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Streamlining savings calculations within Europe: lessons learnt from the Capacity Support Facility in EU MS

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stream SAVE

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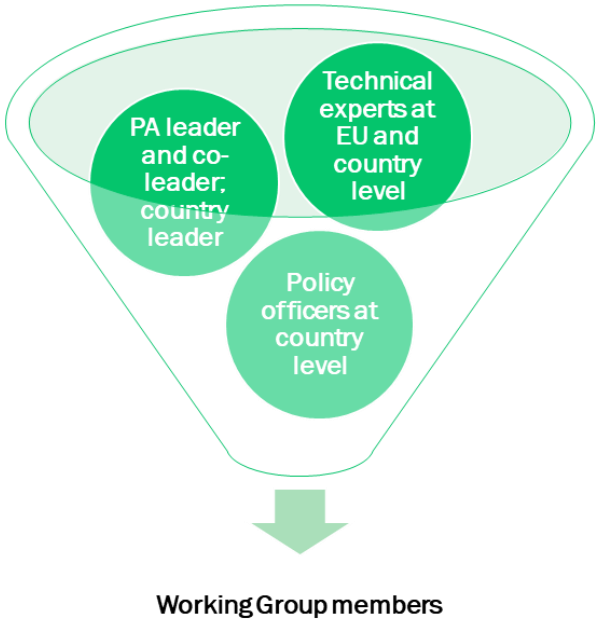
Capacity Support Facility (CSF)

The **Capacity Support Facility (CSF)** focused on technical issues of the energy savings actions providing the capability to each country to apply the **streamSAVE savings methodologies** for concrete policies or measures, as well as to test **Training Module of the streamSAVE platform** for the selected Priority Actions in order to improve the implementation and reporting on energy efficiency policy measures under Article 3 and Article 7 of the EED.




BUILDING AUTOMATION & CONTROL SYSTEMS


REFRIGERATION SYSTEMS


LIGHTING SYSTEMS


ELECTRIC VEHICLES


HEAT RECOVERY

Country	Selected PA for the first cycle
Austria (AT)	BACS
Belgium (BE)	Electric Vehicle
Czechia (CZ)	Heat recovery
Croatia (HR)	Heat Recovery
Greece (GR)	Heat recovery
Netherlands (NL)	Electric Vehicle
Lithuania (LT)	BACS
Portugal (PT)	Electric Vehicle
Slovenia (SI)	BACS
Spain (ES)	Electric Vehicle

Addressed technical issues within the CSF

Technical aspect	BACS			Electric vehicles				Heat recovery		
	AT	LT	SI	BE	NL	PT	ES	CZ	HR	GR
Baseline				X	X	X	X	X	X	X
Data collection or assessment of monitored data	X		X	X		X	X	X	X	X
Energy savings based on deemed streamSAVE methods	X	X	X		X	X	X		X	X
Cost effectiveness							X		X	X
CO_2 savings		X			X		X		X	
Behavioural aspects			X						X	
Calculation of rebound, spill-over and free-rider effects									X	
Article 3					X			X	X	
Article 7	X	X	X	X		X	X	X	X	X
Streamlining between Article 3 and Article 7										
Screening and initial assessment of promising technical savings actions			X	X					X	X
Adapting or improving existing practices from the other MSs on calculation methodologies or indicative values		X	X		X	X	X		X	X
Reviewing existing calculation methodologies					X			X		
Other issues and targets	X		X	X		X	X			

Type of conducted activities within the CSF

Conducted activities	BACS			Electric vehicles				Heat recovery		
	AT	LT	SI	BE	NL	PT	ES	CZ	HR	GR
In-country workshop			X							X
Telephone support/Online workshop	X	X	X	X	X	X	X	X	X	X
Online/email support	X	X	X	X	X	X	X	X	X	
Desk research consortium	X		X	X	X	X	X	X	X	X
Peer-peer exchange of experience between countries		X				X			X	
Other activities						X		X		

Impacts triggered by 1st round of PAs

26 policy officers have participated into the implemented activities representing 15 public bodies or organizations

14 workshops and 11 meetings were organized

16 energy efficiency policies will be affected potentially related to the priority actions

Example: EVs methodology in streamSAVE project

Calculation of final energy savings

$$TFES = \left(sFEC_{ref} - sFEC_{eff}\right) \cdot \frac{DT}{100} \cdot n \cdot f_{BEH}$$

TFES	Total final energy savings [kWh/a]
$sFEC_{ref}$	Specific final energy consumption of the reference vehicle [kWh/100 km]
$sFEC_{ref}$	Specific final energy consumption of the efficient vehicle [kWh/100 km]
DT	Average yearly distance travelled with the vehicle [km/a]
n	Number of efficient vehicles purchased [dmnl]
f_{BEH}	Factor for correction of behavioural effects [dmnl]

Source: *streamSAVE, 2021. Standardized saving methodologies Energy, CO2 savings and costs. Deliverable D2.2 - first PA round*

Example: EVs methodology in streamSAVE project

Indicative values proposed by streamSAVE project

Table 24: Indicative values for the specific energy consumption of the reference vehicle

$sFEC_{ref}$	[kWh/100 km]
Car – Petrol (2020)	38.08
Car – Diesel (2020)	35.61
Car – LPG (2020)	41.82
Car – LNG (2020)	41.10
Car – PHEV (2020)	24.80

Table 25: Indicative values for the specific energy consumption of the efficient vehicle

$sFEC_{eff}$	[kWh/100 km]
Car BEV	12.4
Van BEV	24.6
Truck and Bus BEV	130.2

Table 30: Indicative values for the lifetime of savings of electric vehicles

Lifetime of savings	[years]
	10 years

Table 27: Indicative values for the distance travelled

DT	[km/a]
Car	13,740
Van	17,480
Bus	55,570
Truck	77,800

Source: streamSAVE, 2021. Standardized saving methodologies Energy, CO2 savings and costs. Deliverable D2.2 - first PA round

Example: EVs in Portugal

- Indicative Values
  - Outdated data for the specific energy consumption with a reference value too high and a low efficient value
  - The reference value was also based on the existent stock and not on the market
  - The distance travel is expected to be lower than the European average, but the national data is based on an old (and small) study

	National Data		Indicative Values	
n	4,099.00	-	4,099.00	-
sFECRef	63.76	kWh/100 km	36.82	kWh/100 km
sFECEff	16.00	kWh/100 km	12.40	kWh/100 km
DT	9,000.00	km/a	13,740.00	km/a
fbeh	1.00	-	1.00	-

Example: EVs in Portugal

- Calculation results
  - The outdated data (high reference value for the specific energy consumption) led to an overestimation of the savings
  - Such value is only partially mitigated by the lower distance traveled

National Data			Indicative Values	
TFES Article 7	17,619,141.60	kWh/a	13,753,407.49	kWh/a
TFES Article 3	17,619,141.60	kWh/a	13,753,407.49	kWh/a
EPEC Article 3	12,848,237.48	kWh/a	7,266,619.92	kWh/a
GHGsav	5,361.84	tCO2	4,489.82	tCO2

Example: Heat recovery methodology in streamSAVE project

Heat recovery for on-site use in industry - use of excess heat for on-site applications
Calculation of final energy savings

$$TFES = Q_{rec} \cdot \frac{1}{eff_{mhs}} \cdot f_{BEH}$$

TFES	Total final energy savings [kWh/a]
Q_{rec}	Recovered heat consumption of the application [kWh/a]
eff_{mhs}	Conversion efficiency of the main heating system of the relevant application [dmnl]
f_{BEH}	Factor for correction of behavioural effects [dmnl]

Source: streamSAVE, 2021. Standardized saving methodologies Energy, CO2 savings and costs. Deliverable D2.2 - first PA round

Example: Heat recovery in Greece

Exploiting statistics of energy efficiency proposals for the installation of heat recovery systems in industry for developing a deemed method

- Sample: 39 energy efficiency proposals

Statistics	Final energy savings (toe)	Primary energy savings (toe)	Investments (euros)	CO_2 reduction (tn CO_2)
Average	41	51	68.608	145
Median	19	21	30.000	58
Minimum	2	3	2.000	6
Maximum	238	362	560.000	1.434
Standard deviation	56	76	121.979	254

Expected impacts within the CSF

MS (PA)	Article	Examined case - Adapted policy measure	Type of change	Improvement of national EED implementation
AT (BACS)	Article 7	I. Integration into the national catalogue	**Preparation and adaption of the BACS methodology and indicative calculation values for the Austrian catalogue of BU saving methodologies**	**Increase reporting, improve quality in the calculation of energy savings delivered and enhance awareness** of obligated parties on BACS
BE (Electric vehicles)	Article 7	I. Promotion of fuel switch in the federal fleet though the developed BU methodology and II. Promotion of fuel switch of company cars though the developed BU methodology	**Introduction of the energy savings from EVs in the Alternative Measures Scheme**	**Estimated final energy savings**
CZ (Heat recovery)	Articles 3 & 7	I. Application of the developed BU methodology into the OP TAC (Operational Programme Technologies and Applications for Competitiveness)	**Verification of the Ministry's approach, adoption of streamSAVE methodologies, increase quality of the OP TAC funded projects and efficiency of ESIF funds spending and increase successfulness** in achieving National EE Action Plan objectives	**Improve the quality of the targeted scheme, extend the project portfolio supported by OP TAC and increase the quality and comprehensiveness requirements** on energy savings measures in the projects supported by OP TAC
ES (Electric vehicles)	Article 7	I. Application of the developed BU methodology into the Next MOVE (sustainable mobility) aid programme	**Application of the developed concept to the next mobility support programmes**, mainly based on the non-adoption of the scrapping hypothesis	**Estimate primary and final energy savings, improve reporting** on the implemented actions due to a less complicated reporting process, **increase accuracy of the calculations** for the delivered energy savings, **improve awareness of the involved parties** of actions for the promotion of electromobility and expand savings to those vehicles that are scrapped
HR (Heat Recovery)	Articles 3 & 7	I. Integration into the national catalogue	**Add new calculation methodologies to relevant regulation**	**Quantify the delivered energy savings, improve awareness** of the involved parties and **ensure compliance with the technical requirements** of Annex V of the EED

Expected impacts within the CSF

MS (PA)	Article	Examined case - Adapted policy measure	Type of change	Improvement of national EED implementation
GR (Heat Recovery)	Article 7	I. Integration into the national catalogue of the EEOs II. Application of the developed BU methodology into the Recovery and Resilience Fund programme for improving the energy efficiency in industrial sector	**Addition of a specialized equation into the Greek catalogue of the EEO scheme.** **Potential application of the developed equation within the planned RRF programme** for improving the energy efficiency in industrial sector.	**Quantify the delivered energy savings**, **increase the accuracy of the calculations** for the delivered energy savings, **calculate the cost-effectiveness ratio** for facilitating the evaluation of the implemented policies and measures, **improve awareness** of the involved parties and compliance with the technical requirements of EED Annex V
LT (BACS)	Article 7	I. Installation of BACS systems in buildings though the developed BU methodology	**Development of a deemed savings method** and **specification of the required input data**, **determination of the required data collection procedures and recommendations** for complying with the requirements of the additionality criterion	**Estimate energy savings** from the policy measures, which will be applied for the installation of BEMS and BACS measures in buildings
NL (Electric vehicles)	Article 3	I. Application of the developed BU methodology in the SEPP subsidy scheme electric passenger cars II. Application of the developed BU methodology in the SEBA Subsidy Scheme Zero Emission Company Cars III. Application of the developed BU methodology in the National Agenda on charging infrastructure IV. Application of the developed BU methodology in the SEB subsidy scheme for electric non-mobile machinery V. Application of the developed BU methodology in the Fiscal benefits for zero emission vehicles	**Changes in policy measures** in the long-term, **providing calculation methods** for the replacement of soft modes of transport, as well as methods dealing with imports	**Achieve more accurate estimations** of energy savings and CO2-emission reductions in the EV sector

Expected impacts within the CSF

MS (PA)	Article	Examined case - Adapted policy measure	Type of change	Improvement of national EED implementation
PT (Electric vehicles)	Article 7	I. Application of the developed BU methodology in the upcoming programs: I. "Maintain and promote incentives for the purchase of 100% electric light vehicles, as well as the existing framework of tax incentives" II. "Promote electric vehicles for urban micro-logistics" III. "Promote the introduction and use of low emission vehicles and sustainable mobility in the state"	**Alignment of the existing methodology** with the methodology developed in streamSAVE, in particular **regarding the baseline and adoption of streamSAVE methodology and indicative values** for the new measures which are advocated in the NECP	**Estimate energy savings** for the new energy efficiency measures, **improve reporting quality**, **raise awareness of the involved parties**, **assess the already implemented measures** and **adoption of streamSAVE methodologies for the measures which are advocated in the NECP**
SI (BACS)	Article 7	I. Integration into the national catalogue	**Preparation and adaption of the BACS methodology and indicative calculation values for the Slovenian catalogue of BU saving methodologies**	**Adjust and modify the new methodology** to be used in the national catalogue, **streamline the reporting process** considering the guidelines for monitoring and reporting on the implementation of the NECP, **improve awareness** of obligated parties on BACS and **support the national Statistical Office** with the development of the monitoring methodology

Lessons learnt by CSF

BACS

- Difficulties in applying the developed BACS methodology to the national circumstances for the case of non-residential buildings due to the lack of non-standardized values for the case of the total floor area and the final energy demand of the buildings.
- Lack of standardized and robust data interchange procedure, while the existing data sources are not easily accessible.
- Focus on the development of specialized data collection procedures to collect national reference values for the implementation of the developed methodology.

Electric vehicles

- Compare the resulted savings based on the streamSAVE calculations with the national ones to increase the reliability and accuracy of both applied savings methodologies.
- Focus on the compliance with the additionality criterion and the promotion of soft modes of transport.
- Examine potential discrepancies of the actual lifetime of vehicles with the theoretical ones as specified in the respective legislative documents.

Lessons learnt by CSF

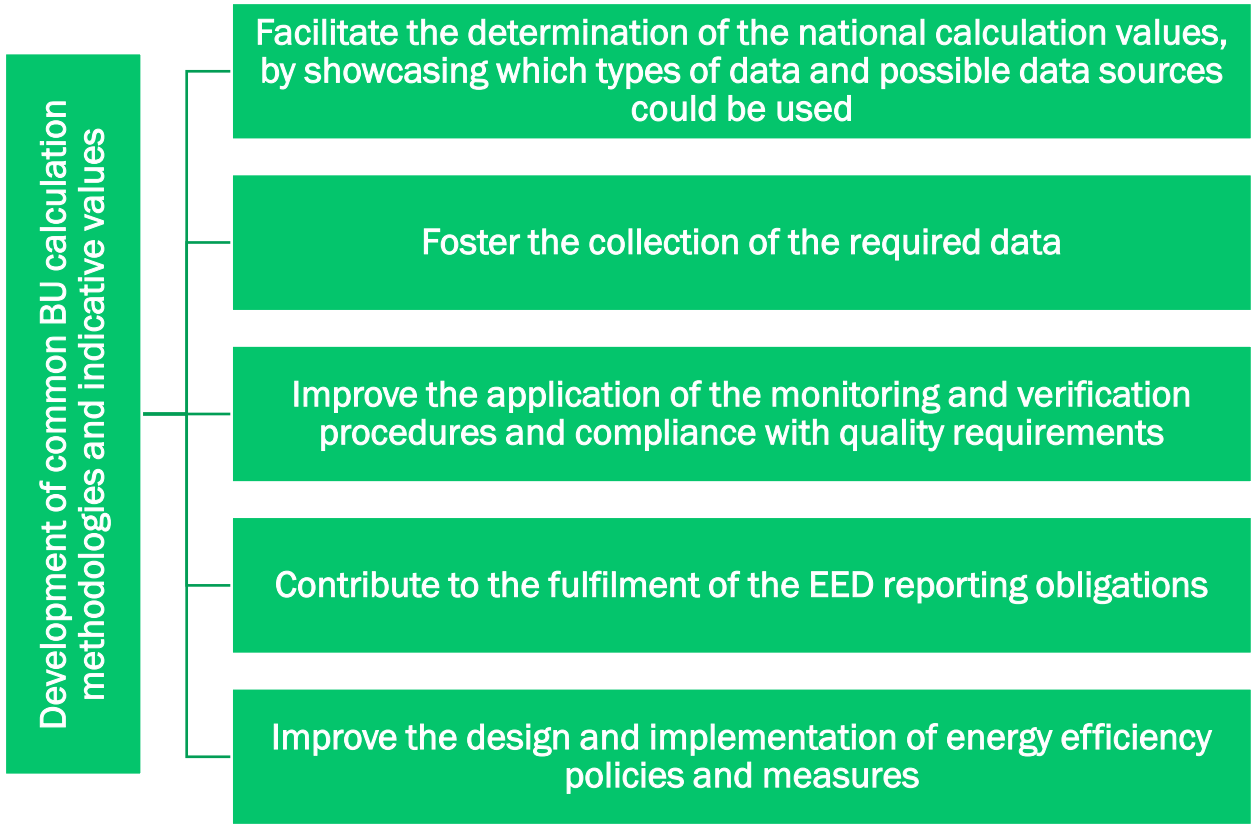
Heat recovery

- Apply metered method for energy efficiency interventions in the industrial sector.
- Higher preference on deemed method compared to the metered method in order to minimize the administrative costs and facilitate the calculation of the energy savings.
- Focus on the required control and verification procedures and on the specifications of the metering systems for the case of metered method.

Horizontal issues

- Emphasis on the cost-effectiveness of the various policies and measures so as to facilitate their comparative analysis and the promotion of the most efficient and beneficial.
- Improvement of the cooperation and communication of the different bodies, which are responsible for monitoring the implemented energy efficiency measures in different units facilitating the effective coordination of the required monitoring, verification and reporting procedures.
- Provision of technical support to responsible authorities for the quantification of the achieved energy savings to tackle the lack of personnel, the increased technical requirements of the EED, the inability to ensure continuity due to the rapid changes, the appointment of additional duties and the lack of legal commitment.

Conclusions



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Thank you

Get in touch for more information!

Project coordinator - Nele Renders, VITO

All project reports will be available for download on the streamSAVE website www.streamsave.eu

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