



Support to the renovation wave - energy efficiency pathways and energy saving obligation in Estonia

Deliverable 5: Detailed concept of the energy efficiency flagship policy, including a monitoring and verification approach

(REFORM/SC2022/067)



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(REFORM/SC2022/067)

Presented by

Trinomics B.V.

Westersingel 34

3014 GS Rotterdam

The Netherlands

Contact person

Mr. Frank Gérard

T: +32 496 38 92 78

E: frank.gerard@trinomics.eu

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1 Introduction

This deliverable further conceptualises and describes in detail the flagship policy for achieving Estonia's energy efficiency obligation under the agreed optimal scenario identified under deliverable 3 and 4:

- a voluntary agreements scheme, which should be implemented by the Ministry of Economic Affairs;
- a Minimum Energy Performance Standard, which should be implemented by the Ministry of Climate, Building department.

2 Best practices

2.1 Voluntary agreement

Voluntary agreements (VAs) are defined by the International Energy Agency (IEA) as government-industry contracts with negotiated targets and commitments. Unlike traditional policies, VAs are tailored to specific contexts. They involve public authorities and firms agreeing on energy efficiency goals. Voluntary agreements are collaborative agreements between governments and industries where individual firms or groups negotiate and commit to specific targets and timelines for enhancing energy efficiency. These agreements often incorporate enforceability measures, defining rewards and penalties for compliance. VAs vary in form, legality, and participants.

In Europe, VAs gained traction in the early 1990s. France initiated the first VA, followed by Germany, Austria, Belgium (Wallonia & Flanders), and the Netherlands.

Designing VAs entails defining sectors, targets, schedules, and coverage levels. Implementation and target-based approaches are options. Distribution methods, energy management, and networking can support VAs. Enforcement may involve rewards or penalties, as explained in sectoral sections below. To generate interest in the scheme, a compelling financial incentive is essential. Currently, securing investment grants for energy efficiency often entails submitting applications and sometimes undergoing audits as prerequisites. Similarly, to encourage industries to participate in the voluntary agreement program, an additional requirement linking energy efficiency grants and the agreement can be introduced. This would obligate enterprises to meticulously monitor their energy consumption and make broader strides in improving energy efficiency.

Alternatively, the voluntary agreement scheme can be complementary to existing energy efficiency grants. In such a scenario, substantial financial incentives would be necessary, as energy efficiency investments could still receive support independent of participation in the scheme. Without these substantial incentives, the successful implementation of the scheme may remain uncertain.

The voluntary nature of this measure is a significant advantage, as it demonstrates the industry's willingness to achieve the set targets. Moreover, the administrative costs associated with this approach are relatively low to medium, as the monitoring process is conducted collaboratively with participants. The availability of various best practices and extensive experience within the EU further supports the potential smooth implementation of the scheme. Embraced by the private sector, voluntary agreements are often preferred over taxes and obligations, contributing to a positive perception of the initiative. Importantly, these agreements foster increased dialogue between the public and private sectors, enhancing cooperation. Enterprises benefit from advertising their participation in the scheme, which not only promotes a positive image but also generates greater interest and engagement.

The effective execution of voluntary agreements may face challenges stemming from inadequate communication between the public and private sectors. Enterprises that have already made substantial investments in energy efficiency may encounter difficulties in participating, given that achieving

further savings can be more challenging compared to industries with less established energy efficiency efforts. To stimulate interest among enterprises, a compelling additional incentive is necessary, particularly considering that businesses can presently apply for energy efficiency grants independently of the agreement scheme. Initiating the agreement scheme requires the involvement of a cooperative group of willing enterprises, signifying that the initial stages of implementation can be demanding.

2.1.1 Branch Agreements in Wallonia (Belgium)

Branch Agreements are voluntary agreements (VA) that were introduced in Wallonia (Belgium) in 2003. These agreements consist of the voluntary establishment of a contract between Walloon authorities and the industry, represented by the most energy-intensive companies via their sector associations.¹ Through this contract companies commit to improving their energy efficiency and reducing their CO₂ emissions within a given time schedule.

The first branch agreements were ended in 2013.² More than 170 companies in 16 sectors participated, which represented more than 90% of the region's industry energy consumption. These agreements allowed to achieve an improvement of 16.5% of the region's industry energy efficiency and a reduction of 19.3% of its industry CO₂ emissions. Given the positive results, branch agreements were reconducted for a second period covering the period from 2014 to 2020. The general principle remained the same (i.e. improving the energy efficiency of industries and reducing their CO₂ emissions) but the approach has been enriched with refined methodological tools and new commitments. The new formula opens up to the possibility of using renewable energy sources on industrial sites. It also allows companies to use energy/CO₂ analysis of the life cycle of their flagship product or to carry out a carbon assessment on their site.

2.1.2 Energy Efficiency Agreements in Finland

Finland has implemented its first VA in 1992. Since then, VA have been the primary tool in Finland's energy efficiency policy.³ The current VA scheme is called Energy Efficiency Agreements and was introduced in 2008. The purpose of these agreements is to improve energy efficiency in various sectors of the economy (industry, energy sector, service sector, property and building sector, municipalities and oil-heated real estates).⁴ The targets of the Energy Efficiency Agreements are set jointly by the government and industrial/municipal associations and specific for each sector. Targets can be achieved by the implementation of energy efficiency actions. Each sector and subsector elaborates a specific action plan containing specific actions and targets. The government supports companies in reaching these targets by granting energy subsidies supporting the implementation of new energy-efficient technologies, energy audits and conventional energy efficiency investments of participants. Participants must report annually on their energy efficiency improvement measures. If participants repeatedly fail to achieve targets, they may be dismissed from the agreement.⁵ As a consequence, the government may require dismissed participants to recover the subsidies granted. However, there are no other legal consequences for failing to meet the obligations.

The first period of Energy Efficiency Agreements covered 2008 to 2016. It has achieved significant results. A total of 667 companies and 132 communities and joint municipalities participated and

¹ [Les accords de branche 2014-2020-2023 - Site énergie du Service public de Wallonie](#)

² [Les accords de branche 2014-2020-2023 - Site énergie du Service public de Wallonie](#)

³ [Energy Efficiency Agreements - Motiva](#)

⁴ [Energy Efficiency Agreements - Energiätehokkuussopimukset 2017-2025 \(energiätehokkuussopimukset2017-2025.fi\)](#)

⁵ [Energy-Efficiency-Agreement-for-Industries-2017-2025.pdf \(energiätehokkuussopimukset2017-2025.fi\)](#)

implemented over 21,000 energy efficiency measures over the period. It resulted in a decrease of Finland's annual energy consumption by almost 16 TWh at the end of 2016.⁶ In addition, it allowed to save more than 560 million EUR/year in energy costs.

The current period of Energy Efficiency Agreements covers 2017 to 2025. More than 170 companies and 120 municipalities and joint municipalities have committed to achieving energy savings set by these agreements.⁷

2.1.3 History and prospect of voluntary agreements on industrial energy efficiency in Europe (Tractebel, 2019)

The paper „History and prospect of voluntary agreements on industrial energy efficiency in Europe“ (Tractebel, 2019) provides numerous other applications of such scheme across Europe, as depicted by Table 2-1.

Table 2-1 - characteristics of the European Voluntary Agreements on industrial Energy Efficiency

Country (1)	Voluntary agreement	Operational In	Coverage	Structure	Concept	Approach	Commitment determining method	Supporting actions	
								Energy Mgt. Sch.	Network
NL	Long Term Agreements 1	1991-1998	Industry, services	2 levels	Negotiated	Target	Energy audits		
	Long Term Agreements 2 (2)	2000-2012	Non-ETS industry, services	2 levels	Negotiated	Target	Energy audits		
	Benchmarking Covenant (2)	2000-2012	ETS industry	2 levels	Negotiated	Target	Sector benchmarks		
	Long Term Agreements 3	2008-2020	Non-ETS, services, transport + supply chain	2 levels	Negotiated	Target	Energy audits Roadmaps	X	
	Long Term Agreement – ETS	2009-2020	ETS industry + supply chain	2 levels	Negotiated	Target	Energy audits Roadmaps	X	
FI	Energy Audit Programme	1992-1997	Industry, services, energy sector	2 levels	Public vol.	Implem.	Energy audits		
	Energy Conservation Agreement	1997-2007	Industry, services, energy sector	2 levels	Negotiated	Implem.	Energy audits		
	Energy Efficiency Agreements (3)	2008-2016	Industry, services, energy sector	2 levels	Negotiated	Target	Energy audits	X (3)	
	Energy Efficiency Agreements (3)	2017-2025	Industry, services, energy sector	2 levels	Negotiated	Target	Energy audits	X (3)	
DE	EWK I (4)	1995-1999	Industry, power production	2 levels	Unilateral	Target	(Not specified)		
	EWK II (4)	2000-2012	Industry, power production	2 levels	Negotiated	Target	(Not specified)		
FR	AERES 1 (5)	1995-2002	Energy intensive industry	1 level	Unilateral	Target	(Not specified)		
	AERES 2 (5)	2002-2007	Energy intensive industry	1 level	Unilateral	Target	(Not specified)		
DK	Agreement on Industrial Energy Efficiency	1993-1996	Energy intensive industry	1 level	Public vol.	Implem.	(Not specified)	X	
	Revised agreement	1996-2013	Energy intensive industry (6)	1 level	Negotiated	Implem.	Energy audits	X	
	Revised agreement	2015-	Energy intensive industry	1 level	Negotiated	Implem.	Energy audits	X	
IE	Large Industry Energy Network	1996-	Energy intensive industry	1 level	Public vol.	Implem.	Energy audits	X	X
	Energy Agreements Programme	2006-	Energy intensive industry	1 level	Public vol.	Implem.	Energy audits	X	X
LU	Voluntary Agreements 1	1996-2000	Industry, services	1 level	Negotiated	Implem.	Energy audits		
	Voluntary Agreements 2	2000-2010	Industry, services	1 level	Negotiated	Implem.	Energy audits	X	
	Voluntary Agreements 3	2011-2016	Industry, services	1 level	Negotiated	Implem.	Energy audits	X	
	Voluntary Agreements 4	2017-2020	Industry, services	1 level	Negotiated	Implem.	Energy audits	X	X
UK	Climate Change Agreements 1 (7)	2001-2011	Industry, services, agriculture	2 levels	Negotiated	Target	(Not specified)		
	Climate Change Agreements 2	2013-2023	Industry, services, agriculture	2 levels	Negotiated	Target	(Not specified)		
CH	Emission Reduction Target Agreements	2002-	Industry	1 level	Negotiated	Large: Target SME: Implem.	Large: energy audits SME: benchmarks	X	X
BE-VLA	Benchmarking Covenant	2002-2014	ETS industry	1 level	Negotiated	Target	Sector benchmarks		
	Auditing Covenant	2005-2014	Non-ETS industry	1 level	Negotiated	Implem.	Energy audits		
	Energy Governance Agreement - ETS	2014-2020	ETS industry	1 level	Negotiated	Implem.	Energy audits	X	
	Energy Governance Agreem. – non-ETS	2014-2020	Non-ETS industry	1 level	Negotiated	Implem.	Energy audits	X	
BE-WAL	Branch Agreements 1	2003-2012	Industry	2 levels	Negotiated	Implem.	Energy audits		
	Branch Agreements 2	2014-2020	Industry	2 levels	Negotiated	Implem.	Energy audits Roadmaps		
NO	Programme for Energy Intensification	2004-2014	Energy intensive industry	1 level	Negotiated	Implem.	Energy audits	X	
SE	Programme for Energy Intensification	2005-2013	Energy intensive industry	1 level	Negotiated	Implem.	Energy audits	X	
LV	Agreements on Energy Efficiency	2011-2016	Industry	1 level	Negotiated	Implem.	Energy audits		
MT	Energy Efficiency Partnership Initiative	2016-2018	Industry	1 level	Negotiated	Implem.	Energy audits		
SK	Energy Savings Agreement	2016-	Industry	1 level					

Source: Tractebel, 2019

2.2 Minimum Energy Performance Standards (MEPS)

2.2.1 General introduction

Minimum Energy Performance Standards (MEPS) are primarily applied in the building sector, though they can extend to other sectors like transport and electrical appliances. Within the building sector,

⁶ [Energy Efficiency Agreements - Motiva](#)

⁷ [Energiatähokkuussopimukset 2017-2025 \(energiatähokkuussopimukset2017-2025.fi\)](#)

MEPS focus on building owners, while in other sectors, such as transportation, they might apply to producers like car manufacturers, mandating them to meet minimum fuel efficiency levels. On the other hand, industry binding targets are tailored specifically for industrial actors to ensure their adherence to set energy efficiency goals.

Minimum Energy Performance Standards (MEPS) are defined by the United Nations as a ‘specification containing a number of performance requirements for an energy-using device, and that effectively limits the maximum amount of energy that may be consumed by a product in performing a specified task.’⁸ Globally, MEPS have already been introduced in various countries, for different sectors or applications that consume energy, usually to achieve certain safety, environmental or energy efficiency objectives.

As part of its Renovation Wave strategy, the European Commission proposes to introduce MEPS in the building sector to improve energy efficiency and increase renovation rates.⁹ In 2021, the European Commission published its proposal for the revision of Directive 2010/31/EU on Energy Performance of Buildings (EPBD proposal) in which it introduces MEPS for the building sector and defines them as ‘**rules that require existing buildings to meet an energy performance requirement** as part of a wide renovation plan for a building stock or at a trigger point on the market (sale or rent), in a period of time or by a specific date, thereby triggering renovation of existing buildings.’¹⁰

Article 9 of the EPBD recast proposal lays down the provisions for meeting MEPS in the building sector. It requires Member States to ensure that certain categories of buildings reach a specified energy performance class within a defined time period, and to support the compliance with MEPS, in accordance with Article 15 by implementing measures such as the provision of financial support and technical assistance, the design of financing schemes, the removal of non-economic barriers (e.g. split incentives) and the monitoring of social impacts.¹¹

At the time of writing, the Energy Performance of Buildings Directive is pending finalization (to happen in early December 2023), and therefore the implementation details for MEPS have not been established. Both the European Parliament and the Council of the European Union have adopted their respective positions and are currently engaged in inter-institutional negotiations.

Advantages and drawbacks of MEPS

MEPS offers various advantages including drawing clear lines for decision-making in multi-owner buildings, fostering investment in energy efficiency, reflecting energy performance in the value of a building, increasing the awareness of the benefits of renovation, etc.^{12,13} However, the EPBD proposal also lists a number of negative impacts associated with the introduction of MEPS in the building sector, which should be carefully considered when designing them. For example, landlords might be tempted to pass renovation costs to tenants, or the further reduction in prices of worst-performing buildings.¹⁴

Impacts

Administering MEPS can be administratively burdensome (this is developed under chapter 4). MEPS implementation requires guidance, financing support, as well as monitoring and verification measures.

⁸ [minimum energy performance standards \(unescwa.org\)](https://www.unescwa.org/)

⁹ [Renovation Wave Communication \(europa.eu\)](https://ec.europa.eu/energy/renovation-wave-communication/)

¹⁰ [resource.html \(europa.eu\)](https://ec.europa.eu/energy/renovation-wave-communication/); https://www.europarl.europa.eu/doceo/document/TA-9-2023-0068_EN.pdf

¹¹ *Ibid.*

¹² [Renovation Wave Communication \(europa.eu\)](https://ec.europa.eu/energy/renovation-wave-communication/)

¹³ [ge-05-22-310-en-n.pdf \(europa.eu\)](https://ec.europa.eu/energy/renovation-wave-communication/)

¹⁴ [resource.html \(europa.eu\)](https://ec.europa.eu/energy/renovation-wave-communication/)

Of importance is the consideration of implementing *both* MEPS and Energy Efficiency Obligation Scheme (EEOS). In certain cases, an energy efficiency obligation scheme for buildings can work well alongside minimum energy performance standards. However, in countries with limited capacity to establish new administration and capacity, the administrative workload can become too burdensome.

Without effective support mechanisms accompanying MEPS requirements, there's a potential for increased energy poverty and general poverty risks. However, in the long run, enhancing energy efficiency in housing can mitigate risks associated with volatile energy prices and enhance overall living conditions. It's essential to consider social and low-income housing to prevent adverse effects on these groups. Estonia should clarify the categorization of social housing and ensure targeted financing is available to address these concerns.

2.2.2 Practice in France

As part of its Long-Term Renovation Strategy (LTRS)¹⁵, France has introduced a progressive set of measures and obligations for the renovation of poorly performing buildings (called 'passoires thermiques', with a MEPS equal to energy performance classes F or G). These measures are laid down in the Law on Energy and Climate adopted in 2019.¹⁶ As of 2021, rent increases will no longer be possible for poorly performing buildings (buildings below the MEPS) and landlords will only be able to ask a financial participation from tenants if the renovation works allow to reach MEPS. As of 2023, buildings for which the final energy consumption exceeds a certain threshold can no longer be rented. All poorly performing buildings will have to be renovated by 2028 and reach at least the energy performance class E. Sanction for the non-renovation of these buildings will be defined by the government in 2023.

MaPrimeRénov: French grants for energy efficiency measures to meet certain standards¹⁷

Since 2019, the tax credit has been phased out and replaced by a grants system known as MaPrimeRénov, also referred to as prime à la transition énergétique. Notably, the grant is now disbursed at the completion of the works, and interim progress payments are also possible. However, the process is somewhat intricate due to the coexistence of two parallel systems: Ma Prime Rénov' Sérénité, designed for those with lower incomes and landlords, and supplementary grants available through energy suppliers, primarily EDF, under the Certificats d'économies d'énergie (CEE) scheme. These additional grants, accessible to all, can amount to significant sums and require contacting the energy supplier, ensuring adherence to specified performance standards during installation.

The MaPrimeRénov grant is accessible to homeowners, landlords, and co-ownership properties, but its availability, amount, and eligible works are contingent on household income and achieved energy efficiency improvements for individual households and landlords.

The maximum grant is income-dependent, with priority given to low-income individuals residing in low-energy-efficiency properties. Eligibility for specific types of work varies, generally covering insulation, heating, ventilation, and mandatory energy audits. Additional funds are allocated to prioritize low-rated energy properties and encourage a comprehensive approach to energy efficiency.

The entire project must be executed by a registered builder with the RGE (Reconnu Garant de l'Environnement) qualification label. Recognizing the shortage of qualified builders, the government allows builders without this status to apply for it on a project basis for up to three projects per builder over a two-year period from January 2021. It's crucial to note that undertaking the installation works or purchasing materials independently disqualifies individuals from the tax credit.

¹⁵ [fr_ltrs_2020_0.pdf \(europa.eu\)](#)

¹⁶ [Loi énergie-climat | Ministère Écologie Énergie Territoires \(ecologie.gouv.fr\)](#)

¹⁷ <https://www.french-property.com/guides/france/building/renovation/energy-conservation/>

2.2.3 Practice in the Netherlands

In the Netherlands, there are approximately 96,000 offices, with 62,000 expected to adhere to the standard (the remainder being exempted as detailed below). Among these, 56% currently lack an EPC. Among those with an EPC, roughly three-quarters (20,500) possess an "A"- "C" label, while one-quarter (7,000) hold a label of "D"- "G," necessitating work to meet the standard.¹⁸

The Dutch government has implemented MEPS as part of its LTRS.¹⁹ All offices with a total surface that is higher than 100m² and of which at least 50% is used as an office space must have an energy label of at least C by 2023 (which corresponds to primary fossil energy consumption of 225 kWh/m² per year) and at least A by 2030.²⁰

The obligation is set in the Dutch Building Decree. Non-compliance will be addressed through administrative enforcement measures, including periodic penalty payments, fines, or the potential closure of the office building.

It was communicated in 2018 which provided actors with sufficient time to adapt and comply with the obligation. In addition, three leading financial institutions (ING, Rabobank and ABN AMRO) indicated they would stop financing office buildings with label D or lower in 2019.²¹

2.2.4 Practice in Belgium (Flanders)

The region of Flanders (Belgium) has set MEPS for roof insulation and double glazing in rented housing. The norm for roof insulation was implemented in 2015 and gradually increased until 2020. As of 2020, rented dwellings without roof insulation can be declared as 'unsuitable for habitation'.²² In 2020, the government implemented the obligation for double glazing. Each dwelling in Flanders must have double glazing. Double glazing weighted increasingly more in the assessment of energy performance of a dwelling. As of 2023, rented dwellings without double glazing can also be declared as 'unsuitable for habitation'.²³

2.2.5 Practice in Ireland

In Ireland, 60% of public buildings (with a surface area that is higher than 500m²) are leased from private landlords which may create a split incentives issue. Hence, the Irish government has implemented a regulation which stipulated that public bodies can only enter into new rental or leasing agreements for privately owned buildings if these buildings have a Building Energy Rating (BER) level of at least A3.²⁴ This corresponds to primary energy use between 50 and 75 kWh/m² per year.²⁵

Information and awareness: One-stop-shops in Ireland²⁶

Coordinated by the national energy agency, SEAI, Ireland boasts a robust network of One Stop Shops dedicated to informing and facilitating energy efficiency implementation measures in alignment with national minimum standards. These One Stop Shops comprehensively manage entire home energy upgrades, offering services such as advising on optimal upgrades for achieving a B2 energy rating or higher, handling SEAI grants, overseeing project works, conducting quality checks, and coordinating

¹⁸ https://www.aceee.org/sites/default/files/pdfs/buildings_standards_6.22.2020_0.pdf

¹⁹ [nl_2020_ltrs_en_0.pdf \(europa.eu\)](https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32020L1100&from=doctrines)

²⁰ [EnergieLabel C kantoren \(rvo.nl\)](https://www.rvo.nl/en/energie/energie-etikettering)

²¹ [GBC-SEAI-Report-Final.pdf](https://www.gbc-seai.com/~/media/Files/Reports/2020/GBC-SEAI-Report-Final.pdf)

²² [Dakisolatie is verplicht | Vlaanderen.be](https://www.vlaanderen.be/nl/overheid/verplichting-dakisolatie)

²³ [Dubbele beglazing in elke woning | Vlaanderen.be](https://www.vlaanderen.be/nl/wonen/dubbele-beglazing-in-elke-woning)

²⁴ [Tab A - Ireland's Long Term Renovation Strategy \(europa.eu\)](https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32020L1100&from=doctrines)

²⁵ [BER-Homeowner-Leaflet.pdf \(seai.ie\)](https://www.seai.ie/en/energy-efficiency/ber/ber-homeowner-leaflet)

²⁶ <https://www.seai.ie/en/grants/home-energy-grants/one-stop-shop/>

with contractors. Additionally, they arrange for post-works BER assessments, with some One Stop Shops providing finance options through their established finance partners.

3 Voluntary agreement

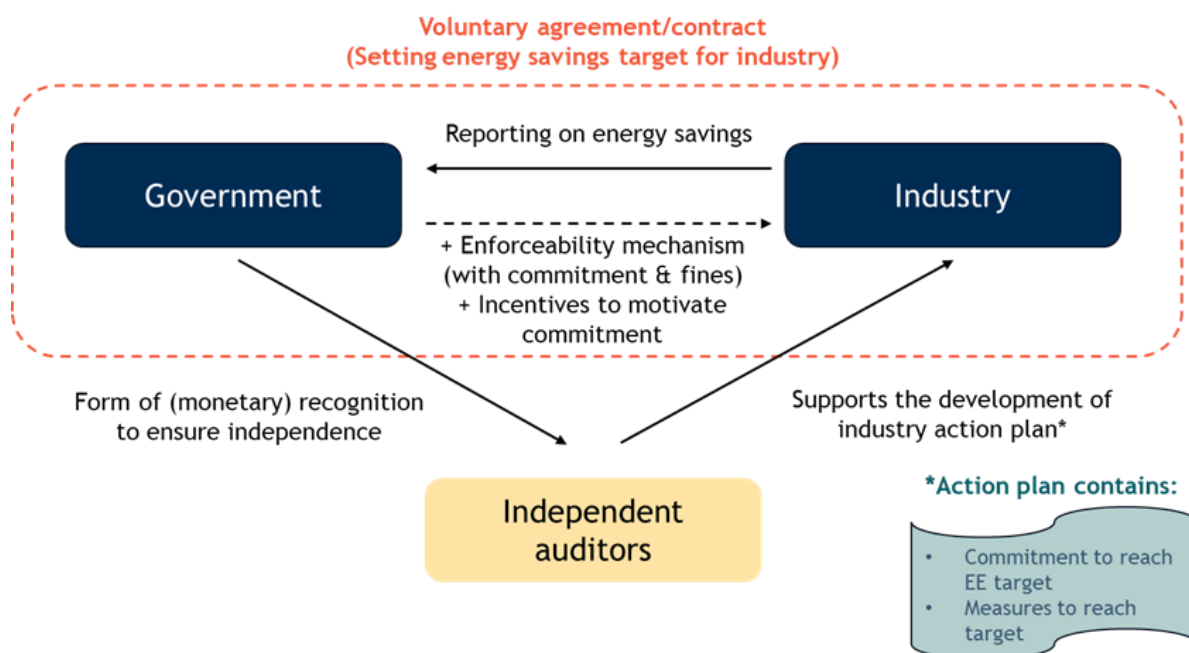
3.1 Detailed description of the functioning of the new policy/scheme in Estonia

This section describes the key elements to take into account for a Voluntary Agreement, and can be used by the authorities when approaching the industry:

- Starting by recalling the advantages of a VA scheme
- Proposing a comprehensive process into 6 steps
- Proposing a list of potential participants, to steer the discussion on a concrete basis
- Consult participants directly without mediation of associations
- Make changes to the scheme based on the feedback of participants

The principle of of Voluntary Agreement is depicted in Figure 3-1 (details provided under Deliverable 3).

Figure 3-1 - voluntary agreement visual



Source: Trinomics, own illustration

3.1.1 Advantages of a VA scheme

In 1997, IEA defined Voluntary Agreements as “essentially contracts between government and industry, or negotiated targets with commitments and time schedules on the part of all participating parties”.

The concept of these Agreements is that they are tailor-made, with the industry and the authority in a process of negotiation agreeing on an energy saving target, a timetable for achieving the target and rewards and penalties.

In a sectoral Voluntary Agreement, the commitment of companies is voluntary. They find the following advantages:

- good knowledge of their energy flows via an energy audit carried out on each of their sites thanks to the financial support from public authorities;
- long-term visibility in terms of investment programs and energy costs;

- regular contact between their federations, the administration and political power and therefore better knowledge of each other;
- ultimately, an improvement in their energy efficiency and therefore their operating costs.

For their part, the public authorities are assured of:

- a substantial and objectively measured effort in terms of reduction of energy consumption and CO₂ emissions from industry;
- criteria for the selection of rigorous improvement objectives and voluntarily ambitious;
- a methodical monitoring of progress made through the use of objective indicators;
- the better mobilization of resources and knowledge, the potential for energy savings being best identified by the companies' internal skills.

In addition, the dynamics of VA can have numerous beneficial effects, improving knowledge and influencing the way of working in industries. Among others:

- the contractual nature of the agreement can move energy management in the top priority concerns of the Board;
- in-depth knowledge of the energy performance of the company's production tools helps industrialist to optimally schedule its production during periods of economic downturn, an effect that has clearly been observed in the evolution of efficiency indices in other countries;
- the availability of an audit methodology and a table of energy consumption as a monitoring tool can generate a dynamic of research and implementation of new measures, which were possibly not identified by the audit, or for which the audit had expressed risks regarding their feasibility;

3.1.2 Setting up the right process

The Voluntary Agreement should constitute a real “win-win” partnership commitments between the national authorities and an industrial company and/or an industrial sector (represented by its association/federation). The Estonian authorities would then obtain from the concerned industry a number of commitments in terms of energy performance, while the concerned company or sector benefits in return from various financial and administrative advantages from the Estonian authorities. Therefore, the process to get there is crucial to establish a solid base for collaboration for the period of implementation.

The industry knows it will no more be able to escape energy savings and the reduction of greenhouse gas emissions. The main advantage with such VA, is that they have the choice of the means to achieve the objectives defined by mutual agreement with the authorities. The financial compensation is also a huge advantage the industry should consider, to receive, e.g., Energy or CO₂ tax exemption.

Precising the parties engaged

- **Authority:** Ultimately, the authority refers to the government, but the term "authority" is used for precision. For instance, the administration of economic affairs might have a full mandate to manage the process, establish the Voluntary Agreement (VA), and sign contracts. However, it is advisable to retain the responsibility at the government level;
- **Participants:** These include companies and sectoral associations/federations that sign the Voluntary Agreement (VA) and pledge to achieve an energy saving target
 - When a company is the direct signatory party, it commits on standalone basis;

- When a company is indirectly engaged in the VA through its umbrella organization, both the association/federation and the company are required to sign. The association signs the agreement with the state agency or ministry, while the company signs the agreement with the association/federation.

Voluntary Agreements should be carried out following 6 main steps

- a. Signature of a declaration of intent with a company or federation representing a sector wishing to take part in the agreement (in a sector, all companies participating should sign). This step is crucial as it will pave the way for a successful scheme, entering the dialogue with the industry, and creating the relationship between industry and authority;
- b. Conducting energy audits on each of the industrial sites concerned, by independent auditors acknowledged by the authority, guaranteeing their independence against suppliers of energy equipment, energy suppliers, or other service providers. The identified savings potential helps preparing plans to reduce greenhouse gas emissions and/or improve energy efficiency. The authority provides grants, to complement the financing of audits;
- c. Based on the options for improvement identified by the audits (investments, changes in process, in behaviours, changes of feedstock, in product design, etc.), each company defines individually an improvement objective of its energy efficiency and its efficiency in terms of reduction of greenhouse gas emissions. In the case of sectoral federation signing a VA, there are 2 options:
 - a. Option 1: the commitment remains at the level of company;
 - b. Option 2: sectoral federation consolidates the individual objectives of companies and determines sectoral improvement objectives;
- d. The voluntary agreement is drawn up and submitted to public inquiry;
- e. The voluntary agreement is then signed by the companies, the professional federation and the authority. This takes the form of contract between the authority (the government) and the industry (company or sectoral association). It stipulates the objectives to which the sector is committed and the duration of the agreement. It specifies the arrangements for monitoring the agreement and the penalties that should be applied in the event of non-compliance announced objectives;
- f. the agreement is implemented: each company implements (invests in) the identified efforts in the audit and declares its performance annually, certified by a reviewer. A sectoral report is published every year on the progress made to
 - a. Option 1: the authority directly;
 - b. Option 2: its sectoral federation, which draws up a consolidated progress report.

3.1.3 Participants to the VA

The Participant is the concerned party signing the Voluntary Agreement. There are 2 options: work directly with the companies, or work via sectoral representatives (i.e. associations/federations). We propose to start with direct consultations with companies and work via associations/federations in next phases. As explained below we propose starting to work with 20-30 largest companies, which allows a manageable consultation (limited number of people to contact). Later on, it will be via the associations. This proposal is made based on the feedback received by stakeholders during the several workshops. We discussed both approaches - agreed proposal was to start with direct consultations by involving a limited number of companies, and in parallel support would be provided to associations (or

to create a new one) to strengthen them in order to take the VA scheme over in the next phase. Associations were not deemed ready/with enough competence to manage the scheme without enough support from the administration by the time of the implementation of the first phase. In the second phase, there are two main reasons to work with “intermediate” associations/federations rather than with companies in direct:

- Managing the process can be burdensome for the administration, which involves developing the content of sectoral plans, Value Added (VA) analysis, and annual reports. Collaborating with federations or associations eases the compilation at the sectoral level, reducing the administrative workload (as managing three sectors is more feasible than overseeing 20 companies).
- Compiling data facilitates sector-wide commitments rather than individual company commitments, offering flexibility within the sector (thus holding the sector accountable for its progress, including members who have signed the VA). This approach also maintains high confidentiality regarding the data and commitments of specific companies.

However, due to the limited number of companies in some sectors, and the limited representativeness of the sectors, it is recommended to work in 2 steps, as described below.

Regarding the setting up of the associations/federations, stakeholders are more inclined to set up one large umbrella association representing all sectors. As the number of industries with significant energy consumption may not be sufficient to operate efficiently on a sector-specific basis (each sector through their representative association), a single umbrella organization may be beneficial to centralise expertise and administrative burden. Although the scheme would be operated with only one umbrella organization, differentiating sectoral goals would still be allowed and encouraged as some sectors find it significantly harder to increase energy efficiency further (like food and beverage industries).

1st phase (wave) of VA (2 first years)

We recommend working in steps, starting with a 1st “phase” of VA targeting only the top major industrial plants in Estonia. This is to limit the number of participants (and consequently reduce the administrative load), while focusing on the plants with the highest impact regarding energy savings and reduction of GHG emissions.

For the 1st “phase”, to test proof the concept of VA, and target the most relevant energy users, we recommend starting with the top 20 largest industrial plants (an preliminary selection is provided in the table below). The list of industries has been established on the basis of revenues and number of employees (excluding electronics sector and energy conversion) and as such does not directly reflect their energy consumption²⁷, considering that energy consumption of Industries is not publicly available. This first selection, based on our knowledge of industrial pattern, was complemented by adding some enterprises known as large energy consumers and removing other enterprises in sectors with high revenue and low energy consumption. Therefore, we cannot conclude that the list is based on energy consumption as we did not have actual data, but rather on a selection of enterprises known to have high energy consumption mostly based on revenue. State Forest Management Centre (RMK) may be excluded from the list (considering that a lot of activities are contracted).

²⁷ Biggest industries in Estonia by revenue and number of employees. Available at: <https://www.teatmik.ee/et/statistics/legal/eyJhcyl6WwJDl1OslmFzcCl6dHJ1ZX0=>

In addition, known large energy consumers like Estonian Cell AS were added and some of the enterprises with irregular financial results (based on their public financial audits) were left out. Consumption based revised list of enterprises should be compiled before introducing 1st round of VA. Usually, companies having already heavily invested in EE find it more difficult to achieve further EE with cost efficient investments, while Industries that have not invested in EE can achieve attractive savings more easily. To reach the global (national) target more easily, it would then make sense to focus first on companies which were not engaged until now, and have a large energy saving potential. At the same time it is worth to include companies already engaged and which can have an exemplary role. Therefore looking for enterprises having set up an Environmental/Energy Management System (EMS²⁸) possibly with ISO certificates could still be a good option. Therefore we recommend that the first contact with these industries is taking stock of what has been done already, and what could still be done with regards to energy efficiency.

Table 3-1 - list of proposed companies to engage in the first Voluntary Agreement

Company	Sector / activity	Comments
Aktsiaselts Merko Ehitus Eesti	Construction	Construction of buildings, may need additional analysis if suitable for VA
AS Maag Eesti	Food and Beverages	Include
Stora Enso Eesti AS	Wood	Include
Prysmian Group Baltics AS	Manufacturing	Include
Aktsiaselts A. Le Coq	Food and Beverages	Include
Riigimetsa Majandamise Keskus	Wood	State owned forest management
Valio Eesti AS	Food and Beverages	Include
Scandagra Eesti Aktsiaselts	Agricultural products	Include
Orkla Eesti AS	Food and Beverages	Include
Aktsiaselts Metaprint	Manufacturing	Include
Saku Õlletehase Aktsiaselts	Food and Beverages	Include
Aktsiaselts Konesko	Manufacturing	Include
Osühing Mapri Ehitus	Construction	Construction, concrete, include
Verston OÜ	Construction	Road construction, include
Aktsiaselts Norma	Manufacturing	Car safety components, include
Estonian Cell AS	Manufacturing	Biggest consumer of energy in Estonia, pulp and paper, include
Kunda Nordic Tsement AS	Manufacturing	Consumption has declined recently, include
„Horizon“ Tselluloosi ja Paberi AS	Manufacturing	Pulp and paper, include
OÜ Harmet	Manufacturing	Modular houses, include

²⁸ [Sertifikaadid - Eesti Kvaliteediühing \(eag.ee\)](http://eag.ee)

NPM Silmet OÜ	Manufacturing	Metallurgy, rare metals and rare-earth metals
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The variety of sectors and types of companies (Estonian owned, or part of an international corporate) will ensure a large coverage and representativeness of Estonian industrial activity, allowing to extract lessons after the first 2 years to generalise/expand to other sectors and smaller industries (for the 2^d wave) more easily. The preparation for the second wave of voluntary agreements should start already while implementing the first wave as setting up a competent umbrella organization or federation may take time.

All these companies listed in the table are obliged to conduct energy audits according to the EED²⁹.

2^d wave of VA (starting after 2 years)

On the long run it will not be possible for the authority to deal with all interested parties if the number of companies increases significantly. For this second wave of VA, we recommend to progressively expand to sectoral federations/associations, possibly focusing on those with large and medium size companies/plants. The second wave of VA should include all sectors of industry. Since the primary incentive for enterprises is reduced energy costs, it follows that enterprises with higher energy consumption are more inclined to sign the agreement. Alternatively, VA could be managed by one single association (umbrella organisation) that unifies industrial enterprises. Current Estonian Chamber of Commerce and Industry may represent too broad set of enterprises to establish a suitable framework for the VA, for that reason a new association or federation specifically for industries may be needed. Feedback from workshops indicates that such a new association would necessitate state aid, at least during the implementation phase. Assistance can be provided through schemes supporting expert hiring within the association or through direct financial aid. Ultimately, the association is expected to attain self-sufficiency through membership fees. To avoid overburdening the umbrella organization with applications from smaller enterprises for the Voluntary Agreement (VA), a practical barrier is established through the availability of other energy efficiency grants. Enterprises that join VA lose the eligibility to apply for existing energy efficiency grants, such system would encourage only enterprises that have high energy costs and as such high energy saving potential to apply for VA. In addition, support rates for smaller enterprises are higher than for larger enterprises, further encouraging small industrial enterprises to not join VA and increase energy efficiency through existing energy efficiency grants as they may benefit more from specific grants to upgrade their equipment.

During the 1st wave of VA, we recommend starting the dialogue with the existing sectoral federations/associations, to assess their willingness to enter such process, but also their capacity to deal with such process. In the case of weak capacity, if deemed relevant, support could be provided by the authority for the companies (or associations) to structure themselves. The associations would represent the companies of the sector and ease the collaboration with the authorities. Alternatively, developing a new umbrella organization specifically for industry and VA may be required. A multi-layer approach may also be considered, where an umbrella organisation oversees the implementation VA, but sectors must submit their reports to their representative association. As not all enterprises have joined associations, development of a new umbrella organisation specifically for industry and VA is encouraged.

²⁹ <https://kliimaministeerium.ee/energeetika-maavarad/energiatohusus/energiatohusus#suurettevotete-energ>

3.1.4 Contract of Voluntary Agreement

Structure of the VA

VA can be organized in two levels with a framework agreement and sector specific agreements or in one level with an agreement for all participants. For the 1st wave, we recommend structuring in one level, i.e., one agreement for all participants.

During the negotiation, if there are sector specific aspects to take into consideration (and sector specific agreements later on if relevant).

Approach to fix the commitment

The parties involved in fixing the commitments to improve energy efficiency can involve:

- the industry alone, via unilateral commitments, with the risk of loss of control from the authority, possibly leading to a lower level of ambition;
- the public authorities, via public voluntary schemes, based on the results of the audits, but lacking the reality on the ground and the need for exchange on the feasibility. Additionally, it would require the authority to develop expertise and knowledge (an expert authority is essential to effectively determine the commitments);
- both, via negotiated agreements, which would more than likely take more time than the 2 other options but lead to the most efficient combination of feasibility and ambition.

We recommend using the **negotiated scheme**.

Rights and other obligations

To encourage the fast realisation of audits, we recommend providing to companies participating in a sectoral VA a preferential subsidy rate of 75% for carrying out an energy audit.

Among others, the authority should organise networking activities to foster knowledge exchange; organise training sessions to stimulate knowledge sharing.

A preliminary and essential factor for controlling energy consumption in a company consists of setting up analytical accounting for fluids and energy carriers. Participants in VA should have the obligation to implement an energy management system, with a well specified energy accounting system.

3.1.1 Compensation or financial advantage

This is further detailed below.

3.1.2 Audit

Energy audits include

- Establishing a detailed distribution of energy flows across all activities of an industrial plant;
- The establishment of a baseline (for the reference year, according to data availability regarding energy use, energy flows and production or other activity indicator);
- Performance Indicators (KPIs) related to production or activity. Identifying a range of improvement options, including cost estimates (both capital expenditure and operational expenditure), and projected savings (including fuel and operational expenditure);
- The identification of a set of improvement options, with estimations regarding costs (capex & opex), and generated savings (incl. fuel & opex).

Energy audits should be conducted by accredited or certified auditors (level 7 or 8 EQF³⁰).

Improvement options are characterized by:

- a. an assessment of the feasibility of the option ([inspired from Wallonia](#)):
 - a. category 1: feasible,
 - b. category 2: achievable through complementary pre-feasibility study,
 - c. category 3: to consider when the opportunity arises or when the technology to be implemented will be considered sufficiently mature;
- b. an estimate of its profitability (based on the calculation of a return-on-investment time, or in simple payback time, SPBT).

All audit results are communicated to the regional administration which is responsible for their validation.

We recommend using a tool similar to the EPS - Energy Potential Scan - which was developed by the Netherlands at the beginning of the voluntary agreement. The tool has slightly evolved, but its main principles are unchanged since then.

Becoming an accredited/certified auditor

To ensure the VA participants, having declared their intention to join a VA directly or via their federation, could benefit from a subsidy rate of 75% or use standardised unit cost methodology to reduce administrative costs (for example 5000 EUR per audit³¹). It is necessary that the audit is conducted by an accredited or certified auditor. Large enterprises are not eligible for support to conduct basic energy audit as they are obligated to conduct a large enterprise energy audit, however part of the audit might still be eligible given that audits for VA scheme are going beyond common audits. A different auditing methodology is developed specifically for VA.

Compared to other auditors, these VA auditors must demonstrate they are knowledgeable within the industry. There is therefore an “additional” approval certificate to be produced.

Auditor accreditation or certification rules are established within the framework of global subsidisation, meeting conditions like:

- being certified or accredited as a building and industrial process and renewable energy and cogeneration energy auditor since at least five years (good to ensure existing auditors can access easily);
- demonstrate experience regarding energy aspects in the industrial field;
- have followed a training day of an industrial technical nature in accordance with the requirements of the methodological note, and provided by a technical expert under the VA as designated by the Government. Training should be conducted regularly to avoid market barriers for newcomers.

Procedure to become an accredited/certified auditor

- Participate in a training session organised by the Ministry and the technical expert;
- The “additional” approval certificate is sent to the applicant within three months from the follow-up of the training day of an industrial technical nature.

3.1.3 Way to determine the commitment

³⁰ The European Qualifications Framework. Available at: <https://europa.eu/europass/et/europassi-vahendid/euroopa-kvalifikatsiooniraamistik>

³¹ Standardised unit cost for energy and resource audit (as example). Available at: https://www.kik.ee/sites/default/files/Seletuskirja%20lisa_%C3%BCChikhinna%20anal%C3%BC%C3%BCs.pdf

We recommend using a target-based (quantitative) VA, rather than an implementation-based (qualitative targets), to fix concrete & quantified objectives, for more efficient actions to be taken by the industry.

Each company or sectoral association/federation should establish an objective to improve energy efficiency and reduce its greenhouse gas emissions using the options for improvement identified within the audits. The objective must at least match the improvement that would be achieved by implementing:

- all 1-rated areas/options³² for improvement and having a simple payback period of less than or equal to 5 years, although this might require some flexibility, by considering some 2-rated areas/options, or by reducing the simple payback period (to 4 years e.g.) for some investments (with due justification);
- Current or recently completed measures are also taken into consideration;
- Similarly, investments already planned by the company are included in the calculation of the objective, even if they do not satisfy the feasibility and cost-effectiveness criteria.

The companies/associations agree on their objectives (expressed in terms of %) and not on achieving the areas for improvement that were identified by the audit to calculate them. This approach allows technological advances and changes to manufacturing procedures to be considered over the implementation period of the agreement, thereby allowing the company to choose the investments they actually make, or that are the most relevant for several reasons.

The fact that it is required from companies to consider all feasible investments presenting a return on investment up to 4 years to define their objectives, makes the profitability criterion more ambitious compared to the usual requirements in the absence of such agreement. The industry often eliminates investment proposals with payback time exceeding 2-3 years.

3.1.4 Monitoring Companies' progress

Progress made during the VA could be measured by the annual calculation of an energy efficiency indicator (Energy Efficiency Indicator, EEI) which is the ratio between:

- the site's total consumption for the year in question (expressed in primary energy units);
- the energy consumption that would have occurred for the same production as that of the year in question, but under the hypothesis that the performance of the production facilities was that of the reference year which served as a basis during the energy audits (often called «reference energy consumption»).

An additional greenhouse gas emissions indicator (GHG Indicator, GHGI) relating to the reduction of CO₂ emissions could be created in the same way, based on the identification of the energy carriers used and by applying official GHG emission factors.

Monitoring the indicators & consolidation at sectoral level

The evolution of these indicators could be calculated every year and compared to the objectives. Mid-term objectives could be also prescribed in order to ensure that improvement is a continuous process within companies. At the end of the sectoral agreement period, the indicators must have met or exceeded the commitment objectives.

³² 1-rated according to the audit assessment of the feasibility of the option

The consolidation of the companies' sectoral commitments could be performed in the same way. It could be validated by an independent technical expert appointed by the authority, who would ensure among other things, that all the companies involved in the process are part of the sectoral effort. The expert could also ensure that the companies commit to making an effort equivalent to what has been determined by all the feasible areas for improvement with a payback period less than or equal to 5 years.

Inspection & monitoring

The sectoral agreement and sectoral energy efficiency action plan should be public documents. The sectoral plan could specify the number of areas for improvement sorted into categories, as identified in the audits, their improvement potential and their breakdown by type of measure. It could also state those areas/options that have been selected to define the objectives to be achieved.

The implementation of each agreement could be monitored by a steering committee comprised of an equal number of representatives from the public authorities and the sector. The steering committee could solicit the advice of the technical expert responsible for defining the methodological aspects of the agreements' implementation and calculating the performance indicators.

Every year, each company or sector could submit an annual progress report to its steering committee, which must review and approve it. The committee should also ensure that any changes to data or tools are correctly taken into account and documented. Individual company data has to be strictly confidential.

Audit data along with all data which is required to calculate the development of the efficiency indicators remains confidential but could be officially lodged with a solicitor and could be viewed by people authorised by the steering committee. The accounting data needed to calculate the efficiency indicators could be verified and certified by an independent statutory auditor.

Furthermore, the sectoral voluntary agreements could also foresee the regular intervention of an inspector who examines whether the individual company results have been correctly consolidated.

Publicity surrounding the agreements

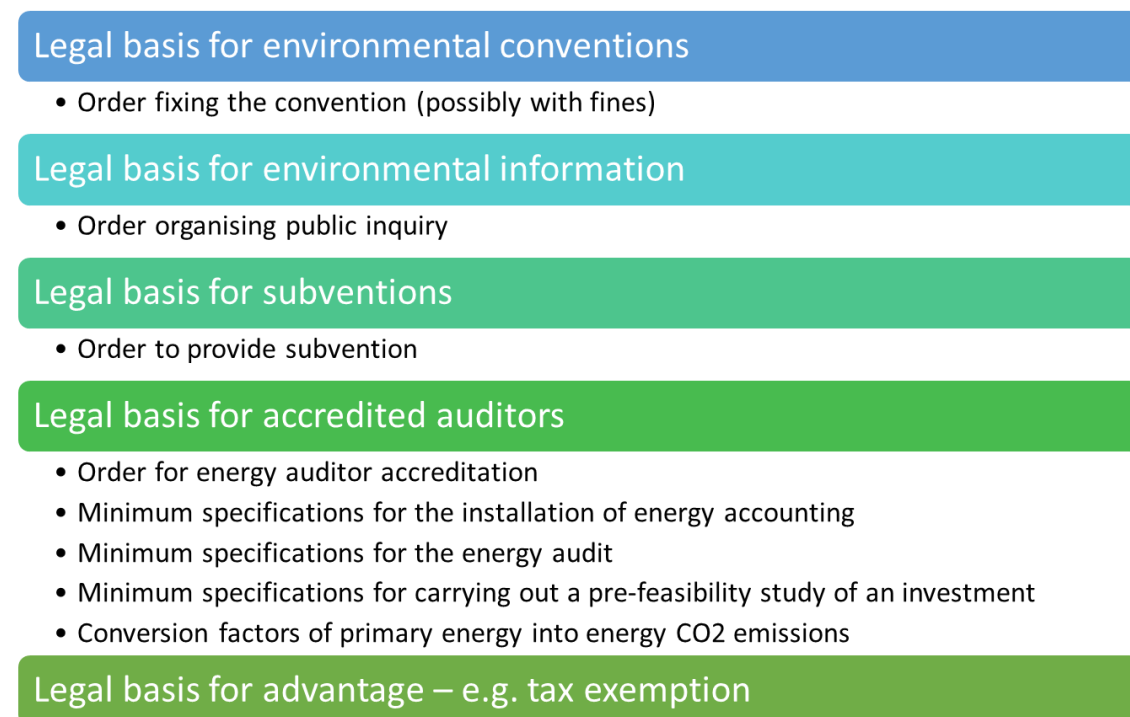
The text of the agreements could provide that the Government, the Parliament, any Environmental Council or consultative Body and the general public are regularly informed about the progress of the process. By mutual agreement, the sectors/companies involved in the agreements could decide to produce and distribute an annual report.

Annex A & B (separate documents) provide an example of an annual report of the Walloon Branch Agreement, with the main report, and a sectoral report annexed to it.

3.2 Legislative & regulatory changes

Figure 3-2 depicts the main changes required to set up the complete VA scheme.

Figure 3-2 - Visual on the main changes required to set up a VA



3.2.1 Legal basis for environmental conventions

A legal basis is needed to establish the official framework of the voluntary agreements, which are legally binding. From this legal basis, specific agreements will be signed (and validated) by the government.

We propose to look at the legislation setting up Environmental Conventions, between the government and the private sector.

Table 3-2 proposes the legal framework to be used for this purpose.

Table 3-2 - Legal framework for the basis of VA

Requirement	Current legislative or regulatory basis in Estonia	Gap analysis	Barriers to the implementation
Legal basis for environmental convention, Or similar convention between the	The Energy Sector Organisation Act ³³ defines voluntary agreements as a policy measure a policy measure that helps to	There is a need to implement new regulation regarding the implementation and framework of VA. Climate law is being	We propose to integrate VA regulation into the new Climate law of Estonia. Climate law is expected to be accepted by January 2025 ³⁴ .

³³The Energy Sector Organisation Act. Available at: <https://www.riigiteataja.ee/akt/EnKS>

³⁴ Estonian Climate law. Available: <https://kliimaministeerium.ee/eesti-kliimaseadus>

government and the private sector	increase energy efficiency.	compiled by the Ministry of Climate.	
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The legal basis could be based on the following examples of provisions and or items that should ideally be part of such framework:

Energy Sector Organisation Act passed on 16th June 2016 provides the measures for achieving the national target of energy efficiency, the principles for promoting renewable energy and the requirements for improving energy efficiency and the parties on whom obligations are imposed in the public as well as in the private sector³⁵.

In accordance with § 17. Types of policy measures of the Energy Sector Organisation Act, voluntary agreements is one of the policy measures defined that helps to implement energy-efficient technology or techniques and have the effect of reducing end-use energy consumption. Voluntary agreements and the schemes to implement them are not developed further in the act.

There is a need to implement new regulation regarding the implementation and framework of sectoral VA. Currently, the Climate law, which tackles national climate targets for 2030, 2040 and 2050 is under development to be entered into force by January 2025. As this act defines a holistic approach regarding climate, energy and the environment amongst other topics, it is recommended to develop the framework of VA as a part of the Climate law.

The framework for VA provided in the environmental convention of Climate law should indicate in particular:

- Its object, including the European or regional legislative provisions which it aims to implement as well as the objectives to be achieved including, where applicable, the intermediate objectives;
- The modalities according to which it may be modified in accordance with the rules enacted by this decree/act/code;
- The modalities according to which it may be renewed in accordance with the rules promulgated by this decree/act/code;
- The modalities according to which it may be terminated in accordance with the rules promulgated by this decree;
- The terms according to which, in the event of termination of the agreement, the party terminating the agreement complies with the decree/act/code and regulatory provisions that the agreement aims to implement;
- The control methods regarding compliance with its provisions;
- The modalities according to which difficulties regarding the interpretation of the clauses of the agreement are resolved;
- The penal clauses in the event of non-performance of the environmental agreement;
- The reasons for which and the conditions under which the agreement may be terminated.

The Government shall not take, during the duration of the environmental convention, any regulatory provision by way of decree which would establish, in relation to the issues regulated by the environmental convention, more restrictive conditions than those set by it. However, the Government retains, subject to prior consultation of the parties to the environmental convention, the power to take

³⁵ Energy Sector Organisation Act. Available: <https://www.riigiteataja.ee/en/eli/530062023007/consolide>

the required regulatory measures when urgency or the general interest so requires, or in order to meet obligations under international or European law.

The Government remains authorized, even during the period of validity of the environmental convention, to integrate all or part of the provisions of an environmental convention into a decree/act/code.

The final environmental convention is published in official legislation publication scheme as well as on the website of the concerned authorities. The Government addresses and presents to the Parliament a biennial report on the progress of the various environmental conventions in force. This report indicates in particular to what extent the intermediate objectives are achieved, when these objectives are provided for by the convention.

3.2.2 Order fixing the convention

Once the legal basis for sectoral voluntary agreements has been established (based on the environmental conventions), their legal form could take the following shape (as depicted in Table 3-3).

Table 3-3 - Order to apply the legal basis for VA

Requirement	Current legislative or regulatory basis in Estonia	Gap analysis	Barriers to the implementation
Legally binding voluntary agreement.	Currently, ministerial decrees are issued for the implementation of specific measures.	There is a need for a decree to implement the VA scheme.	The legal basis for the adoption of VA scheme as measures need to be developed first. This creates the necessary legislative framework for developing the decree for implementing the VA scheme.

The legal form could be based on the following examples of provisions and or items that should ideally be part of such agreement:

In accordance with the environmental convention discussed above, the ministry responsible for the development of the VA scheme framework, will announce the decision to develop the measure for implementing VA. The ministry will create the first draft and open discussions with the industry and other interested parties to further define the measure in dialogue. As a result of discussions and feedback obtained from stakeholders, the draft will be refined into a measure that will regulate the way VA is conducted.

Companies in the sector participating in this agreement undertake to achieve a sectoral objective of an agreed upon percentage improvement in their energy efficiency and a defined reduction in greenhouse gas emissions by the target year compared to year defined as the base.

The agreement and its annexes will be freely accessible in the Riigi Teataja website and from the ministry in charge.

An example of a sectoral voluntary agreement (Branch agreement in Wallonia) is provided in Annex C (separate document), and an example of a sectoral plan (for the same sector) is provided in Annex D (separate document).

3.2.3 Legal basis for environmental information

A legal basis is needed to establish the preparation process of voluntary agreements, which should be communicated to a broad public given their importance. From this legal basis, proposal of sectoral agreements is subject to a public inquiry organised by the authority.

We propose to look at the legislation grant the right to access Environmental Information.

Table 3-4 proposes the legal framework to be used for this purpose.

Table 3-4 - Legal framework for environmental information

Requirement	Current legislative or regulatory basis in Estonia	Gap analysis	Barriers to the implementation
Legal basis for access to environmental information.	Aarhus Convention ³⁶ Public environmental reports ³⁷ Sustainability reports CSDR (upcoming) ³⁸	Access of environmental data is mostly public, but the level of description and ease of getting information could be improved.	Public authorities are to disseminate and make available to the public the environmental information they hold in a user-friendly way which requires additional investments in IT systems.

The legal basis could be based on the following examples of provisions and or items that should ideally be part of such framework.

The right of access to information related to the environment held by public authorities is guaranteed to any person, natural or legal, without being obliged to assert any interest. Public authorities disseminate and make available to the public the environmental information they hold.

3.2.4 Order organising public inquiry

Once the legal basis for organising the public inquiry has been established (based on the access to environmental information), their legal form could take the following shape.

Table 3-5 - Order to apply the legal basis for environmental information

Requirement	Current legislative or regulatory basis in Estonia	Gap analysis	Barriers to the implementation
Proposal of Voluntary agreement with public inquiry	The Energy Sector Organisation Act ³⁹	As VA has not been implemented previously, there is no framework for providing public information regarding such agreements	A solution for disseminating VA agreements needs to be developed.

³⁶ The Convention on Access to Environmental Information, Public Participation in Environmental Decision-making, and Access to Justice in Environmental Matters. Available at: <https://www.riigiteataja.ee/akt/78466>

³⁷ The General Part of the Environmental Code Act. Available at: [Keskkonnaseadustiku üldosa seadus-Riigi Teataja](https://keskkonnaseadustiku_uldosa_seadus-riigi_teataja)

³⁸ Corporate sustainability reporting. Available at: https://finance.ec.europa.eu/capital-markets-union-and-financial-markets/company-reporting-and-auditing/company-reporting/corporate-sustainability-reporting_en

The legal form could be based on the following examples of provisions and or items that should ideally be part of such proposal:

In accordance with the decree related to environmental conventions, the Government or the responsible authority will provide an overview of the draft voluntary agreements defined by sector and will bring out the target annual energy efficiency improvements and reductions in GHG emissions between 1st January 2025 and 31st December 2034.

A complete copy of the draft agreements can be obtained from the website of the responsible ministry or implementing authority or by request. The request must mention the sectors for which copies are desired.

Any person may communicate its observations in writing to the responsible ministry. The Government will examine the observations and opinions communicated and will modify the draft convention, if necessary and in consultation with the concerned sector(s), before definitively adopting them.

3.2.5 Legal basis for accredited auditors & audits

VA auditing could be integrated into existing large enterprise energy audit framework to avoid duplicating auditing requirements for large enterprises (large enterprise energy audit is already mandatory for large enterprises). Additional requirements may be set on audits that are conducted for enterprises included in the VA scheme (as an annex to the large enterprise energy audit). The process is overseen by Consumer Protection and Technical Regulatory Authority. Audit must be signed by a Chartered Specialist in energy performance of buildings, level 7, but if the enterprise’s total annual energy consumption exceeds 5000 MWh, the audit must be signed by Chartered Specialist in energy performance of buildings level 8 instead³⁹.

If a large enterprise which wants to join VA has existing EMS system or ISO 50001 and is thus exempt from submitting an large enterprise energy audit to the Consumer Protection and Technical Regulatory Authority, then in order to comply with the requirements of VA, an additional audit would still be required in order to assess the investment needs and possibilities for the VA.

A legal basis is needed to provide any kind of support, and to certify energy auditors, and the content of audits. From this legal basis, Government orders will specify:

- Order for energy auditor accreditation
- Minimum specifications for the installation of energy accounting
- Minimum specifications for the energy audit
- Minimum specifications for carrying out a pre-feasibility study of an investment
- Conversion factors of primary energy into energy CO₂ emissions

Table 3-6 proposes the legal framework to be used for this purpose.

Table 3-6 - Legal framework for accredited auditors and audits

Requirement	Current legislative or regulatory basis in Estonia	Gap analysis	Barriers to the implementation
Legal basis for subventions,	The Energy Sector Organisation Act ⁴⁰	An improved legal basis is required to support	The requirements of the energy audits need

³⁹ Requirements for large enterprise energy auditors, The Energy Sector Organisation Act. Available: <https://www.riigiteataja.ee/akt/EnKS>

⁴⁰ The Energy Sector Organisation Act. Available: <https://www.riigiteataja.ee/akt/EnKS>

certified auditors & audits	defines the requirements for energy audits and energy management systems and energy auditors	the implementation of the VA scheme	be reassessed and the level of available expertise need to be increased
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The legal basis could be based on the following examples of provisions and or items that should ideally be part of such framework:

- Within the limits of available budget, the Government may grant subsidies to companies, with a view to carrying out investments or work in their premises and establishments enabling them to save energy or use renewable energies.
- The Government sets the maximum amount of subsidies as well as the conditions and terms of their granting. It determines in particular the types of investments and works as well as the types of renewable energies which can be taken into consideration.

3.2.6 Order for energy auditor accreditation

Energy auditors are certified by Estonian Society of Heating and Ventilation Engineers in accordance to the law⁴¹. In order to get a certification, the applicant must show his or her competence in assessing the energy performance of buildings, technical and economic analysis, conducting energy audits, consulting on energy efficiency, calculating energy performance class to buildings and modelling the energy use of a building⁴².

In order to integrate VA requirements into the auditing process, additional requirements for auditors may be required. For example, knowledge of energy intensive industries and opportunities and barriers specific to such industries. The current system of certification focuses heavily on buildings, but does not take into account the fact that auditors need to conduct energy audits also for energy intensive industry where the share of energy used for heating and cooling is insignificant and the biggest consumer is industrial equipment - pumps, engines, process lines, etc.

Once the legal basis for certifying energy auditors has been established (based on the corresponding decree), their legal form could take the following shape.

Table 3-7 - Order to apply the legal basis for accredited auditors and audits

Requirement	Current legislative or regulatory basis in Estonia	Gap analysis	Barriers to the implementation
Certified energy efficiency auditor with expertise in industry	Current certification standards require applicant to prove their competence in energy performance of buildings, but not industries	There is a lack of requirements for knowledge of industrial processes. Focus is mainly on the energy performance of buildings, not processes. On the other hand, energy and resource auditors may have the required knowledge, but cannot get the certification because of the lack of knowledge in energy	Lack of experts with in-depth knowledge of industry. Requires new certification standard or amending current energy efficiency specialist certification

⁴¹ Professional law. Available at: <https://www.riigiteataja.ee/akt/102072013010?leiaKehtiv>

⁴² Register of certifications. Available at: <https://www.kutseregister.ee/ctrl/et/Standardid/vaata/10666428>

		performance of buildings (i.e. energy consumption modelling is required which is not part of auditing process)	
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The legal form could be based on the following examples of provisions and or items that should ideally be part of such proposal:

Energy auditors can be accredited in the following skill areas:

- Buildings;
- Industrial processes (for VA);
- Production of renewable energy and cogeneration.

Energy auditor certifications can be obtained by any natural person meeting, at least the following conditions:

- Either have at least five years' experience in the requested field of expertise and have a master's degree in civil engineering, thermal power engineering, electrical engineering or in industrial engineering sciences;
- Be independent of any supplier of energy, equipment or work covered in the energy audit, the overall energy audit or the pre-feasibility study.

The approval application file includes the following elements:

- Profession of the applicant;
- A copy of the required diploma or any document attesting to the level of experience required above;
- a description of the technical means available to the applicant;
- a copy of at least three audit reports or studies carried out by the applicant over the last three years preceding the application and relating to the area of expertise for which the applicant wishes to be approved.

Where applicable, approval is granted for a period of five years from the date of notification of the decision.

Additional approval linked to voluntary agreement can be obtained by any natural person meeting, at least the following conditions:

- Be approved as a building/industrial process/renewable energy/cogeneration energy auditor for a period of five years;
- Attesting to experience concerning energy aspects in the industrial field;

3.2.7 Minimum specifications for the installation of energy accounting

Companies having signed a VA could be obliged to install an energy accounting system. To ensure that the system is appropriate and delivers its expected operating results, there is need to provide technical specifications for the installation and operation. Enterprises with EMS could be excluded from the requirement i.e., ISO 50001.

This could come as annex to the previous order regarding the accredited energy auditors. The content could be based on the following example of provisions and or items that should ideally be part of such proposal:

The aim of energy accounting is to monitor all of a company's energy consumption over time and to inform and feed in the decisions to be made in terms of energy management by ensuring in particular:

- The collection, processing and communication of information relating to the energy vectors consumed by operating unit, system, product, point of consumption, service, use or entity;

- The establishment of consumption ratios per technical operating unit, system, product, point of consumption, service, use or entity;
- Alert and monitoring function for deviations in energy consumption;
- Evaluation of the impact of implemented measures.

Energy accounting must allow:

- the collection, in physical units, of energy consumption, production volumes and their various uses, by vector and allocation, independently of prices and tariffs;
- the automatic repatriation of data to a centralization point;
- the construction of indicators based, in particular, on specific consumption;
- regular monitoring, at least monthly, of the situation over time allowing rapid reaction to any deviation or anomaly. Hourly consumption data is recommended;
- taking into account any significant variation in the product mix, production level, process change;
- the integration of all stages of information management: acquisition and processing of relevant data, construction of operational indicators, communication to people likely to take measures, continuous monitoring of developments. The results must in particular be presented in the form of improvement in energy performance and improvement in the energy balance in absolute terms.

In the operation of energy accounting, three phases must be distinguished:

- the collection of data:
 - The collection of data must make it possible to identify systems and consumption points, distinguishing uses where applicable and thus obtain an overall vision of consumption.
- Data processing.
- Interpretation and presentation of results.
 - To interpret the results and draw operational conclusions, it is necessary to have a good understanding of the use to which the consumption points relate.

The applicant is required to designate a person responsible for monitoring and processing the data.

3.2.8 Minimum specifications for the energy audit

As of now, the energy audit minimum requirements are⁴³:

During the collection of data for energy audits, data collection is carried out for at least one year period (minimum monthly data) and, if possible, for a longer period:

- Energy consumption in terms of electricity, thermal energy, gas, liquid fuels, and solid fuels;
- Energy production for different types of energy;
- Production of renewable energy and its utilization.

During the analysis of the energy audit:

- An energy balance is compiled for various types of energy within the company;
- An assessment is made of the current state of energy use and production;
- The base scenario of energy use and production is determined, expressing the situation if no efficiency measures are implemented;
- Alternative scenarios for the development of energy use and production are determined;

⁴³ Large enterprise energy audits, minimum requirements. Available at: <https://www.riigiteataja.ee/akt/123122016003>

- Evaluation of the energy-saving potential of the development scenarios for energy use and production is carried out;
- A comparison is made between the scenarios of energy use and production, resulting in the determination of their priority and feasibility.

These requirements can be fulfilled with minimum effort as there is often no incentive to use the results of the energy audits. Enterprises often see audits as simply a requirement that needs to be completed and as such choose the lowest costing auditor. As the requirements are broad, cost of large-scale energy audits can be too low to provide valuable insight into the energy saving possibilities. For example, large enterprise energy audit can be composed by last year's energy consumption data without onsite visit which does not grant the best possible results.

Additional requirements for energy audits should be implemented for VA or the audit for VA can be based on energy audit data and compiled separately as there is a higher necessity to have industry specific expertise.

The energy audit under a VA should follow strict rules to allow comparability, compilation at sectoral and national level, and also to allow easy track of the progress made, based on specific Key Performance Indicators. To ensure that the system is appropriate and delivers its expected results, there is need to provide technical specifications for the content of the audit.

This could come as annex to the order regarding the accredited energy auditors.

The additional content could be based on the following example of provisions and or items that should ideally be part of such proposal (most overlapping points with current energy audit methodology were removed from the example).

Additional proposed requirements (example of provisions):

- The audit must include the development of a global action plan prioritizing the actions to be undertaken and aimed at improving the energy efficiency of the company by evaluating the relevance of an investment to be made and intended. This overall action plan consists of all the measures that the company will implement over the coming years, including investments to achieve this objective. It includes a quantified evaluation of the efficiency of each of these measures (reduction in energy consumption, costs), as well as a schedule specifying the staggering of the investments to be made over time. Description of necessary actions is already required in the current energy audit, but heavier focus should be on the relevance of the energy efficiency measures and on action plan.
- Proposals to use renewable energy sources or quality cogeneration (missing from current mandatory requirements).

The overall energy audit must in particular establish:

- A global analysis of the company's energy flows, namely energy **consumption for the last three calendar years** by energy vector (gas, shale oil, fuel oil, electricity, coal, etc.) expressed in physical units (kWh, ton, litre,...), in kWh and **normalised consumption** (reduced to a normal climatic year - for uses that justify it) resulting in a table of final consumption converted into primary energy (MWh) and CO₂ emissions (kg of CO₂). Currently, it is required to submit data for at least one calendar year and normalised consumption data is not required.
- An identification of the points of improvement of the company's energy efficiency classified by order of priority, **including the use of renewable energies and quality cogeneration**;
- Annual accounting, at company level, of energy consumption and production volumes (in physical units), **by product, and possibly by production line or stage**;

- The construction of **indicators**, based in particular on **specific consumption**;
- The identification, justification and technical-economic evaluation of the best energy efficiency improvement projects and its variants, based in particular on the following criteria:
 - technical-economic quality;
 - **acceptability by the company**, particularly with regard to its internal organization and the required maintenance activities;
 - the **potential reduction in primary energy consumption**;
 - the potential reduction in CO₂ emissions.

The audit **must result in the development of a global action plan** aimed at improving the company's energy efficiency, and must include:

- Analysis of consumption - ideally over a minimum of **3 years for each vector analysed** - (in raw values and corrected if necessary); where applicable, changes in consumption over a given period (calendar year, summer period, etc.) which may reveal transitory phenomena (quarter-hourly peak, peak consumption, etc.);
- The possible use of technologies such as cogeneration, the use of renewable energy sources;
- **The aid available** for the various improvements envisaged (Source, amount, etc.);
- Conclusions, which must be clear and interpretable by a person without specific knowledge in the areas covered.

The proposed improvements must comply with the requirements, particularly energy requirements, in force in the various regulations.

The various calculations, with their assumptions and the parameters used, if they are not an integral part of the audit, will be provided in the appendix.

3.2.9 Minimum specifications for carrying out a pre-feasibility study of an investment

The pre-feasibility study of an investment aims to enable companies to assess the relevance of an investment aimed at using energy more rationally or developing the use of renewable energy or quality cogeneration. It aims to determine the pre-sizing and the most interesting technical, energy and economic characteristics of an investment without any reference to a specific type or brand relating to this investment. The study must test several assumptions, to simulate the risks related to the investment.

These pre-feasibility studies are needed to validate some of the options retained in company's plan to commit to an energy efficiency objective.

An annex to the order regarding the accredited energy auditors could be an option to fix the content of such pre-feasibility study.

3.2.10 Conversion factors of primary energy into energy CO₂ emissions

Conversion factors are used in energy audits, to build the GHG indicators. They should ideally be set by a legal/regulatory framework. An annex to the order regarding the accredited energy auditors could be an option to fix the content of such pre-feasibility study.

The content could be based on the following example of provisions and or items that should ideally be part of such proposal.

The CO₂ emissions linked to the use (and therefore to the production) of the different energy vectors consumed by the company will be considered. Wherever possible, conventional conversion factors will be used. For electricity used from the grid, CO₂ emission data from national grid operator Elering

should be used⁴⁴. In 2022, the emission factor was 715,18 g/kWh (emission factor has increased - in 2021 636,58 g/kWh and in 2020 it was 546,89 g/kWh).

By convention, only CO₂ emissions will be considered and not all greenhouse gas emissions. On the other hand, only energy CO₂ emissions will also be considered (non-energy CO₂ emissions are emissions occurring in industrial processes that do not come from the combustion of fossil fuels).

Renewable electricity

Renewable electricity can have two approaches. Either zero CO₂ emissions are considered, therefore 0 kg CO₂/MWh or losses in electricity grid are taken into account - CO₂ emissions will be calculated based on the average loss % of electricity in the main and distribution grid in accordance with the average conversion factor (from Elering) as the national operator must compensate for the losses in the grid and the extra consumption is not 100% renewable.

Fuels (fossil fuels, alternative fuels, waste gases, biomass, etc.)

By default, the conversion factors used will be those proposed by the IPCC, the most relevant for Estonia should be listed in this order. More recent factors should come from RED.

3.3 Recommendations for different funding and delivery models

To motivate the industry to commit on a voluntary basis, a compensation or incentive should be provided, which can take various forms, such as:

- rebate on electricity/energy tax or fee;
- exemption of renewable energy taxation.

Such compensation or incentive could be bound to the achievement of EE targets fixed at plant level. It is also key to take into account that the level of compensation or incentive should comply with the State Aid guidelines set by the EC. Enterprises signing a VA have no more access to additional grants. It is also recommended to remove the current exemption for energy intensive industries, to start discussing the compensation or incentive.

The renewable energy tax rebate was seen as the primary incentive as it is covered equally by all consumers and is considered a burden on industries. As of 2023 the renewable energy tax is 12,40 €/MWh and with VAT 14,90 €/MWh⁴⁵. The renewable energy tax may increase if large scale off-shore (or on-shore) windfarms are constructed, although the effect on previous scheme on renewable energy tax is diminishing as the subsidies are paid for 12 years after the construction of renewable energy unit and the scheme was finished by the end of 2020.

At first a 50% rebate on renewable energy tax could be proposed to industries, if the incentive does not seem attractive enough, then a near total tax exemption should be considered (level should be negotiated with European Commission). In order to keep energy costs under control for industries not in the VA scheme and for private users, the costs should be covered from the state budget (i.e. income from CO₂ quotas). The other approach would be to set the additional burden on all other consumers that have not joined VA, as such the measure would be budget neutral. Given the feedback from workshops that the second option (increasing the tax on other consumers) would not be politically viable, we recommend subsidising renewable energy tax from state budget. Cost of the measure would depend on the level of the rebate negotiated with the industry (with a maximum cost of 12,40 €/MWh on industrial consumption participating in VA).

⁴⁴ Elering CO₂ emission factors. Available at: <https://www.elering.ee/segajaak>

⁴⁵ Renewable energy tax. Available at: <https://www.elering.ee/taastuenergia-tasu#tab0>

One major point of attention is linked to ensuring compliance with the State Aid Guidelines ([2022/C80/01](#)). It might be needed to set up different levels of exemption, based on yearly energy consumption (e.g. <20GWh; <100GWh; <300GWh; >300GWh), due to the profile of enterprises, and also possibly to their sector.

In Wallonia, there are 2 exemption schemes

- Exempting to pay an electricity surcharge is considered to be a state aid. However, companies that are exposed to international trade & are heavily dependent on electricity for their value creation (Nace code according to Annex 1), can claim for an exemption (art 4.11). In Wallonia, out of the almost 300 companies having signed the Voluntary Agreement, about 100 can benefit from this exemption);
- Partially exempting to pay the Green Certificates⁴⁶, as a quota on the electricity bill. The discussion is still ongoing with the European Commission to determine it should be considered as a state aid. This is still in the pre-notification phase

⁴⁶ The market of green certificates in Wallonia can be used to illustrate a possible scheme. Available: [1681217821Certificats Verts ENG 2023 full.pdf \(febeliec.be\)](#)

3.4 Administration of the scheme

3.4.1 *Analyse current institutional gaps and barriers for the implementation of the policy*

Several weaknesses have been identified within the current framework:

- Lack of resources within the administration
- Lack of coordination between administrations in charge of climate and economic affairs (new Ministry of Climate was established in 2023)
- Lack of technical competence and knowledge in the administration
- Lack of competence in sectoral associations/federations
- Lack of interest from industrial enterprises

3.4.2 *Proposed VA administration*

The following proposal aims at overcoming some of the barriers identified above.

Implementing administration

One dedicated administration should be in charge to manage the entire VA system, dealing with the process to set up the scheme, to implement it, and then to monitor and report the results.

The Ministry of Economic Affairs (or Climate) is the most adequate administration to carry this responsibility, having in mind to strengthen globally the relationship between the companies or sector representatives and the authority.

The implementing administration should coordinate all bodies involved in the VA system, hosting all information, introducing all legislation, etc. It should receive the mandate from the Government to act, and decide.

To support the implementing administration, a document about “Procedures for implementing branch agreements in the Walloon region” is provided in Annex E, and “Analysis report on the functioning of the 2nd-generation branch agreements and preparation of future 2030 agreements”.

Steering committee

We recommend establishing a Steering Committee that would be in charge to validate the commitment, and results of the monitoring (including the application of fines in case of need) for the authority.

Considering that we recommend operating a hybrid scheme, with both the industry and the authority deciding together on the commitment, we recommend setting up a SC with equal representativeness of:

- The implementing administration, the climate administration, and a technical expert (cf. below)
- The industry, with the sectoral association and possibly some representatives of companies

Technical expert under the VA

We recommend hiring a technical expert, to oversee the proper implementation of the sector agreement methodology.

The technical expert could be a methodological advisor appointed by the Government, on the proposal of the Steering Committee. The technical expert would have the role of facilitator in the preparation of the information necessary for the completion and monitoring of a sectoral voluntary agreement. The expert could not be required to act as a verifier of the auditors' work, but could sometimes be called

upon to play the role of moderator between representatives of the authority, the sectoral federations and the companies. The technical expert may be also involved in the work of umbrella organisation/association/federation in charge of administrating all contracts and communications for industrial sector and advise the umbrella organisation on setting up efficient system for administering VA reports.

Practically, its mission can be defined as follows.

A set of recurring tasks:

- Preparation, monitoring and participation in sectoral and intersectoral steering committees. Validation through analysis and support for setting binding sectoral objectives for 2030.

A set of one-off tasks:

- The codification of the rules for accounting for binding energy efficiency targets and for CO₂ reduction. During the execution of the agreement, the technical expert analyses the proposals for modifications to the calculation of the indices submitted to him (change of product specifications, adaptation of activity variables to the companies' internal analytical accounting data), considering economic events, etc.).
- Updating the methodological note as and when the needs are expressed by the steering committees.
- The organisation of training for company personnel who must carry out their annual monitoring audit.
- Any specific request from the Ministry of Climate.
- At the request of the overseeing association/federation, the specialist can assist a company or assist the federation in its work of consolidating data by checking their consistency. The specialist can assess the relevance of modifications to the accounting rules that may be proposed by a federation or a company and submits them to the Ministry of Climate for verification.

3.5 Monitoring and verification of the scheme

3.5.1 Analyse the current monitoring and verification that can be used for the scheme

In order to monitor the progress and impact of the measure, it is recommended to follow these indicators:

- Number of plants / sectors signing a VA;
- Expected / committed energy savings (total MWh);
- Realised energy savings - reduction in energy consumption (MWh);
- Production volume (to calculate energy use per t, l, m², etc);
- Renewable energy production, consumption and sales.

Each company would have its own tool to establish its plan, develop its indicators, and record its yearly data of energy consumption (energy consumption dashboard). These data are used for the annual report of the company, and are thereafter sent to the sectoral federation / association.

A central database should be developed to collect the company data, which should be kept confidential. Its design should be based on the audit tool (or dashboard, developed as an XLS).

3.5.2 Analyse current energy efficiency related IT systems and databases in place in Estonia

Enterprises submit their energy consumption data to Statistics Estonia and environmental data to KOTKAS (database for environmental decisions) database⁴⁷. These databases are not suitable for the implementation of VA scheme, due to the need for more granular data for VA. KOTKAS database could be further developed for submitting VA reports to the state. In addition, the data may be submitted through the database of Consumer Protection and Technical Regulatory Authority⁴⁸ which is the database used for collecting data from large enterprise energy audits.

These databases are not best suited for VA implementation, and their development should be further investigated in order to assess whether they could be developed for the purpose of VA, or if a completely new database system is needed. If current databases are used for submitting data, we suggest using the Consumer Protection and Technical Regulatory Authority database.

⁴⁷ KOTKAS database. Available at: <https://kotkas.envir.ee/>

⁴⁸ Database of Consumer Protection and Technical Regulatory Authority. Available at: <https://jvis.ttja.ee/>

4 MEPS

4.1 Detailed description of the functioning of the new policy/scheme in Estonia

MEPS schemes should be comprehensive, addressing both residential and non-residential buildings to maximize energy efficiency and carbon reduction opportunities. Given the distinct ownership structures in these sectors, targeted support is essential for tailored MEPS designs. It is crucial to differentiate between non-residential and residential buildings, considering factors like shorter renovation cycles and larger floor areas in the former.

Public buildings, owned by authorities, play a special role and should set an example in implementing the EU Renovation Wave Strategy. Designing specific MEPS for public buildings is vital to meet the Energy Efficiency Directive's recast requirement, ensuring the renovation of 3% of total floor area annually to NZEB or ZEB levels. The implementation of diverse MEPS designs for various building types is crucial for smooth and effective execution, as demonstrated by practical examples, supported by appropriate policy frameworks and targeted communications to diverse stakeholders.⁴⁹

In the case of Estonia, MEPS are being considered for (1) single-family - detached homes, (2) non-residential, commercial buildings and (3) non-residential, public buildings. The only building segment not included is multi-family apartment buildings, due to the complex decision making process of multiple person ownership, making renovation decisions difficult.

There are two approaches to MEPS implementation depending on the building sector: dynamic requirements adjusted over time, and minimum standards implemented with the guidance of building renovation passports.

The dynamic approach is suitable for larger buildings, with more straightforward decision making and ownership, such as large non-residential buildings and public buildings. These sectors usually have more capacity (both technically via management and economically) to implement renovation measures.

⁴⁹ <https://www.bpie.eu/publication/minimum-standards-maximum-impact-how-to-design-fair-and-effective-minimum-energy-performance-standards/>

Figure 4-1 - Renovation roadmap for worst-performing buildings



Source: BPIE⁵⁰

Figure 4-1 demonstrates implementing the dynamic building approach by periodically assessing worst performing buildings and updating MEPS to address a dynamic median as a minimum requirement. Achieving and promoting MEPS compliance can be encouraged via a tax credit or associated grants.

4.1.1 Single-family houses

In residential single-family houses it is recommended to apply MEPS for buildings which will be sold or rented. The building category covered by MEPS requirement is detached houses - single housing units with 11101 code (<https://www.riigiteataja.ee/akt/126022021006>). Terraced houses or houses with two housing units cannot belong under MEPS with the current EPC scheme, because EPC is issued for the whole building and not for a single housing unit. The same applies for multifamily residential buildings where EPC is issued for whole building and MEPS requirements are not possible to apply within existing legislator framework.

A detached house to be sold or rented should fulfil MEPS requirement of EPC class D. In Estonian context EPC class C means a major renovation and class D can be seen as light renovation required by MEPS. It should be made possible to convert the duty to conduct light MEPS renovation of the house to new building owner. In such a case, the house will need to be renovated within 5 years from the sales date.

The Council and the Parliament reached on 7 December 2023 provisional political agreement on a proposal to revise the energy performance of buildings directive. According to the deal, concerning the **renovation target for residential buildings**, member states will ensure that the residential building stock will reduce the average energy consumption by 16% in 2030 and a range between 20-22% in 2035.

⁵⁰ https://www.bpie.eu/wp-content/uploads/2023/05/Minimum-standards-maximum-impact_Final.pdf

55% of the energy reduction will have to be achieved through renovation of the worst performing buildings.⁵¹

The deal does not foresee mandatory MEPS for residential buildings. However, considering the high level of ambition set by the deal for 2030, MEPS remains a strong scheme to achieve the target. It is therefore recommended to seriously consider the implementation of the scheme for residential single family dwellings. We recommend using the same 16% threshold of worst performing buildings for the first phase as for non-residential buildings (cf. below), to be renovated up to EPC level D.

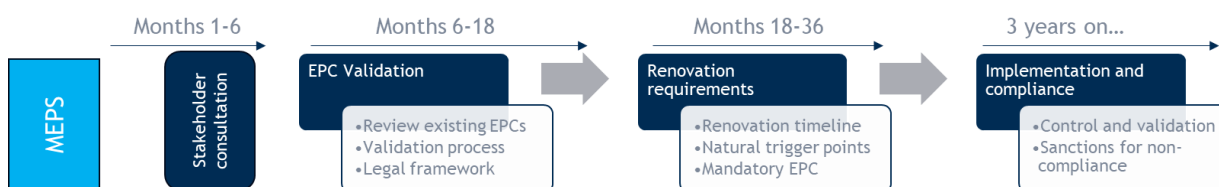
4.1.2 Non-residential buildings

For non-residential buildings, MEPS requirement shall apply for all building categories for which energy performance requirements apply according to the building law. Only the last category No 11 in the regulation (<https://www.riigiteataja.ee/akt/105072023309>), highly energy consuming buildings because of the process, should be left out, as it is planned in ongoing revision of energy regulation not to set numeric requirements and EPC classes for these buildings. All other non-residential buildings covered by this regulation (category 1-10 in Article 1 for non-residential) have energy performance requirements and EPC classes. Therefore, for these buildings EPC class D requirement can be established.

The council and parliament agreed the revised EPBD on 7 September 2023, regarding the minimum energy performance standards (MEPS), states that in 2030 all non-residential buildings will be above the 16% worst performing and by 2033 above 26%.⁵²

4.1.3 Establishing MEPS

Figure 4-2 - Propose timeline and action plan to set up MEPS



The implementation timeline for Minimum Energy Performance Standards (MEPS) derived from the Action Plan created in Deliverable 4 is as follows:

Months 1-6: Conduct Stakeholder Engagement

- before conducting stakeholder engagement, establish a **draft design of the scheme** that will be fine-tuned in the next steps, comprising:
 - the conversion of the share of 16% worst performing building into EPC level (currently supposed to be level F);
 - the need to adapt the EPC system which should be calculated rather than measured (to calculate the expected savings)
 - the rules to reach EPC level D: developing a Building Renovation Passport, or establishing a list of standard investments/works

⁵¹ [‘Fit for 55’: Council and Parliament reach deal on proposal to revise energy performance of buildings directive - Consilium \(europa.eu\)](#)

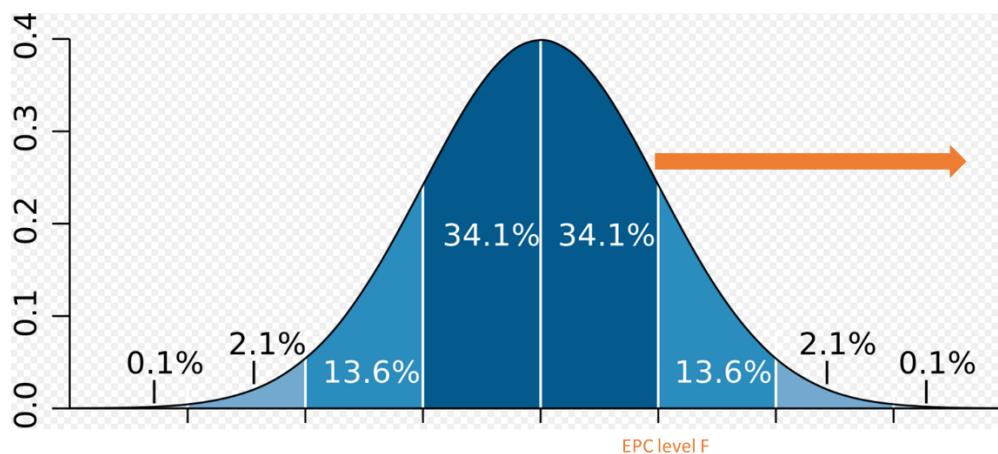
⁵² [‘Fit for 55’: Council and Parliament reach deal on proposal to revise energy performance of buildings directive - Consilium \(europa.eu\)](#)

- the fines for non-compliance
- for non-residential, define a procedure and timeline for completion of the work to reach the D level
- for residential, insert EPC level and obligation trigger in notarial act for rental and selling
- Initiate a comprehensive engagement process involving key stakeholders. This phase aims to gather insights, expectations, and concerns from various parties involved in or impacted by MEPS, based on the draft design.

Months 6-18: EPC Validation and Legal Framework Establishment

- Focus on validating or amending Energy Performance Certificates (EPCs) by reviewing existing ones to ensure accuracy and reliability, but also to allow the calculation of expected savings following building investments/works.
- Simultaneously, work on establishing a robust legal framework that will provide the necessary basis and authority for the MEPS implementation.
- Review the state of the building stock based on the national LTRS to divide buildings into the appropriate category for MEPS implementation (Large non-residential buildings, public buildings, and single family, detached homes). On that basis, carry out the buildings distribution for the EPC level (see illustration below, a standard normal gaussian distribution⁵³). With the distribution, categorize the worst-performing buildings on the 16% threshold, by identifying the corresponding EPC level above which all buildings belong to the category (of worst performing).

Figure 4-3 - Conceptual visualisation of building stock distribution according to Energy Performance levels



Source: Trinomics, own elaboration (this is a fictive case, and should be realised with Estonian data)

Months 18-24/36: Renovation Requirements Investigation

Delve into the specifics of renovation requirements, outlining a detailed plan that includes timelines, trigger points for renovation initiation, and the introduction of mandatory EPCs for relevant structures. This phase lays the groundwork for the practical application of MEPS.

⁵³ https://en.wikipedia.org/wiki/Normal_distribution

Two/three Years Onward: Implementation and Compliance

Clearly communicate timelines and milestones in advance of implementation - at least five years or order for building owners to plan investment.

- Roll out the MEPS, putting the established legal framework into action. This includes the enforcement of renovation requirements, monitoring compliance, and addressing any challenges that may arise during the implementation phase. Continuous evaluation and adaptation of MEPS will be integral to ensuring sustained effectiveness.

Implementation

1. Validate EPCs are Fit for Purpose (Legally Binding):

- **Objective:** Adapt the Energy Performance Certificates (EPCs) to serve as reliable instrument of a building's energy efficiency.
- **Means:** design the entire process, 1/ establishing the reference EPC level (current building status), 2/ determining the needed works to reach the required target EPC level, depending on the building status, 3/ possibly monitor the results after several years based on measured energy.

2. Renovation Requirements Based on EPC Labels:

- **Objective:** Drive improvements in energy efficiency by setting renovation requirements linked to EPC labels.
- **Timeline:**
 - EPC labels G & above must be renovated up to E by 2027.
 - EPC labels F & above must be renovated until label D by 2032.

3. Trigger Points for Renovation:

- **Objective:** Align renovations with natural triggers to minimize disruptions and encourage timely upgrades.
- **Triggers:** Mandate renovations at points of rental or sale, with specified prerequisites for compliance.

4. Mandatory EPC for Transactions:

- **Objective:** Ensure that EPCs are integral to property transactions.
- **Implementation:** Make it mandatory for property owners to provide a valid EPC during rental or sale transactions.

5. Control and Validation by Administration:

- **Objective:** Ensure oversight and validation of EPC information for accuracy and compliance.
- **Implementation:** Establish administrative controls and validation mechanisms to monitor and authenticate EPC data.

6. Obligation on Property Owners:

- **Objective:** Place the responsibility on property owners (landlords or sellers) to meet energy efficiency standards.
- **Obligation:** Make property owners accountable for ensuring their buildings meet the prescribed EPC standards.

7. Sanctions for Non-Compliance:

- **Objective:** Enforce compliance by introducing penalties for non-compliance.

- **Sanctions:** Establish a system of sanctions or fines for property owners failing to meet EPC-related obligations.

8. Prohibition on Renting Below EPC Threshold:

- **Objective:** Discourage renting properties below specified energy efficiency standards.
- **Implementation:** Prohibit the rental of properties that fall below the minimum EPC threshold.

9. Protection for Low-Income Households:

- **Objective:** Safeguard the interests of low-income households in the rental market.
- **Measures:**
 - Set a cap on rented houses to prevent exploitation.
 - Provide financial support through grants, with support levels based on household income (higher support for lower incomes).

4.2 Legislative & regulatory changes

Figure 4-4 - Visual on the main changes required to set up MEPS depicts the main changes required to set up the complete VA scheme.

Figure 4-4 - Visual on the main changes required to set up MEPS

Legal basis for Energy Performance of Buildings

- EPB definitions
- Method for calculating the energy performance of buildings
- Energy performance requirements for buildings (scope of application; determination of minimum energy performance requirements; procedural documents; EPB procedures)

Legal basis for notarial act

- EPC should be provided & its level verified upon a MEPS timeline for all building being sold
- EPC should be provided & its level verified upon a MEPS timeline for all building being rented

4.2.1 Legal basis for Energy Performance of Buildings

A legal basis is needed to establish the Minimum Energy Performance Standards into place, given they are legally binding character. From this legal basis, specific provisions will be set up and decided by the government.

We propose to use the legislation transposing the EPBD 2010/31/EU as basis, and identify places to be changed.

Table 4-1 - Legal framework for setting up MEPS proposes the legal framework to be used for this purpose.

Table 4-1 - Legal framework for setting up MEPS

Requirement	Current legislative or regulatory basis in Estonia	Gap analysis	Barriers to the implementation
General requirement for the Energy Performance of Buildings	The Estonian law/decreree transposing the EPBD (building law)	There are several small loopholes in the current legal framework, that should be overcome by amending the EPB law/decreree; There is one major gap regarding the EPC which is currently based on	The main barrier is the need to develop a completely new EPC scheme based on calculation method, rather than on energy actually consumed.

		energy actually consumed while it should be calculated	
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To establish MEPS requirements, the corresponding mandate has to be set in the building law. The scope of MEPS should be introduced in the EhS article 7 on Energy performance of buildings (<https://www.riigiteataja.ee/akt/130062023002>).

The legal basis could be based on the following examples of provisions and or items that should ideally be part of such framework:

1/ General provision and definitions (*ensuring all required definitions and concepts are included to define the underlying principle of MEPS*)

The purpose of this decree is in particular to transpose EPBD (2023). It also transposes, partially, RED.

For the purposes of this decree, we mean:

- energy performance of a building (EPB): quantity of energy actually consumed or calculated to meet the different energy needs linked to standardized use of the building, which includes, among other things, the energy used for heating, the production of domestic hot water, possible cooling system, ventilation and lighting;
- energy performance certificate (EPB certificate, or EPC): a recognized certificate which indicates the energy performance of a building or a building unit calculated according to a method adopted;
- Minimum Energy Performance Standards (MEPS) are defined by the United Nations as a ‘specification containing a number of performance requirements for an energy-using device, and that effectively limits the maximum amount of energy that may be consumed by a product in performing a specified task.’⁵⁴

2/ Method for calculating the energy performance of buildings (*the current calculation which is based on real consumption should be adapted to the need of MEPS*)

The energy performance of buildings is determined based on the calculation method defined by the Government.

- It is expressed by one or more numerical indicators which take into account the energy actually consumed or calculated on the basis of the method defined by the Government.
- The calculation method takes into account, in particular, the technical characteristics of the thermal insulation and the installations, the design and the installation, taking into account climatic parameters, solar exposure and the impact of neighboring structures, self-production of energy and other factors, including indoor climate, that influence energy demand.
- The calculation should also allow to determine the performance expected by taking a set of measures on the building, acting on all relevant building components.
- The Government determines the terms of application of the calculation method.

For the application of the calculation method, EPB units are classified according to the following destinations:

- residential units;
- office and service units;
- units intended for teaching;
- industrial units;
- units having another destination.

Among the destinations identified, the Government may distinguish specific EPB units based on their particular characteristics or their energy consumption.

⁵⁴ [minimum energy performance standards \(unescwa.org\)](https://www.unescwa.org/)

The Government adapts the parameters of the calculation method according to whether it is applied to determining the level of energy performance achieved by (at least):

- a EPB unit to be built or reconstructed;
- a EPB unit undergoing major renovation;
- a EPB unit undergoing a simple renovation;
- a EPB unit obliged to reach a well defined level of performance.

When, in a building, use is made of one or more concepts or technologies not taken into account in the calculation method, the Government may authorize the use of an alternative calculation method making it possible to correctly assess whether the building achieves EPB requirements. The Government can only grant this authorization if the energy performance of these concepts and technologies is demonstrated.

3/ Energy performance requirements for buildings

EPB requirements must be respected

- during the construction or reconstruction of a EPB unit;
- when carrying out a major renovation;
- when carrying out a simple renovation;
- during a change of destination;
- during the installation, replacement or modernization of systems;

Based on the EPB requirements, MEPS requirements must be respected (*this is the place we need to establish at which moment of time a building renovation needs to be renovated*)

- when a EPB unit is sold;
- when a EPB unit is rented to a tenant.

The Government determines the EPB & MEPS requirements, which are based on the method of calculating the energy performance of buildings.

- EPB requirements are set at an optimal level based on the lifespan and costs of investment, maintenance, operation and, where applicable, disposal of the building or element subject to the requirement.
- EPB requirements must take into account: 1° general conditions which characterize the indoor climate; 2° local particularities; 3° destination of the building; 4° its age.
- EPB requirements can be differentiated based on: 1° the type of building, to be constructed or existing; 2° of the total usable surface area of the building; 3° the nature of the work envisaged.
- MEPS requirements can be differentiated based on: 1° the type of building, to be constructed or existing, or obliged to be renovated; 2° of the total usable surface area of the building; 3° the nature of the work envisaged.

The Government organizes and manages a database which contains procedural documents relating to EPB requirements, and to MEPS requirements. The Government specifies the conditions, the terms of access and use of the information contained in the database, and the status of the people who can access the data that it determines.

For the purpose of selling a EPB unit, the EPB certificate is attached to the notarial act application file. It is verified by the notary that the EPB certificate achieves the level of performance required by the MEPS requirements fixed by the government. Prior to submitting the application, the EPB certificate is recorded in the database referred above.

4.2.2 Regulation of MEPS requirements

Estonian law/decreed transposing the EPBD gives a mandate to the government to address MEPS in the [regulation of Energy performance minimum requirements](#).

In this regulation for instance MEPS EPC class D or primary energy EP-value requirements for different building categories and application times can be introduced.

Dealing with the current EPC and how it should evolve

It is still a question-mark how the current actual energy use EPC scheme should evolve to be usable for MEPS, there are basically 2 main options

- Either, it has to be replaced by a calculated EPC (with an actual energy use EPC, there is no possibility to calculate what will be the impact of renovation works on the EPC level, which is counterproductive considering that the aim of the EPC is precisely to determine how a household can reach the targeted EPC level);
- Either, it can evolve or be built on a transitional calculated EPC. The next paragraph illustrates such option.

Attention needs to be provided to MEPS requirement verification which will need some development of EPC regulation. If a building already has EPC with class D, i.e. EPC of an existing building based on metered energy use, the present regulation works as it is and no changes are needed. If a building needs a light renovation to achieve EPC class D, the building permit and design documentation including calculated EPC is required. This calculated EPC is valid for two years from the use permit date. After two years in operation, new EPC is needed, being based on metered energy use which is then supposed to confirm the ex-ante calculated EPC. Therefore, there is a possibility that previous calculated EPC changes to metered energy based EPC (valid for 10 years), and EPC class will change at the same time for instance from D to E. There can be objective reasons, such as longer operation times or higher occupancy compared to so called standard use of the building that is used to simulate energy performance of building.

Therefore, a normalisation method needs to be developed to show compliance with MEPS requirements in the cases when EPC class will drop out of D. This normalisation method should use energy BIM model what was used in the renovation design phase. It is important to establish a requirement that energy BIM will be uploaded to the building registry with other design documentation to be available. In the compliance assessment, energy BIM needs to be calibrated with metered data and real occupancy and use patterns of a building. After calibration, the standard use input data should be applied, and the result of energy simulation should comply with EPC class D. If the result will not comply with D, it means that the renovation is not implemented according to the design documentation, and energy performance of a building needs to be improved. This real use normalisation method should be added to EPC regulation (<https://www.riigiteataja.ee/akt/105072023289>) where weather normalisation is already included. For that purpose a methodology development project would be needed.

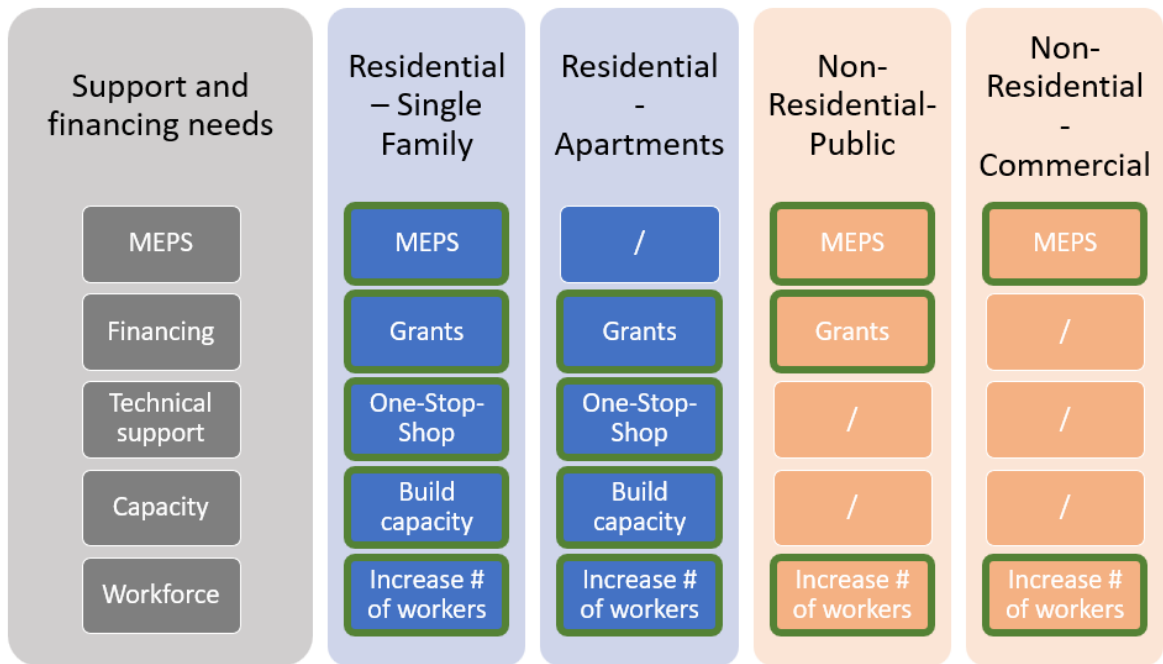
4.3 Recommendations for different funding and delivery models

Single-family MEPS can go under proposed renovation grants and tax reduction measures and receive financial support. As an enabling measure, single family MEPS needs a proposed OSS with necessary digital tools and model renovation solutions.

For non-residential MEPS for commercial buildings no support schemes are planned. The competence of qualified energy specialists, energy modellers, energy auditors and HVAC and other designers is already available in the market. While renovation volumes will increase the amount of these specialists has to be increased. As university level master programmes exist, only the continuous education training offering needs to be added.

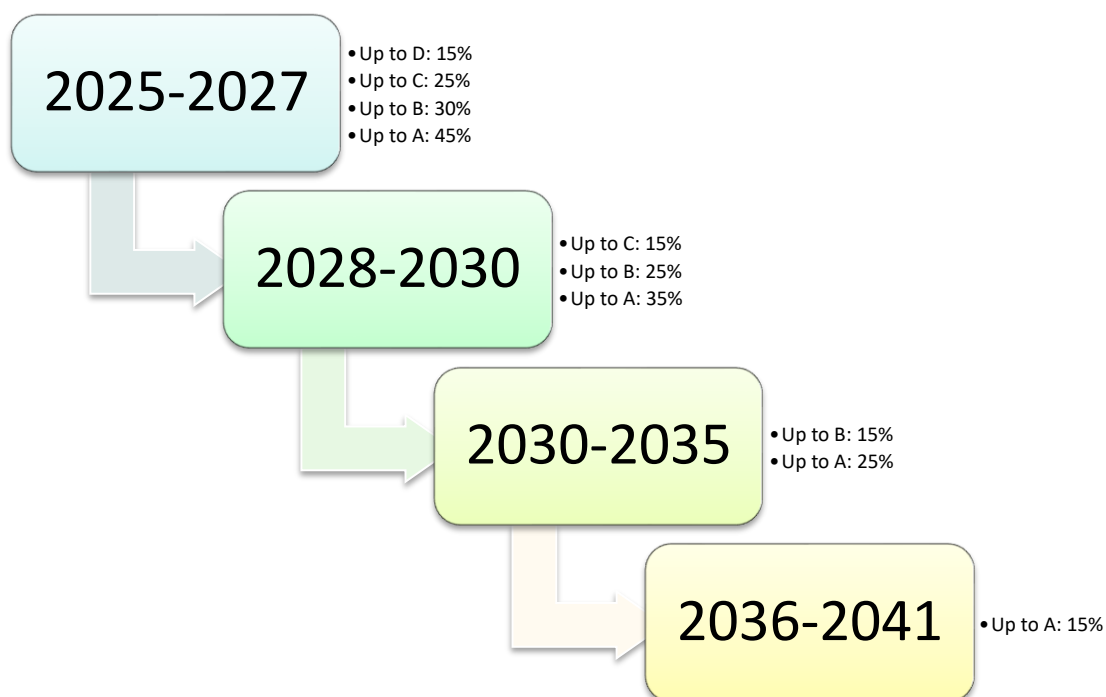
The following graph illustrates for each building category what are the needed (and modelled under D3 and D4) instruments.

Figure 4-5 - Building categories and associated needs



MEPS requirements can be included in the renovation grants, and in such a case, renovation grants will provide funding for MEPS. This is especially relevant for single family houses where renovation grants have not had specific EPC class or EP-value requirements, which can be specified for MEPS. As renovation grants for multifamily require EPC class C, these projects always fulfil MEPS requirements. To facilitate MEPS compliance well ahead of the deadline by promoting deep renovation, a phased grant system is proposed. Up until 2027, renovations reaching level D receive a 15% grant, level C gets 25%, level B receives 30%, and level A qualifies for a 45% grant. Subsequently, before 2030, renovations achieving level C get a 15% grant, level B receives 25%, and level A is eligible for a 35% grant. Before 2036, a 15% grant is offered for renovations reaching level B and 25% for those achieving level A. Finally, before 2042, a 15% grant is extended to renovations achieving level A. To provide extra support, low-income groups and the worst-performing buildings can benefit up to a doubling of the grant level.

Figure 4-6 - Supporting a phased in MEPS approach, 2025-2041



Beyond alignment of public expenditure, the MEPS framework can serve as a potent tool for steering private financing toward MEPS compliance. This could be achieved through the implementation of Mortgage Portfolio Standards, compelling all mortgage lenders to enhance the average energy performance of their mortgage portfolios in line with MEPS framework requirements and the overarching objective of achieving climate neutrality by 2050.

MEPS would effectively communicate that non-compliant assets face the risk of devaluation, prompting lenders, investors, and insurers to incorporate this risk into their considerations. Integrating Mortgage Portfolio Standards into the EPBD would be transformative, as it would mandate major financial stakeholders in European buildings (with a total lending of 7,000 billion euros against residential property) to offer financial products encouraging energy efficiency measures for their 50 million customers and prioritize high standards when acquiring properties.⁵⁵

4.4 Administration of the scheme

4.4.1 Analyse current institutional gaps and barriers for the implementation of the policy

Ministry of Climate, Building, and Housing:

- Define Renovation Parameters: Establish acceptable timelines and expected depth of renovation, particularly focusing on the worst-performing buildings.
- Poverty Aspect Rules: Collaborate in the development of rules that address poverty-related aspects concerning the implementation of Minimum Energy Performance Standards (MEPS).

Local Authorities (Cities and Municipalities):

⁵⁵ https://institutdelors.eu/wp-content/uploads/2021/11/PP271_Adressing-the-climate-and-social-emergencies_Defard_EN.pdf

- Local Considerations: Collaborate in the design and development of MEPS to ensure local nuances, challenges, and considerations are integrated into the standards.

Architects and Construction Companies:

- Expert Consultation: Provide expert consultation throughout the development and refinement of MEPS, leveraging architectural and construction expertise to ensure the standards are practical, effective, and align with industry capabilities.

Consumer Protection and Technical Regulatory Authority (TTJA):

- Surveillance Tasks: Oversee the surveillance of energy performance requirements and Energy Performance Certificates (EPCs).
- New MEPS Tasks: Potentially undertake new tasks related to MEPS administration and verification, including checking EPC availability, verifying MEPS compliance, and initiating procedures for non-compliance.
- Checking the availability of valid EPCs from EHR building registry
- Checking that MEPS requirements are fulfilled (EPC class D available) in the corresponding building categories
- In sold detached houses which do not have EPC class D, checking that new EPC with class D would be available within five years
- Initiating procedures for those not fulfilling the requirements

4.5 Monitoring and verification of the scheme

4.5.1 Analyse the current monitoring and verification that can be used for the scheme

Building benchmarking serves as a crucial preliminary step for establishing performance standards. The majority of existing performance standards hinge on prior building benchmarking, utilizing the data to inform the standards and often adopting the metrics established through benchmarking.

An operational rating metric is well-suited for commercial buildings. Meanwhile, an asset-based metric is deemed suitable for small residential structures. Given the diverse uses of commercial buildings, finding a valid asset-based rating for larger nonresidential buildings proves challenging. When the goal is to reduce actual energy consumption (or resulting emissions), measured performance emerges as the superior metric. In the context of homes and small residential buildings, having replicable asset ratings based on easily observable appliances, equipment, and building envelopes is more practical. Operational ratings in homes can be significantly influenced by resident behavior, making an operational rating potentially misleading to prospective purchasers. Consequently, the asset rating is likely a more suitable metric for homes. The optimal approach for larger multifamily buildings is yet to be determined.⁵⁶

Several key monitoring indicators include:

- Compliance rate
- Energy savings - reduction in energy consumption per household
- Monitoring can be based on before renovation and after renovation EPCs. This practice has been used for monitoring of energy savings of renovation grants, and it can be extended for MEPS too.

⁵⁶ https://www.aceee.org/sites/default/files/pdfs/buildings_standards_6.22.2020_0.pdf

Building registry

Existing building registry EHR (<https://livekluster.ehr.ee/ui/ehr/v1>) has already a full functionality to monitor EPCs. The only additional data MEPS will provide, is a date when MEPS requirement/EPC class D will come into force. This would require creating a new field, as well as a field to mark would MEPS requirements apply or not for a specific building. These new fields can be automatically filled by the system, for which a small development would be needed. Otherwise EHR database has today necessary filters for building categories and EPC classes to execute MEPS monitoring and verification activities.

5 NECP monitoring and reporting scheme

An XLS sheet has been prepared separately to guide the implementation of the COMMISSION IMPLEMENTING REGULATION (EU) 2022/2299 of 15 November 2022 laying down rules⁵⁷ as regards the structure, format, technical details and process for the integrated national energy and climate progress reports.

This separate XLS also illustrates the guidance with the complete reply for the Voluntary Agreement.

⁵⁷ for the application of Regulation (EU) 2018/1999 of the European Parliament and of the Council

Trinomics B.V.
Westersingel 34
3014 GS Rotterdam
The Netherlands

T +31 (0) 10 3414 592
www.trinomics.eu

KvK n°: 56028016
VAT n°: NL8519.48.662.B01

