LUXEMBOURG

Table of Contents

Background

National context, strategy, key measures and results in 2021

- **General strategy:** Alternative measures + EEOS. Estimates for energy savings from alternative measures are available but will be confirmed in the next reports to the European Commission.
- **Baseline annual Final Energy Consumption**[1] (averaged over 2016-2018): **4,190** ktoe/year (source: NECP update).
- **Cumulative energy savings target for 2021-2030: 2,656 ktoe** .[2]
- **Achieved new annual savings in 2021** (all measures) **= 20 ktoe/year** (source: NECPR 2023)

% of new annual savings vs. baseline energy consumption = 0.48%	slow start: Luxembourg is notifying additional alternative policy measures in its NECP update so this number will be updated.

- **Distribution of annual savings achieved in 2021**

The energy savings achieved in 2021 (and reportedin the NECPR2023) were **all from the EEOS (cross-cutting measure)**.
In the period 2014-2020, Luxembourg also relied on a single instrument, the EEOS, to meet its requirement under the EED energy savings obligation. According to the NECP update, Luxembourg plans to report savings from more policy measures, including a CO_2 tax, in the period 2021-2030. The final NECP update includes an assessment of expected savings. But no new measure was reported yet in the NECPR2023.

- **Top policy measures**

Name of the measure	Sector	Policy type	% savings in 2021
Energy efficiency obligation scheme	Cross cutting	EEOS	100 %
Luxembourg plans to report savings from more policy measures, including a CO2 tax.	Cross cutting	Alternative measures	To be defined

[1] For more details about trends in energy consumption and energy efficiency, see the country profiles by ODYSSEE-MURE: https://www.odyssee-mure.eu/publications/efficiency-trends-policies-profiles
[2] The NECP update incorrectly calculated the target as 3,658 ktoe. This will be adjusted in an upcoming report by the Ministry of Economy with the correct figure.

Co-funded by the European Union under project n°101076098. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or CINEA. Neither the European Union nor the granting authority can be held responsible for them.

Key points, changes vs. 2014-2020 and other recent developments

In 2014-2020, Luxembourg reported one single measure, the EEOS, under the energy savings obligation in the EED. This measure is maintained and is bringing similar levels of energy savings in 2021 than in the last years of the 2014-2020 obligation. Several other energy efficiency policy measures were in place in the previous period, and more measures have been implemented since then. Luxembourg intends to report energy savings from these alternative measures in the future, including a tax.

Focus on energy poverty

- **Energy poverty in the country**: 1.9 % of households in 2023 (3.3 % in 2022) were in energy poverty situation, according to national indicators called TEE&BRDE, which combines two indicators: "Taux d'effort énergétique" and "Bas Revenus - Dépenses élevées" (source: final NECP update).
- **Energy poverty target (Article 8(3) EED)**: A target is not mentioned in the final NECP update (source: final NECP update). Luxembourg has a variety of measures in place which are dedicated to energy poverty or are more general and cover also energy poverty ; there is no energy poverty focus in the EEOS due to data protection reasons; the identification of vulnerable households is made at and known to official entities only (ministries, social welfare offices), not at the level of obligated parties.
- **Art.8 policy measures targeting energy poverty:**

Name of the measure	Policy type	% savings in 2021
Housing individual support scheme "Klimabonus Wunnen" (measure 307)	Financial instrument	0%
Pre-financing under the Klimabonus Wunnen scheme (measure 309)	Financial instrument	0%
Climate loan scheme (measure 310)	Financial instrument	0%
Individual housing aid scheme : social top-up on "Klimabonus Wunnen" aids (measure 311)	Financial instrument	0%
Construction support scheme (measure 312)	Financial instrument	0%
Building awareness, information, guides and advisory services (measure 317)	Training, education and information	0%
Pilot project "district renovation" (City of Differdange) (measure 328)	Support and coaching in combination with financial instruments	0%
Energy poor households support (measure 329)	Training, education	0%

	and information Financial instrument	
Promotion of public transport : free public transport at a national level since March 2020 (measure 405)	Financial instrument	0%
Social motor vehicle leasing (BEVs) (measure 422)	Financial instrument	0%
Aid scheme for zero CO_2 emission vehicles (measure 423)	Financial instrument	0%

Source: final NECP update, personal communication with ministry for economy

No energy savings were reported yet for these measures, so it is not possible to know what share of these savings were used to alleviate energy poverty. A clear distinction of savings related to energy poverty is difficult, as many measures are general, not dedicated exclusively to vulnerable households.

EEOS - Energy Efficiency Obligation Scheme (EEOS)

(description focused on the EEOS as of the 2021 revision, for the period 2021-2030)

History

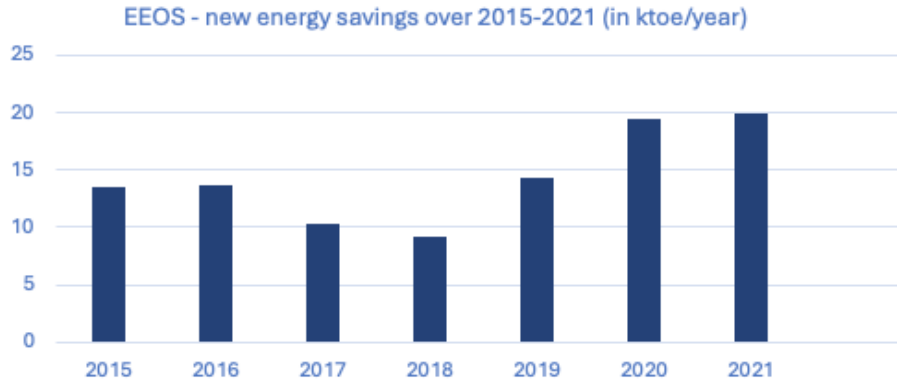
Starting year: 2015

Latest revision: 2021

Cumulative energy savings reported to Art.7 EED for 2014-2020: 267 ktoe (i.e. 100% of reported savings)

Current target: 13,750 GWh (2021-2030)

Expected contribution to 2021-2030 obligation for Art. 8 EED: 45%



Key actors and roles

Public authorities: The Ministry for the Economy has the responsibility of the scheme, including its administration and management. The Energy Regulator applies sanctions after decisions by the Ministry. The agency Klima-Agence provides technical support.

Obligated parties: electricity (12) and gas (6) suppliers as of February 2025.

Other key stakeholders: Third parties subcontracted by the obligated parties can generate energy savings.

Target setting and allocation

Size: The overall target is set in legislation.

Metric: The overall target is set in cumulative final energy savings by 2030, and the targets for obligated parties are expressed as new annual final energy savings.

Period: Annual

Scope: Set by legislation

Allocation rules: The global target is distributed among the obligated parties based on energy sales of electricity and natural gas.

Sub-target related to energy poverty: no.

Eligible actions

Eligible sectors: Energy savings can be reported across all sectors and fuels.

Eligibility criteria: A number of eligibility exclusions apply for non-standardised actions, including for example: no savings related to electric resistive heating, or no actions with a lifetime of less than a year.

Possibility to cumulate EEOS with incentives from other schemes: yes.
Standardised actions or methods: 40 deemed savings methods as of 2024 (Source: table in Règlement ministériel du 11 juillet 2023)
Non-standardised actions: Calculation rules are provided in legislation.

Incentives (including about tackling energy poverty) and restrictions

Uplifts / bonus related to energy poverty or priority group(s): no
Other uplifts / bonus / downgrades: no
Caps / maximum limits: no

Flexibilities

Trading: bilateral

Banking and borrowing: both allowed.
Borrowing capped at 20%, savings to be achieved over the following 2 years. Banking allowed for one or more of the 2 following years.

Buyout price / substitution fee: yes.
Buyout price established annually by the ministry considering the costs of meeting the obligation reported by obligated parties in the previous year. For 2024, the price was set at 15,34€/MWh, based on costs in 2023. Buyout is capped at 1,500 MWh per obligated party, but it can cover up to 100% of its obligation. The buyout price is communicated to the obligated parties at the beginning of the year N; the request to buyout all or parts of their obligation is due latest in March of the following year (N+1), together with the reporting of savings and costs for year N. Funds from buy-outs are attributed to the Luxembourg's Climate and Energy Fund.

Evaluation, Monitoring & Verification

Materiality requirements: Energy savings are only eligible if the obligated party provides evidence of its "active and incentivising" role in implementing the action. This is established if there is a direct contribution, regardless of its nature, that enables the action to be implemented.

Additionality requirements: Rules are in place to ensure that ecodesign regulations and other European and national minimum requirements or standards are included in the baseline for energy savings calculations.

Calculation methods: Deemed and scaled savings are allowed.

Reporting and validation: Obligated parties must report on their actions annually. They should keep a registry with more detailed information for 10 years. The ministry performs control and verifications.

Online platform to report actions: no

Automatized checks: yes, on the EXCEL template

Progress monitoring: Target achievement is checked every year.

Other verifications and controls: Controls and verifications are done at two stages. The first verification is operated by the public authority in charge on basis of the annual notification Excel tables submitted by the obligated parties, where all measures are checked regarding the

plausibility of their main characteristics and values. The second, in depth control, is operated by an external expert on a statistically significant number of randomly selected measures.

Data on verification and controls: Out of the controls performed on measures notified for 2024, the public authority performed a first verification of all notified actions, and did not identify issues related to non-compliance. A more in-depth control was operated by the external expert on 30 actions (10 specific and 20 standardized). Only one action was found non-compliant.

Evaluation(s) of the scheme: The ministry evaluates the costs of the scheme on a yearly basis, based on costs and savings information provided by obligated parties. Costs are confirmed by independent auditors. When costs vary from one year to another, the ministry investigates by asking for explanations. Reports are not published because they contain confidential data.

Penalties

For missing target: Buyout price + 25%, capped at 100 €/MW

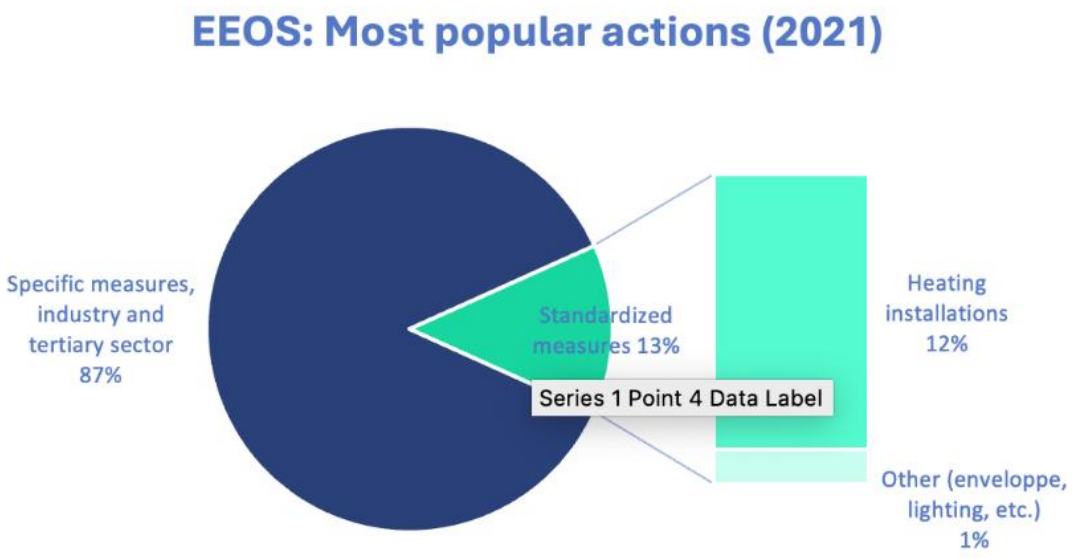
Full discharge: yes

Other penalties or sanctions: no further sanction.

Data on penalties or sanctions: In the last two years, buy-outs and sanctions levels reached close to 50,000 EUR. Information about penalties is published by the regulatory authority (Institut Luxembourgeois de Régulation).

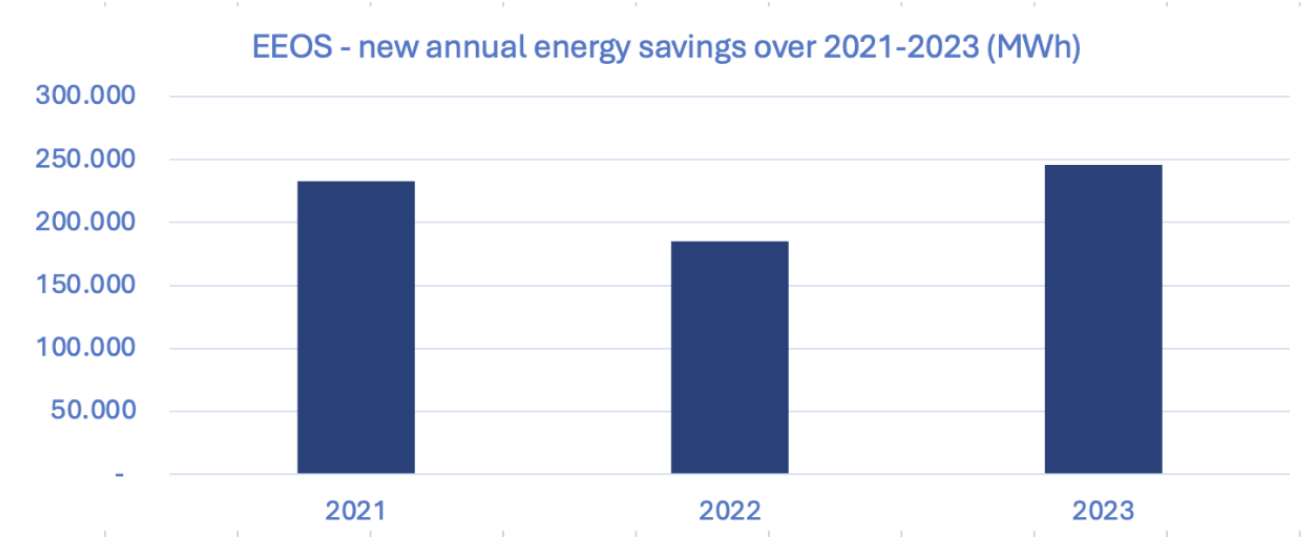
Key results

Most popular actions



Source: Personal communication with the ministry for the economy

Energy savings achieved (MWh)



Source: Personal communication with the ministry for the economy

Savings lifetime: The most frequently used standard measures and lifetimes are: boilers (20 years, excepting heat pumps 15 years); envelope 40 years; household appliances 10 years; lighting (residential sector) 13 years; electric motors 10 years. For specific measures, mostly implemented industry or tertiary sector, the lifetime is very variable and depends on the technical lifetime of installations or products. Behavioural or optimisation measures imply a lifetime of 1 year.

Cost effectiveness

Costs incurred by obligated parties are estimated to amount to 7.7 million euros per year on average in 2021-2023. Administration costs incurred by the public authorities are negligible in Luxembourg (less than 10% of a full time equivalent). The cost-effectiveness ratio of the scheme is equivalent to the buy-out price, which represents the total costs per MWh of savings in the previous year. The buy-out price varied between 15 and 27 €/MWh in 2021-2023. Due to the small number of obligated parties, buy-out prices may vary from year to year based on specific efforts undertaken by the major obligated parties in one year.

Sources

https://www.ilr.lu/secteurs-activites/energie/electricite/fourniture-gestionnaires-reseau/fourniture/obligation-economie-energie-eeo/
https://www.klima-agence.lu/en/business/reducing-consumption/information-and-tools/obligation-scheme

Interview with Pascal WORRÉ, Director of energy efficiency at the Ministry for Economy

About the general approach to Article 8 of the EED

What is the general approach of Luxembourg to delivering the higher energy savings obligation for 2024-2030?
Luxembourg applies different approaches in different sectors. In the public sector, obligations are set. The private sector benefits from subsidies and from the EEOS. This financial support helps companies prepare for obligations such as minimum energy performance standards for commercial buildings. A voluntary agreement is also in place in the industrial sector. In the private housing sector, energy efficiency policy focuses on subsidies, at national and municipal levels. Several other measures are also in place to ease the customer journey, such as information measures, free advice, etc.

What is the approach of Luxembourg to deliver energy savings among target groups, and especially for priority groups (cf. Article 8(3) EED)
Luxembourg has put in place numerous policy measures to deal with energy poverty, recognizing that climate change and pollution from fossil fuels affect low-income households disproportionately. These measures include social policy and will be reinforced with in our upcoming social climate plan. Energy efficiency subsidy schemes are also designed specifically to allow the participation of vulnerable and low-income households. For example, Klimabonus has a “social top up” that allows for financing up to 100% of the technology costs.

The new Energy Efficiency Directive includes provisions in its Annex V to progressively exclude energy savings from new fossil fuel technologies (for achieving the Article 8 target). Will these new provisions have implications on the policy measures reported by Luxembourg?
Our EEOS has been supporting the installation of efficient, condensing gas boiler. This will stop now. This evolution is fully in line with our overall decarbonisation strategy, which requires additional efforts on the electrification of heating.

What would be the main points you would like to highlight about implementation and achievements in recent years?
It was particularly useful to involve energy companies, as obligated parties under the EEOS, into the design of calculation methodologies for energy savings. In some cases, the methods developed by the obligated parties could evolve into standardised measures. Obligated parties also had the expertise to develop a number of specific measures, including in the transport sector. Another lesson learnt is the importance of focusing on the consumer journey. Even with a sizeable subsidy, there are many barriers preventing the take up of energy efficiency solutions. These barriers exist among households, but also in industry, where energy efficiency projects might compete against other investments. Having obligated parties’ staff involved in making the projects happen has been very important in ensuring that customer journeys are completed.

What would be the main challenges you see for the coming years?

The main challenge in the coming years will be the evolution of the gas to electricity price ratio. Electrification is a key part of Luxembourg's decarbonisation strategy, and it is crucial that moving to climate-friendly appliances or processes makes financial sense in the future.

If you could go back in time, what would you do differently?

A key priority of our policies is to improve the customer journey and therefore ensure that subsidies really make it to the beneficiaries. In this context, we are also looking into prefinancing options for our subsidy schemes, starting with solar panels in 2025. Indeed, many households do not have the possibility to pay for the works upfront and wait several months to receive the subsidy.

About the Energy Efficiency Obligation Scheme

Have there been changes in the energy efficiency obligation scheme in recent years? (if so, what would be the main ones?)

In the past years, the EEOS legislation was amended to create a second period running from 2021 to 2030. We also created the possibility for obligated parties to "buy-out" all or parts of their obligation. This is limited to 1500 MWh/year. For small obligated parties this may represent the entirety of their obligation, whereas larger obligated parties would need to also generate energy savings. The buy-out price is calculated yearly based on the costs incurred by all obligated parties in the preceding year. Keeping a level playing field between obligated parties that use the buy-out option and the ones that don't is crucial for the acceptance of this mechanism. This design feature was inspired by the Irish EEOS. We also introduced meaningful penalties into the scheme, equal to the buy-out price plus 25%. The funding from buyouts and penalties benefits energy efficiency projects through the Climate and Energy fund. The introduction of a dissuasive penalty helped a lot with compliance.

Did you see an impact of the energy prices crisis on Luxembourg? (e.g. in terms of budget, participation, ...)

We saw a surge in participation, particularly with heat pumps and solar panels installations. These measures benefit from significant subsidies on top of the EEOS and were promoted through various information campaigns. There was a similar trend in the industrial sector.

What could be bottlenecks or drivers that could hinder or support the achievement of higher results?

In the industrial sector, a number of large projects are currently on hold due to broader economic uncertainty. These trends will affect the roll out of energy efficient, electrified processes in industry. This is particularly relevant as many of the savings from the EEOS take place in the industrial sector. In the residential sector, a lot relies on the attractiveness of heat pumps for households. The debate about the heating law in Germany had an impact in Luxembourg, where larger parts of the population follow the news in Germany. As mentioned earlier the evolution of the price of electricity against the price of gas is crucial when it comes to making heat pumps

a more attractive financial solution in the context of the energy transition.

Are there specific provisions to ensure the quality of the actions implemented?

Several requirements affect the eligibility of standardised measures, helping with the quality of actions. For several of these standardised actions, households also apply for a subsidy - the Klimabonus. The subsidy scheme involves an advisor, who comes on-site to provide direct advice. We also put in place training schemes for professionals to guarantee a good level of competence and resources in the market.

If you could go back in time, what would you do differently?

We had a relatively slow start with the energy efficiency obligation scheme. One reason was that the penalties in place were not dissuasive in the first phase. This is definitely something we would do differently, if we could go back in time.