialogues: **March 2021 to April 2022.**

How can I join a Dialogue Group?

If you have not yet been invited by us, you can request an invitation by sending an email to dialogues@streamsavae.eu.

How can I access streamSAVE's online forum?

The online forum is part of the [streamSAVE platform](#). You can register and create your own profile to get access to advanced functions, such as full access to the discussions and managing notifications.

If you have not yet received the platform registration link, please contact us by sending an email to dialogues@streamsavae.eu.

Where can I find the proceedings from the previous Dialogue meetings?

The **agendas, minutes** and **presentation files** of each dialogue meeting are made publicly available on the [streamSAVE platform](#). You can use filters to select the contents related to the Priority Action(s) you are interested in.

The platform also includes **bi-annual summaries** that provide an overview and the key information from the dialogue meetings, for each semester. This report includes a synthesis from the two bi-annual summaries of 2021, corresponding to the first cycle of Dialogue Groups.





Chapter 1 Overview of the dialogue activities in 2021

The table below provides the list of dialogue activities organised between February and December 2021. Reference is also made to the meeting minutes of each activity.

The minutes of the online meetings are available on the [streamSAVE platform](#). If you do not have access, please contact us at dialogues@streamsave.eu.

Table 1. List of dialogue activities in 2021.

What	When	Which Priority Actions
Kick-off meeting of the dialogue groups	5 March 2021	All Priority Actions
Dialogue meeting 2	18 May 2021	BACS
Dialogue meeting 2	01 June 2021	Public Lighting
Dialogue meeting 2	15 June 2021	Electric Vehicles
Dialogue meeting 2	22 June 2021	Heat Recovery
Dialogue meeting 2	29 June 2021	Refrigeration Systems
Dialogue meeting 3	19 October 2021	Heat Recovery and Refrigeration Systems
Dialogue meeting 3	9 November 2021	BACS and Public Lighting
Dialogue meeting 3	23 November 2021	Electric Vehicles

2021 activities in figures:

- 9 web-meetings
- 176 single participants (from 29 countries) for the dialogue activities in 2021
- 24 participants per dialogue meeting on average (not including the kick-off)
- 6 external presentations
- 110 single users registered to the streamSAVE platform
- 16 posts and 1 discussion with streamSAVE stakeholders in the online forum

This synthesis is focused on the dialogue meetings. The first cycle of dialogue activities also included workshops being organised early 2022 (see more details in the Conclusion part of this document)



Chapter 2 Summary about Building Automation & Control Systems (BACS)

BACS are comprised of all products and engineering services for automatic controls, monitoring, optimisation, for operation, human intervention and management to achieve energy-efficient, economical, and safe operation of building services: heating, ventilation and air conditioning (HVAC), domestic hot water (DHW), lighting, metering, technical building management, access control, security and fire safety.

Figures about the Dialogue Group on BACS

- 25 participants to the dialogue meeting 2
- 22 participants to the dialogue meeting 3
- 2 external presentations: Hadrien Serougne (ADEME), Bonnie Brook (eu.bac)
- 51 single users registered to this Dialogue Group
- 2 posts related to this PA in the online forum

Main issues discussed

Main issues raised by stakeholders in the **stakeholders' survey** conducted in autumn 2020 include:

- Lifetime of savings (and especially providing evidence about savings lifetime);
- What data to collect (and data needed to calculate the baseline);
- How to manage double counting and additionality;
- Evaluation of multiple benefits from implementing BACS (going beyond energy savings, e.g., comfort, productivity, health)

Main issues raised during the **kick-off meeting** (5 March 2021):

- Connection with EPBD (Energy Performance of Buildings Directive) and its provisions about installing and valuating BACS;
- Issues with measurement and verification, including definition of baseline, data collection, behavioural influence on the savings, etc. (e.g., difficulty in defining the baseline of the building energy use because of lack of comprehensive normalisation procedure; difference between calculated and measured energy consumption; how to distinguish savings from BACS and savings from other effects)

Main issues discussed during the **second meeting** (18 May 2021):

- Diversity in Member States' practices as regards requirements for BACS and calculation approaches (cf. based on energy statistics or EPCs – Energy Performance Certificates).
- Little information about BACS factors and existing BACS situation is available. Support and resources, especially about BACS factors and how to set a baseline to calculate energy savings from BACS, would be welcome by practitioners.
- Data may also be found from the reporting related to the inspection of heating and air conditioning systems (cf. Articles 14 and 15 EPBD) and monitoring of incentive schemes.





- Databases of EPCs can also be useful sources about unitary energy consumption of buildings. However, this data should be considered with caution, as EPCs might sometimes overestimate energy consumption.

Main issues discussed during the **third meeting** (19 October 2021):

- **How the BAC classes are defined:** they are defined partly according to the scope covered by the control systems (the narrower the scope, the less efficient), and partly according to the degree of automation and optimisation enabled by the control systems. Class D corresponds to an inefficient energy management (mostly manual controls). Class C is a “basic” energy management (minimum set of automated controls). Classes B and A include additional control systems improving the degree of automation and optimisation (e.g., variable temperature controls).
- **Data about the distribution of the building stock according to BAC classes:** no straightforward source to get national data. Surveys might be needed, especially as disaggregated data per sub-sector (in services) might be needed to match data on BAC classes with data on energy consumption.
- **Cost data:** A new addition to the methodology deals with indicative costs of BACS (expressed as a function of the building type, and the BACS class, for classes A and C).
- **Influence of the EPBD Articles 14(4) and 15(4)** (cf. mandatory installation of BACS systems after 31/12/2025): Class B is compliant with the EPBD requirements. In terms of savings calculations, the streamSAVE methodology explains how to take this EPBD requirement into account to estimate the related energy savings.

Titles of the external presentations:

- *French standardised calculation methods for energy savings from BACS* (by Hadrien Serougne, ADEME)
- *Insights on the BAC classes* (by Bonnie Brook, eu.bac)

Main messages from the discussions

- Importance of the new provisions on BACS included in the Articles 14 and 15 of the EPBD, especially for non-residential buildings from 2025.
- Importance of ensuring a proper commissioning and maintenance of BACS.
- BACS might develop the availability of measured/metered data at project/building level. However, it remains difficult to collect measured/metered data for the monitoring of a policy or programme with a large number of actions. Therefore, simplified approaches can be useful at programme/policy level.
- BACS represent a significant and cost-effective energy savings potential (hence the new provisions on BACS in the amending EPBD2018)
- No generic source of data that would provide the share of BAC classes in each Member State’s buildings stock. But, streamSAVE provides indicative values for three EU regions: North, West and South. National surveys might be needed to further define the baseline.
- Due to the diversity of the service sector, deemed unitary savings for BACS should be differentiated according to the branches or sub-sectors.



- Deemed unitary savings can be useful to monitor energy savings from BACS for large schemes such as EEOS (Energy Efficiency Obligation Schemes). However, at project level, BACS should enable to use measured data.

Interesting sources to look further

Table 2. Sources to look further about BACS.

Name of the source	Why it is relevant / interesting
Standard EN 15232 (Energy performance of buildings: impact of building automation, controls and building management)	<p>The streamSAVE methodology is based on the use of BACS factors, which requires referring to benchmarks as set in the BACS efficiency class as specified in this standard</p> <p>It describes buildings' energy systems, with the demand (rooms, end-uses) and supply (energy generation and distribution) sides. This shows that demand control is essential to optimize the energy use.</p> <p>The standard also describes the interactions between each component or system of the building.</p>
Siemens (2018). Building Automation -Impact on Energy Efficiency Application of EN 15232-1:2017	Publicly available study explaining the standard EN 15232. Report providing data about the impacts of BACS
Commission Recommendation (EU) 2019/1019 of 7 June 2019 on building modernisation	guidance note published by the European Commission (DG ENER) about the amending EPBD 2018
https://epb.center/epb-standards/energy-performance-buildings-directive-epbd/	Source where the standards related to the EPBD can be found
Eu.bac (2020) compliance verification checklist	The compliance verification checklist helps with the implementation of the EPBD provisions on BACS.





Chapter 3 Summary about Public Lighting

Figures about the Dialogue Group on Public Lighting

- 28 participants to the dialogue meeting 2
- 22 participants to the dialogue meeting 3
- 1 external presentation: Dr. Boris Sucic (Jozef Stefan Institute)
- 57 single users registered to this Dialogue Group
- 5 posts related to this PA in the online forum

Main issues discussed

Main issues raised by the stakeholders during the **kick-off meeting**:

- How to calculate energy savings through lighting controls?
- Additionality: how to consider Ecodesign standards in the evaluation of savings?
- M&V (Monitoring & Verification) issues: Baseline definition and data scarcity; Disaggregation of energy savings when no individual load monitoring; How to consider patterns of behaviour, safety standards, lighting levels and quality of service

Main issues discussed in the **second meeting**:

- The methodology is simplified compared to detailed related technical standards. However, it remains in line with these standards.
- The two approaches (project-based and simplified) included in the methodology are meant to give comparable results. The calculation principle (physics) remains the same. The difference lies in the type and number of data specific to the actions implemented that are needed as inputs.
- While detailed data might be available at local level, there seems to be a lack of national databases that would facilitate detailed calculations when monitoring a national scheme; which supports the choice of developing a simplified approach.

Main issues discussed during the **third meeting** (19 October 2021):

- **Deemed savings vs. scaled savings:** both approaches have their own pros and cons. Deemed savings can help monitor a large number of projects. Scaled savings provide more precise and specific data. Deemed savings can be defined based on actual measurements for standard cases (e.g., with laboratory tests and field measurements) to improve reliability.
- **Frequency to update standard or indicative values** (used for deemed savings): It is not always needed to update these values, but this is important to revise them regularly to see whether an update would be needed.
- **Possible difficulties in data collection:** experience with savings calculations for public lighting shows that there is no major difficulty for collecting data for this action type. The lighting system operators usually have the main data needed.

Title of the external presentation:

- *Monitoring and verification of energy savings due to renovation of outdoor lighting systems – case study Slovenia* (by Dr. Boris Sucic, Jozef Stefan Institute)



Main messages from the discussions

- Considering the difficulties associated with gathering local detailed data at national level, the objective is to provide approaches that can be used with data commonly available and easy to collect.
- Providing indicative values is welcome, especially in terms of energy savings per lighting source and about dimming effects.
- Conservative values of deemed savings can be a way to encourage the use of standard methods with data specific to the energy efficiency projects, when specific data can easily be collected (e.g., for road lighting projects).
- Offering two alternatives (deemed savings or scaled savings) can provide flexibility for project holders to report data in a cost-effective manner.
- The case of new lighting points (e.g., new roads or districts) might require a specific formula (or specific guidelines).
- Knowledge and skills are essential to ensure that energy efficiency improvements are achieved as expected. Likewise, for developing calculation methods.
- The calculation methods can build on the knowledge and experience of energy efficiency experts (e.g., energy managers or auditors).
- Uncertainties in key parameters such as electricity prices in the case of road lighting can have a major influence on the cost-effectiveness of energy efficiency projects

Interesting sources to look further

Table 3. Sources to look further about Road Lighting systems.

Name of the source	Why it is relevant / interesting
Standard EN 13201-5 (Road lighting - Part 5: Energy performance indicators)	Standard taken into account when developing the methodology. It goes into more details, while the objective of streamSAVE is to develop simpler calculation methods, also taking into account the current practices of Member States.





Chapter 4 Summary about Electric Vehicles (EVs)

Figures about the Dialogue Group on Electric Vehicles

- 25 participants to the dialogue meeting 2
- 29 participants to the dialogue meeting 3
- 1 external presentation: Matteo Prussi (DENER, Politecnico di Torino, Italy)
- 54 single users registered to this Dialogue Group
- 3 posts and 1 discussion with streamSAVE stakeholders related to this PA in the online forum

Main issues discussed

Main issues discussed at the **kick-off meeting**:

- Need for a uniform methodology to calculate the savings with electric vehicles (fuel switching)
- How to avoid double counting between EVs and charging infrastructures
- How to take into account in the baseline the EU emission standards for new vehicles, and possible waterbed effects (higher efficiency in one country compensated by lower efficiency in another)
- How to calculate energy savings from hybrid vehicles

Main issues discussed in the **online forum**:

- Discussions about whether energy savings can be attributed to charging infrastructures, and the decision to exclude infrastructures from the streamSAVE methodology, due to the new Alternative Fuels Infrastructure Directive that will likely make that energy savings from infrastructures could not be additional (and thereby eligible) according to the article 7 (and Annex V) of the EED.
- Large potential for well-to-wheel energy savings from electric vehicles replacing gasoline vehicles.

Main issues discussed in the **second meeting**:

- Key parameters include the specific energy consumption of the vehicles (both the reference/baseline vehicle and the “efficient” one/EVs) and the average distance travelled.
- The key parameters for the indicative values were calculated based on public literature and regulations (e.g., emissions standards and emissions monitoring). However, using national, or even more specific, values is recommended whenever possible to increase the reliability of the calculations.
- Further analyses would be needed to consider the possibility to define indicative values for behavioural effect, for instance, whether the use of EVs would be related to smaller distances travelled compared to the average for the whole stock of vehicles.
- The values from the European standards on CO₂ emissions from vehicles can provide a basis for a harmonised baseline in the context of Article 7 EED.



D3.3 Public synthesis from the first cycle of dialogue meetings

- Cost data to compare reference and efficient vehicles should be based on TCO (Total Cost of Ownership), considering the different taxes applying to vehicles, insurance, maintenance, fuel/electricity prices per km, etc. Which prevent defining indicative European average values due to the strong differences among countries

Main issues discussed during the **third meeting** (23 November 2021):

- **Scope of analysis:** a reminder that the streamSAVE methodology is focused on savings calculations from fuel switching from conventional to electric vehicles. Depending on the policy objectives, it can be relevant to consider a broader scope (e.g., with lifecycle analysis).
- **Using indicative values or country-specific data:** while available sources provide indicative values (for both, baseline and efficient vehicles), there can be significant variations from one country to another in some parameters (e.g., about average distances travelled or emission factors for electricity).
- **Losses between the plug and batteries:** these losses are not always included in the data provided by the manufacturers (which might create a bias)
- **Case of schemes promoting early replacement (scrappage schemes):** use of a staircase approach, considering two different periods (before and after the early replacement period) with different energy consumption for the reference vehicle (replaced vehicle and average from the market respectively)
- **Rebound effects:** they might be relevant to consider, but cannot be addressed with EU indicative values. It requires empirical data (e.g., surveys).

Title of the external presentation:

- *Well-to-Wheels analysis of future automotive fuels and powertrains in the European context* (by Matteo Prussi, DENER, Politecnico di Torino, Italy)

Main messages from the discussions

- Collecting national data improves the reliability of the calculations. National databases already in place for other purposes and the monitoring databases of the policies can be useful data sources.
- The use of indicative values to set the baseline would help for harmonized calculations, as the European standards on CO₂ emissions can provide a common basis, and also ensure compliance with the additionality requirement (for Article 7 EED).
- Sources are available to provide indicative values for both, reference (baseline) and efficient vehicles. However, it is recommended to use national data whenever possible, especially for parameters such as distances travelled, or emission factors associated with the electricity mix.
- The way the electricity mix is considered (e.g., average or marginal emission factors) can have a major impact on the calculation of CO₂ savings.
- Beyond the scope of the EED, it is relevant to consider multiple indicators when assessing transport technologies. A single indicator cannot capture the various impacts to be considered.
- Similarly, it is important to make explicit the cycle considered (whole lifecycle, well-to-wheel, tank-to-wheel). For example, the charging losses should not be neglected.





Interesting sources to look further

Table 4. Sources to look further about Electric Vehicles.

Name of the source	Why it is relevant / interesting
<p>European regulation for CO₂ emission performance standards for cars and vans</p>	<p>Key reference considered for the streamSAVE methodology.</p> <p>These standards are however set in terms of specific CO₂ emissions (gCO₂/km): the values from the standards thus need to be converted into specific energy consumption (e.g., kWh/km) by applying the emission factor according to the type of fuel considered for the reference vehicle.</p>
<p>EC (2021) CO₂ Emission Performance Standards for Cars and Vans. EEA (2021) Monitoring of CO₂ emissions from passenger cars Regulation 2019/631. EEA (2021) Monitoring of CO₂ emissions from vans Regulation 510/2011. ACEA (2020) CO₂ emissions from heavy duty vehicles Preliminary CO₂ baseline (Q3 Q4 2019) estimate.</p>	<p>Sources of indicative values about unitary emissions per type of reference vehicle (in gCO₂/km):</p>
<p>Annex VI of the Regulation on the monitoring and reporting of greenhouse gas emissions (2018/2066/EU).</p>	<p>Sources of indicative values about Net Calorific Value and Specific CO₂ Emissions</p>
<p>Cars -JEC (2020) Tank-to-Wheels Report v5: Passenger cars. Vans-EV-database (2021) Energy consumption of full electric vehicles. Electric Vehicle Database. Truck and Bus -JEC (2020) Tank-to-Wheels Report v5: Heavy duty vehicles.</p>	<p>Sources of indicative values about specific energy consumption per type of efficient vehicle</p>
<p>Eurostat (2021) Transport Database. (Road traffic statistics by type of vehicles) ACEA (2021) Vehicles-in-use-Europe 2021. European Automobile Manufacturers' Association. (Number of vehicles by type)</p>	<p>Sources of indicative values about distances travelled</p>
<p>study in Germany from ADAC (German Automobile Club)</p>	<p>Interesting about cost data. It covers more than 100 models often showing total costs accumulated over the first 5 years in use for one similar model with fuel vs respective PHEV (Plug-in Hybrid Electric Vehicle) and BEV (Battery Electric Vehicle).</p>
<p>LeasePlan (2020). 2020 Car Cost Index.</p>	<p>Sources of indicative values: about investment and maintenance costs</p>



Chapter 5 Summary about Heat Recovery

Figures about the Dialogue Group on Heat Recovery

- 20 participants to the dialogue meeting 2
- 27 participants to the dialogue meeting 3
- 1 external presentation: Johann Geyer, ENERTEC (Austria)
- 53 single users registered to this Dialogue Group
- 3 posts related to this PA in the online forum

Main issues discussed

Key issues raised in the **stakeholders' survey** and **kick-off meeting**:

- Need for a clear definition of the terms and boundaries when considering heat recovery
- How to define the savings lifetime
- How to set a baseline due to the diversity of industrial processes and technological options
- How to handle changes in production volumes

Key issues discussed during the **second meeting**:

- In the case of heat recovered for another end-use onsite, the difference in the ancillary electricity consumption (e.g., circulation pumps) between the baseline and “heat recovery” cases are assumed to be negligible, allowing a simplified calculation.
- Whereas in the case of heat recovered directly fed back to the same process, the ancillary consumption of the heat recovery system is additional (compared to the baseline case) and should therefore be deducted from the gains of the heat recovered.
- In the case of heat recovered to supply district heating, final energy savings may occur when the supply with heat recovery enables to connect new end-users/buildings, by comparing with the efficiency of the replaced/baseline heating system that would have been used in the absence of connection to district heating.

Main issues discussed during the **third meeting** (9 November 2021):

- **Scope:** The scope considered is very important when assessing final energy savings from heat recovery systems, hence the distinction between three main cases.
- **Focus:** The streamSAVE methodology is focused on heat recovery in industry, due to the large final energy savings potential in this sector. Industry indeed represents 26% of the EU27 final energy consumption, with about two thirds being related to heat demand. Moreover, part of this heat demand is about high temperature heat. Industry is therefore both a source of excess heat and a large user of heat, which creates favourable conditions for heat recovery.
- **Data sources and collection:** For projects in industry, part of the data needed can often be collected from meters or other measurement devices already in place for other purposes (e.g., safety, optimisation). However, projects in industry might also deal with various processes and complex interactions, making the assessment of energy savings also complex.





- **Rebound effect:** assessing the rebound effect mostly depends on the perspective you adopt (policy or project). Moreover, the notion of rebound effect in industry might not always be relevant and be related in practice to productivity gains.

Title of the external presentation:

- *Savings calculation for heat recovery in industry to supply another site – a best practice example from Austria (by Johann Geyer, ENERTEC)*

Main messages from the discussions

- The amending Energy Efficiency Directive (EED) adopted in 2018 makes that only small final energy savings from district heating can be reported to EED Article 7. However, the use of heat recovery for district heating still provides large primary energy savings in the context of EED Article 3 (and reductions in GHG emissions).
- The scope of final energy consumption to consider in the savings calculations depend on the case of application: heat recovered directly fed back in the same process; heat recovered used on-site but for another end-use; heat recovered used to supply other sites via district heating
- Heat recovery represent significant potentials of final energy savings, especially in industry.
- Projects in industry are sometimes complex and require using specific data to calculate the savings. A standard method then helps to ensure that the calculations are done in line with the rules set in the scheme it is reported to.



Chapter 6 Summary about Refrigeration systems

Figures about the Dialogue Group on Refrigeration systems

- 14 participants to the dialogue meeting 2
- 27 participants to the dialogue meeting 3
- 1 presentation about a national experience: France (presented by Jean-Sébastien Broc, IEACP, with inputs from ADEME and ATEE)
- 46 single users registered to this Dialogue Group
- 3 posts related to this PA in the online forum

Main issues discussed

Main issues raised in the **stakeholders' survey** and during the **kick-off meeting**:

- Calculation of cooling efficiency and on-site data collection are complicated. Therefore, simplified calculation methods and indicative values would be welcome.
- Difficulty to set a baseline that complies with additionality requirements.
- Highest interest (in terms of scope) in central compression refrigeration units, replacement of electric compression refrigeration units with direct or indirect absorption cooling units
- How to account for different needs of different refrigerated products / standard approach for comparison of different systems with different refrigerants

Main issues raised during the **second meeting**:

- The discussions confirmed that it is relevant to use SEPR (Seasonal Energy Performance Ratio) instead of ESEER (European Seasonal Energy Efficiency Ratio) in this calculation methodology.
- ESEER is indeed not used any more: due to the change in the regulation, certification of equipment does no longer include ESEER values. From 2016, the European regulation makes that the certification of equipment includes SEER or SEPR values (according to the type of equipment).
- The standard [EN14825:2018](#) (Air conditioners, liquid chilling packages and heat pumps, with electrically driven compressors, for space heating and cooling - Testing and rating at part load conditions and calculation of seasonal performance) may include complementary indicative values that could be relevant for the streamSAVE methodology.

Main issues discussed during the **third meeting** (9 November 2021):

- **Focus:** the streamSAVE methodology is focused on industrial and commercial refrigeration and the utilization of central compression refrigeration units. It does not apply to comfort/space cooling.
- **Choice of the efficiency indicator:** according to the relevant Ecodesign regulation ((EU) 2016/2281), the recommended efficiency indicator is now SEER (Seasonal Energy Efficiency Ratio) or SEPR (Seasonal Energy Performance Ratio). Based on the review done to prepare the methodology and the discussions at the previous dialogue meeting, it was chosen to use the SEPR indicator in the streamSAVE methodology





- **Cost data:** Indicative cost values about refrigeration systems can be found in the preparatory studies (impact assessments) in frame of the Ecodesign Directive. These values can be presented in absolute ranges to give an order of magnitude of the cost of a project, or in relative terms (cost per kW of capacity), as the capacity has a strong influence on cost. There can indeed be major variations according to the capacity of the refrigeration system. In particular, capacity and size have a strong influence on the investment cost. It will be considered whether the streamSAVE methodology could include cost data in terms of euros/kW.

Title of the external presentation:

- *Calculation methods for refrigeration systems in the French white certificates scheme* (by Jean-Sébastien Broc, IEECP, with inputs from ADEME and ATEE)

Main messages from the discussions

- The scope of the methodology: focus on new installations or the replacement of air-chilled or water-chilled central compression refrigeration units, and high temperature process chillers.
- The Ecodesign regulation for air heating and cooling products (EU) 2016/2281, makes that the calculation methodology previously using ESEER (European Seasonal Energy Efficiency Ratio) as efficiency parameter should be updated to use the new efficiency parameters set in the current regulation: SEER (Seasonal Energy Efficiency Ratio) or SEPR (Seasonal Energy Performance Ratio) (according to the type of equipment)
- Refrigeration systems represent significant potentials of final energy savings.
- For refrigeration systems, the efficiency indicators to be documented by the manufacturers have evolved. Which might require to update the calculation methods used by Member States accordingly.
- A set of deemed savings can be used to provide a standardised way to monitor energy savings while reflecting variations according to key parameters that can easily be reported by stakeholders.
- The indicative cost values provide a general benchmark but should not be used for a particular case.

Interesting sources to look further

Table 5. Sources to look further about Refrigeration systems.

Name of the source	Why it is relevant / interesting
Commission regulation ((EU) 2016/2281) setting of ecodesign requirements for energy-related products, with regard to ecodesign requirements for air heating products, cooling products, high temperature process chillers and fan coil units	Definition about the efficiency indicators. Key source used to develop the streamSAVE methodology (see also the related guidelines published by the European Commission)
Database of Eurovent certified air-chilled and water-chilled refrigeration units under the LCP-HP (Liquid Chilling Packages and Heat Pumps)	Source of indicative values for SEPR (Seasonal Energy Performance Ratio)

D3.3 Public synthesis from the first cycle of dialogue meetings



Impact assessment for the ecodesign requirements for electric motors and variable speed drives (SWD/2019/0343 final)	Other source of relevant data
standard EN14825:2018 on air conditioners, liquid chilling packages and heat pumps, with electrically driven compressors, for space heating and cooling	Other possible data source





Chapter 7 Feedback about the first cycle of dialogue meetings

Feedback questionnaire done after each dialogue meeting

Short questionnaires (online) were shared with participants after each dialogue meetings to get feedback about their expectations and whether they were met. The main results from these short surveys are compiled below, comparing the answers received during the second series of meetings (Spring 2021) and the third series of meetings (Autumn 2021).

Overall, the respondents were satisfied with the quality of the meeting organisation. The answers were even more positive about the 3rd series of meetings. This might be explained by the experience gained along the 2nd series of meetings, and the resulting improvements in the organisation and moderation of the meetings.

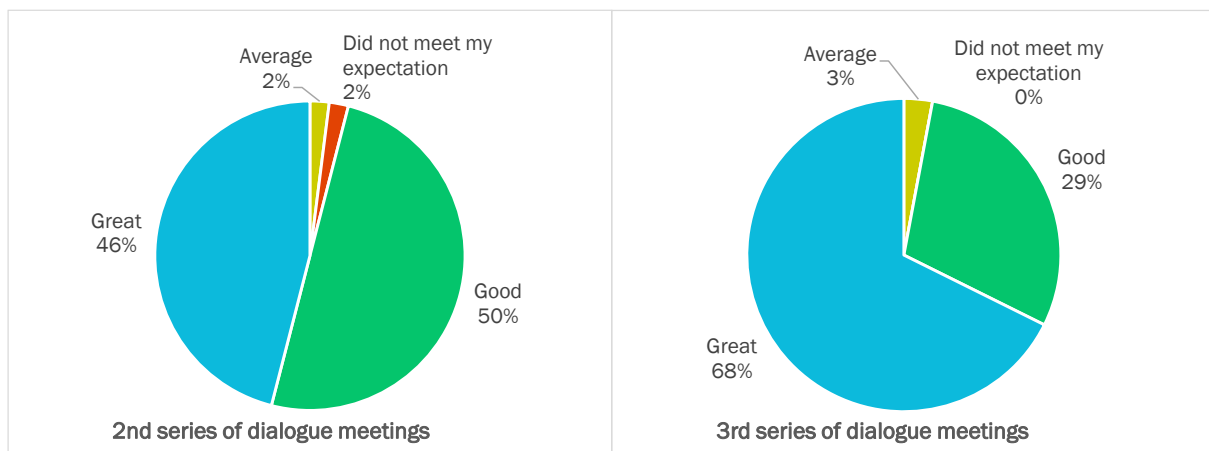


Figure 1. How do you rate the overall meeting organization (quality of the moderation etc.)?

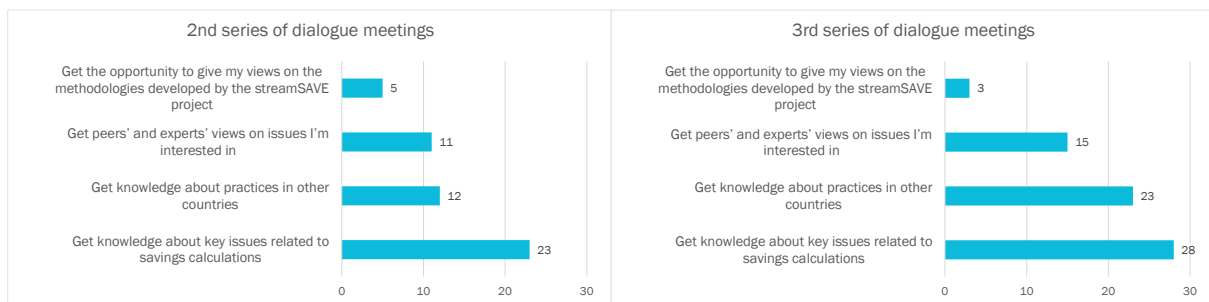


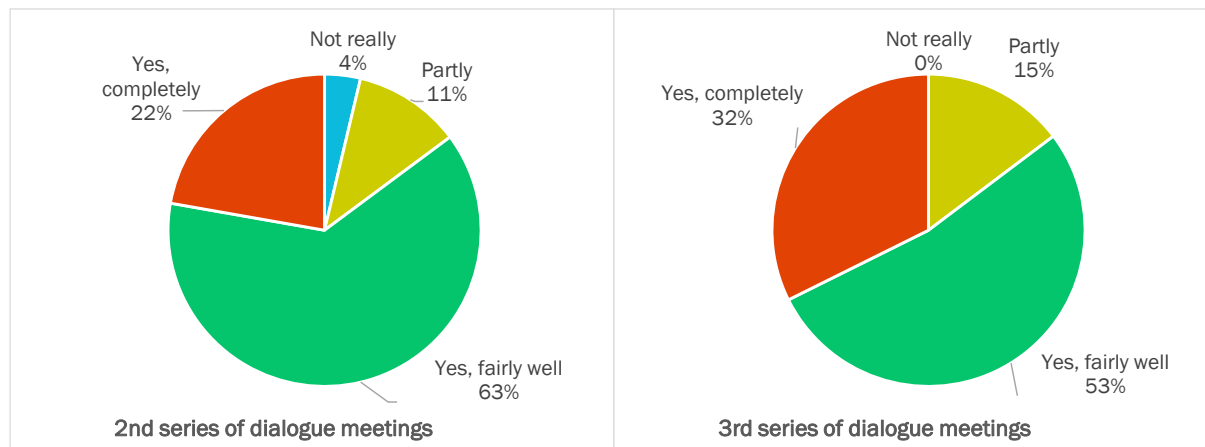
Figure 2. What were your objectives for this meeting? (multiple choice possible)

The hierarchy in the objectives of the respondents remain overall the same between the 2nd and 3rd series of meetings. Respondents' main objective is to gain knowledge on issues related to savings calculations, which is in line with the main objective of the dialogue meetings. Participants are also interested in sharing experience (see response options "get knowledge about practices in other countries" and "get peers' and experts' views on issues I'm interested in"). The respondents were relatively less interested in giving their views on the streamSAVE methodologies. This aspect is indeed better addressed in the national case studies, part of the complementary streamSAVE activity – Capacity Support Facility – to exchange with national stakeholders and experts.



D3.3 Public synthesis from the first cycle of dialogue meetings

Overall, almost all respondents considered that the meetings reached their objectives at least partly or even more for most of them. An improvement can also be seen in the answers of the 3rd series.



Note: no participant answered “1-not at all”, hence this option is not included here.

Figure 3. Did the meeting reach your objectives? (rate from 1-not at all to 5-yes, completely)

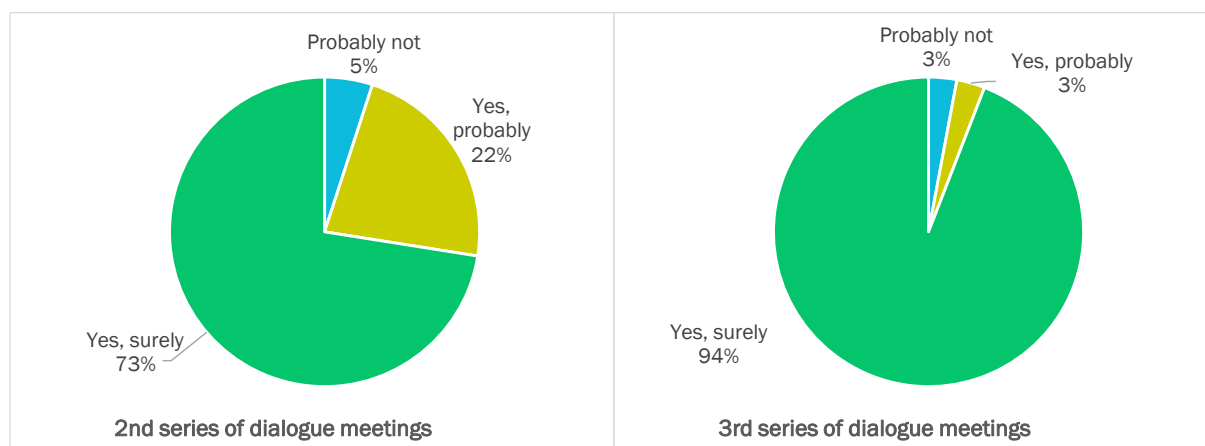


Figure 4. Do you plan to attend another streamSAVE meeting?

Respondents' satisfaction and interest in the dialogue meetings are confirmed by the fact that most of them plan to attend further meetings. The likelihood for them to attend further meetings even increased in the answers after the 3rd series of meetings (cf. 94% of “yes, surely”).

In addition to the questions shown above, the short surveys done after the 2nd series of meetings were used to get feedback about their design. Overall, most respondents (91%) found the length (1 hour per PA) adequate. Likewise, most respondents (87%) found the balance between presentations and discussions fine for them.

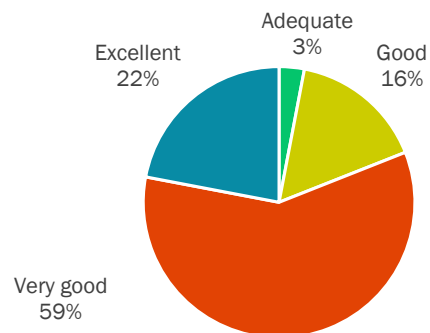
The questions about the 2nd series of meetings were also used to prioritize the issues on the agenda of the 3rd series of meetings that closed this first cycle.





Feedback from the general online survey about the first cycle of streamSAVE activities

A general online survey was done in December 2021-January 2022 to collect feedback on the first cycle of streamSAVE activities (including, though not only, the dialogue meetings), and to select the topics for the next cycle (especially the new set of Priority Actions).



Online survey about the first cycle

Figure 5. How do you rate the overall organisation of the dialogue activities (e.g. quality of presentations and moderation, invitations, level of interaction, duration & number of meetings)?

The answers about the overall organisation of the dialogue meetings are in line with the ones from the short feedback survey, with a very good rating.

Looking more in the details (see Figure 6 below), the respondents rated very positively the achievement of all main objectives of the dialogue meetings.

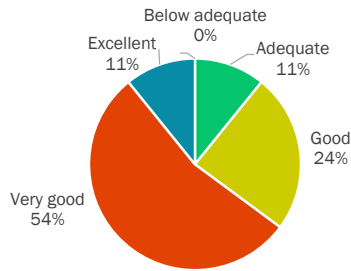
The rating is in particular very good for the objectives of providing a better understanding of key issues related to savings calculations, and a better knowledge on practices related to savings calculations in other EU countries in the context of the EED. Both aspects are the dialogue meetings' primary objectives, that can then be considered met. The rating is slightly less but still very positive about getting peers' and experts' views on issues respondents are interested in.

Finally, the rating is more balanced about getting to know experts or other policy officers active in the topics that the respondents are interested in. This can be explained by the fact that the dialogue meetings are online meetings, that make new contacts less easy than in-person meetings. Multiple ways to improve this aspect will be considered for the second cycle, such as reminding participants that the participants' lists are included in the minutes of the dialogue meetings, including at least one external presentation in each dialogue meeting (as done in the third series of the first cycle), or looking for opportunities to organise the workshops as in-person events back-to-back or as part of other in-person events (as done in March 2022 at the Concerted Action EED, see below in the Conclusion).

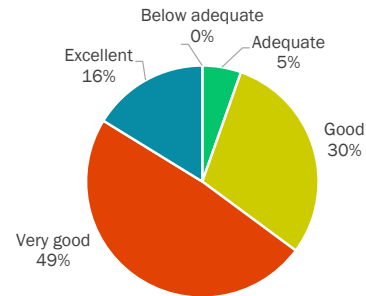


D3.3 Public synthesis from the first cycle of dialogue meetings

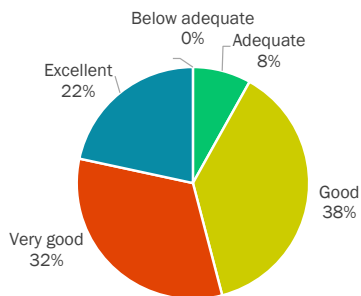
a) I got a better understanding of key issues related to savings calculations under Articles 3 and 7 of the EED



b) I got a better knowledge of EED practices on savings calculations in other EU countries



c) I got peers' and experts' views on issues I'm interested in



d) I got to know experts or policy officers active in topics I'm interested in

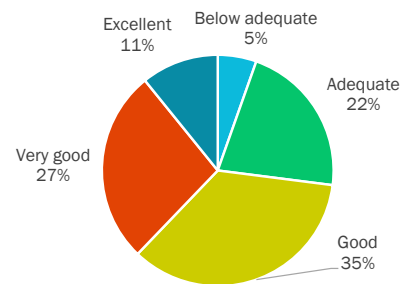


Figure 6. How would you rate the web-meetings' achievement of following objectives?





Conclusion

According to the feedback from the participants, the dialogue meetings have achieved their primary objectives to provide them with a better understanding of key issues related to savings calculations, and a better knowledge on practices related to savings calculations in other EU countries in the context of the EED.

This was achieved by a combination of presentations from the streamSAVE partners about the calculation methodologies developed within the project, and from external experts sharing their experience, both focused on the five Priority Actions selected for the first cycle of the project.

The discussions during these meetings highlighted key messages summarised below:

- The five Priority Actions analysed in the first cycle represent significant energy savings potentials, and thereby opportunities to contribute to the targets of the EED.
- Knowledge and skills are essential to ensure that energy efficiency improvements are achieved as expected. Likewise, for developing calculation methods. The calculation methods can, for example, build on the knowledge and experience of energy efficiency experts (e.g., energy managers or auditors).
- Specific data are sometimes easily available at the project level, either due to the technology itself (e.g., BACS) or because the data are needed for other purposes than savings calculations (e.g., monitoring of public lighting or industrial processes). These specific data can then be used directly by the project holder (e.g., to assess cost-effectiveness). However, this might be difficult or costly to collect specific data from a large number of projects for the monitoring of a national energy efficiency scheme.
- Offering two alternatives (deemed savings or scaled savings) can provide flexibility for project holders to report data in a cost-effective manner.
- Deemed savings and scaled savings have both pros and cons. Collecting data specific to each savings project increases the reliability of energy savings (e.g., when using scaled savings from energy audits or alike). But simplified methods with indicative values are useful to monitor schemes dealing with large number of projects/actions.
- Developing simplified calculation methodology first requires defining well its scope.
- Ecodesign regulations and EPBD provisions are important to take into account in the calculation methods, especially for defining the baseline in the context of the EED.
- Availability of indicative values varies according to the action types. But overall, indicative values can be defined at EU level for most of the Priority Actions covered in the first cycle of streamSAVE, providing a first benchmark. However, it is recommended to use national data whenever possible, especially for parameters that may vary significantly from one country to the other (e.g., share of BAC classes in the building stock for BACS; distances travelled in the case of electric vehicles). When these national data are not available, this might require doing surveys or other assessments.
- Likewise, projects in the industry are sometimes complex and require specific data to calculate savings. A standardized method then helps to ensure that the calculations are done in line with the rules set in the scheme it is reported to.
- Setting conservative values of deemed savings can be a way to encourage the use of standardized methods fed with data specific to the energy efficiency projects, at least if these can be easily collected (e.g., for road lighting projects).



D3.3 Public synthesis from the first cycle of dialogue meetings

- Deemed savings might need to be differentiated according to sub-sectors (e.g., in services) or sub-types of actions (e.g., for refrigeration systems), when significant differences are observed. A set of deemed savings can then be used to provide a standardised way to monitor energy savings while reflecting variations according to key parameters that can easily be reported by stakeholders.
- Special cases might require slight adaptations to the calculation formulas (e.g., new lighting points for road lighting; early replacements for electricity vehicles).
- Reliable data on costs are difficult to identify or access. The indicative cost values included in the streamSAVE methodologies provide a general benchmark but should not be used for a particular case.
- Uncertainties in key parameters (e.g., electricity prices in the case of road lighting) can have a major influence on the cost-effectiveness of energy efficiency projects.

The [calculation methodologies](#) for the first 5 Priority Actions are now finalised and have been tested in country cases. Registered users can use them directly from the [streamSAVE Training Module](#).

The third series of meetings organised in October-November 2021 was the last series of this first dialogue cycle. Complementary workshops, dealing with cross-cutting issues, are organised in Spring 2022:

- 15 February 2022: joint online workshop with the ENSMOV project, entitled “[Dealing with **additionality** in the context of Article 7 EED: Experiences about monitoring and energy savings calculations](#)”
- 23 March 2022: special information session at the Concerted Action EED, entitled “*New resources for the implementation of Article 7 EED: discussing lessons learnt about savings calculations and M&V*”

You are very much welcome to continue the discussions with us on the streamSAVE [online forum](#).



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