



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

Deliverable 4: Action plan for implementing the optimal energy efficiency pathway

(REFORM/SC2022/067)

Trinomics 

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Disclaimer

The views expressed herein can in no way be taken to reflect the official opinion of the European Union.



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In association with:



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1 Introduction

1.1 Objectives of the action plans

The aim of deliverable 4 is to provide the Estonian authorities with a detailed implementation action plan up to 2035 and less detailed action plan until 2050 for the optimal pathway identified under deliverable 3. It comprises details to cover all relevant steps for the successful achievement of the optimal pathway and may feed into the update of Estonia's National Energy and Climate Plan.

It details the concerned EE measures, explains the required legislative, regulatory, fiscal, institutional and procedural changes and reforms that Estonia should undertake and provide high-level recommendations for the changes to be made in order to implement the optimal pathway. It includes a timetable and highlight interlinkages between actions. It supports the identification of public and private funding sources to support the implementation of the pathway. Building on the risk analysis carried out under deliverable 3, it provides for the EE measures with the highest risk, suggestions for alternative options.

Energy Efficiency measures are bundled per sub-sectors into 9 "key Action Plans" (4 in buildings, 2 in industry and 3 in transport) which are described in chapter 3 of this report, and detailed with underlying data in "D4 Modelling v8", tabs "AP Building", "AP Industry", and "AP Transport". Each Action Plan comprises all Energy Efficiency measures that support the concerned subsector in a consistent way, addressing interactions and complementarities.

In addition to these 9 Action Plans, there is a 10th cross-cutting Action Plan, addressing the fiscal and taxation measures. Although the specific taxation measures are most of the time comprised into the subsector Action Plans, it seems also crucial to ensure coherence between these closely related measures. Therefore, this 10th Action Plan complements the taxation measures from the other plans, while looking at the overall impact of such measures.

1.2 Structure of this report

The report is structured as follows

- Chapter 2 summarises the most optimal pathway (CEER2) selected under Deliverable 3, highlighting its EE measures. It reminds the level of ambition needed to achieve the included measures, and recalls the need for additional "enabling" measures
- Chapter 3 details the Action Plans, providing
 - General introduction
 - Main barriers to the energy efficiency target in the concerned subsector
 - Main steps or sub-actions to be taken, ranked by priority
 - Action plan timeline
 - Measures of the action plan - elements for the design of the measures
 - Involved parties and roles/responsibilities
 - Main risks & opportunities
- Chapter 4 addresses funding opportunities
- Chapter 5 provides an overarching assessment of the risks related to each Action Plan and summarises all action in one overarching Action Plan

2 Selected pathway and its energy efficiency measures

The selected pathway (Comprehensive Energy Efficiency Reform 2 (CEER2) pathway) is the only pathway allowing to reach all very ambitious Energy Efficiency targets, set by the new regulatory framework (EED). Being the most ambitious, it also ensures a holistic approach, that brings together various measures from all the previous pathways with implementation across buildings, industry and transport while considering the balance of efforts between the sectors and subsectors. It is the most pragmatic and cost effective option to reach the EED targets, achieving significant energy efficiency improvements across different sectors and domains. The measures largely consist of building renovation, all transport measures, while boosting the industry to increase its energy savings via Voluntary Agreements.

Particularly, this pathway has more emphasis/support for grants (multifamily), the implementation of a CO₂ tax, the implementation of obligation schemes for non-residential, accelerated energy savings in the industry via strengthened VA, and more promotion of public transport. By combining these measures, CEER2 aims to create a synergistic effect that amplifies the impact of individual actions.

The key action areas and associated measures of the CEER2 pathway are:

- **Buildings**, which provides a mix of normative measures (MEPS and obligation scheme) with grants and fiscal measures to incentivise renovation of residential and non-residential buildings. Enabling measures tackle issues relating to technical, social and economic barriers to renovation.

	Residential buildings		Non-residential buildings	
	Single family houses	Multi-family houses	Public buildings	Commercial buildings
Normative measures	MEPS targeting rented/selling dwellings		- Obligation scheme for service sector - MEPS (regulatory requirements for EPC class E&F)	
Positive incentives	Renovation grants (20-30% support)	Renovation grants (30% support)	Central government buildings (100% support) and Public and municipality buildings (60% support in average) renovation support	
Fiscal measures	Excise and VAT of natural gas, electricity, heating, gasoline, diesel fuel and light fuel oil			
	VAT of firewood and wood chips and waste			
	Property tax (according to EPC levels)			
	CO ₂ tax for end energy use			
	Tax deduction for renovation works by private persons			
Enabling measures	Technical capacity building (professionals training & certification)	Attract workforce to face higher renovation rate, with required technical capacity (professionals)	Technical capacity building (professionals training & certification)	
	Set up instruments (e.g. One-Stop-Shop, Building Renovation Passports, building observatory)	Set up instruments (e.g. Energy Performance Contracting)	Set up instruments (e.g. Building Renovation Passports, EPContracting, building observatory)	
	New technological solutions (e.g. digital)	New technological/business solutions (e.g. digital, prefabricated,	New technological solutions (e.g. digital, pre-fabricated)	

		attractive programmes)	
	Sustainable financing	Sustainable financing for companies	
	Empowering households	Empowering associations, building owners	Empowering building occupiers / operators

- **Industry**, which supports industry efficiency by setting up voluntary schemes for both large industry and SMEs, along with financial support and fiscal incentives to reduce energy consumption. Enabling measures primarily focus on addressing technical barriers.

Industry, agriculture, fisheries & forestry			
	Large industry	Small scale plants & SMEs	
Voluntary	Voluntary scheme, with binding targets based on incentives	Energy consulting and networking events for small and medium enterprises (SMEs)	
Positive incentives	- Promotion of resource-efficient green technologies of industrial enterprises (RRP) - Investment support for the food industry to ensure security of energy supply - Supporting energy efficiency investments in companies		
	Supporting energy efficiency investments in energy-intensive companies	Energy efficiency measures in the fisheries sector	
Fiscal measures	Excise and VAT of natural gas, electricity, heating, gasoline, diesel fuel and light fuel oil		
	VAT of firewood and wood chips and waste		
Enabling measures	Technical capacity building (various trainings)		
	Set up instruments (e.g. audits, EPContracting)		
	New technological solutions (e.g. digital, alternative low carbon fuels, breakthrough technology)		
	Empowering industry		
		Audits in large agricultural holdings	

- **Transport**, which incentivises car/vehicle efficiency, public transport and micro-mobility by primarily developing infrastructure and providing positive incentives to use alternative modes of transport. Enabling measures primarily tackle technical and social barriers.

Transport			
	Car efficiency	Public transport	Micro-mobility
Positive incentives	Promotion of clean and energy efficient road transport vehicles in public procurement	Subsidy for public transport usage instead of personal vehicle	Subsidy for micro-mobility usage instead of personal vehicle
Investment in infrastructure	Electric charging infrastructure for existing inhabitation areas	-Convenient and modern public transport - Railroad infrastructure (includes the building of Rail Baltic) - Railroad electrification - Acquisition of additional passenger trains - New tram lines in Tallinn	Priority lanes for micro-mobility
Fiscal measures	Excise and VAT of natural gas, electricity, heating, gasoline, diesel fuel and light fuel oil		
	VAT of firewood and wood chips and waste		
	Vehicle tax for registration Annual vehicle tax	Tallinn and Tartu congestion charge	
Enabling measures	Technical capacity building (e.g. for charging infra deployment)	Technical capacity building (strategic mobility plan, training operators)	Technical capacity building (training professionals)
	Set up instruments (e.g. EV subscription for public recharging, ...)	Set up instruments (e.g. combined tickets train-tram-bus, ...)	Set up instruments

	New technological solutions (e.g. digital userfriendly application)	New technological solutions (e.g. digital userfriendly application)	New technological solutions (e.g. digital userfriendly application, e-bike market support)
	Incite passengers to purchase more efficient cars (ICE or EVs)	Incite passengers to use car alternatives	Incite passengers to use car alternatives
	Mobilise required land to deploy the infrastructure		

The *CEER2* pathway **meets almost all EED targets**. This pathway overall overperforms the baseline scenario in terms of meeting Estonia's EE targets laid out in the NECP 2030 (Table 2-1). The average annual final energy savings rate from 2024 to 2030 is 1.9% (in line with the EE target of 1.49%) and final consumption drops to 28.4 TWh by 2030 (EE target is less than 30 TWh). Additionally, the final energy savings rate in 2030 is greater than the EED target of 1.9% (1.96%). However, the pathway does not meet the cumulative energy savings NECP target of 21.3 TWh, nor the final energy savings target for public buildings or transport.

Table 2-1 Comparison of pathway outcomes and EE targets

	Year	Unit	EED target	NECP 2030	Baseline	CEER2
Final energy consumption	2030	TWh	30.0	33.3	32.8	28.7
Cumulative energy savings	2021-2030	TWh		21.3	5.5	20.7
Final energy savings rate	2030	%	1.90%	1.90%	0.1%	1.96%
Final energy savings rate, average	2024-2030	%	1.50%	1.50%	0.1%	1.9%
Primary energy consumption	2030	TWh	45.7	63.9	51.5	45.1
Final energy savings of public sector/buildings	2021-2030	%	1.9%		0.0%	1.6%
Renovation rate of public owned buildings	2021-2030	%	3.0%		0.9%	6.4%
Total renovated area of central government buildings	2021-2030	mln. m2		0.30	0.12	91.6%
Industry annual energy savings	2030	GWh		232	142	338.8
Transport fuel consumption	2030	TWh		8.3	10.1	8.6

3 Action plans

Action Plans have been organised by Sectors and Sub-Sectors

- 3.01. Residential buildings - detached
- 3.02. Residential buildings - apartments
- 3.03. Non-residential - public (central government & municipal)
- 3.04. Non-residential - commercial
- 3.05. Industry (agro-forestry) - large plants
- 3.06. Industry (agro-forestry) - SMEs
- 3.07. Transport - car efficiency
- 3.08. Transport - public transport
- 3.09. Transport - multi modal
- 3.10. Cross-cutting - fiscal & taxation

These action plans have been split into short term horizon, to show the actions that should be taken now, and the longer-term actions, at the 2050 horizon. However, given the ambitious level of energy efficiency at 2030 (EED targets as described under D3), all measures have to be implemented as soon as possible, and consequently all actions should be taken to implement these measures.

3.1 Residential buildings - detached

3.1.1 Introduction

This action plan addresses all measures that need to be implemented to reach the energy efficiency targets set for residential, detached buildings. While there are similarities and commonalities between all four of the building action plans, the four buildings sectors have been divided (residential - detached, residential - multi-family, non-residential - public, non-residential - commercial), in order to appropriately tailor measures to the differences in the building stock sectors.

3.1.2 Barriers to the energy efficiency target

Policy barriers

- **Low Energy Efficiency Targets:** Existing policy targets for energy efficiency may not be ambitious enough to drive significant improvements in single-family homes.
- **Inconsistent Regulations:** Inconsistencies or lack of clarity in regulations related to energy efficiency standards and requirements.
- **Limited Incentives:** Insufficient incentives or subsidies for homeowners to invest in energy-efficient upgrades.

Market / financial barriers

- **Limited Availability of Energy-Efficient Products:** The market may lack a variety of affordable and easily accessible energy-efficient products for homeowners.
- **Inadequate Information:** Homeowners might lack comprehensive information on available energy-efficient solutions and technologies.
- **Slow Adoption of Innovative Technologies:** A slow adoption rate of innovative and energy-efficient technologies in the construction and renovation market.
- **For all building groups, it is difficult to motivate the renovation of a property that is located in an area with a low real estate value and whose market value does not increase significantly after reconstruction. In these cases, the project is hardly eligible for credit**

Technical/capacity

- **Skilled Labor Shortage:** Shortage of skilled workers, such as energy auditors and technicians, who can effectively implement energy efficiency measures.
- **Limited Availability of Materials:** Constraints on the availability of materials needed for energy-efficient upgrades.
- **Lack of Training Opportunities:** Limited opportunities for training and education in modern energy-efficient technologies for construction professionals.

Social

- **Low Awareness:** Limited awareness among homeowners about the benefits of energy-efficient practices and technologies.
- **Resistance to Change:** Resistance among homeowners to adopt new technologies or make changes to their homes.
- **Cultural Preferences:** Prevailing cultural preferences or norms that may not prioritize energy efficiency in home design or renovation.

3.1.3 Main steps or sub-actions to be taken, ranked by priority

Expand Capacity of Kredex:

To enhance the capacity of Kredex, the following steps will be taken:

- Recruitment and training of additional staff to handle increased workload.
- Investment in technology and infrastructure to support expanded operations.
- Collaboration with relevant stakeholders to ensure streamlined processes.
- **Expand/Design New Grant System:** The expansion or creation of a grant system will involve:
 1. Comprehensive research to identify the specific areas or sectors where grants will be most impactful.
 2. Development of clear eligibility criteria and application processes.
 3. Establishing a transparent and efficient evaluation mechanism to disburse grants effectively.

Design MEPS & Establish Legal Basis (e.g., Building Act):

The design and establishment of Minimum Energy Performance Standards (MEPS) will encompass:

- Collaboration with experts and industry stakeholders to set MEPS at appropriate levels.
- Drafting and advocating for necessary legal amendments, such as inclusion in the Building Act.
- Creating a framework for monitoring and enforcing compliance with MEPS.

Establish an Online Repository of Information - an online one-stop-shop:

The online repository of information will include:

- Aggregating and regularly updating information on available financing options for energy efficiency projects.
- Providing links to accredited contractors and service providers for easy access.
- Offering detailed information on various energy-saving measures and their benefits.
- Developing a user-friendly platform that includes an observatory and digital building logbook for storing Energy Performance Certificates (EPCs) and Building Renovation Passports (BRPs).
- Offering templates and tools for the assessment of building energy performance.

Establish a Building Renovation Passport (BRP):

There are two options for establishing a BRP:

1. **Strengthen & Extend the EPC:** Enhancing the existing Energy Performance Certificate (EPC) to incorporate details on cost-effective improvement measures and potential energy savings.
2. **Develop a Completely New BRP:** Creating a separate and comprehensive Building Renovation Passport that includes all relevant information for building owners, such as EPC data, recommended renovation measures, associated costs, and potential savings.

Design the Property Tax Guidelines:

Designing property tax guidelines will involve:

- Collaboration with tax authorities and experts to develop clear guidelines for property tax assessment.
- Ensuring that the guidelines incentivize energy-efficient renovations and consider various factors that affect property values.
- Communicating the guidelines effectively to property owners and relevant authorities for consistent application.

3.1.4 Measures of the action plan in detail

Minimum energy performance standard (MEPS)

Table 3-1 Summary table of the proposed measure

Type of measure	Normative
Main objective	Implement Minimum Energy Performance Standards in residential-detached buildings
Monitoring KPIs	<ul style="list-style-type: none"> • Compliance rate • Energy savings - reduction in energy consumption per household
New/existing measure in Estonia	This is a new measure for Estonia in-line with the potential EBPD requirements

1. **Validate EPCs are Fit for Purpose (Legally Binding):**
 - **Objective:** Ensure that Energy Performance Certificates (EPCs) serve as reliable indicators of a building's energy efficiency.
 - **Means:** Establish a validation process to confirm the accuracy and relevance of EPC data.
2. **Renovation Requirements Based on EPC Labels:**
 - **Objective:** Drive improvements in energy efficiency by setting renovation requirements linked to EPC labels.
 - **Timeline:**
 - EPC labels F & above must be renovated until label D by 2026.
 - EPC labels E & above must be renovated until label C by 2031.
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).

Grants

Table 3-2 Summary table of the proposed measure

Type of measure	Positive incentive
Main objective	Develop and further expand existing grant programmes for building renovation
Monitoring KPIs	<ul style="list-style-type: none"> • Energy savings - reduced energy consumption (kWh) • CO₂ reductions • Number of projects completed • Cost-effectiveness - calculating the cost per unit of energy saved or the cost per ton of CO₂ emissions reduced
New/existing measure in Estonia	Existing measure - Financing measures for renovation (grants, loans, loan guarantees - implementing EU funding)

This dual-option strategy aims to provide flexibility and efficiency in promoting energy efficiency measures. Option 1 focuses on a dynamic grant structure based on the investment-savings gap, while Option 2 aligns with supporting compliance with Minimum Energy Performance Standards (MEPS) within specified deadlines.

Option 1: Investment-Savings Gap Principle

- Principle Basis: Utilize the investment-savings gap principle for enhanced efficiency rather than a fixed percentage (e.g., 30%).

- Components to Support: Identify key components for support: wall & roof insulation, glazing, efficient heating and hot water systems (HP, bio-based appliances, solar heat), and ventilation.
- Calculation Method: Calculate support based on a 15-year payback time. Formula: SPBT (Simple Payback Time) = INV (EUR) / [YEARLY SAVINGS (kWh/y) / ENERGY PRICE (eur/kWh)]. If SPBT > 15y, reduce investment cost by a percentage. For example, if SPBT is 20y, grant reduces by 25%.
- Income-Dependent Grant: Evolutive grant structure, with support levels three times higher for low-income households compared to high-income ones (capped at 80%).

Option 2: Supporting MEPS Compliance Ahead of Deadlines

- Based on supporting MEPS compliance ahead of the deadline.
 - Before 2026: grant to cover 15% of renovation costs if renovated up to level D, 25% if up to level C, 30% if up to level B and 45% if up to level A.
 - Before 2029: 15% of renovation costs if renovated up to level C, 25% if up to level B, 35% if up to level A.
 - Before 2036: 15% of renovation costs up to level B, 25% up to level A.
 - Before 2042: 15% of renovation costs up to level A.
 - Low-income groups and worst-performing buildings would get a higher support rate on top (+5%).

When designing grants for private houses and apartment buildings, it should be pointed out that the subsidy rate to be decided should also take into account the potential increase in the value of the property after the investment in conditions of limited funds. Areas/value zones in which real estate is liquid and demand is high, the subsidy rate can be lower and vice versa. This would make it possible to use the support more efficiently and ensure a regionally more uniform reconstruction rate. This would also make it possible to harmonize the availability of credit. Such experience already exists today in the implementation of measures. Not everywhere does the investment significantly increase the value of the property.

It should be taken into account that there are social groups that are not able to initiate renovation and carry out this process even with 100% support (the variety of owners is very diverse, including the elderly, those in need of social support). It affects both private houses and apartment buildings and should be noted as a restriction on the implementation of the plan. Specific measures or dedicated programmes should be implemented to provide ad hoc support to these concerned households.

Tax reductions/refund

Table 3-3 Summary table of the proposed measure

Type of measure	Price signal incentives
Main objective	Establish a tax reduction or refund programme for energy efficiency implementation works
Monitoring KPIs	<ul style="list-style-type: none"> • Energy savings - reduced energy consumption (kWh) • Participation rates
New/existing measure in Estonia	New measure

1. **Gradual Reduction:**
 - Lower the tax rate from 20% (2024 rate of 22%) to 6% for all renovation projects aimed at improving the energy performance of the building.
2. **New Buildings Incentive:**
 - Maintain a 20% tax rate for new buildings to encourage energy-efficient construction practices.
3. **Comprehensive Coverage:**
 - Extend the tax reduction to cover expenses related to both renovation works, materials, and associated labor costs.
4. **Simplified Application (Option 1):**
 - Explore the option of automatic application by construction workers. They would need to declare the purpose of their work, streamlining the process and minimizing administrative burden.
5. **Direct Refund to Homeowner (Option 2):**
 - Alternatively, consider a mechanism where the tax difference is refunded directly to the homeowner. While this may entail more effort for individuals, it could provide a transparent and direct benefit.
6. **Compensatory Mechanism:**
 - Acknowledge that the reduced tax revenue will be offset by an anticipated increase in renovation volumes, contributing to overall economic growth.
7. **Incentivizing Replacement:**
 - Extend the tax reduction to new buildings replacing demolished structures, particularly those with poor energy performance. This aims to stimulate the replacement of outdated and inefficient buildings.

Property taxation

Table 3-4 Summary table of the proposed measure

Type of measure	Price signal incentives
Main objective	Establish a property tax determined by the property value and contingent on the energy performance of the building (potential for a possible incentive if the building has a high rating).
Monitoring KPIs	<ul style="list-style-type: none"> • Participation rates • CO₂ reductions
New/existing measure in Estonia	New measure linked to existing property tax

- **Universal Tax Liability:** All property owners are obligated to pay a real property tax, with the applicable rate determined by the property type.
- **Tax Burden Calculation:** The real property tax burden is computed by multiplying the assessed value of the property by the real property tax rate and the municipal multiplier.
- **Energy Performance Adjustment:** An additional multiplier, contingent on the energy performance of the building (as indicated by the Energy Performance Certificate or EPC rating), should be incorporated into the calculation.
- **Guidelines for Municipalities:** Proposed guidelines and values, derived from the average national stock (as per the Long-Term Renovation Strategy or LTRS), can be suggested to municipalities. These suggestions may include percentage increases or decreases. However,

municipalities retain the flexibility to adapt these averages based on their specific characteristics, using them as a reference point.

- **Energy Rating Criteria:** For owned houses, the energy performance criterion could be set at the D label, while for rented houses, it could be set at the E label.

CO₂ tax for energy use

Table 3-5 Summary table of the proposed measure

Type of measure	Price signal incentives
Main objective	Establish a CO ₂ tax for energy use in buildings
Monitoring KPIs	<ul style="list-style-type: none"> • Calculated based on the type and quantity of energy consumed (i.e., electricity use, natural gas, heating oil, etc.) and calculating the resulting CO₂ emissions. • Tax Amount = Total CO₂ Emissions (kg CO₂) × Tax Rate (euros per kg CO₂). • The tax is then collected through energy bills or through a separate tax mechanism. • Energy providers, such as utilities, are responsible for billing and collecting the tax on behalf of the government.
New/existing measure in Estonia	New measure

- Calculation basis: The CO₂ tax is determined by evaluating the type and volume of energy consumed (e.g., electricity, natural gas, heating oil) and subsequently computing the associated CO₂ emissions.
- Tax calculation formula: The Tax Amount is derived by multiplying the total CO₂ emissions (measured in kilograms) by the specified Tax Rate (expressed in euros per kilogram of CO₂). Tax Amount = Total CO₂ Emissions (kg CO₂) × Tax Rate (euros per kg CO₂).
- Collection process: The tax is integrated into energy bills or managed through a distinct tax mechanism.
- Responsible party: Energy providers including utilities, bear the responsibility of invoicing and collecting the tax on behalf of the government.

Design of the measures - Capacity building: Training and hiring

Table 3-6 Summary table of the proposed measure

Type of measure	Enabling measure
Main objective	Facilitate training and expand worker capacity to implement and guide energy efficiency measures in buildings.
Monitoring KPIs	<ul style="list-style-type: none"> • Jobs created / Job placement and advancement • Number of accredited certifiers and auditors • Completion rate of training programmes • Partnerships and collaboration
New/existing measure in Estonia	Expand on somewhat existing one-stop-shop measures for worth performing building to include information for all buildings. Expand on current certifications and training programmes.

This strategy encompasses building a qualified pool of BRP auditors through accessible training resources, assessing the current state of EPC processes, deciding the scope of training, and extending professional development to building management administrators.

Building Renovation Passport (BRP) Auditor Training:

1. Auditor Accreditation Process:

- Conduct training sessions, both in-person and online, to accredit auditors for the Building Renovation Passport (BRP).
- Maintain a comprehensive database of training resources and a registry of accredited auditors.

2. Assessment of Current EPC Process:

- Evaluate the existing Energy Performance Certificate (EPC) assessment process.
- Determine the current number of accredited assessors in Estonia.

3. Level of Training/Accreditation:

- Decide whether training and accreditation will occur at the national or regional level.

4. Professional Training for Building Management:

- Provide training for professionals engaged in the administration of building management.

Additional enabling support for training and capacity building:

- For anyone considering an energy retrofit, task number one is to obtain reliable information and expert advice → Establish a one One-Stop-Shop (OSS) nationally to provide advice to housing owners
 - Information on grants, on professionals, on works and techniques - establish different layers of possible support is feasible by the OSS (i.e., one level to provide advice, another level to facilitate/administer application for financing, matching with auditors)
 - If successful, replicate in other large cities
- Task two is to know what to do, being guided by a dedicated **Building Renovation Passport (BRP)**
 - Conducted by an independent (and ideally accredited) auditor, it will serve as reference for MEPS (determine the current level & the way to reach the binding level)
 - It provides a clear view on the performance of the building (identify weaknesses), which should confirm the EPC level, the works to improve the performance (with expected savings & costs), and a plan to go step by step to high performance (EPC label A++)
 - The BRP report should be centralized on administration system, to verify compliance (consider a national digital building logbook/register)

Design of the measures - Sustainable financing and support instruments

Table 3-7 Summary table of the proposed measure

Type of measure	Positive incentive
Main objective	To provide financing options in addition to grants.
Monitoring KPIs	<ul style="list-style-type: none"> • Data completeness - how comprehensive the submitted data is • Data accessibility and accuracy • Data usage • Policy influence / reference • Integration with other systems
New/existing measure in Estonia	New measure

All information gathered will feed into a nearly established national digital building logbook to store all information

- Building observatory - use same infrastructure as *Statistics Estonia, Kinnistuportaal (Property Registration Portal), or Ehitisregister (Building Register) i.e., EHR* and include energy data for homes.
- Utilize the platform for EPC assessment and BRP templates
- Establish a revolving fund for energy efficiency financing
- Establish a guarantee fund for energy efficiency projects
- Establish a national climate bank to administer energy efficiency funding

Empowering households

- Awareness campaign

Required legislative, regulatory, fiscal, institutional and procedural changes and reforms that Estonia should undertake

- **Legislative:** MEPS requires legal basis (e.g. law)
- **Regulatory:** the MEPS scheme can be either similar to building codes, either integrated in the notarial acts (for selling & renting); Building Renovation Passport
- **Fiscal:** fuel excise & VAT, fuel CO₂, property, tax deduction
- **Institutional changes:** crucial involvement of housing administration; to establish & operate an OSS, coordination between central administration, KredEx and local /regional authorities has to be set up;
- **Procedural changes:** the way to establish grants schemes should be improved (and consider poverty aspects);
- **Reforms:** /

3.1.5 Involved parties roles and responsibilities

The table below presents the roles and responsibilities of the different parties in the implementation of the measures included in this action plan.

Table 3-8 - Involved parties, roles and responsibilities

Actors	Roles, responsibilities and tasks
Ministry of climate, building and housing,	<ul style="list-style-type: none"> • Collaboration on Minimum Energy Performance Standards (MEPS): <ul style="list-style-type: none"> ○ Define acceptable speed and expected depth of renovation for the worst-performing buildings (*). ○ Collaborate on developing rules addressing poverty aspects related to MEPS. • Property Taxation: <ul style="list-style-type: none"> ○ Work jointly to develop guidelines for municipalities, involving local authorities' central administration. • Grant Programs: <ul style="list-style-type: none"> ○ Establish the list of eligible investments for energy efficiency measures. ○ Conduct investment-saving gap calculations, requiring research on products and the energy market. ○ Mobilize budgetary resources for grant programs. • CO₂ Tax:

Actors	Roles, responsibilities and tasks
	<ul style="list-style-type: none"> ○ Determine an appropriate tax level in coordination with relevant tax authorities. ● Tax Deduction: <ul style="list-style-type: none"> ○ Define the scope of eligibility for tax deductions related to energy efficiency measures.
<p>Local authorities (cities and municipalities)</p>	<ul style="list-style-type: none"> ● Contribution to Designing Minimum Energy Performance Standards (MEPS): <ul style="list-style-type: none"> ○ Collaborate in the design and development of MEPS to ensure local nuances and concerns are considered. ● Involvement in Property Taxation: <ul style="list-style-type: none"> ○ Provide insights and inputs for the development of property taxation guidelines, drawing on their close proximity to households and understanding of local concerns. ● Proximity to Households: <ul style="list-style-type: none"> ○ Leverage their proximity to households to gain insights into the specific concerns and preferences of the local community. ● Early-Stage Involvement: <ul style="list-style-type: none"> ○ Participate in energy efficiency initiatives at an early stage to ensure that local perspectives are integrated from the beginning of the planning process. ● Communication and Outreach: <ul style="list-style-type: none"> ○ Facilitate communication and outreach efforts to educate and involve local residents in energy efficiency programs and initiatives.
<p>Architects and construction companies</p>	<ul style="list-style-type: none"> ● Consultation on MEPS (Minimum Energy Performance Standards): <ul style="list-style-type: none"> ○ Provide expert consultation on the development and refinement of MEPS, leveraging architectural expertise to ensure practical and effective standards. ● Building Renovation Passports (BRP): <ul style="list-style-type: none"> ○ Contribute to the creation and implementation of Building Renovation Passports, offering insights on the technical aspects and energy efficiency features during the design and renovation phases. ● Input for Relevant Trainings: <ul style="list-style-type: none"> ○ Provide input and recommendations for training programs related to energy efficiency, ensuring that professionals in the field are equipped with the necessary skills and knowledge. ● Skills Needs Assessment: <ul style="list-style-type: none"> ○ Collaborate in assessing the skills needs within the architectural and construction sectors concerning

Actors	Roles, responsibilities and tasks
	<p>energy-efficient practices, facilitating ongoing professional development.</p> <ul style="list-style-type: none"> • Implementation Support: <ul style="list-style-type: none"> ○ Assist in the practical implementation of energy efficiency measures, incorporating sustainable design principles and construction practices into building projects. • Innovation and Technology Integration: <ul style="list-style-type: none"> ○ Explore innovative technologies and construction methods that enhance energy efficiency, contributing to the evolution of industry standards. • Client Education: <ul style="list-style-type: none"> ○ Educate clients on the benefits of energy-efficient designs and renovations, promoting sustainable practices in construction projects.

(*) Some buildings will never undergo significant reconstruction and there is no need for it. Some buildings tend to fall out of use due to their technical condition, unsuitable location or construction solution, etc., and it is not reasonable to reconstruct them. Also, the owner does not have the economic sense nor motivation to reconstruct buildings in unattractive areas where, due to the change in the economic structure, there is no longer the former perspective. This applies to private houses, apartment buildings (because the investments made, even if it were possible for this group of residents, do not increase the value of the property in comparison to the investment made), public sector buildings and other buildings. Taxing such buildings accelerates their natural obsolescence and creates social problems. There is a risk of spending support funds on buildings that should actually be demolished after some time of use until depreciation. It would be necessary to consider an exemption mechanism to prevent unreasonable investments.

3.1.6 Risks and opportunities

The table below presents the main risks and opportunities associated with the implementation of the measures included in this action plan.

Table 3-9- risks and opportunities associated with the implementation of the measures

Risks	Opportunities
<p>MEPS (Minimum Energy Performance Standards)</p> <ol style="list-style-type: none"> 1. Market Dynamics Impact: <ul style="list-style-type: none"> • MEPS could impact the rental market dynamics and competitiveness of properties, potentially leading to higher rents. 2. Technical Challenges: <ul style="list-style-type: none"> • Implementation might require complex technical assessments 	<p>MEPS (Minimum Energy Performance Standards)</p> <ol style="list-style-type: none"> 1. Stimulates Renovation: <ul style="list-style-type: none"> • Obliging the worst-performing buildings to renovate drives the transformation of the building stock. 2. Address Split Incentives: <ul style="list-style-type: none"> • MEPS addresses the issue of split incentives and may

Risks	Opportunities
<p>and coordination across stakeholders, leading to delays or non-compliance.</p> <p>3. Affordability Concerns:</p> <ul style="list-style-type: none"> • Stricter standards might increase upfront costs, impacting housing affordability and potentially reducing the overall supply of affordable housing. <p>Grants</p> <p>4. Skill Shortage:</p> <ul style="list-style-type: none"> • Shortage of skilled contractors can hinder successful implementation, causing delays and affecting work quality. <p>5. Income Disparity:</p> <ul style="list-style-type: none"> • Risk that renovation grants might primarily benefit higher-income households, creating an equity challenge. <p>Tax reductions</p> <p>6. Income Disparity:</p> <ul style="list-style-type: none"> • Risk that tax deductions might benefit higher-income homeowners more, creating disparities. <p>7. Limited Motivation:</p> <ul style="list-style-type: none"> • Might not provide sufficient motivation for comprehensive energy efficiency retrofits. <p>Property Tax Based on EPC Levels</p> <p>1. Equity Concerns:</p> <ul style="list-style-type: none"> • Property owners with older buildings or lower incomes might face difficulties with higher property tax payments. • Difficulty to design an equitable scheme (*) • Risk of not having EPC labels <p>2. Data Challenges:</p> <ul style="list-style-type: none"> • Implementation requires accurate data on energy performance, posing challenges 	<p>protect vulnerable households, especially tenants.</p> <p>3. Market Transformation:</p> <ul style="list-style-type: none"> • Drives market transformation by promoting cost-effective adoption of energy-efficient practices. <p>Grants</p> <p>1. Support for High-Cost Projects:</p> <ul style="list-style-type: none"> • Supports projects with high upfront costs or long payback periods, encouraging energy-efficient construction and renovation. <p>2. Market Transformation:</p> <ul style="list-style-type: none"> • Drives market transformation by increasing the availability of sustainable properties. <p>3. Increased Property Values:</p> <ul style="list-style-type: none"> • Energy-efficient buildings are more valuable, enhancing property values in the long term. <p>Tax reductions</p> <p>1. Cost Reduction for Households:</p> <ul style="list-style-type: none"> • Reduces the cost of energy efficiency projects for households, making works more attractive. <p>2. Less Bureaucracy:</p> <ul style="list-style-type: none"> • Generally less bureaucratic than grant programs, encouraging easier participation. <p>3. Job Creation:</p> <ul style="list-style-type: none"> • Encourages "green job creation" in the construction sector. <p>Property Tax Based on EPC Levels</p> <p>1. Shift to Low-Carbon Sources:</p> <ul style="list-style-type: none"> • Provides an incentive to shift towards low- to zero-carbon energy sources. <p>2. Revenue Generation:</p>

Risks	Opportunities
<p>in data collection and maintenance.</p> <p>CO₂ Tax</p> <p>1. Affordability Concerns:</p> <ul style="list-style-type: none"> • Risks related to increased energy prices, potentially impacting household affordability. • Depending on the level of the tax, it could negatively affect the indoor climate of the building 	<ul style="list-style-type: none"> • Generates potential revenue to fund renovation measures. <p>CO₂ Tax</p> <p>1. Shift to Low-Carbon Sources:</p> <ul style="list-style-type: none"> • Provides an incentive to shift towards low- to zero-carbon energy sources. <p>2. Revenue Generation:</p> <ul style="list-style-type: none"> • Generates revenue for potential reinvestment in renovation measures.

(*) The organization of fair taxation is difficult, as the raw data is largely manipulable, to determine the property's value, energy class and CO₂ emissions in the case of local heating. If the documents prepared for assessing the condition of the building (BRP, MEPS, EPC) are used as the basis for determining the tax, their uniform level, comparability and non-manipulation must be ensured. This requires the introduction of personal responsibility for their realisation, selective control of the calculation of labels/audits, etc. In conclusion, very complex and questionable. In addition, equal treatment in the case of buildings whose CO₂ calculation can be automatic (district heating and electricity) and in the case of buildings in which local heating is used for heating.

3.1.7 Summary of the action plan

The action plan is designed in two blocks:

- One **overarching Action Plan**, describing the overall timeline, the responsible and other parties involved, the cost (precising whether it is about investments, or administrative costs such as providing training session or setting up awareness campaigns), and the source of public money (for support schemes, or simply for bearing the administrative costs)
- A **detailed short term Action Plan**, to show the horizon 2030 (2035) perspective for the measures design and implementation, describing what actions should be taken in the coming 3 years.

Overarching action plan

Table 3-10 - Overarching action plan for detached single family houses

Action - single family	Timeline	Responsible	Other parties	Cost - Investments or Administrative	Source of public money
Set up MEPS	Adapt EPC & design MEPS - short term (2025-2027) Implement - medium term (from 2027)	Ministry of climate (building department)	Architects, construction, building owners and operators	EE Investments; 100% private;	/
Continue renovation	Design grant - short term (2025-2027)	Ministry of climate	KredEx, architects, construction,	EE Investments; ~30% from public;	ETS revenues; ETS2 revenues

grants for single family	Implement - medium term (from 2027)	(building department)	building owners and operators		
Implement tax deduction	Design tax scheme - short term (2025-2027) Implement - medium term (from 2027)	Ministry of Finance	Ministry of climate , KredEx, architects, construction, building owners and operators	EE Investments; 100% private; No direct cost for public;	/
Implement property tax	Design tax scheme - medium term (2029-2030) Implement - medium/long term (from 2031)	Ministry of Finance	Ministry of climate, architects, construction, building owners and operators	EE Investments; Split depends on design (bonus, malus, neutral)	/
Implement CO₂ tax	Preparation (incl. awareness) - short term (2025-2027) Implement ETS2 - medium term (from 2027)	Ministry of Finance	Ministry of climate, architects, construction, building owners and operators	EE Investments; Additional gov. income;	/
Implement training programmes	Design trainings - short term (2024-2030) Implement - long term (2025-2035)	Ministry of climate (building department)	Architects, construction, building owners and operators	Admin costs;	Gov. budget
Create an online repository	Design repository - short term (2024-2025) Implement - medium term (2026-2030)	Ministry of climate (building department)	Architects, construction, building owners and operators	Admin costs;	Gov. budget
Develop EPContracting	Design EPContracting - short term (2025-2026) Implement - medium term (from 2026)	Ministry of climate (building department)	Architects, construction, building operators	Admin costs;	Gov. budget
Establish a One-Stop-Shop	Design OSS - short term (2025-2026) Implement - medium term (from 2026)	Ministry of climate (building department)	Architects, construction, building owners, local authorities, KredEx	Admin costs;	Gov. budget
Develop a BRP (to complement EPC)	Design BRP - short term (2025-2027) Implement - medium term (from 2027)	Ministry of climate (building department)	Architects, construction, building owners, local authorities	Admin costs;	Gov. budget

Detailed short term Action Plan

This plan is available in D4 model, in the “AP Building” Tab.

Energy efficiency categorisation	Action plan color code
Positive incentives (grants, deduction, ...)	Development actions
Voluntary with positive incentive	R=Revision for potential update
Investment in infrastructure / fleet	Follow up / Implementation actions
Fiscal measures	F->D means that all buildings above D EPC label should be renovated to D level
Normative (obligation, MEPS, ...)	Preliminary savings thanks to the measure
Enabling measures	Effective savings thanks to the measure
	High level of savings thanks to the measure
	Maximum level of savings thanks to the measure (before slow down)

Measures in single family houses		2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
MEPS targeting rented/selling dwellings	Tot INV [Meur/y]	-	149	152	155	158	161	164	167	171	174	178	
	Public support [Meur/y]	-	-	-	-	-	-	-	-	-	-	-	-
EPC validation (review existing EPC; validate process; establish legal framework)	Responsible => Ministry of climate, building and housing (department of building)												
Renovation requirements (renovation timeline; natural trigger points; mandatory EPC)	Support => local authorities; Ministry of climate, building and housing (department of housing); architects and construction companies			F->D					E->C				
Implementation & compliance (control & validation; sanctions for non compliance)								R					R
Renovation grants for single family houses (20-30% support)	Tot INV [Meur/y]	33	34	35	35	36	37	38	38	39	40	41	
	Public support [Meur/y]	10	10	10	10	10	11	11	11	11	11	12	
Tax deduction for renovation works by private persons (=parallel track for single family)	Tot INV [Meur/y]	30	31	31	32	32	33	34	34	35	36	37	
	Public support [Meur/y]	-	-	-	-	-	-	-	-	-	-	-	-
Integrate Energy Efficiency in all grants related to digitalisation	Responsible => Ministry of Finance & Ministry of climate, building and housing (department of building)				R								
Increase existing grant volume (grant calculation methodology; eligibility criteria; associated guarantee fund; expand KredEx as administering body)	Support => KredEx												
Grant allocation (framework for grant allocation & prioritisation; user friendly application; distribution process via KredEx)													
Implementation (monitoring of savings; feedback & adaptation; include information for awareness raising campaigns; digital platform)								R					R
Property tax (according to EPC levels)	Tot INV [Meur/y]	-	-	-	-	-	-	79	81	83	84	86	88
	Public support [Meur/y]	-	-	-	-	-	-	24	24	25	25	26	26
CO2 tax for end energy use of residential buildings	Tot INV [Meur/y]	-	-	75	76	78	79	81	83	84	86	88	
	Public support [Meur/y]	-	-	22	23	23	24	24	25	25	26	26	
Establish tax rate differential (renovation vs new construction; scope of works; scope of fuels for CO2 tax)	Responsible => Ministry of Finance							R					R
Implementation Method (automatic vs homeowner application)	Support => Ministry of climate, building and housing (department of building)												
Monitoring & verification (documentation & reporting; refund process; ensure property owners have access to methodology)													
Enabling measures													
Technical capacity building (professionals training & certification)	Responsible => Ministry of climate, building and housing (department of building)												
Develop training materials (incl. information for auditors for EPCs)	Support => local authorities; Ministry of climate, building and housing (department of housing); architects and construction companies												
Implementation (repository of information for training materials; training programme)					R			R			R		
Determine who will maintain / disseminate information / accompany building owners													
Create an online repository & link to existing national databases (link with other officials & stakeholders in the building sector)													
Develop relevant templates (energy performance contracting templates; links to national & regional financing; Building Renovation Passports - BRP)					R			R			R		
Set up communication / awareness / information instrument - One-Stop-Shop								R			R		
Implementation (repository of information for relevant templates; maintain & update online repository)								R					R

3.2 Residential buildings - apartments

3.2.1 Introduction

This action plan addresses all measures that need to be implemented to reach the energy efficiency targets set for residential, multi-family apartments. This action plan shares many aspects and measures with residential - detached buildings, as well as several of the commercial buildings measures.

However, due primarily to the fact that multi-family buildings often have multiple owners, the decision making process is more cumbersome and difficult than in buildings with single ownership. Therefore, this action plan takes into account the decision making process.

Minimum Energy Performance Standards (MEPS) for multi-family buildings are excluded from the action plan presented here due to the intricate decision-making processes involved in properties with multiple owners and decision-makers. The complexity arising from diverse ownership structures and decision-making dynamics necessitates a separate and specialized approach for addressing energy performance standards in multi-family buildings.

3.2.2 Barriers to the energy efficiency target

Policy barriers

- **Low Energy Efficiency Targets:** The energy efficiency targets set by policies may be perceived as insufficient to motivate meaningful energy savings. Raising these targets might be necessary to achieve significant improvements.
- **Low Energy Audit Requirements:** When energy audit requirements lack comprehensiveness, they might not adequately identify energy-saving opportunities. Strengthening these audit requirements could lead to more effective results.

Market barriers

- **Lack of Coherent Incentives:** An absence of a well-structured and consistent incentive system can discourage property owners from making long-term energy-efficient investments. Establishing a clear, comprehensive incentive program is essential to motivate such investments.
- **Incentives for Property Owners:** Property owners might not receive suitable incentives to commit to long-term energy-efficient investments. Improved incentive structures can encourage them to invest in these measures.
- **Lack of Available Tools:** The limited availability of tools and resources in the market to assess and implement energy efficiency measures can be a significant barrier. Developing and promoting these tools can facilitate the successful implementation of energy-saving measures.

Financial barriers

- **Insufficient Financing:** The lack of financial resources for building renovations can be a significant obstacle. Building owners may not have access to adequate funding for energy-efficient projects.
- **Split Incentives:** In cases of mixed ownership, where the party funding the renovation doesn't directly benefit from the energy savings, there can be a lack of alignment in interests. Addressing and clarifying these split incentives is crucial to encourage investment.
- **Lack of Clarity on Financing:** Building owners and managers may lack clarity on the financing options available for energy-efficient renovations. Educating them about the financing opportunities is essential to overcoming this barrier.

- For all building groups, it is difficult to motivate the renovation of a property that is located in an area with a low real estate value and whose market value does not increase significantly after reconstruction. In these cases, the project is hardly eligible for credit.

Technical/capacity

- **Limited Availability of Materials:** The scarcity of energy-efficient building materials can constrain the scope and pace of renovation projects.
- **Shortage of Skilled Labor:** A shortage of skilled labor in the construction and renovation industry can hinder the implementation of energy-efficient measures. Ensuring an adequate workforce with the necessary skills is crucial.
- **Lack of Trust in Workmanship:** Some building owners and stakeholders may lack trust in the quality of workmanship for implemented energy efficiency measures. Building trust and ensuring quality assurance is vital to overcoming this barrier.

Social

- **Lack of Awareness:** A lack of awareness about the benefits of energy efficiency measures, such as cost savings and environmental impact, can deter stakeholders from taking action.
- **Willingness to Implement Measures:** There might be reluctance or unwillingness to implement energy-efficient measures, possibly due to concerns about costs or disruption. Addressing these concerns and demonstrating the benefits of these measures is essential.
- **Fear of Displacement:** In cases where buildings have rented units, the fear of long periods of displacement during renovations can hinder the implementation of energy-efficient measures. Strategies to minimize these disruptions and ensure tenant satisfaction are crucial.

3.2.3 Main steps or sub-actions to be taken, ranked by priority

Expand the capacity of Kredex to continue operating and increase the volume of activity

- Oversees and coordinates renovation activities effectively
- Manage budgets for increased operational scope
- Execute initiatives to boost overall volume of operations

Design new/expand grant system

- Develop clear eligibility criteria
- Create a structured grant framework aligned with project goals
- Facilitate efficient application and disbursement processes

Stakeholder consultation

- Engage apartment residents, building owners, and authorities
- Establish effective communication channels, forums, and methods
- Ensure stakeholders are well-informed about project goals, timelines, and impacts

Establish an online OSS

- Define the range of services to be provided, including energy audits, financing options, and contractor recommendations
- Create a centralized platform for project resources
- Store documents like templates, training materials, and financing information
- Resources on available training

Design the property tax guidelines

- Formulate clear guidelines governing property tax considerations
- Align guidelines with project goals and promote energy efficiency measures within the outlined framework

3.2.4 Measures of the action plan

Grants

Table 3-11 Summary table of the proposed measure

Type of measure	Positive incentive
Main objective	Further develop grants as available financing option for multi-family buildings
Monitoring KPIs	<ul style="list-style-type: none"> • Energy savings - reduced energy consumption (kWh) • CO₂ reductions • Number of projects completed • Cost-effectiveness - calculating the cost per unit of energy saved or the cost per ton of CO₂ emissions reduced
New/existing measure in Estonia	Expansion of current programmes in place

Option 1 – Single ownership/homeowner association

- Base it on investment-savings gap principle (rather than fixed 30%), to be more efficient
 - Identify the main components to be supported: wall & roof insulation, glazing, efficient heating and hot water system (HP, bio-based appliance, solar heat), ventilation
 - Calculate support for 15 years payback time, for average : SPBT (simple payback time) = INV (EUR) / [YEARLY SAVINGS (kWh/y) / ENERGY PRICE (eur/kWh)]. If SPBT>15y, then investment not attractive. E.g., if SPBT is 20y, then investment cost should be reduced by 25% ((20-15)/20) {i.e. 25% grant}
 - Evolutive grant, depending on level of income: 3 times more for low income than for high income households (with a cap at 80%)

Option 2 – Industrial prefabrication

- Provide grants for industrial prefabrication solutions to multi-family apartment buildings
- Grants should be eligible for application by homeowner associations and building developers
- Prefab solutions must achieve EPC C to qualify

Option 3 – Establish a guarantee fund to de-risk loans for energy savings projects

- Develop a comprehensive design for the guarantee fund, outlining its structure, purpose, and key operational mechanisms.
- Define the scope of coverage, specifying which energy efficiency measures and projects will be eligible for support from the guarantee fund.
- Establish the size and financial capacity of the fund, considering the scale of expected projects and the potential risks involved.

Property taxation

Table 3-12 Summary table of the proposed measure

Type of measure	Price signal incentives
Main objective	Impose a property tax dependent on type of property and energy performance of the building
Monitoring KPIs	<ul style="list-style-type: none"> • Participation rates • CO₂ reductions
New/existing measure in Estonia	New measure on existing property tax

- Every property owner is liable to pay a real property tax, which rate depends on the type of real property
- The real property tax burden is calculated by multiplying the assessed value of the real property with the real property tax rate and the municipal multiplier
- An additional multiplier should be added, based on the energy performance of the building (i.e., EPC rating) - potential for a positive incentive based on achieving EPC levels ahead
- Guidelines and values can be proposed to municipalities, based on the average national stock (cf. LTRS), with increase and decrease %. However, municipalities would have the possibility to adapt according to their specificities, using as average
 - D label for owned houses
 - E label for rented houses

CO₂ tax for energy use

Table 3-13 Summary table of the proposed measure

Type of measure	Price signal incentives
Main objective	Impose a tax on CO ₂ emissions in multi-family apartment buildings
Monitoring KPIs	<ul style="list-style-type: none"> • Tax revenue • CO₂ reductions • Energy consumption reduction
New/existing measure in Estonia	New Measure

CO₂ Tax Implementation for Energy Use in Multi-Family Apartment Buildings:

- The CO₂ tax is determined by assessing the type and volume of energy consumed, encompassing electricity, natural gas, heating oil, among others. The calculation involves quantifying the resultant CO₂ emissions.
- The formula for calculating the tax amount is derived by multiplying the total CO₂ emissions (measured in kilograms) by the specified tax rate in euros per kilogram of CO₂.
- The collected tax is integrated into energy bills or processed through a distinct tax mechanism, with utilities acting as intermediaries for billing and tax collection on behalf of the government.
- A strategic approach is employed to prevent the transfer of the tax burden to rental tenants. Instead of gauging individual unit consumption, the tax is applied to the total energy consumption of the entire building. This approach serves as an incentive for building owners to undertake comprehensive retrofits that enhance the overall energy efficiency of the building.

Support measures

Table 3-14 Summary table of the proposed measure

Type of measure	Enabling measures
Main objective	To provide a supportive framework to build capacity and implement the measures of the action plan
Monitoring KPIs	<ul style="list-style-type: none"> • Number of accredited certifiers and auditors • Completion rate of training programmes • Partnerships and collaboration

<p>New/existing measure in Estonia</p>	<p>Some new measures expanding on existing initiatives</p>
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Capacity Building for Workforce and Households in Energy Efficiency Measures:

- **Auditor Training:** Develop comprehensive training programs for auditors, incorporating diverse resources such as classes and online courses. Maintain a centralized database of resources and registered auditors. This role is currently identified as a "technical consultant" in the existing system.
- **Training and Accreditation:** Evaluate whether training and accreditation processes are best conducted on a national or regional level, considering the context and efficiency of implementation.
- **Building Management Professionals:** Implement training programs for the administration of building management professionals, focusing on effective energy management practices.
- **Residential Building Managers:** Provide training materials tailored for building managers in larger residential complexes, ensuring they are equipped to handle energy-related responsibilities.
- **Technical Training for Contractors:** Design technical training programs for contractors, emphasizing recognized certifications to enhance their skills and knowledge in energy-efficient practices.
- **Contractor Database:** Maintain a comprehensive and easily accessible database of contractors to facilitate efficient connections between service providers and those in need of their services.
- **Empowering Households:** Launch an extensive awareness campaign that consolidates existing and introduces new resources to empower households with the knowledge and tools necessary for effective energy efficiency measures.

Required legislative, regulatory, fiscal, institutional and procedural changes and reforms that Estonia should undertake

- **Legislative:** MEPS requires legal basis (e.g. law)
- **Regulatory:** Establish robust regulatory frameworks to govern the administration of grants, property taxes, and CO₂ taxes. Develop transparent mechanisms for application, approval, and disbursement of grants. Implement clear guidelines for property tax assessments based on energy performance. Define the framework for collecting and managing CO₂ taxes.
- **Fiscal:** fuel excise & VAT, fuel CO₂, property, tax deduction
- **Institutional changes:** crucial involvement of housing administration and HOAs; to establish & operate an OSS, coordination between central administration, KredEx and local / regional authorities has to be set up;
- **Procedural changes:** the way to establish grants schemes should be improved (and consider poverty aspects); establish an OSS (in line with institutional changes), to streamline application and compliance processes.
- **Reforms:** /

3.2.5 Involved parties roles and responsibilities

The table below presents the roles and responsibilities of the different parties in the implementation of the measures included in this action plan.

Table 3-15 - Involved parties, roles and responsibilities

Actors	Roles, responsibilities and tasks
Ministry of climate, building and housing	<ul style="list-style-type: none"> • Grants Management: <ul style="list-style-type: none"> • <i>List of Eligible Investments:</i> Develop and maintain a comprehensive list of eligible investments for the grant program, aligning with energy efficiency goals. • <i>Investment-Saving Gap Calculation:</i> Conduct thorough research on products and the energy market to calculate the investment-saving gap, ensuring efficient allocation of resources. • <i>Budget Mobilization:</i> Spearhead efforts to mobilize the budget required for the grant program, coordinating with relevant stakeholders and authorities. • CO₂ Tax Implementation: <ul style="list-style-type: none"> • <i>Determine Tax Level:</i> Assess and determine the appropriate level of the CO₂ tax, considering environmental impact and consulting with relevant tax authorities for alignment with regulatory frameworks. • Tax Deduction Oversight: <ul style="list-style-type: none"> • <i>Scope Definition:</i> Define the scope of eligibility for tax deductions, outlining criteria and parameters for homeowners and entities to qualify for energy efficiency-related tax benefits.
Local authorities (cities and municipalities)	<ul style="list-style-type: none"> • Proximity to Households: <i>Understanding Concerns:</i> Leverage close proximity to households to gain insight into their specific concerns regarding energy efficiency measures, ensuring that initiatives are aligned with local needs. • Early Stage Involvement: <i>Engagement at Early Stages:</i> Actively participate in the planning and decision-making processes of energy efficiency measures from the early stages, allowing for comprehensive input and community involvement.
Architects and construction companies	<ul style="list-style-type: none"> • Input for Relevant Trainings and Skills Needs: <i>Identifying Training Needs:</i> Offer insights into the training needs and skill requirements related to energy-efficient construction practices, contributing to the development of relevant training programs. • Execution of Energy Efficiency Renovations: <i>Implementing Measures:</i> Undertake the actual construction and renovation work to improve energy efficiency in buildings, ensuring compliance with established standards and guidelines.

3.2.6 Risks and opportunities

The table below presents the main risks and opportunities associated with the implementation of the measures included in this action plan.

Table 3-16- Risks and opportunities associated with the implementation of the measures

Risks	Opportunities
<p>Grants:</p> <ul style="list-style-type: none"> • Addresses collective ownership and payment issues. • Aggregates small-scale savings/projects into larger, deeper savings projects. • Shortage of skilled contractors may hinder implementation, causing delays and affecting quality. • Risk that grants primarily benefit higher-income households, leaving lower-income households with fewer resources. • Complex decision-making within housing associations involving multiple stakeholders may hinder progress. <p>Tax Reductions</p> <ul style="list-style-type: none"> • Risk that tax deductions primarily benefit higher-income homeowners. • Might not provide sufficient motivation for comprehensive energy efficiency retrofits. • Could lead homeowners to opt for minor upgrades with minimal impact on energy savings. <p>Property Tax</p> <ul style="list-style-type: none"> • Property owners with older or lower-income buildings may struggle with higher property tax payments, leading to perceived inequities. • Implementation requires accurate data on energy performance for all properties, posing challenges in data collection, verification, and maintenance. <p>CO₂ Tax</p> <ul style="list-style-type: none"> • Risks related to increased energy prices, possibly rendering some households unable to afford their energy bills. 	<p>Grants:</p> <ul style="list-style-type: none"> • Supports projects characterized by high upfront costs, long payback periods, or other similar risks. • Drives market transformation by promoting the construction and renovation of energy-efficient buildings, increasing the availability of sustainable properties. • Energy-efficient buildings are more valuable and attractive, enhancing long-term property values. • Government can target grants to specific building categories, like low-income households, by adjusting the level of support. <p>Tax Reductions</p> <ul style="list-style-type: none"> • Reduces the cost of energy efficiency projects for households, making works more attractive. • Less bureaucratic and more straightforward than traditional grant programs. • Encourages "green job creation" for installers and contractors. • Many European best practices serve as examples and provide guidance. • Reduces the black market share in construction as renovation works need proper documentation. <p>Property Tax</p> <ul style="list-style-type: none"> • Incentivizes a shift towards low- to zero-carbon energy sources in residential buildings. • Provides both an incentive and a penalty. • Generates potential revenue to reinvest in the program, such as providing renovation grants.

Risks	Opportunities
	<ul style="list-style-type: none"> Construction and renovation of energy-efficient buildings create job opportunities in various sectors. <p>CO₂ Tax</p> <ul style="list-style-type: none"> Provides an incentive to shift towards low- to zero-carbon energy sources. Generates revenue to ideally put back into renovation measures.

3.2.7 Summary of the action plan

The action plan is designed in two blocks:

- One **overarching Action Plan**, describing the overall timeline, the responsible and other parties involved, the cost (precising whether it is about investments, or administrative costs such as providing training session or setting up awareness campaigns), and the source of public money (for support schemes, or simply for bearing the administrative costs)
- A **detailed short term Action Plan**, to show the horizon 2030 (2035) perspective for the measures design and implementation, describing what actions should be taken in the coming 3 years.

Overarching action plan

Table 3-17 - Overarching action plan for multifamily buildings / apartments

Action multifamily	Timeline	Responsible	Other parties	Cost - Investments or Administrative	Source of public money
Continue renovation grants for single family	Design grant - short term (2025-2027) Implement - medium term (from 2027)	Ministry of climate (building department) and finance	KredEx, architects, construction, building owners and operators	EE Investments; ~30% from public;	ETS revenues; ETS2 revenues
Implement property tax	Design tax scheme - medium term (2029-2030) Implement - medium/long term (from 2031)	Ministry of Finance	Ministry of climate, architects, construction, building owners and operators	EE Investments; Split depends on design (bonus, malus, neutral)	ETS revenues; ETS2 revenues
Implement CO₂ tax	Preparation (incl. awareness) - short term (2025-2027) Implement ETS2 - medium term (from 2027)	Ministry of Finance	Ministry of climate, architects, construction, building owners and operators	EE Investments; Additional gov. income;	/
Attract workforce	Design trainings - short term (2024-2030) Implement - long term (2025-2035)	Ministry of climate (building department) &	Architects, construction, building owners and operators	Admin costs;	Gov. budget

		of employment			
Create an online repository	Design repository - short term (2024-2025) Implement - medium term (2026-2030)	Ministry of climate (building department)	Architects, construction, building owners and operators	Admin costs;	Gov. budget
Develop EPContracting	Design EPContracting - short term (2025-2026) Implement - medium term (from 2026)	Ministry of climate (building department)	Architects, construction, building operators	Admin costs;	Gov. budget
Support new business models (e.g pre-fab)	Consult business - short term (2025-2027) Implement - medium term (from 2027)	Ministry of climate (building department)	Architects, construction, building owners, local authorities	Admin costs;	Gov. budget

Detailed short term Action Plan

This plan is available in D4 model, in the “AP Building” Tab.

<u>Energy efficiency categorisation</u>	<u>Action plan color code</u>
Positive incentives (grants, deduction, ...)	Development actions
Voluntary with positive incentive	Follow up / Implementation actions
Investment in infrastructure / fleet	R=Revision for potential update
Fiscal measures	F->D means that all buildings above D EPC label should be renovated to D level
Normative (obligation, MEPS, ...)	Preliminary savings thanks to the measure
Enabling measures	Effective savings thanks to the measure
	High level of savings thanks to the measure
	Maximum level of savings thanks to the measure (before slow down)

Measures in multifamily buildings / housing associations		2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
				489	498	508	519	529	540	550	561	573	584
Renovation grants for multifamily buildings/housing associations (30% support average)													
Tot INV [Meur/y]													
Public support [Meur/y]		139	142	145	148	151	154	157	160	163	167	170	
Increase existing grant volume (grant calculation methodology; eligibility criteria; associated guarantee fund; expand KredEx as administering body)		Responsible => Ministry of Finance & Ministry of climate, building and housing (department of building)											
Grant allocation (framework for grant allocation & prioritisation; user friendly application; distribution process via KredEx)		Support => KredEx											
Implementation (monitoring of savings; feedback & adaptation; include information for awareness raising campaigns; digital platform)								R					R
Property tax (according to EPC levels)													
Tot INV [Meur/y]		-	-	-	-	-	-	102	104	106	108	111	113
Public support [Meur/y]		-	-	-	-	-	-	31	31	32	33	33	34
CO2 tax for end energy use of residential buildings													
Tot INV [Meur/y]		-	-	96	98	100	102	104	106	108	111	113	
Public support [Meur/y]		-	-	29	29	30	31	31	32	33	33	34	
Establish tax rate differential (renovation vs new construction; scope of works; scope of fuels for CO2 tax)		Responsible => Ministry of Finance											
Implementation Method (guidelines for municipalities, introduce a phase in period & Monitoring & verification (documentation & reporting; refund process; ensure property owners have access to methodology)		Support => Ministry of climate, building and housing (department of building)											
Enabling measures													
Attract workforce to face higher renovation rate, with required technical capacity (professionals)		Responsible => Ministry of climate, building and housing (department of building) & Ministry of employment											
Develop relevant instruments / create awareness		Support => local authorities; Ministry of climate, building and housing (department of housing); architects and construction companies											
Determine who will maintain/disseminate information													
Develop relevant templates (energy performance contracting templates; links to national & regional financing)					R			R				R	
Implementation (repository of information for relevant templates; maintain & update online repository)							R						R
Support the development of new technological/business solutions (e.g. digital, prefabricated, attractive programmes)							R						R

3.3 Non-residential buildings - Public (central government and municipal)

3.3.1 Introduction

This action plan addresses all measures that need to be implemented to reach the energy efficiency targets set for non-residential - public buildings, specifically central government and municipal buildings.

3.3.2 Barriers to the energy efficiency target

Policy barriers

- **Low Energy Efficiency Targets:** The existing energy efficiency targets set by policies may be deemed inadequate in promoting significant energy savings. Higher targets might be necessary to drive substantial change.
- **Low Energy Audit Requirements:** If energy audit requirements are minimal or not comprehensive, they may not effectively identify energy-saving opportunities. Strengthening energy audit criteria could lead to more substantial improvements.

Market barriers

- **Lack of Coherent Incentives:** The absence of a well-structured and coherent incentive system can deter property owners from investing in energy efficiency. A well-designed incentive program can motivate them to take long-term measures.
- **Incentives for Property Owners:** Property owners may not receive adequate incentives to commit to long-term energy-efficient investments. Improved incentive structures could encourage them to make these investments.
- **Lack of Available Tools:** A scarcity of available tools and resources in the market to assess and implement energy efficiency measures can obstruct progress. Developing and promoting such tools can facilitate the implementation of these measures.
- **For all building groups,** it is difficult to motivate the renovation of a property that is located in an area with a low real estate value and whose market value does not increase significantly after reconstruction.

Financial barriers

- **Insufficient Financing:** A lack of financial resources for building renovations can be a significant barrier. Building owners may not have access to sufficient funding for these energy-saving projects.
- **Split Incentives:** Split incentives, where the party paying for the renovation doesn't directly benefit from the energy savings (e.g., in cases of mixed ownership), can hinder progress. Clarifying and addressing these split incentives is crucial to encourage investment.
- **Lack of Clarity on Financing:** Building owners and managers may lack clarity on the financing options available for energy-efficient renovations. Educating them about the financing opportunities is essential for overcoming this barrier.

Technical/capacity

- **Limited Availability of Materials:** Scarcity of energy-efficient building materials can limit the scope and pace of renovation projects.
- **Shortage of Skilled Labor:** A shortage of skilled labor in the construction and renovation industry can impede the implementation of energy-efficient measures. Ensuring an adequate workforce with the necessary skills is crucial.
- **Lack of Trust in Workmanship:** Some building owners and stakeholders may lack trust in the quality of workmanship for implemented energy efficiency measures. Building trust and ensuring quality assurance is essential.

Social

- Lack of Awareness: Insufficient awareness of the benefits of energy efficiency measures, both in terms of cost savings and environmental impact, can deter stakeholders from taking action.
- Willingness to Implement Measures: A reluctance or unwillingness to implement energy-efficient measures, potentially due to concerns about costs or disruption, can be a social barrier that needs to be addressed.
- Fear of Displacement: In cases where buildings have rented units, the fear of long periods of displacement during renovations can hinder the implementation of energy-efficient measures. Strategies to minimize these disruptions are crucial.

3.3.3 Main steps or sub-actions to be taken, ranked by priority

Further Develop Capacity on Public Buildings Work to Increase Volume:

- Enhance project management capabilities to efficiently handle a larger volume of public building initiatives.
- expand Funding:
 - Explore various funding sources, including government allocations, grants, and partnerships with financial institutions.
 - Advocate for increased budget allocations or seek additional sources of financial support to fund energy efficiency projects.

Design/Continue New Grant System:

- Develop a comprehensive grant system that clearly defines eligibility criteria, application processes, and evaluation methods.
- Ensure the new grant system aligns with the objectives of energy efficiency initiatives.

Communication Activity from Central to Regional/Local Governments - can be done via a one-stop-shop:

- Develop a comprehensive communication strategy to disseminate information and training materials to regional and local governments.
- Provide standardized templates, guides, and training resources to ensure consistency in energy performance contract implementation and auditing.

Create Obligation Scheme and Associated Administration:

- Develop a legal framework that mandates energy efficiency measures within the defined sector.
- Establish a dedicated administration to oversee and enforce compliance with the obligation scheme.

Design MEPS & Establish Legal Basis (e.g., Building Act):

- Define and set Minimum Energy Performance Standards (MEPS) through legislative changes or amendments to the Building Act.
- Develop a robust legal framework to support the enforcement and monitoring of MEPS.

Design the Property Tax Guidelines:

- Formulate clear and transparent guidelines for property tax assessment, taking into account energy-efficient building measures.
- Collaborate with tax authorities to ensure the guidelines incentivize energy-efficient renovations and align with property values.

3.3.4 Measures of the action plan in detail

Design of the measures - Obligation Scheme

Table 3-18 Summary table of the proposed measure

Type of measure	Normative
Main objective	Establish an obligation scheme for non-residential, public buildings
Monitoring KPIs	<ul style="list-style-type: none"> • Compliance rate • Accumulated energy savings - reduction in energy consumption (% of national consumption) • GHG emissions reductions • Certificate volume issued/traded
New/existing measure in Estonia	New measure

- Establish Governance structure for the scheme
 - Establish the administrative structure for overseeing and managing the Obligation scheme
 - Establish penalties for non-compliance and a process for addressing non-compliant parties
- Create a list of eligible investments and their associated savings, setting the non-compliance fee, developing an IT system incorporating white certificates (WC), among others. The list should be overseen and updated by the independent body overseeing the EOS
- Determine baseline and targeted savings for each participant, issuing WC, closely monitoring outcomes
 - Based on market share, % of primary energy consumption, etc.
 - Phase in period linked with increased EED savings targets
- Establish timelines for meeting these targets and consider the feasibility of implementation (e.g., in line with EED savings targets)
 - Annual compliance target starting in 2026

Design of the measures - Grants: Central government and public/municipal support

Table 3-19 Summary table of the proposed measure

Type of measure	Positive incentive
Main objective	Extend and expand grant programmes for energy efficiency measures in public buildings
Monitoring KPIs	<ul style="list-style-type: none"> • Compliance rate • Energy savings - reduction in energy consumption per household
New/existing measure in Estonia	Expansion on existing measure

- Support design (centrally owned -100% national - and local government level 50/50)
- Grant linked to an obligation to renovate (e.g., based on Art 6 of the EED on public renovation buildings)
 - Establish a list of relevant measures or savings potential
 - In order to be eligible for a grant, buildings must have an EPC, and BRP
- Define eligible buildings (e.g., all public buildings or only ones below a certain energy performance level)
- Update the list of central government bodies in Annex I of the Estonian 2017 NEEAP

Design of the measures - Property taxation

Table 3-20 Summary table of the proposed measure

Type of measure	Price signal incentives
Main objective	Impose property tax on public buildings
Monitoring KPIs	<ul style="list-style-type: none"> • Energy savings • CO₂ reductions
New/existing measure in Estonia	New measure - based on existing

- Every property owner is liable to pay a real property tax, which rate depends on the type of real property - ***Do government buildings (central and municipal) pay property taxes in Estonia?***
- The real property tax burden is calculated by multiplying the assessed value of the real property with the real property tax rate and the municipal multiplier
- An additional multiplier should be added, based on the energy performance of the building (i.e., EPC rating) - i.e., +40% for G, +30% for F, +25% for E, +20 for D...
 - Ensure EPCs are available and accessible by relevant tax and fiscal authorities
- *Positive incentive - lower rental rates for compliance*
- Guidelines and values can be proposed to municipalities, based on the average national stock (cf. LTRS), with increase and decrease %. However, municipalities would have the possibility to adapt according to their specificities, using as average
 - D label for owned properties

E label for rented properties

Design of the measures - CO₂ tax for energy use

Table 3-21 Summary table of the proposed measure

Type of measure	Price signal incentives
Main objective	Impose a tax CO ₂ usage in public buildings
Monitoring KPIs	<ul style="list-style-type: none"> • Tax revenue • CO₂ reductions • Energy consumption reduction
New/existing measure in Estonia	New measure

- Calculated based on the type and quantity of energy consumed (i.e., electricity use, natural gas, heating oil, etc.) and calculating the resulting CO₂ emissions
- Tax Amount = Total CO₂ Emissions (kg CO₂) × Tax Rate (euros per kg CO₂)
- Progressive increase/**decrease**, start at EUR 30/t, additional EUR 10 annually
- The tax is then collected through energy bills (alternative to collect through a separate tax mechanism).
- Energy providers, such as utilities, are responsible for billing and collecting the tax on behalf of the government. Planned stakeholder consultation in advance is essential

Design of the measures - MEPS

Table 3-22 Summary table of the proposed measure

Type of measure	Normative
Main objective	Establish Minimum Energy Performance Standards for public buildings

Monitoring KPIs	<ul style="list-style-type: none"> • Compliance rate • Energy savings - reduction in energy consumption per household - kWh/m² year • Building Renovation Passports issued (% of building owners with BRPs) • Number of projects carried out • EPC quality compliance - via random audits • Cost savings from completed works
New/existing measure in Estonia	New measure

- Validate EPC are fit for purpose (as they would become legally binding instrument) - Renovate worst performing first, creating a dynamic progressive system (see annex V of proposed EPBD)
 - EPC is required at certain trigger points - point of sale or new lease
 - All public buildings require an EPC over time (2025 for national buildings, 2027 for municipal)
 - Ensure all EPCs are digitally stored (in line with proposed EPBD) and accessible to all relevant parties
- Owner (developers, public authorities) is obligated party

Renovate starting with the worst performing (lowest performing 15% according to EPCs)

Larger buildings with single ownership often have professional financial and technical management open to a wider range of resources

Often have a shorter renovation cycle - trigger point for renovation

Tranches are set up according to building stock segments as determined in the LTRS/NBRP

Design of the measures - Capacity building: Workforce

Table 3-23 Summary table of the proposed measure

Type of measure	Enabling measure
Main objective	Expand and create training to equip a skilled workforce to implement energy performance measures.
Monitoring KPIs	<ul style="list-style-type: none"> • Number of accredited certifiers and auditors • Completion rate of training programmes
New/existing measure in Estonia	Continuation and expansion of existing

- Train auditors for accreditation - provide training resources (classes, online courses, etc.) and maintain a database of resources and registered auditors.
 - Auditors must hold official accreditation (training + exam), administered either at the national level by the government, or by an established private body
- National mandatory training/accreditation for auditors
- Use public (EU funds) to cover the cost of training (i.e., ELENA funding for technical assistance)
- Train administration of building management professionals by offering online lessons, as well as workshops - to be overseen by the nationally established OSS
- Provide training materials for building managers in larger managed residential buildings - annually updated information on nationally available funding, etc

- Provide resources and accreditation for contractors and practitioners
 - Create a database of addressed contractors

Required legislative, regulatory, fiscal, institutional and procedural changes and reforms that Estonia should undertake

- **Legislative:** MEPS requires legal basis (e.g. law). Define clear energy efficiency targets, compliance mechanisms, and penalties for non-adherence.
- **Regulatory:** the MEPS scheme can be either similar to building codes, either integrated in the notarial acts (for selling & renting); Define transparent procedures for compliance verification, obligation scheme administration, tax assessments, and emissions reporting. Ensure consistency and accountability in regulatory processes.
- **Fiscal:** fuel excise & VAT, fuel CO₂, property, tax deduction. Design an obligation scheme that encourages cost-effective energy savings, allocate funds for capacity building and training programs, and implement property and CO₂ taxes to create financial incentives for compliance with energy performance standards.
- **Institutional changes:** Establish or enhance institutions dedicated to overseeing and implementing the multifaceted action plan for non-residential commercial buildings; to establish & operate an OSS, coordination between relevant stakeholders and align with other building sectors' requirements
- **Procedural changes:** Create a centralized one-stop shop to streamline processes related to MEPS compliance, the obligation scheme, property and CO₂ taxes, capacity building, and training programs for non-residential commercial buildings. Develop an accessible online platform for documentation submission, tracking, and reporting. Simplify procedures to encourage broad participation and compliance.

3.3.5 Involved parties roles and responsibilities

The table below presents the roles and responsibilities of the different parties in the implementation of the measures included in this action plan.

Table 3-24 - Involved parties, roles and responsibilities

Actors	Roles, responsibilities and tasks
Local authorities (cities and municipalities) and the Ministry in charge of local authorities	<p>Setting Up MEPS:</p> <ul style="list-style-type: none"> • Local Implementation: Align local building regulations with national MEPS standards. Monitor compliance and conduct inspections. • Community Engagement: Educate builders and property owners on MEPS requirements. Facilitate community discussions on energy performance standards. <p>Training for Building Professionals:</p> <ul style="list-style-type: none"> • Local Training Programs: Establish local training initiatives for construction professionals. Collaborate with local educational institutions for skill development. <p>Grants:</p> <ul style="list-style-type: none"> • Local Grant Programs: Administer grants for local energy efficiency projects. Evaluate grant applications and disburse funds accordingly.

Actors	Roles, responsibilities and tasks
	<p>Community Outreach:</p> <ul style="list-style-type: none"> Promote grant opportunities through local channels. Including running and overseeing local one-stop-shops. Support community-led projects with grant funding. <p>Public Awareness:</p> <ul style="list-style-type: none"> Communicate the purpose and impact of CO₂ taxes to the community. Encourage carbon-conscious behavior through local campaigns.
<p>Ministry of climate, building and housing,</p>	<p>Setting Up MEPS:</p> <ul style="list-style-type: none"> Policy Development: Formulate and enforce Minimum Energy Performance Standards (MEPS). Collaborate with stakeholders for MEPS establishment. Regulation Oversight: Oversee adherence to MEPS in building projects. Ensure compliance through inspections and penalties. <p>Training for Building Professionals:</p> <ul style="list-style-type: none"> Education Initiatives: Develop training programs for architects, engineers, and contractors. Collaborate with educational institutions for skill development. Accreditation Systems: <ul style="list-style-type: none"> Establish accreditation systems for energy auditors. Encourage professional development in sustainable practices. <p>Grants:</p> <ul style="list-style-type: none"> Grant Management: Design and manage grant programs for energy-efficient projects. Evaluate grant applications for building retrofits.
<p>Architects, developers, and construction companies</p>	<p>Consultation on MEPS (Minimum Energy Performance Standards):</p> <ul style="list-style-type: none"> Provide expert consultation on the development and refinement of MEPS, leveraging architectural expertise to ensure practical and effective standards. <p>Input for Relevant Trainings:</p> <ul style="list-style-type: none"> Provide input and recommendations for training programs related to energy efficiency, ensuring that professionals in the field are equipped with the necessary skills and knowledge. <p>Skills Needs Assessment:</p> <ul style="list-style-type: none"> Collaborate in assessing the skills needs within the architectural and construction sectors concerning energy-efficient practices, facilitating ongoing professional development. <p>Implementation Support:</p>

Actors	Roles, responsibilities and tasks
	<ul style="list-style-type: none"> Assist in the practical implementation of energy efficiency measures, incorporating sustainable design principles and construction practices into building projects. <p>Client Education:</p> <ul style="list-style-type: none"> Educate clients on the benefits of energy-efficient designs and renovations, promoting sustainable practices in construction projects.
Energy providers/utilities	<p>Energy Efficiency Programs:</p> <ul style="list-style-type: none"> Develop and promote energy efficiency programs that align with MEPS. Support customers in adopting measures to enhance energy performance. <p>Training for Building Professionals:</p> <ul style="list-style-type: none"> Partner with training institutions to offer courses for building professionals. Facilitate workshops or training sessions on energy-efficient technologies and practices. <p>Project Support:</p> <ul style="list-style-type: none"> Provide technical support to customers applying for grants related to energy efficiency. Offer insights on eligible projects that align with grant criteria. <p>CO₂ Tax:</p> <ul style="list-style-type: none"> Administer and collect CO₂ tax. Carbon Accounting: Monitor and report carbon emissions associated with energy provision. Explore ways to reduce the carbon footprint of energy generation. Tax-Related Services: Collaborate with tax authorities to implement CO₂ tax-related services. Educate customers on the environmental impact and benefits of carbon taxation.

3.3.6 Risks and opportunities

The table below presents the main risks and opportunities associated with the implementation of the measures included in this action plan.

Table 3-25- Risks and opportunities associated with the implementation of the measures

Risks	Opportunities
<p>Property Tax:</p> <ul style="list-style-type: none"> <i>Equity Concerns:</i> Owners of older or lower-income properties may struggle with higher tax payments. <i>Data Challenges:</i> Implementation requires accurate and maintained data on energy performance. 	<p>Property Tax:</p> <ul style="list-style-type: none"> <i>Incentive for Low-Carbon Shift:</i> Encourages transition to low- to zero-carbon energy in residential buildings. <i>Revenue Generation:</i> Generates potential funds for renovation grants, creating a self-sustaining program.

Risks	Opportunities
<ul style="list-style-type: none"> • In unattractive areas, taxing buildings accelerates their natural obsolescence and creates social problems <p>CO₂ Tax:</p> <ul style="list-style-type: none"> • <i>Affordability Concerns:</i> Risks associated with increased energy prices affecting household affordability. <p>MEPS:</p> <ul style="list-style-type: none"> • <i>Rental Market Dynamics:</i> Impact on competitiveness and affordability, potential increase in rents. • <i>Technical Challenges:</i> Technical assessments and upgrades, coordination complexities, and potential delays. • <i>Market Disruption:</i> Upfront costs might impact affordability, potential reduction in overall affordable housing supply. • <i>Enforcement Challenges:</i> Difficulty in enforcing compliance, inconsistent monitoring, and non-compliance risks. <p>Obligation Scheme:</p> <ul style="list-style-type: none"> • <i>Insufficient Penalties:</i> Non-compliance penalties may not incentivize suppliers, leading to fine payment. • <i>Engagement Challenges:</i> Suppliers face difficulties in engaging building owners effectively. • <i>Limited Expertise:</i> Some suppliers may lack expertise, resulting in suboptimal investment decisions. • <i>Theoretical vs. Actual Savings:</i> Calculated savings may differ from actual results, impacting payback periods. • <i>Motivating Building Owners:</i> Difficulty in motivating non-occupant building owners, highlighting the split incentive dilemma. 	<p>CO₂ Tax:</p> <ul style="list-style-type: none"> • <i>Carbon Shift Incentive:</i> Encourages adoption of low- to zero-carbon energy sources in residential buildings. • <i>Revenue for Renovation:</i> Generates funds to be reinvested ideally in renovation measures. • <i>Job Opportunities:</i> Construction of energy-efficient buildings fosters job creation in various sectors. <p>MEPS:</p> <ul style="list-style-type: none"> • <i>Renovation Stimulus:</i> Obliges renovation of worst-performing buildings (*), stimulating market transformation. • <i>Split Incentive Addressed:</i> Addresses split incentives and protects vulnerable households, especially tenants. • <i>Market Transformation:</i> Drives adoption of energy-efficient practices in the residential sector cost-effectively. <p>Obligation Scheme:</p> <ul style="list-style-type: none"> • <i>Cost-Effective Energy Savings:</i> Enables cost-effective energy savings, particularly addressing worst-performing buildings. • <i>Best Practices Exist:</i> Benefits from various EU best practices, facilitating scheme implementation. • <i>Market Evolution:</i> Shifts energy market to a service supply model, stimulating mass markets.

(*) Some buildings will never undergo significant reconstruction and there is no need for it. Some buildings tend to fall out of use due to their technical condition, unsuitable location or construction solution, etc., and it is not reasonable to reconstruct them. Also, the owner does not have the economic sense nor motivation to reconstruct buildings in unattractive areas where, due to the change in the economic structure, there is no longer the former perspective. This applies to private houses, apartment buildings (because the investments

made, even if it were possible for this group of residents, do not increase the value of the property in comparison to the investment made), public sector buildings and other buildings. Taxing such buildings accelerates their natural obsolescence and creates social problems. There is a risk of spending support funds on buildings that should actually be demolished after some time of use until depreciation. It would be necessary to consider an exemption mechanism to prevent unreasonable investments.

3.3.7 Summary of the action plan

The action plan is designed in two blocks:

- One **overarching Action Plan**, describing the overall timeline, the responsible and other parties involved, the cost (precising whether it is about investments, or administrative costs such as providing training session or setting up awareness campaigns), and the source of public money (for support schemes, or simply for bearing the administrative costs)
- A **detailed short term Action Plan**, to show the horizon 2030 (2035) perspective for the measures design and implementation, describing what actions should be taken in the coming 3 years.

Overarching action plan

Table 3-26 - Overarching action plan for public buildings

Action - public buildings	Timeline	Responsible	Other parties	Cost - Investments or Administrative	Source of public money
Establish an obligation scheme (*)	Assess relevance - medium term (2027-2030); Design & implement where relevant (>2030)	Ministry of climate (building department) and finance	Application unit, architects, construction, local authorities	EE investments 100% public	Budget & ETS revenue; ETS1 & ETS2 revenues
Continue renovation grants for central gov buildings	Adapt grant - short term (2025-2026) Implement - medium term (from 2027)	Ministry of climate (building department) and finance	Application unit, architects, construction, local authorities	EE Investments 100% public;	Budget & ETS revenue; ETS1 & ETS2 revenues
Continue renovation grants for local gov buildings	Adapt grant - short term (2025-2026) Implement - medium term (from 2027)	Ministry of climate (building department) and finance	Application unit, architects, construction, local authorities	EE Investments 100% public;	Budget & ETS revenue; ETS1 & ETS2 revenues
Implement property tax	Design tax scheme - medium term (2029-2030) Implement - medium/long term (from 2031)	Ministry of Finance	Ministry of climate, architects, construction, building owners and operators	EE Investments; Split depends on design (bonus, malus, neutral)	ETS revenues; ETS2 revenues
Implement CO₂ tax	Preparation (incl. awareness) - short term (2025-2027) Implement ETS2 - medium term (from 2027)	Ministry of Finance	Ministry of climate, architects, construction,	EE Investments; Additional gov. income;	/

			building owners and operators		
Set up MEPS	Adapt EPC & design MEPS - short term (2025-2027) Implement - medium term (from 2027)	Ministry of climate (building department)	Architects, construction, local authorities	EE Investments; 100% private;	/
Create an online repository	Design repository - short term (2024-2025) Implement - medium term (2026-2030)	Ministry of climate (building department)	Architects, construction, local authorities	Admin costs;	Gov. budget
Develop EPCcontracting	Design EPCcontracting - short term (2025-2026) Implement - medium term (from 2026)	Ministry of climate (building department)	Architects, construction, local authorities	Admin costs;	Gov. budget
Support new business models (e.g pre-fab)	Consult business - short term (2025-2027) Implement - medium term (from 2027)	Ministry of climate (building department)	Architects, construction, local authorities	Admin costs;	Gov. budget

(*) although the obligation scheme was a key measure in D3 modelling, we do not recommend its implementation by 2030 (as explained in chapter 5).

Detailed short term Action Plan

This plan is available in D4 model, in the “AP Building” Tab.

Energy efficiency categorisation		Action plan color code																
Positive incentives (grants, deduction, ...)		Development actions																
Voluntary with positive incentive		R=Revision for potential update																
Investment in infrastructure / fleet		Follow up / Implementation actions																
Fiscal measures		F->D means that all buildings above D EPC label should be renovated to D level																
Normative (obligation, MEPS, ...)		Preliminary savings thanks to the measure																
Enabling measures		Effective savings thanks to the measure																
		High level of savings thanks to the measure																
		Maximum level of savings thanks to the measure (before slow down)																
Measures in public buildings (central government & municipalities)																		
		2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035					
Obligation scheme for service sector	Tot INV [Meur/y]	-	-	-	-	-	-	24	24	25	25	26	26					
	Public investment [Meur/y]	-	-	-	-	-	-	-	-	-	-	-	-					
Establish independent administration body (oversee issues of certification; determine)	Responsible => Ministry of climate, building and housing (department of building)																	
Fix targets and timelines (targets and timelines for obligated parties (energy suppliers))	Support => local authorities; architects and construction companies		0,0%	0,0%	0,0%	0,0%	0,0%	1,2%	1,2%	1,2%	1,2%	1,2%	1,2%					
Implementation & compliance (administration structure; penalties for non compliance)								R										R
Central government buildings renovation support (100% support)	Tot INV [Meur/y]	15	15	16	16	16	16	17	17	17	18	18	18					
	Public investment [Meur/y]	15	15	16	16	16	16	17	17	17	18	18	18					
Public and municipality buildings renovation support (60% support in	Tot INV [Meur/y]	66	67	69	70	71	73	74	74	76	77	79	80					
	Public investment [Meur/y]	66	67	69	70	71	73	74	74	76	77	79	80					
Increase existing grant volume (grant calculation methodology; eligibility criteria)	Responsible => Ministry of Finance & Ministry of climate, building and housing (department of building)																	
Grant allocation (framework for grant allocation & prioritisation; user friendly application)	Support => local authorities; architects and construction companies																	
Implementation (monitoring of savings; feedback & adaptation; digital platform)								R										R
Property tax (according to EPC levels)	Tot INV [Meur/y]	-	-	-	-	-	-	52	53	54	55	56	57					
	Public investment [Meur/y]	-	-	-	-	-	-	16	16	16	17	17	17					
CO2 tax for end energy use of residential buildings	Tot INV [Meur/y]	-	-	49	50	51	52	53	54	55	56	57						
	Public investment [Meur/y]	-	-	15	15	15	16	16	16	17	17	17						
Establish tax rate differential (renovation vs new construction; scope of works; scope of fuels for CO2 tax)	Responsible => Ministry of Finance							R										R
Implementation Method (guidelines for municipalities, introduce a phase in period & Monitoring & verification (documentation & reporting; refund process; ensure property owners have access to methodology)	Support => Ministry of climate, building and housing (department of building)																	
Minimum energy performance standards for non-residential buildings (regulatory requirements for EPC class E and F)	Tot INV [Meur/y]	14	14	14	15	15	15	16	16	16	17	17						
	Public support [Meur/y]	-	-	-	-	-	-	-	-	-	-	-						
EPC validation (review existing EPC; validate process; establish legal framework)	Responsible => Ministry of climate, building and housing (department of building)																	
Renovation requirements (renovation timeline; natural trigger points; mandatory EPC)	Support => local authorities; Ministry of climate, building and housing (department of housing); architects and construction companies			F->D					E->C									
Implementation & compliance (control & validation; sanctions for non compliance)								R										R
Enabling measures																		
Technical capacity building (professionals training, certification)	Responsible => Ministry of climate, building and housing (department of building)																	
Enable KredEx to issue more grants and oversee more works	Support => local authorities; Ministry of climate, building and housing (department of housing); architects and construction companies																	
Prepare relevant templates, instruments and training material																		
Develop relevant templates (energy performance contracting templates; links to national & regional financing; Building Renovation Passports - BRP)						R			R			R						
Develop relevant training material for contractors								R			R							
Implementation (repository of information for relevant templates; maintain & update online repository)								R										R

3.4 Non-residential buildings - Commercial

3.4.1 Introduction

This action plan addresses all measures that need to be implemented to reach the energy efficiency targets set for commercial, non-residential buildings in Estonia. One crucial aspect of this action plan involves evaluating the implementation of both MEPS and an obligation scheme, weighing the associated double administrative burden to determine its worth.

3.4.2 Barriers to the energy efficiency target

Policy barriers

- **Low Energy Efficiency Targets:** The existing energy efficiency targets set by policies may be deemed inadequate in promoting significant energy savings. Higher targets might be necessary to drive substantial change.
- **Low Energy Audit Requirements:** If energy audit requirements are minimal or not comprehensive, they may not effectively identify energy-saving opportunities. Strengthening energy audit criteria could lead to more substantial improvements.

Market barriers

- **Lack of Coherent Incentives:** The absence of a well-structured and coherent incentive system can deter property owners from investing in energy efficiency. A well-designed incentive program can motivate them to take long-term measures.
- **Incentives for Property Owners:** Property owners may not receive adequate incentives to commit to long-term energy-efficient investments. Improved incentive structures could encourage them to make these investments.
- **Lack of Available Tools:** A scarcity of available tools and resources in the market to assess and implement energy efficiency measures can obstruct progress. Developing and promoting such tools can facilitate the implementation of these measures.
- **For all building groups,** it is difficult to motivate the renovation of a property that is located in an area with a low real estate value and whose market value does not increase significantly after reconstruction.

Financial barriers

- **Insufficient Financing:** A lack of financial resources for building renovations can be a significant barrier. Building owners may not have access to sufficient funding for these energy-saving projects.
- **Split Incentives:** Split incentives, where the party paying for the renovation doesn't directly benefit from the energy savings (e.g., in cases of mixed ownership), can hinder progress. Clarifying and addressing these split incentives is crucial to encourage investment.
- **Lack of Clarity on Financing:** Building owners and managers may lack clarity on the financing options available for energy-efficient renovations. Educating them about the financing opportunities is essential for overcoming this barrier.

Technical/capacity

- **Limited Availability of Materials:** Scarcity of energy-efficient building materials can limit the scope and pace of renovation projects.
- **Shortage of Skilled Labor:** A shortage of skilled labor in the construction and renovation industry can impede the implementation of energy-efficient measures. Ensuring an adequate workforce with the necessary skills is crucial.

- **Lack of Trust in Workmanship:** Some building owners and stakeholders may lack trust in the quality of workmanship for implemented energy efficiency measures. Building trust and ensuring quality assurance is essential.

Social

- **Lack of Awareness:** Insufficient awareness of the benefits of energy efficiency measures, both in terms of cost savings and environmental impact, can deter stakeholders from taking action.
- **Willingness to Implement Measures:** A reluctance or unwillingness to implement energy-efficient measures, potentially due to concerns about costs or disruption, can be a social barrier that needs to be addressed.
- **Fear of Displacement:** In cases where buildings have rented units, the fear of long periods of displacement during renovations can hinder the implementation of energy-efficient measures. Strategies to minimize these disruptions are crucial.

3.4.3 Main steps or sub-actions to be taken, ranked by priority

Disseminate Information via an Established One-Stop-Shop:

- Consider creating distinct channels for commercial and residential information dissemination.
- Explore the possibility of tailored communication strategies to address the specific needs of each sector.

Design Minimum Energy Performance Standards (MEPS) & Establish Legal Basis:

- Develop comprehensive MEPS that align with energy efficiency goals.
- Establish a robust legal foundation, possibly integrating MEPS into existing legislation, such as the Building Act.

Create Obligation Scheme and Associated Administration:

- Evaluate the feasibility and administrative burden of implementing an obligation scheme, especially considering its application to a specific sector.
- Assess the synergy and potential conflicts with MEPS implementation, ensuring a cohesive and streamlined approach.

Design Property Tax Guidelines:

- Formulate guidelines for property tax that incentivize energy efficiency in buildings.
- Ensure alignment with broader energy efficiency objectives and consider potential impacts on different property types and owners.

3.4.4 Measures of the action plan

Obligation Scheme

Table 3-27 Summary table of the proposed measure

Type of measure	Normative
Main objective	Develop an obligation scheme and associated administration
Monitoring KPIs	<ul style="list-style-type: none"> • Compliance rate • Accumulated energy savings - reduction in energy consumption (% of national consumption) • GHG emissions reductions • Certificate volume issued/traded
New/existing measure in Estonia	New measure

Here are the following actions for establishing and creating an energy efficiency obligation scheme:

Appointment of Independent Body and Certificate Administration:

- Establish an impartial entity to oversee and administer energy efficiency certificates.
- Develop an inclusive list of eligible investments, define non-compliance fees, and implement an IT system incorporating white certificates (WC).

Setting Baseline and Targeted Savings:

- Determine baseline and targeted energy savings for each participant.
- Issue white certificates (WC) and closely monitor outcomes based on factors like market share and percentage of primary energy consumption.

Phase-in Period and Aligned Timelines:

- Implement a phase-in period correlated with increased Energy Efficiency Directive (EED) savings targets.
- Establish clear timelines for participants to meet these targets, ensuring alignment with the feasibility of implementation.

Annual Compliance Targets and Penalties:

- Introduce annual compliance targets, effective from 2026 onward.
- Define penalties for non-compliance, accompanied by a robust process for addressing parties failing to meet obligations.

Administrative Structure for Oversight:

- Establish a comprehensive administrative structure to oversee and manage the Energy Efficiency Obligation Scheme.
- Ensure effective coordination to guarantee the smooth functioning and success of the scheme.

Property taxation

Table 3-28 Summary table of the proposed measure

Type of measure	Price signal incentives
Main objective	Implement a property tax based on the energy performance of the building
Monitoring KPIs	<ul style="list-style-type: none"> • Compliance rate • Accumulated energy savings - reduction in energy consumption (% of national consumption) • GHG emissions reductions • Certificate volume issued/traded
New/existing measure in Estonia	New measure

Steps for establishing property tax based on energy performance for non-Residential, commercial buildings:

Introduction of Real Property Tax:

- Implement a real property tax applicable to all property owners, with rates contingent on the property type.

Tax Calculation Formula:

- Calculate the real property tax burden by multiplying the assessed value of the property by the real property tax rate and the municipal multiplier.

Additional Multiplier for Energy Performance:

- Introduce an additional multiplier based on the energy performance of the building, as indicated by the Energy Performance Certificate (EPC) rating.

Tenant Protection Mechanism:

- Implement measures to prevent the transfer of the tax burden to tenants, ensuring property owners bear the additional costs.

Guidelines and Values for Municipalities:

- Propose guidelines and values to municipalities, derived from the average national stock outlined in the Long-Term Renovation Strategy (LTRS).
- Suggest increase and decrease percentages for municipalities to consider, allowing for adaptation based on their specific circumstances while using the national average as a reference.

Energy Performance Labels:

- Municipalities would have the possibility to adapt according to their specificities, using as average
 - D label for owned properties
 - E label for rented properties

CO₂ tax for energy use

Table 3-29 Summary table of the proposed measure

Type of measure	Price signal incentives
Main objective	Impose a CO ₂ tax based on type and quantity of energy consumed
Monitoring KPIs	<ul style="list-style-type: none"> • Compliance rate • Accumulated energy savings - reduction in energy consumption (% of national consumption) • GHG emissions reductions • Certificate volume issued/traded
New/existing measure in Estonia	New measure

The steps to implementing a CO₂ tax based on type and quantity of energy consumed:

- Calculated based on the type and quantity of energy consumed (i.e., electricity use, natural gas, heating oil, etc.) and calculating the resulting CO₂ emissions
- Tax Amount = Total CO₂ Emissions (kg CO₂) × Tax Rate (euros per kg CO₂)
- The tax is then collected through energy bills
- Energy providers, such as utilities, are responsible for billing and collecting the tax on behalf of the government.

Minimum energy performance standards (MEPS)

Table 3-30 Summary table of the proposed measure

Type of measure	Normative
Main objective	To establish a baseline level of energy efficiency, ensuring that buildings meet a minimum standard to reduce energy consumption and promote environmental sustainability.
Monitoring KPIs	<ul style="list-style-type: none"> • Compliance rate • Energy savings - reduction in energy consumption per household - kWh/m² year

	<ul style="list-style-type: none"> • Building Renovation Passports issued (% of building owners with BRPs) • Number of projects carried out • EPC quality compliance - via random audits • Cost savings from completed works
New/existing measure in Estonia	New measure - in conjunction with existing energy performance certificates

Steps for implementing Minimum Energy Performance Standards (MEPS) in non-residential commercial buildings:

Validate EPCs for Legal Compliance:

- Ensure Energy Performance Certificates (EPCs) are legally binding instruments.
- Prioritize renovation of the worst-performing buildings, establishing a dynamic and progressive system (refer to Annex V of the proposed EPBD for EPC template).

Establish a Common Energy Indicator:

- Adopt a common energy indicator, measured in kWh/m² per year.
- Classify buildings on a scale from A (zero-emissions) to G (15% worst-performing buildings in the national stock).

Obligated Parties:

- Make owners (corporations, real estate developers, NGOs, retail chains, hotels) the obligated parties for compliance.

Renovation Approach:

- Implement a phased renovation approach, starting with the lowest-performing 15% of buildings according to EPC ratings, see .
- Focus on larger buildings with single ownership, often equipped with professional financial and technical management and more accessible resources.

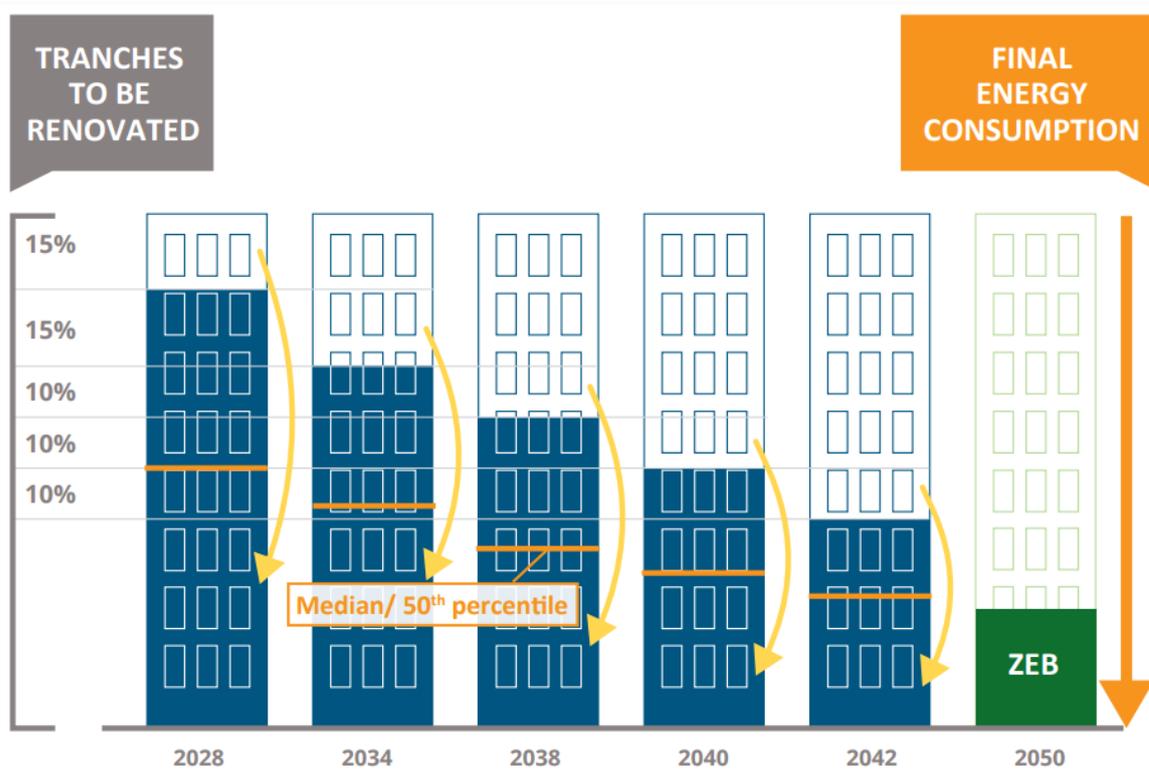
Considerations for Larger Buildings:

- Recognize that larger buildings with single ownership often have shorter renovation cycles, providing a natural trigger point for renovation activities.

Tranche Segmentation:

- Establish tranches based on building stock segments determined in the Long-Term Renovation Strategy (LTRS) or National Building Renovation Plan (NBRP).

Figure 3-1 Tranche system for determining worst performing buildings first¹



¹² While identifying worst performing buildings through EPCs is probably the easiest way, there are other ways conceivable, e.g. proxy based on the age of construction, proxy based on extrapolating EPCs of similar building type, proxy based on energy bills and/or data from energy management.

Capacity building: Workforce and information & awareness raising

Table 3-31 Summary table of the proposed measure

Type of measure	Enabling measure
Main objective	To increase capacity and ensure a highly skills workforce capable of implementing energy efficiency measures, as well as providing information and awareness for building owners and users.
Monitoring KPIs	<ul style="list-style-type: none"> • Number of accredited certifiers and auditors • Completion rate of training programmes • Partnerships and collaboration
New/existing measure in Estonia	Expansion on existing measures

Steps to implement training and capacity building, as well as information and awareness-raising support instruments:

Training and Hiring:

- Accreditation of Auditors:
 - Train auditors for accreditation through various resources such as classes, online courses, etc.
 - Maintain a comprehensive database of training resources and registered auditors.

¹ <https://www.bpie.eu/publication/minimum-standards-maximum-impact-how-to-design-fair-and-effective-minimum-energy-performance-standards/>

- Decision on Training/Accreditation Level:
 - Determine whether training and accreditation will occur at the national or regional level.
- Building Management Professionals:
 - Provide training for the administration of building management professionals.
- Building Managers in Larger Residential Buildings:
 - Offer training materials specifically designed for building managers in larger managed residential buildings.
- Contractors and Practitioners:
 - Provide training and accreditation opportunities for contractors and practitioners.

Support Instruments:

- Energy Performance Contracting:
 - Establish templates and guidelines for energy performance contracting to streamline financing for larger renovations.
 - Link responsibilities with the operations of the One-Stop-Shop (OSS).
- Workshops for Building Managers:
 - Offer workshops and training sessions to building managers and administrators to enhance their understanding of loan programs.
- Technical Assistance for Grant Applicants:
 - Consider providing technical assistance and support to grant applicants.
 - Offer resources, workshops, or training to help recipients implement their projects successfully.

Required legislative, regulatory, fiscal, institutional and procedural changes and reforms that Estonia should undertake

- **Legislative:** MEPS requires legal basis (e.g. law)
- **Regulatory:** the MEPS scheme can be either similar to building codes, either integrated in the notarial acts (for selling & renting);
- **Fiscal:** fuel excise & VAT, fuel CO₂, property, tax deduction, grants linked to MEPS
- **Institutional changes:** an institution or dedicated resources to operate an OSS, coordination between central administration, local /regional authorities has to be set up; coordinate MEPS enforcement, administer grants, manage tax assessments, and oversee capacity building and training initiatives. Foster collaboration with relevant stakeholders.
- **Procedural changes:** Create a centralized one-stop shop to streamline processes related to MEPS compliance, grant applications, tax assessments, and training programs. Develop an accessible online platform for easy documentation submission, tracking, and reporting. Simplify procedures to encourage broad participation and compliance.
- **Reforms:** /

3.4.5 Involved parties roles and responsibilities

The table below presents the roles and responsibilities of the different parties in the implementation of the measures included in this action plan.

Table 3-32 - Involved parties, roles and responsibilities

Actors	Roles, responsibilities and tasks
<p>Building owners - developers, real estate (REITs), Retail chains, hospitality</p>	<p>Setting Up Minimum Energy Performance Standards (MEPS):</p> <ul style="list-style-type: none"> Collaborate with policymakers and industry stakeholders to contribute to the establishment and enhancement of MEPS. Ensure that new developments adhere to MEPS and consider exceeding the minimum requirements for energy efficiency. Incorporate MEPS compliance into investment strategies and criteria when acquiring or developing properties. Advocate for policies that encourage energy-efficient buildings within the real estate industry. <p>Trainings for Building Professionals:</p> <ul style="list-style-type: none"> Invest in training programs for architects, engineers, and contractors to ensure they are well-versed in energy-efficient building design and construction. Facilitate training sessions for property managers and maintenance staff to enhance their skills in energy-efficient building management. <p>Grants:</p> <ul style="list-style-type: none"> Collaborate with local authorities to develop grant programs that incentivize sustainable building practices. <p>CO₂ Tax:</p> <ul style="list-style-type: none"> Factor potential CO₂ taxes into project budgets and consider low-carbon construction materials and practices.
<p>Ministry of climate, building and housing,</p>	<p>Setting Up MEPS:</p> <ul style="list-style-type: none"> Policy Development: Formulate and enforce Minimum Energy Performance Standards (MEPS). Collaborate with stakeholders for MEPS establishment. Regulation Oversight: Oversee adherence to MEPS in building projects. Ensure compliance through inspections and penalties. <p>Training for Building Professionals:</p> <ul style="list-style-type: none"> Education Initiatives: Develop training programs for architects, engineers, and contractors. Collaborate with educational institutions for skill development. Accreditation Systems: <ul style="list-style-type: none"> Establish accreditation systems for energy auditors. Encourage professional development in sustainable practices. <p>Grants:</p> <ul style="list-style-type: none"> Grant Management: Design and manage grant programs for energy-efficient projects. Evaluate grant applications for building retrofits.
<p>Local authorities (cities and municipalities)</p>	<p>Setting Up MEPS:</p> <ul style="list-style-type: none"> Local Implementation: Align local building regulations with national MEPS standards. Monitor compliance and conduct inspections.

Actors	Roles, responsibilities and tasks
	<ul style="list-style-type: none"> • Community Engagement: Educate builders and property owners on MEPS requirements. Facilitate community discussions on energy performance standards. <p>Training for Building Professionals:</p> <ul style="list-style-type: none"> • Local Training Programs: Establish local training initiatives for construction professionals. Collaborate with local educational institutions for skill development. <p>Grants:</p> <ul style="list-style-type: none"> • Local Grant Programs: Administer grants for local energy efficiency projects. Evaluate grant applications and disburse funds accordingly. <p>Community Outreach:</p> <ul style="list-style-type: none"> • Promote grant opportunities through local channels. Including running and overseeing local one-stop-shops. Support community-led projects with grant funding. <p>Public Awareness:</p> <ul style="list-style-type: none"> • Communicate the purpose and impact of CO₂ taxes to the community. Encourage carbon-conscious behavior through local campaigns.
<p>Building owner representatives (HOAs)</p>	<p>Setting Up MEPS:</p> <ul style="list-style-type: none"> • Compliance Management: Ensure that all properties under ownership comply with established MEPS. • Renovation Planning: Strategize and plan renovations to meet or exceed MEPS requirements. • Seek energy-efficient solutions for property upgrades. <p>Training for Building Professionals:</p> <ul style="list-style-type: none"> • Engagement with Professionals: Encourage building professionals working on owned properties to undergo relevant training. • Collaborate with HOAs to organize training sessions for property managers. • Incorporate Energy Efficiency: Work with trained professionals to integrate energy-efficient practices in property management. • Support ongoing education for property management staff. <p>Grants:</p> <ul style="list-style-type: none"> • Assist in preparing and submitting grant applications for eligible projects. <p>Communication and Awareness:</p> <ul style="list-style-type: none"> • Communicate the importance of carbon reduction to residents. • Encourage participation in carbon offset programs and tax-related initiatives.

Actors	Roles, responsibilities and tasks
<p>Architects, developers, and construction companies</p>	<p>Consultation on MEPS (Minimum Energy Performance Standards):</p> <ul style="list-style-type: none"> • Provide expert consultation on the development and refinement of MEPS, leveraging architectural expertise to ensure practical and effective standards. <p>Input for Relevant Trainings:</p> <ul style="list-style-type: none"> • Provide input and recommendations for training programs related to energy efficiency, ensuring that professionals in the field are equipped with the necessary skills and knowledge. <p>Skills Needs Assessment:</p> <ul style="list-style-type: none"> • Collaborate in assessing the skills needs within the architectural and construction sectors concerning energy-efficient practices, facilitating ongoing professional development. <p>Implementation Support:</p> <ul style="list-style-type: none"> • Assist in the practical implementation of energy efficiency measures, incorporating sustainable design principles and construction practices into building projects. <p>Client Education:</p> <ul style="list-style-type: none"> • Educate clients on the benefits of energy-efficient designs and renovations, promoting sustainable practices in construction projects.
<p>Energy providers/utilities</p>	<p>Energy Efficiency Programs:</p> <ul style="list-style-type: none"> • Develop and promote energy efficiency programs that align with MEPS. • Support customers in adopting measures to enhance energy performance. <p>Training for Building Professionals:</p> <ul style="list-style-type: none"> • Partner with training institutions to offer courses for building professionals. • Facilitate workshops or training sessions on energy-efficient technologies and practices. <p>Project Support:</p> <ul style="list-style-type: none"> • Provide technical support to customers applying for grants related to energy efficiency. • Offer insights on eligible projects that align with grant criteria. <p>CO₂ Tax:</p> <ul style="list-style-type: none"> • Administer and collect CO₂ tax. • Carbon Accounting: Monitor and report carbon emissions associated with energy provision. Explore ways to reduce the carbon footprint of energy generation.

Actors	Roles, responsibilities and tasks
	<ul style="list-style-type: none"> • Tax-Related Services: Collaborate with tax authorities to implement CO₂ tax-related services. Educate customers on the environmental impact and benefits of carbon taxation.

3.4.6 Risks and opportunities

The table below presents the main risks and opportunities associated with the implementation of the measures included in this action plan.

Table 3-33- Risks and opportunities associated with the implementation of the measures

Risks	Opportunities
<p>Property Tax:</p> <ul style="list-style-type: none"> • <i>Equity Concerns:</i> Owners of older or lower-income properties may struggle with higher tax payments. • <i>Data Challenges:</i> Implementation requires accurate and maintained data on energy performance. <p>CO₂ Tax:</p> <ul style="list-style-type: none"> • <i>Affordability Concerns:</i> Risks associated with increased energy prices affecting household affordability. <p>MEPS:</p> <ul style="list-style-type: none"> • <i>Rental Market Dynamics:</i> Impact on competitiveness and affordability, potential increase in rents. • <i>Technical Challenges:</i> Technical assessments and upgrades, coordination complexities, and potential delays. • <i>Market Disruption:</i> Upfront costs might impact affordability, potential reduction in overall affordable housing supply. • <i>Enforcement Challenges:</i> Difficulty in enforcing compliance, inconsistent monitoring, and non-compliance risks. <p>Obligation Scheme:</p> <ul style="list-style-type: none"> • <i>Insufficient Penalties:</i> Non-compliance penalties may not incentivize suppliers, leading to fine payment. • <i>Engagement Challenges:</i> Suppliers face difficulties in engaging building owners effectively. • <i>Limited Expertise:</i> Some suppliers may lack expertise, resulting in suboptimal investment decisions. 	<p>Property Tax:</p> <ul style="list-style-type: none"> • <i>Incentive for Low-Carbon Shift:</i> Encourages transition to low- to zero-carbon energy in residential buildings. • <i>Revenue Generation:</i> Generates potential funds for renovation grants, creating a self-sustaining program. <p>CO₂ Tax:</p> <ul style="list-style-type: none"> • <i>Carbon Shift Incentive:</i> Encourages adoption of low- to zero-carbon energy sources in residential buildings. • <i>Revenue for Renovation:</i> Generates funds to be reinvested ideally in renovation measures. • <i>Job Opportunities:</i> Construction of energy-efficient buildings fosters job creation in various sectors. <p>MEPS:</p> <ul style="list-style-type: none"> • <i>Renovation Stimulus:</i> Obliges renovation of worst-performing buildings, stimulating market transformation. • <i>Split Incentive Addressed:</i> Addresses split incentives and protects vulnerable households, especially tenants. • <i>Market Transformation:</i> Drives adoption of energy-efficient practices in the residential sector cost-effectively. <p>Obligation Scheme:</p> <ul style="list-style-type: none"> • <i>Cost-Effective Energy Savings:</i> Enables cost-effective energy savings, particularly addressing worst-performing buildings. • <i>Best Practices Exist:</i> Benefits from various EU best practices, facilitating scheme implementation.

Risks	Opportunities
<ul style="list-style-type: none"> Theoretical vs. Actual Savings: Calculated savings may differ from actual results, impacting payback periods. Motivating Building Owners: Difficulty in motivating non-occupant building owners, highlighting the split incentive dilemma. 	<ul style="list-style-type: none"> Market Evolution: Shifts energy market to a service supply model, stimulating mass markets.

3.4.7 Summary of the action plan

The action plan is designed in two blocks:

- One **overarching Action Plan**, describing the overall timeline, the responsible and other parties involved, the cost (precising whether it is about investments, or administrative costs such as providing training session or setting up awareness campaigns), and the source of public money (for support schemes, or simply for bearing the administrative costs)
- A **detailed short term Action Plan**, to show the horizon 2030 (2035) perspective for the measures design and implementation, describing what actions should be taken in the coming 3 years.

Overarching action plan

Table 3-34 - Overarching action plan for commercial buildings

Action - commercial buildings	Timeline	Responsible	Other parties	Cost - Investments or Administrative	Source of public money
Establish an obligation scheme (*)	Assess relevance - medium term (2027-2030); Design & implement where relevant (>2030)	Ministry of climate (building department) and finance	KredEx, architects, construction, local authorities	EE investments 100% public	Budget & ETS revenue; ETS1 & ETS2 revenues
Implement property tax	Design tax scheme - medium term (2029-2030) Implement - medium/long term (from 2031)	Ministry of Finance	Ministry of climate, architects, construction, building owners and operators	EE Investments; Split depends on design (bonus, malus, neutral)	ETS revenues; ETS2 revenues
Implement CO₂ tax	Preparation (incl. awareness) - short term (2025-2027) Implement ETS2 - medium term (from 2027)	Ministry of Finance	Ministry of climate, architects, construction, building owners and operators	EE Investments; Additional gov. income;	/
Set up MEPS	Adapt EPC & design MEPS - short term (2025-2027) Implement - medium term (from 2027)	Ministry of climate (building department)	Architects, construction, local authorities	EE Investments; 100% private;	/

Enable KredEx to coordinate more works	Develop and implement - short term (2024-2027)	Ministry of climate and of finance	KredEx, architects, construction, building owners and operators	Admin costs;	Gov. budget
Create an online repository	Design repository - short term (2024-2025) Implement - medium term (2026-2030)	Ministry of climate (building department)	Architects, construction, local authorities	Admin costs;	Gov. budget
Develop EPCcontracting	Design EPCcontracting - short term (2025-2026) Implement - medium term (from 2026)	Ministry of climate (building department)	Architects, construction, local authorities	Admin costs;	Gov. budget
Support new business models (e.g pre-fab)	Consult business - short term (2025-2027) Implement - medium term (from 2027)	Ministry of climate (building department)	Architects, construction, local authorities	Admin costs;	Gov. budget

(*) although the obligation scheme was a key measure in D3 modelling, we do not recommend its implementation by 2030 (as explained in chapter 5).

Detailed short term Action Plan

This plan is available in D4 model, in the “AP Building” Tab.

Energy efficiency categorisation	Action plan color code
Positive incentives (grants, deduction, ...)	Development actions
Voluntary with positive incentive	Follow up / Implementation actions
Investment in infrastructure / fleet	F->D means that all buildings above D EPC label should be renovated to D level
Fiscal measures	Preliminary savings thanks to the measure
Normative (obligation, MEPS, ...)	Effective savings thanks to the measure
Enabling measures	High level of savings thanks to the measure
	Maximum level of savings thanks to the measure (before slow down)

Measures in commercial building stock

		2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Obligation scheme for service sector	Tot INV [Meur/y]	-	-	-	-	-	-	60	62	63	64	65	67
	Public investment [Meur/y]	-	-	-	-	-	-	-	-	-	-	-	-
Establish independent administration body (oversee issues of certification; determine eligibility criteria)	Responsible => Ministry of climate, building and housing (department of building)												
Fix targets and timelines (targets and timelines for obligated parties (energy suppliers))	Support => local authorities; architects and construction companies		0,0%	0,0%	0,0%	0,0%	0,0%	0,9%	0,9%	0,9%	0,9%	0,9%	0,9%
Implementation & compliance (administration structure; penalties for non compliance)								R					R
Property tax (according to EPC levels)	Tot INV [Meur/y]	-	-	-	-	-	-	132	135	137	140	143	146
	Public investment [Meur/y]	-	-	-	-	-	-	40	40	41	42	43	44
CO2 tax for end energy use of residential buildings	Tot INV [Meur/y]	-	-	124	127	129	132	135	137	140	143	146	146
	Public investment [Meur/y]	-	-	37	38	39	40	40	41	42	43	44	44
Establish tax rate differential (renovation vs new construction; scope of works; scope of fuels for CO2 tax)	Responsible => Ministry of Finance							R					R
Implementation Method (guidelines for municipalities, introduce a phase in period & Monitoring & verification (documentation & reporting; refund process; ensure property owners have access to methodology)	Support => Ministry of climate, building and housing (department of building)												
Minimum energy performance standards for non-residential buildings (regulatory requirements for EPC class E and F)	Tot INV [Meur/y]	14	14	14	15	15	15	16	16	16	17	17	
	Public support [Meur/y]	-	-	-	-	-	-	-	-	-	-	-	-
EPC validation (review existing EPC; validate process; establish legal framework)	Responsible => Ministry of climate, building and housing (department of building)												
Renovation requirements (renovation timeline; natural trigger points; mandatory EPC)	Support => local authorities; Ministry of climate, building and housing (department of housing); architects and construction companies		F->D					R	E->C				R
Implementation & compliance (control & validation; sanctions for non compliance)								R					R
Enabling measures													
Technical capacity building (professionals training, certification)	Responsible => Ministry of climate, building and housing (department of building)												
Enable KredEx to issue more grants and oversee more works	Support => local authorities; Ministry of climate, building and housing (department of housing); architects and construction companies												
Prepare relevant templates, instruments and training material													
Develop relevant templates (energy performance contracting templates; links to national & regional financing; Building Renovation Passports - BRP)					R			R			R		
Develop relevant training material for contractors								R		R			
Implementation (repository of information for relevant templates; maintain & update online repository)								R					R

3.5 Industry (agro-forestry) - large plants/factories

3.5.1 Introduction

This action plan addresses all measures that need to be implemented in the industrial, agricultural and forestry sectors, with the focus on large scale plants (mostly large industrial plants), in order to contribute to the expected energy savings of the industry towards the energy efficiency targets.

It concerns large plants from the following industrial sectors.

Final energy consumption of the industry in 2022 (GWh)			Comprises large plants (in % of energy consumption) (*)
Final energy consumption of food	832,41	GWh	50%
Final energy consumption of textile	101,56	GWh	50%
Final energy consumption of wood industry	969,04	GWh	100%
Final energy consumption of paper	740,11	GWh	100%
Final energy consumption of chemicals	379,31	GWh	80%
Final energy consumption of non-metallic minerals	396,14	GWh	50%
<i>of which cement</i>		GWh	100%
Final energy consumption of iron and steel	10,94	GWh	100%
Final energy consumption of non-ferrous	9,54	GWh	100%
Final energy consumption of machinery & metal products	365,84	GWh	50%
<i>of which fabricated metals</i>		GWh	
Final energy consumption of transport vehicles	93,43	GWh	50%
Final energy consumption of other manufacturing	211,26	GWh	50%
Final energy consumption of manufacturing (sum of branches)	4.110	GWh	
Final energy consumption of mining	54,15	GWh	0%
Final energy consumption of water processing	0,00	GWh	0%
Final energy consumption of construction	633,21	GWh	0%
Final energy consumption of industry (sum of branches)	4.797	GWh	

Out of the total industrial final energy consumption, large plants represent about 50%² of the total final consumption (and SMEs represent the other 50%), i.e. 2 398 GWh.

Large enterprises were defined as enterprises that have more than 250 employees and meet at least one of the economic parameters - revenue over 50 MEUR and/or balance sheet of 43 MEUR³. Of course, the focus should be given to these enterprises with an industrial production activity in Estonia, but there is currently no public data to make the distinction (a large corporate with only office activities in Estonia might fall within the group of large enterprises, while it has no production capacity). In the future, large enterprises (or companies) could be replaced by large-scale industrial plants, and the split could be made on the basis of the level of energy consumption. These changes will also be implemented for the large enterprise energy audit requirements. In the future, enterprises need to conduct a large enterprise energy audit if they have an energy consumption over 10 TJ (or ~2.7 GWh) per annum or if they have an environmental management system, then the threshold will be 85 TJ (~23.6 GWh). We propose to use the 10 TJ (or ~2.7 GWh) energy consumption as the threshold of large industrial plant in the future.

² The 50/50 split is based on the Consumer Protection and Technical Regulatory Authority overview of large enterprise energy audits, based on following qualification; "250 employees or revenue more than 50 mln € and balance sheet more than 50 mln € together".

³ Large enterprise Energy audits. Available at: <https://ttja.ee/ariklient/ehitised-ehitamine/suurettevotete-energiaauditid>

Final energy consumption of Agriculture, fishing and forestry in 2022			Comprises large plants (in % of energy consumption) (*)
Final energy consumption of agriculture, fishing and forestry	991	GWh	0%

() this is highly approximate and only gives an idea of the sectors concerned by large plants, and those concerned by SMEs (all “non-large plants”).*

3.5.2 Barriers to the energy efficiency target

The most important barriers that jeopardise the uptake of energy savings within industrial large plants can be summarised as follows:

Policy barriers

- What can be achieved with regard to energy efficiency is specific to each industrial plant (depending on the sector, the products, the process and the fuel) and to the savings achieved so far. It is therefore hard to fix a binding (or even voluntary) EE target via a legal framework (e.g. imposing to achieve xx% energy savings by 2030). However, fixing such policy target is missing to stimulate the industry to move ahead with EE;
- Currently, the energy audit requirements are too low and do not lead to EE investments or actions;

Market barriers

- There is a lack of a coherent & structural incentive scheme to give long term visibility to the industry, to phase progressively its EE investments;
- There is a lack of an integrated approach addressing the full decarbonization of the industry, while encompassing the fuel switch (to low carbon options), securing the energy supply, and controlling the energy price(s) (e.g. against future fluctuations);
- Investments into energy efficiency can be with a higher than industry average payback time, as energy efficiency investments can have high capital costs, companies may choose to implement alternative investments with a lower payback time.

Financial barriers

- Large industrial plants do not face specific difficulties with regards to access to finance. They are usually able to get finance to invest when there is a strong business case (i.e. low and controlled pay-back time). With longer pay-back time, accessing finance might become more difficult;

Technical/capacity

- There is a shortage of skilled labor to specifically track energy saving options at plant level (industry/process operators do not have the required background to proactively look at savings). There is also a shortage of knowledgeable auditors with the required expertise to accompany industries;
- Public authorities are lacking visibility on the energy savings made by the industry (progress & investments) and are therefore not able to guide, nor enforce towards more savings. Information about the nature of investments into energy efficiency is gathered by Consumer Protection and Technical Regulatory Authority in the framework of large enterprise energy audits. Detailed overview (with calculations) of the previous energy efficiency investments in companies is not required in the framework;
- There is limited capacity to work on the full decarbonization roadmaps for the industry, which would also encompass fuel switch (including the deployment of fuel production, transport, storage, and delivery), waste heat recovery (WHR, including long term relationship between WH producer and consumer).

Social

- There is a lack of awareness of the long-term benefits of energy efficiency, in the frame of climate policies and resources scarcity;
- There are limited considerations for global energy market trend (cf. Security of Energy Supply, medium-long term energy price fluctuations, etc.).

3.5.3 Main steps or sub-actions to be taken, ranked by priority

This section gives an overview of the main steps and actions to be taken in order to design and implement the proposed EE measures for large industrial plants.

Strengthening the administration

The administration is currently lacking the required resource(s) to implement the actions needed to accelerate the uptake of energy efficiency in the industry (and agricultural sector). The industry is also a demanding party to have a clear framework from the administration to accompany the process, provide guidance, fix objectives, coordinate efforts, ensuring the sharing of practices, etc.

It is therefore recommended to **hire 1 person at the administration** to implement all actions related to this specific Action Plan. This person could be hosted by KliM, and would require the support of KredEx for the implementation of all actions, and to provide technical assistance.

Further details on the profile will be provided under Deliverable 5.

Establishing the VA system

Considering that the Voluntary Agreement is the main measure to be taken for the large industrial plants, it should be started as soon as possible, in order to engage the dialogue with the industry and build together the most efficient path towards its decarbonization (starting with Energy Efficiency, but already having in mind the fuel switch, including process electrification):

- The concerned administrations (KliM, agriculture) should agree on the **main design parameters**:
 - The **obligated party** should more than likely be the industrial plants directly (the largest in a first step), to progressively evolve to associations representing the industrial sectors (or activities). The obligated party could therefore be adapted according to the built relationship. It is key to remind that a VA is built on a strong and trust relationship between authorities and industrial companies;
 - The **level of the VA**, to be directed to all sectors (a sector specific approach could be an evolution, but is not needed in a first step);
 - The **general approach to engage the commitment** of the industry,
 - The specific approach to establish an **EE roadmap at plant level**, via audits conducted by independent auditors;
 - The rule to **fix the target**, to be a negotiated target (at least in the first step);
 - The **advantage for industrial plants** signing up a VA with the authorities like direct support (grants), tax exemption (e.g. on the energy fees);
 - Agree on the specific need for a revised audit scheme, on the need for additional and knowledgeable auditors;
 - Agree on the specific need for supporting actions.
- Organise a **consultation** with all concerned potential industrial plants, to start creating awareness, to demonstrate authority's commitment, to present and start the dialogue about the main design parameters;

- Based on the specific need assessment, develop or review the **audit framework**: tailor the content of energy audits to the design parameters of the VA, tailor the indicators of the audits, define the audit verification procedures (if a control is deemed relevant);
- Develop the **Voluntary Agreement** based on the main design parameters and agreement between the authorities and the industry (i.e. industrial plants in a first step), and engage the industry to sign;
- Develop an **implementation action plan**: auditing phase; negotiation phase; investment phase; monitoring & reporting phase.

Further details on the design parameters of a VA system, on how to proceed with the consultation (e.g. which industry to reach out), on the audit framework, and on the contractual basis of VA will be provided in section 3.5.5, and under Deliverable 5.

Developing one overarching support programme (in line with VA)

The current support schemes (mainly grants) are spread across sectors and funding sources:

- The “Promotion of resource-efficient green technologies of industrial enterprises” relies on the Recovery and Resilience Plan (RRF), and will therefore not carry on beyond 2027, the main difference with the measure “Supporting energy efficiency investments in companies” is the fund used to finance investments;
- The “Supporting energy efficiency investments in energy-intensive companies” is proposed to be state funded;
- The “Investment support for the food industry to ensure security of energy supply” only supported one sector, relying on the European Agricultural Fund for Rural Development. This support is now done, and it is proposed to prolong it until 2030 at least;
- The “Supporting energy efficiency investments in companies” relies on the Cohesion- and Regional Development Funds and is expected to continue.

The schemes are not combined together and not providing a clear long-term perspective.

To ensure coherence, avoid overlaps (e.g. for some sectors, like the food industry, accessing different schemes), adapt the support to the needs of individual EE investments, cover the relevant sectors with regard to the Voluntary Agreement, there is a need to set up a comprehensive and overarching support programme encompassing all existing schemes:

- Promotion of resource-efficient green technologies of industrial enterprises
 - Establish additional requirements to increase the effect of the measure;
- Supporting energy efficiency investments in energy-intensive companies
 - Establish list of eligible investments, based on BAT & BREF;
- Investment support for the food industry to ensure security of energy supply
 - Reduce criteria for applying for the grant and increase volume of the measure;
- Supporting energy efficiency investments in companies (targeting large plants)
 - Establish new criteria to increase the cost effectiveness of the support, defining eligible investments (for example requirement to replace equipment) and their total cost of ownership (TCO) to assess the funding gap;
 - Differentiate resource efficiency targets between sectors

Building technical capacity

Expertise and knowledge exist in Estonia but is not reaching the needed mass to accelerate the uptake of EE investments across the industries (larges scale plants). More is required to further build knowledge in the sector, and should be coordinated into specific capacity building programmes:

- Establishing training programmes for industrial energy operators/managers;
- Establishing training programmes for industrial energy auditors (large scale industry);
- Establishing exchange events (exchange of practices).

Setting up instruments (audit & EPC)

Reinforcing the audit framework to fit the needs of the Voluntary Agreement (cf. above) and to fit support programmes is required, also helping to design the appropriate level of support.

Energy Performance Contracting might also be needed to support industrial plants in their EE investments.

- Review the audit framework to improve its impact, extend the scope to full decarbonization, clearly defining the KPIs to monitor progress, and help calculating ex-post funding gaps (to determine the appropriate level of support for a specific investment in a specific industrial segment);
- Consult Energy Saving Companies (ESCO), energy suppliers and energy managers (at industrial plant level) to assess the need to establish an EPC guidance;

New technological solutions

Digitalisation can improve energy efficiency through technologies that gather and analyse data to effect real changes to energy use. Data gathering technologies such as sensors and smart meters collect data on energy use and other conditions affecting energy use (like climate). Data are processed into useful information through data analysis technologies such as artificial intelligence algorithms. Finally, the processed information is sent to devices that can effect physical changes to optimise energy use. Some devices require human action to optimise energy use.

Digital technologies have the potential to optimise the energy used for many energy-using activities, like constructing an industrial product. This represents an increase in energy efficiency as traditionally defined: a reduction in energy used per unit of activity. Increasing end-use efficiency continues to be a critical ingredient in energy transitions globally, with benefits in both developed and emerging economies.

However, the penetration and expertise of using the digital technologies may still be further explored, via the following actions:

- Assess the effective savings of industrial processes digitalization, and the interest to deploy and promote specific digital solutions via support programmes;
- Foresee RD&I for possible breakthrough technologies/concepts;
- Integrate Energy efficiency within the existing digitalization support programmes (RPP);

Provide support to establish industry associations

The relationship between the authorities and the industry is a key pillar of a successful implementation of any kind of EE measures. Therefore, helping the industrial sectors to organise themselves and to become reliable and knowledgeable representatives of the industry is needed.

- Provide support to the interested sectors to help them organize a sectoral association, to ease expansion of VA to larger number of industries and sectors.

3.5.4 Measures of the action plan

This section describes the EE measures for large scale industrial plants, providing some elements for their design.

Voluntary scheme for industry, with binding targets

The following key elements to take into account for a Voluntary Agreement are:

- The **Obligated Party** is the concerned party going to sign Voluntary Agreements. There are basically 2 options: either work directly with the companies, or work via sectoral representatives (i.e. associations). We recommend working in steps, and starting with a limited number of companies, leading to significant energy savings, and then expanding the scope progressively:
 - For the 1st step, to test proof the concept of VA, and target the most relevant energy users, we recommend starting with the top 20 to 30 largest industrial plants (*we will propose their selection under Deliverable 5*). We recommend targeting several sectors (ideally the most material regarding energy use, and options for energy savings), to ensure a variety of experiences, in order to more easily generalize/expand to other sectors;
 - For a 2^d step, we recommend to progressively expand to other large-scale companies and/or to new sectors to join. By then, we expect the other sectors to have set up associations to represent them and ease the collaboration with the authorities. Depending on interest and progress, the 2^d step could be dealt with either associations, either companies (as in the 1st step).
- **Structure of the VA:** it 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 step at least, we recommend structuring in one level, i.e., one agreement for all participants (and sector specific agreements later on if relevant);
- The **concept on the way to fix the commitments** to improve the energy efficiency is set, with three options: by the industry (unilateral commitments); by the public authorities (public voluntary schemes); or by both (negotiated agreements):
 - We propose in the 1st step at least in a negotiated, as a public voluntary scheme would require knowledge and expertise the authority should start building (an expert authority is needed to “impose” its way to fix the commitment).
- The global approach of the VA: **target-based** (quantitative), or implementation-based (qualitative targets). We recommend a target-based approach, to fix concrete & quantified objectives, for more efficient actions to be taken by the industry;
- The method to **determine the commitment** of the individual participants to the voluntary agreement should be fully framed under the auditing framework:
 - Improve energy audit methodology for VA, by differentiating saving target based on the concerned sector;
 - Follow up strict rules and use dedicated tool (e.g. general approach; level of granularity; level of details for savings & capex/opex; express savings in relative terms, e.g. $\text{kWh}/\text{t}_{\text{productA}}$, $\text{t}_{\text{CO}_2}/\text{t}_{\text{productB}}$);
 - Agree on what should determine the short-term and long-term roadmap (all measures with SPBT<5y; addressing all identified EE measures, these investments are not obligatory);
 - Auditors should be certified, after having received trainings and passed an agreement to validate their knowledge (existing auditors could be updated with the changes in the audit framework);

- The target(s) is fixed on the basis of the energy savings measures suggested by the audit (e.g. take into account all measures having a pay-back time below 5 years)
 - But the measures (investments) realized by the industrial plant could differ from those identified by the auditor, assuming that the plant achieves the fixed target.
 - **Supporting actions** should be taken/implemented, in order to enable the successful implementation of VA. These actions comprise among others: the obligation to implement an energy management system; networking activities to foster knowledge exchange; organisation of training sessions to stimulate knowledge sharing; good marketing among other industrial sectors;
 - 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. 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 grant. It is also recommended to remove the current exemption for energy intensive industries, to start discussing the compensation or incentive.

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).

Promotion of resource-efficient green technologies of industrial enterprises (grant scheme)

- The application round was opened at 10 o'clock on 7th September 2022 and was closed shortly after the same day as the volume of applications exceeded the budget of 23.6 MEUR
- Savings are estimated to start from 2025;
- Energy and resource efficiency measure continues (see slide 12);
- Projects could apply for a grant when they fulfilled resource efficiency criteria, grant was given based on EU GBER four eligible categories:
 - Regional aid
 - Aid for energy efficiency
 - Aid for environmental protection
 - De minimis aid

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

- Amount support/grant provided vs amount total investments;
- Expected energy savings per EUR invested (total kWh/EUR);
- Realised energy savings - reduction in energy consumption (MWh).

Supporting energy efficiency investment in energy intensive companies

- Target large scale plants (>10 GWh/y)
 - Consider limiting the measure to some specific sectors in the beginning (wood, chemical, paper)
- Establish energy efficiency baseline (what has been realized, what is known/studied, what is planned)
- Support rate up to 20%

- Establish a list of eligible costs (mainly investment in new equipment)
- Establish a monitoring system that would enable to measure the effect of the investment or ISO 50001, ISO 14001 or EMAS
- This grant will not anymore be accessible to most of the enterprises signing the VA. Hence it should be considered as a transitional measure (active until the VAs enter into force)

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

- Amount support/grant provided vs amount total investments;
- Expected energy savings per EUR invested (total kWh/EUR);
- Realised energy savings - reduction in energy consumption (MWh).

Investment support for the food industry to ensure security of energy supply

- Assess security issues for the food industry, and link to Energy Efficiency
 - Focus measure more on increasing energy usage
- Increase attractiveness of the measure by broadening the criteria of eligibility
- Volume of the measure was 4 M€, during 2023, applications submitted covered 622 770,38 € which means that the measure was not attractive to the food industry
- Develop a catalogue of energy efficiency measures for the food industry in Estonia

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

- Amount support/grant provided vs amount total investments
- Expected energy savings per EUR invested (total kWh/EUR)
- Reduction in energy consumption, MWh

Supporting energy- and resource efficiency investment in companies

- Continuation of energy- and resource efficiency measure;
- SMEs and large enterprises are both eligible, but there are additional restrictions and smaller support rates for large enterprises;
- Energy and resource use is monitored 5 years after the implementation of the project;
- Support rates depend on the size of the company, aid type used and the calculation methodology
 - Add requirement to replace old equipment (currently, it is not required, the overall resource efficiency of the plant must increase).

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

- Amount support/grant provided vs amount total investments;
- Expected energy savings per EUR invested (total kWh/EUR);
- Realised energy savings - reduction in energy consumption (MWh).

Design of the measure - technical capacity building

- Organise programme of events to share practices between practitioners
- One large event for all industries - energy efficiency (and decarbonization) for all industries (EU frame, BAT, intro to the VA)
- Smaller events by sector -> target on specific experience
- Introduce / present the Voluntary Agreement to a large panel of industries
- Carry out trainings for energy auditors and energy specialists

Design of the measure - set up instruments

- Improve energy audits for large industries

- Extend energy audit to all sectors (inc. agri)
 - Consult ESCO and other energy operators/suppliers to suggest establishing EPC guidance
- In order to monitor the progress and impact of the measure, it is recommended to follow these indicators
- Number of events & participation rate
 - Number of trainings & participation rate
 - Survey with industry on successfulness of new audits & EPC
 - Survey with energy professionals on successfulness of new audits & EPC
 - Usage of EPC guideline

Design of the measure - new technological solutions

- Mainstream Energy Efficiency into digital solutions grants (~51.5 Meur grants in the measure without consideration for EE -> urgent need to integrate)
- Promote the implementation of EMS, hiring an Energy Manager

Design of the measure - empower industry

- Provide state support to help the industry organising and structuring representative associations (provide power and financial means to operate)
- Associations should be able to influence decision making & work through all regulations
- Financial means of associations should partially (>50%) come from companies directly (membership fee), on top of public support

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

- Loop back successful consideration for EE in digital solution grants
- Number of industry associations, with a clear objective/plan towards decarbonization

Required legislative, regulatory, fiscal, institutional and procedural changes and reforms that Estonia should undertake

- **Legislative:** a legal basis is needed to establish the general framework for the VA which includes provisions for the compensation or advantage (which should be validated according to the State Aid guidelines, similarly to support provided to ETS industry);
- **Regulatory:** certification of energy auditors requires official recognition (official agreement to be delivered); the contractual form of the VA should be regulated (and validated by the government)
- **Fiscal:** fuel excise & VAT, fuel CO₂
- **Institutional changes:** more coordination is required between fiscal, economic (industry), energy and climate ministries to organise the dialogue and the process with the industry, and to track record;
- **Procedural changes:** new procedures will be required in the ministries regarding auditors and the VA preparation & signature;

3.5.5 Involved parties roles and responsibilities

The table below presents the roles and responsibilities of the different parties in the implementation of the measures included in this action plan.

Table 3-35 - Involved parties, roles and responsibilities

Actors	Roles, responsibilities and tasks
Top 20-30 Large companies, with industrial plants >250 FTEs or over 43 Meur balance sheet and 50 Meur revenue (in wood, paper, chemicals, non-metallic, non-ferrous, machinery & metal products?)	<ul style="list-style-type: none"> Engage intensively in VA Consulted for support programmes, and for capacity buildings
Ministry of Climate (incl. housing, transport, energy) / Ministry of Economic Affairs and Communications (MEAC))	<ul style="list-style-type: none"> Lead the following actions: VA, support program, training, EPC/audit, RD&I
KredEx	<ul style="list-style-type: none"> Guide/advice on: VA, support programme, training, EPC/audit
Minister of Regional and Rural Affairs (former spatial planning dept housed in Min. of Finance is moved here)	<ul style="list-style-type: none"> Contribute to: VA, support programme, training
Ministry of finance	<ul style="list-style-type: none"> Contribute to: support programme
Representatives of ESCO, energy operators	<ul style="list-style-type: none"> Contribute to: VA, support programme, EPC/audit

3.5.6 Risks and opportunities

The table below presents the main risks and opportunities associated with the implementation of the measures included in this action plan.

Table 3-36- Risks and opportunities associated with the implementation of the measures

Risks	Opportunities
<ul style="list-style-type: none"> The limited interest of the industry to engage in the process of a voluntary agreement, which is requiring time, effort and commitments 	<ul style="list-style-type: none"> VA offers a global framework to steer the dialogue between the industry and the authorities VA offers the opportunity to tackle the full decarbonisation of the industry in a step-by-step approach
<ul style="list-style-type: none"> The lack of financial resources does jeopardise the grant and support schemes, which can lead stop-and-go situations 	<ul style="list-style-type: none"> Grants increase the economic interest of investing in EE assets and equipment Competitiveness increases for enterprises with lower energy costs

3.5.7 Summary of the action plan

The action plan is designed in two blocks:

- One **overarching Action Plan**, describing the overall timeline, the responsible and other parties involved, the cost (precising whether it is about investments, or administrative costs such as providing training session or setting up awareness campaigns), and the source of public money (for support schemes, or simply for bearing the administrative costs)

- A **detailed short term Action Plan**, to show the horizon 2030 (2035) perspective for the measures design and implementation, describing what actions should be taken in the coming 3 years.

Overarching action plan

Table 3-37 - Overarching action plan for large industry (>250FTE)

Action - large industry (>250 FTE)	Timeline	Responsible	Other parties	Cost - Investments or Administrative	Source of public money
Set up a Voluntary Agreement scheme with top 30 companies	Design & develop VA - short term (2024-2025) Implement - short/medium term (from 2025) First investments (from 2026)	Ministry of Economic Affairs (dpt industry)	Ministry of climate, companies; representatives of auditors	Investments is 100% private, but there is financial compensation from public	ETS revenues; Exemption of fees to support RES electricity
Set up a Voluntary Agreement scheme for sectors	Design & develop VA - medium term (2026-2027) Implement - medium term (from 2028) First investments (from 2029)	Ministry of Economic Affairs (dpt industry)	Ministry of climate, companies; representatives of auditors	Investments is 100% private, but there is financial compensation from public	ETS revenues; Exemption of fees to support RES electricity
Promotion of resource-efficient green tech of ind. (RRP)	Implementation - short term (ongoing - until 2026) Revision and extension (from 2027)	Ministry of Economic Affairs (dpt industry)	Ministry of climate, companies; representatives of auditors	Support scheme from the public with 30% support in average	ETS revenues
Supporting EE investments in energy-intensive companies	Implementation - long term (ongoing - until 2035) Revision in the frame of VA (from 2025)	Ministry of Economic Affairs (dpt industry)	Ministry of climate, companies; representatives of auditors	Support scheme from the public with 30% support in average	Budget
Investment support food ensuring SoS	Implementation - long term (ongoing - until 2024) Revision and extension (from 2025)	Ministry of Economic Affairs (dpt industry)	Ministry of climate, companies; representatives of auditors	Support scheme from the public with 30% support in average	ETS revenues
Supporting energy efficiency investments in companies	Implementation - long term (ongoing - until 2035) Revision in the frame of VA (from 2025)	Ministry of Economic Affairs (dpt industry)	Ministry of climate, companies; representatives of auditors	Support scheme from the public with 30% support in average	ETS revenues

Strengthen MEAC (hire 1 person)	Hire 1 person & network - short term (2024) Implement action plan - short/long term (2024-2035)	Ministry of Economic Affairs (dpt industry)	Ministry of climate, companies; representatives of auditors	Admin costs;	Gov. budget
Strengthen industry (via associations)	Exchange with industry - short term (2024) Provide support - short term (2025-2030)	Ministry of Economic Affairs (dpt industry)	Ministry of climate, companies; representatives of auditors	Admin costs;	Gov. budget
Strengthen technical capacity	Assess training needs - short term (2024) Deliver trainings (practitioners & industry) - short/medium (2024-2035)	Ministry of Economic Affairs (dpt industry)	Ministry of climate, companies; representatives of auditors	Admin costs;	Gov. budget
Enhance the audit framework	Assess improvement needs - short term (2024-2025) Adapt/improve - short term (2025-2026)	Ministry of Economic Affairs (dpt industry)	Ministry of climate, companies; representatives of auditors	Admin costs;	Gov. budget
Develop EPC Contracting	Assess needs for EPC - short term (2025) Develop EPC guidelines - short/med term (2025-2027)	Ministry of Economic Affairs (dpt industry)	Ministry of climate, companies; representatives of ESCOs	Admin costs;	Gov. budget
RD&I in Energy Efficiency	Assess needs/opportunities for EE RD&I - short term (2025-2027) Integrate EE in RD&I - medium term (from 2027)	Ministry of Economic Affairs (dpt industry)	Ministry of climate, companies; Ministry of finance	Admin costs;	Gov. budget

Detailed short term Action Plan

This plan is available in D4 model, in the “AP Industry” Tab.

Energy efficiency categorisation	Action plan color code								
Positive incentives (grants, deduction, ...)	Development actions	R=Revision for potential update							
Voluntary with positive incentive	Follow up / Implementation actions								
Investment in infrastructure / fleet	F->D means that all buildings above D EPC label should be renovated to D level								
Fiscal measures	Preliminary savings thanks to the measure								
Normative (obligation, MEPS, ...)	Effective savings thanks to the measure								
Enabling measures	High level of savings thanks to the measure								
	Maximum level of savings thanks to the measure (before slow down)								

Industry (agro-forestry) - large plants/factories		2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Voluntary scheme for the industry, with binding targets based on incentives	Tot INV [Meur/y]	-	3	6	11	17	21	21	21	22	22	22	
	Public support [Meur/y]	-	-	-	-	-	-	-	-	-	-	-	-
Preparatory phase (global design; bilateral contacts with 30 companies)	Responsible => Ministry of economic affairs and communication (department industry)												
Development phase (consult top 30 companies; develop VA audit framework; developed MoU)	Support => Ministry of climate; companies; representative of auditors												
Implementation phase (conduct first tailored audits; negotiate roadmaps and targets on case by case)					R			R			R		
Investment phase (first investments; first report at the end of the period)													
Promotion of resource-efficient green technologies of industrial enterprises (RRP)	Tot INV [Meur/y]	6,9	2,9	-	-	-	-	-	-	-	-	-	-
	Public support [Meur/y]	6,9	2,9	-	-	-	-	-	-	-	-	-	-
Supporting energy efficiency investments in energy-intensive companies	Tot INV [Meur/y]	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3
	Public support [Meur/y]	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1
Investment support for the food industry to ensure security of energy supply	Tot INV [Meur/y]	9,7	-	-	-	-	-	-	-	-	-	-	-
	Public support [Meur/y]	2,9	-	-	-	-	-	-	-	-	-	-	-
Supporting energy efficiency investments in companies	Tot INV [Meur/y]	2,4	2,4	2,4	2,4	2,4	2,4	2,4	2,4	2,4	2,4	2,4	2,4
	Public support [Meur/y]	1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0
Preparatory/development phase (design common program; consult all concerned parties - KredEx and admin)	Responsible => Ministry of economic affairs and communication (department industry)												
Implementation phase (secure funding - ideally long term; organise events to create awareness; set up monitoring system)	Support => Ministry of climate; companies; representative of auditors; KredEx												
Monitoring phase (monitoring interest, investments and savings; report and adapt the scheme)							R			R			R
Enabling measures													
Strengthen the Ministry of Economic Affairs and Communication (MEAC)	Responsible => Ministry of Economic Affairs and Communication												
Hire 1 person	Support => Top 20-30 Large companies; Ministry of climate, building and housing; KredEx; local authorities; industry associations; Ministry of finance; Minister of Regional and Rural Affairs; Representatives of ESCO, energy operators												
Create network with all parties													
Implement the action plan					R			R			R		
Strengthening industry representativeness (to dialogue with MEAC)													
Exchange with industry on setting up (strengthening existing) association(s)													
Provide support to industry associations to develop their action plan and strengthen expertise					R			R			R		
Technical capacity building (various trainings)													
Assess detailed need for training programs													
Start training (practitioners & industry energy managers to share practices)							R			R			R
Roll out training programs													
Energy auditing framework													
Assess detailed audit improvement needs to fit VA requirements													
Adapt / improve / enhance audits and their framework (incl. verification)							R			R			R
Diffuse information related to new audits							R			R			R
EPC (Energy Performance Contract) guidance													
Assess the needs for EPC guidance (via consultation of stakeholders)													
Develop EPC guidelines								R			R		
Diffuse information related to EPC									R				R
RD&I in Energy Efficiency													
Assess RD&I needs/opportunities for EE								R					
Negotiate budget & integrate EE in RD&I + Monitor RD&I programs & projects									R				R

3.6 Industry (agro-forestry) - SMEs and small-scale plants

3.6.1 Introduction

This action plan addresses all measures that need to be implemented in the industrial, agricultural and forestry sectors, with the focus on small and medium size companies, in order to contribute to the expected energy savings of the industry and agriculture towards the energy efficiency targets.

It concerns SMEs from the following industrial sectors.

Final energy consumption of the industry in 2020 (GWh)			Comprises SMEs & small-scale plants (in % of energy consumption)(*)
Final energy consumption of food	832,41	GWh	50%
Final energy consumption of textile	101,56	GWh	50%
Final energy consumption of wood industry	969,04	GWh	0%
Final energy consumption of paper	740,11	GWh	0%
Final energy consumption of chemicals	379,31	GWh	20%
Final energy consumption of non-metallic minerals	396,14	GWh	50%
<i>of which cement</i>		GWh	0%
Final energy consumption of iron and steel	10,94	GWh	0%
Final energy consumption of non-ferrous	9,54	GWh	0%
Final energy consumption of machinery & metal products	365,84	GWh	50%
<i>of which fabricated metals</i>		GWh	
Final energy consumption of transport vehicles	93,43	GWh	50%
Final energy consumption of other manufacturing	211,26	GWh	50%
Final energy consumption of manufacturing (sum of branches)	4.110	GWh	
Final energy consumption of mining	54,15	GWh	100%
Final energy consumption of water processing	0,00	GWh	100%
Final energy consumption of construction	633,21	GWh	100%
Final energy consumption of industry (sum of branches)	4.797	GWh	

Out of the total industrial final energy consumption, SMEs and small-scale plants represent about 50% of the total final consumption (and large plants represent the other 50%), i.e. 2 398 GWh.

Small and medium enterprises (SMEs) were defined as enterprises that have less than 250 employees⁴. Changes to make the distinction between large companies (or plants) and SMEs is described under section 3.5.1. (using 85TJ or ~23.6 GWh/y as threshold).

Agriculture, fishing and forestry			Comprises large plants (in % of energy consumption)(*)
Final energy consumption of agriculture, fishing and forestry	1.273	GWh	100%

() this is highly approximate and only gives an idea of the sectors concerned by large plants, and those concerned by SMEs (all “non-large plants”).*

All agriculture, fishing and forestry plants are covered in SMEs and small-scale plants.

⁴ Large enterprise Energy audits. Available at: <https://ttja.ee/ariklient/ehitised-ehitamine/suurettevotete-energiaauditid>

3.6.2 *Barriers to the energy efficiency target*

The most important that jeopardise the uptake of energy savings within SMEs & industrial small-scale plants can be summarised as follows:

Policy barriers

- There is no clear direction or guidelines on how to increase energy efficiency in SMEs and small-scale plants, providing structural assistance and fixing energy savings and decarbonisation targets;
- There is limited relationship between the government (driving the climate policies) and the industry which has to take action and realise the required investments towards these climate goals. There is a lack of good representativeness of the sectors, via federations (enterprises are currently making direct appeal against the government, without going through the 26 industry associations present in Estonia);
- Currently, energy audits are not fit for SMEs nor for small scale plants;

Market barriers

- There is a lack of a coherent & structural incentive scheme to give long term visibility to the industry and other businesses, to phase progressively its EE investments. There is a risk for a stop and go situation, due to the ending of European Funds;
- There is a lack of an integrated approach addressing the full decarbonization of the industry and other businesses, while encompassing the fuel switch (to low carbon options), securing the energy supply, and controlling the energy price(s) (e.g. against future fluctuations);
- Share of energy costs in total resource costs are often relatively low for industries in Estonia, as the industries are often not energy-intensive. Focus may be shifted into improving production processes rather than looking closely at energy costs.

Financial barriers

- SMEs and small-scale plants (industry and agriculture) do not face specific difficulties with regards to accessing finance. KredEx already provides [financial leverage for SMEs](#), and also provides a [Regional Loan for SMEs](#) outside Tallinn and Tartu.

Technical/capacity

- There is a shortage of skilled labor to specifically track energy saving options at plant level (industry/process operators do not have the required background to proactively look at savings). Most of the time, small-scale plants have limited (or even no) resources to deal with energy efficiency (out of core business and limited staff);
- There is also a shortage of knowledgeable advisors/auditors with the required expertise to accompany small scale plants and SMEs;
- There is low competence and financial means for industry associations;
- Public authorities are lacking visibility on the energy savings made by the small-scale plants and all SMEs (progress & investments) and are therefore not able to guide, nor enforce towards more savings;

Social

- There is a lack of awareness of the long-term benefits of energy efficiency (such as Security of Energy Supply, resilience, price increase, etc.), in the frame of climate policies and resources scarcity;
- There are limited considerations for global energy market trend, paying attention to medium-long term energy price fluctuations, e.g.

3.6.3 *Main steps or sub-actions to be taken, ranked by priority*

This section develops the main steps and actions to be taken in order to design and implement the proposed EE measures for SMEs, small-scale industrial, agricultural, fisheries and forestry plants.

Strengthening the administration

The administration is currently lacking the required resource(s) to implement the actions needed to support SMEs, small-scale industrial, agricultural, fisheries and forestry plants to make more energy savings. Enterprises can benefit from a clear framework from the administration to support the process, providing guidance, helping to fix objectives, coordinating efforts, ensuring the sharing of practices, developing *ad hoc* guidance, or training etc.

It is therefore recommended to **hire 1 person at the administration** to implement all actions related to this specific Action Plan. This person could be hosted by KliM, and would require the support of KredEx for the implementation of all actions, and to provide technical assistance.

This could form the basis for a kind of SME office which would be in charge of, among others:

- Stimulating & organizing networking events;
- Developing a guidance to support Estonian companies in finding energy savings by their own;
- Collecting and diffusing best practices among practitioners;
- Organizing trainings

Developing one overarching and coherent support programme

The current support schemes (mainly grants) are spread across sectors and funding sources:

- The “Promotion of resource-efficient green technologies of industrial enterprises” relies on the Recovery and Resilience Plan, and will therefore not carry on beyond 2027, the measure is similar to the measure “Supporting energy efficiency investments in companies” which will be extended;
- The “Investment support for the food industry to ensure security of energy supply” only supported one sector, relying on the European Agricultural Fund for Rural Development. This support is now finished, and it is proposed to prolong the measure until 2030 at least;
- The “Supporting energy efficiency investments in companies” relies on the Cohesion- and Regional Development Funds and is expected to continue.
- Energy efficiency measures in fisheries was funded by European Maritime and Fisheries Fund.

The schemes are not combined together and not providing a clear long-term perspective.

To ensure coherence, avoid overlaps (e.g., for some sectors, like the food industry, or fisheries, accessing different schemes), adapt the support to the needs of individual EE investments, cover the relevant sectors in Estonia, there is a need to set up a comprehensive and overarching support programme encompassing all existing schemes:

- Promotion of resource-efficient green technologies of industrial enterprises
 - Already implemented;
- Investment support for the food industry to ensure security of energy supply
 - Reduce criteria for applying for the grant and increase volume of the measure;
- Supporting energy efficiency investments in companies (targeting large plants)
 - Establish new criteria to increase the cost effectiveness of the support, defining eligible investments (for example requirement to replace equipment) and their total cost of ownership (TCO) to assess the funding gap;
 - Differentiate resource efficiency targets between sectors
- Energy efficiency measures in the fisheries sectors
 - Increase volume of the measure, and expand to other agriculture and forestry enterprises;

Develop agriculture, fisheries and forestry audit scheme

Developing a simplified and adapted audit framework to match the needs of the agricultural, fishery and forestry exploitations, while being also an important input for the design of appropriate support schemes (e.g., help identifying eligible investments or actions, determining the economic gap of investments, precising priorities, mainstreaming a full decarbonization approach, etc.).

Set up advisory services

Expertise and knowledge exist in Estonia but is not reaching the needed mass to accelerate the uptake of EE investments across SMEs, small-scale plants, agricultural, fisheries and forestry exploitations. More is required to further build knowledge in these sectors and should be coordinated into specific affordable advisory services (provided by public entities, or private companies subsidized).

New technological solutions - assess effective savings of SMEs digitalisation

Digital technologies have the potential to optimise the energy used for many energy-using activities, even for small enterprises. However, there is still need to assess the real impact of using digital technologies in small businesses, with low energy density, and consequently less savings to be expected.

The penetration and expertise of using the digital technologies may still be further explored, via the following actions:

- Assess the effective savings of SMEs and small-scale processes digitalization, and the interest to deploy and promote specific digital solutions via support programmes;
- Assess the possible savings for agricultural, fisheries and forestry sector with digital solutions, and the interest to deploy and promote specific solutions via support programmes;
- Foresee RD&I for possible breakthrough technologies/concepts;
- Integrate Energy efficiency within the existing digitalization support programmes (RPP);

Provide support to establish industry associations

The relationship between the authorities and businesses is a key pillar of a successful implementation of any kind of EE measures. Therefore, helping the industrial, agricultural, fisheries and forestry sectors to organise themselves and to become reliable and knowledgeable representatives is needed, by focusing on major sectors in a first instance.

- Provide support to the interested sectors to help them organize their sectoral associations (or strengthen existing associations), to support the organization of networks (creating links between companies), of trainings, and other diffusion of material (like guidelines) dedicated to energy efficiency;
- Strengthened associations could also give the opportunity to progressively joining VA.

3.6.4 Measures of the action plan

This section describes the EE measures for large scale industrial plants, providing some elements for their design.

Programme with all supporting measures

Supporting measures should be combined with consulting & networking events. Investment grants are based on the audit results, depending on the funding sources (EU funds might be less flexible to adapt the level of the grant)

- Promotion of resource-efficient green technologies of industrial enterprises (RRF)
 - Cf. large enterprises

- Investment support for the food industry to ensure security of energy supply
 - Reduce the barriers for grant applications
- Supporting energy efficiency investments in companies
 - Precise under which conditions support can be granted
 - Add replacement requirement

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

- Amount support/grant provided vs amount total investments;
- Expected energy savings per EUR invested (total kWh/EUR);
- Realised energy savings - reduction in energy consumption (MWh).

Energy consulting and networking events for SMEs, small plants, and agricultural, fisheries and forestry exploitations

- Establish a dedicated SME office (in administration or via a business association) to promote energy efficiency (and circular economy) proactively. Such office could use the Network of County Development Centres (CDC as RDO) available in all 15 Countis in Estonia, to create the network across the country. Today they have already experience in helping KredEx with Renovation Loans for energy projects for apartment houses.
- Establish a platform with best practices
- Provide interested SMEs with grants for energy audits
- Establish support rates for energy audits and investments. Energy audit grant may be based on the standardised unit cost to reduce administrative burden. Investments may have different support rates for small and medium size enterprises
- Develop a simple [SME Guide to Energy Efficiency](#)
- Organise more events to diffuse the Guide & best practices
 - Progressively organize sectoral events (e.g. event for food industry companies)

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

- Participation rate to event;
- Number of best practices (in events and on platform);
- Number and size of SMEs engaging in EE.

Audit in large agricultural holdings

- (large agricultural holding = agricultural farm > 2 Meur revenue/y or over 1400 ha land)
- Training for energy auditors for measures in the agricultural sector
- Design audit template with a focus to identify energy saving potential (and low carbon fuel alternatives)
- Link to support & incentives
- Use standardised unit cost to reduce administrative burden

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

- Number of audits in agricultural holdings
- EE investments with expected energy savings & total cost

Energy efficiency measures in the fisheries (fishing boats)

- Proposal to expand the measure to all fisheries, agriculture and forestry (currently only boats)
- Establish energy efficiency baseline (what has been realized, what is known/studied, what is planned, and can still be realised)
- Establish a list of eligible costs (mainly investment in new equipment, but also operation)

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

- Amount support/grant provided vs amount total investments;
- Expected energy savings per EUR invested (total kWh/EUR);
- Realised energy savings - reduction in energy consumption (MWh).

Technical capacity building

- Develop advisory / auditing service
- Carry out trainings for energy advisors and energy specialists
- Organise program of trainings to share practices between practitioners
- Organise one large event for all SMEs practitioners - energy efficiency (and decarbonization)
- Organise smaller events by sector -> target on specific experience

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

- Number of practitioners;
- Number of trainings, and participation;
- Number of actions taken with SMEs (e.g. audit, advise, setting up energy management scheme, etc.).

Instruments (EPC contracting & audits)

- Consult ESCO and other energy operators/suppliers to suggest establishing EPC guidance

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

- Number of practitioners;
- Number of trainings, and participation;
- Number of actions taken with SMEs (e.g. audit, advise, setting up energy management scheme, etc.).

New technological solutions

- Mainstream Energy Efficiency into digital solutions grants (~51.5 Meur grants in the measure without consideration for EE -> urgent need to integrate)
- Assess effective savings of SMEs digitalisation, and interest to deploy and promote via support programmes
- KredEx and EAS have a separate measure for SME digitalisation, which should urgently tackle also Energy Efficiency

Empower industry

- Provide state support to help the industry organising and structuring representative associations (provide power and financial means to operate)
- Associations should be able to influence decision making & work through all regulations
- Financial means of associations should partially (>50%) come from companies directly (membership fee), on top of public support

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

- Loop back successful consideration for EE in digital solution grants;
- Number of industry associations, with a clear objective/plan towards decarbonization.

Required legislative, regulatory, fiscal, institutional and procedural changes and reforms that Estonia should undertake

- **Legislative:** no specific legislation is needed, at least on the short term;
- **Regulatory:** certification of energy auditors requires official recognition (official agreement to be delivered);
- **Fiscal:** fuel excise & VAT, fuel CO₂
- **Institutional changes:** Establish or enhance institutions dedicated to overseeing and implementing the multifaceted SME office; to establish & provide ad hoc services; to coordinate between the economic (industry), energy and climate ministries, the local authorities, and the relevant stakeholders;
- **Procedural changes:** new procedures will be required in the ministries regarding auditors and the interactions between local and national authorities;

3.6.5 Involved parties roles and responsibilities

The table below presents the roles and responsibilities of the different parties in the implementation of the measures included in this action plan.

Table 3-38 - Involved parties, roles and responsibilities

Actors	Roles, responsibilities and tasks
Representatives of SMEs	• Consulted for SME office, advisory service, digitalization of SME, business association
Ministry of Economy Affairs and Communications	• Lead the following actions: SME office, advisory service, digitalization of SME, industry/business associations
Ministry of Climate (incl. housing, transport, energy)	• Support the following actions: SME office, advisory service, digitalization of SME, industry/business associations
KredEx	• Guide/advice on: SME office, support program, all enabling measures (agri audit, advisory, training, digital)
Minister of Regional and Rural Affairs (former spatial planning dept housed in Min. of Finance is moved here)	• Contribute to: SME office, support program, advisory service, audit for large agricultural exploitations, digitalization of SME, industry/business associations
Ministry of Finance	• Contribute to: support program
Representatives of ESCO, energy operators	• Contribute to: SME office, audit for large agricultural exploitations, advisory service, training

3.6.6 Risks and opportunities

The table below presents the main risks and opportunities associated with the implementation of the measures included in this action plan.

Table 3-39- Risks and opportunities associated with the implementation of the measures

Risks	Opportunities
<ul style="list-style-type: none"> The limited interest of the industry to engage in the process of a voluntary agreement, which is requiring time, efforts and commitments 	<ul style="list-style-type: none"> VA offers a global framework to steer the dialogue between the industry and the authorities VA offers the opportunity to tackle the full decarbonisation of the industry in a step-by-step approach
<ul style="list-style-type: none"> The lack of financial resources does jeopardise the grant and support schemes, which can lead stop-and-go situations 	<ul style="list-style-type: none"> Grants increase the economic interest of investing in EE assets and equipment

3.6.7 Summary of the action plan

The action plan is designed in two blocks:

- One **overarching Action Plan**, describing the overall timeline, the responsible and other parties involved, the cost (precising whether it is about investments, or administrative costs such as providing training session or setting up awareness campaigns), and the source of public money (for support schemes, or simply for bearing the administrative costs)
- A **detailed short term Action Plan**, to show the horizon 2030 (2035) perspective for the measures design and implementation, describing what actions should be taken in the coming 3 years.

Overarching action plan

Table 3-40 - Overarching action plan for small industry

Action - small industry	Timeline	Responsible	Other parties	Cost - Investments or Administrative	Source of public money
Promotion of resource-efficient green tech of ind. (RRP)	Implementation - short term (ongoing - until 2026) Revision and extension (from 2027)	Ministry of Economic Affairs (dpt industry)	Ministry of climate, companies; representatives of auditors	Support scheme from the public with 30% support in average	ETS revenues
Investment support food ensuring SoS	Implementation - long term (ongoing - until 2024) Revision and extension (from 2025)	Ministry of Economic Affairs (dpt industry)	Ministry of climate, companies; representatives of auditors	Support scheme from the public with 30% support in average	ETS revenues
Supporting energy efficiency	Implementation - long term (ongoing - until 2035) Revision in the frame of VA (from 2025)	Ministry of Economic Affairs (dpt industry)	Ministry of climate, companies; representatives of auditors	Support scheme from the public with 30%	ETS revenues

investments in companies				support in average	
Energy efficiency measures in the fisheries sector	Revision and design - medium term (2026) Implementation (from 2027)	Ministry of Regional and Rural Affairs	Ministry of climate, industry associations, KredEx	Support scheme from the public with 30% support in average	ETS revenues
Setting up an SME office	Hire 1 person & network - short term (2024) Implement action plan - short/long term (2024-2035)	Ministry of Economic Affairs (dpt industry) and Ministry of Regional and Rural Affairs	Ministry of climate, companies; representatives of industries	Admin costs;	Gov. budget
Strengthen industry (via associations)	Exchange with industry - short term (2024) Provide support - short term (2025-2030)	Ministry of Economic Affairs (dpt industry)	Ministry of climate, companies; Ministry of Regional and Rural Affairs	Admin costs;	Gov. budget
Strengthen technical capacity	Assess training needs - short term (2024) Deliver trainings (practitioners & industry) - short/medium (2024-2035)	Ministry of Economic Affairs (dpt industry)	Ministry of climate, companies; Ministry of Regional and Rural Affairs	Admin costs;	Gov. budget
Enhance the audit framework	Design agri & SME scheme - short term (2024-2025) Adapt/improve & promote - short term (2025-2027)	Ministry of Economic Affairs (dpt industry)	Ministry of climate, companies; Ministry of Regional and Rural Affairs	Admin costs;	Gov. budget
Develop EPC contracting	Assess needs for EPC - short term (2025) Develop EPC guidelines - short/med term (2025-2027)	Ministry of Economic Affairs (dpt industry)	Ministry of climate, companies; Ministry of Regional and Rural Affairs; representatives of ESCO	Admin costs;	Gov. budget
SME digitalisation	Assess needs/opportunities for SME digitalisation - short term (2025-2027) Set up programmes - medium term (from 2027)	Ministry of Economic Affairs (dpt industry)	Ministry of climate, companies; Ministry of Regional and Rural Affairs	Admin costs;	Gov. budget

Detailed short term Action Plan

This plan is available in D4 model, in the “AP Industry” Tab.

<u>Energy efficiency categorisation</u>	<u>Action plan color code</u>
Positive incentives (grants, deduction, ...)	Development actions R=Revision for potential update
Voluntary with positive incentive	Follow up / Implementation actions
Investment in infrastructure / fleet	F->D means that all buildings above D EPC label should be renovated to D level
Fiscal measures	Preliminary savings thanks to the measure
Normative (obligation, MEPS, ...)	Effective savings thanks to the measure
Enabling measures	High level of savings thanks to the measure
	Maximum level of savings thanks to the measure (before slow down)

Industry (agro-forestry) - SMEs and small-scale plants

		2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Promotion of resource-efficient green technologies of industrial enterprises (RRP)	Tot INV [Meur/y]	9,7	4,2	-	-	-	-	-	-	-	-	-	-
	Public support [Meur/y]	9,7	4,2	-	-	-	-	-	-	-	-	-	-
Investment support for the food industry to ensure security of energy supply	Tot INV [Meur/y]	14	-	-	-	-	-	-	-	-	-	-	-
	Public support [Meur/y]	4,1	-	-	-	-	-	-	-	-	-	-	-
Supporting energy efficiency investments in companies	Tot INV [Meur/y]	3,4	3,4	3,4	3,4	3,4	3,4	3,4	3,4	3,4	3,4	3,4	3,4
	Public support [Meur/y]	1,3	1,3	1,3	1,3	1,3	1,3	1,3	1,3	1,3	1,3	1,3	1,3
Preparatory / development phase (design common program of support for SMEs and small-scale)	Responsible => Ministry of Economic Affairs and Communication & Ministry of finance												
Implementation phase (secure funding - ideally long term; organise events to raise awareness; set up monitoring system)	Support => Ministry of climate, building and housing; KredEx; industry associations; Minister of Regional and Rural Affairs; Representatives of ESCO, energy operators												
Monitoring phase (monitoring attractiveness and interest, investments and savings; report and propose changes)					R		R						
Energy consulting and networking events for small and medium enterprises (SMEs) {details under enabling measures below}	Tot INV [Meur/y]	2,3	2,3	2,3	2,3	2,3	2,3	2,3	2,3	2,3	2,3	2,3	2,3
	Public support [Meur/y]	2,3	2,3	2,3	2,3	2,3	2,3	2,3	2,3	2,3	2,3	2,3	2,3
Audits in large agricultural holdings {details under enabling measures below}	Tot INV [Meur/y]	-	-	-	-	-	-	-	-	-	-	-	-
	Public support [Meur/y]	-	-	-	-	-	-	-	-	-	-	-	-
Energy efficiency measures in the fisheries sector	Tot INV [Meur/y]	-	-	1,6	1,6	1,6	1,6	-	-	-	-	-	-
	Public support [Meur/y]	-	-	0,6	0,6	0,6	0,6	-	-	-	-	-	-
Preparatory / development phase (design common program of support for SMEs and small-scale)	Responsible => Minister of Regional and Rural Affairs												
Implementation phase (secure funding - ideally long term; organise events to raise awareness; set up monitoring system)	Support => Ministry of climate, building and housing; KredEx; industry associations												
Monitoring phase (monitoring attractiveness and interest, investments and savings; report and propose changes)					R		R						
Enabling measures													
Setting up an SME office	Responsible => Ministry of Economic Affairs and Communication												
Hire 1 person	Support => Ministry of climate, building and housing; KredEx; local authorities; industry associations (all, incl. SMEs); Ministry of finance; Minister of Regional and Rural Affairs; Representatives of ESCO, energy operators							R					R
Preparatory / development phase (draft action plan; consult admin & SMEs)													
Development phase (develop further action plan & validate with concerned actors)				R									
Implementation phase (start actions - guide, advisory service, organise events, collect best practices, etc.; support organisation of trainings)													
Monitoring phase (evaluate results; report on progress & ways to improve)					R			R				R	
Strengthening industry representativeness (to dialogue with MEAC)													
Exchange with industry on setting up (strengthening existing) association(s)					R			R				R	
Provide support to industry associations to develop their action plan and strengthen expertise													
Advisory service (with SME office)													
Design Advisory service													
Set up advisory service				R				R			R		
Technical capacity building (train practitioners)													
Assess detailed need for training programs													
Start training (practitioners & industry energy managers to share practices)					R			R				R	
Roll out training programs													
Energy auditing framework													
Design agriculture & forestry audit scheme													
Adapt / improve / enhance audits for SMEs					R			R				R	
Diffuse information related to new audits					R			R				R	
EPC (Energy Performance Contract) guidance for SMEs & small scale plants													
Assess the needs for EPC guidance (via consultation of stakeholders, incl. ESCO)													
Develop EPC guidelines						R							
Diffuse information related to EPC						R							
SMEs digitalisation													
Assess interest to strengthen digitalisation of SMEs for Energy Efficiency													
Set up programmes (grants, advise, etc.) to integrate digitalisation & energy efficiency, for SMEs				R		R							

3.7 Transport - Car efficiency

3.7.1 Introduction

This action plan addresses all measures that need to be implemented to reach the energy efficiency targets set for car efficiency. The following table presents the energy efficiency targets set for car efficiency in Estonia, and the different measures proposed to reach these targets.

3.7.2 Barriers to the energy efficiency target for car efficiency

The main barriers to the deployment of clean and energy efficient cars and vehicles (i.e. trucks, buses, etc.) in Estonia mainly relate to **inadequate or insufficient infrastructure** as well as an **inadequate car taxation scheme**. In addition, the **lack of financial capacity** to shift towards clean and energy efficient cars and the **lack of public awareness** also hinder the achievement of energy efficiency targets.

Inadequate or insufficient infrastructure

There is generally a lack of adequate (public) infrastructure for the deployment of clean and energy efficient vehicles. This includes insufficient number of charging stations for EVs and the lack of parking areas to leave cars outside the city centre close to mobility hubs in order to decrease congestion levels and hence air pollution in the city centre as well as promote the use of alternative modes of transport such as public transport and active/micro mobility.

Inadequate car taxation scheme

The current proposed taxation scheme does not incentivise the shift towards more efficient vehicles as it prevents car renewal. It raises the fixed costs of owning an ICE vehicle regardless of its energy consumption, making it economically viable to use less efficient vehicles registered outside of Estonia. Therefore, it encourages people to use their cars more in order to reduce the cost per kilometre. In addition, tax rates are lower than those in Latvia for car registration so it incentivises people to register their car outside of Estonia. Also, the per-kilometre cost is relatively lower, which makes actually using the car financially more reasonable. Finally, the current proposal also sets taxes for cars which are declared as not used in traffic (unlike any other developed country), providing incentive to waste energy on cars which could be parked.

Financial capacity

The shift towards clean and energy efficient vehicles is hindered by the lack financial means of households, businesses and local public authorities, given that the investment cost of such vehicles is higher than for ICE vehicles.

In addition, the deployment of an entire charging network for EVs requires significant financial capacity.

Public awareness

Achieving energy efficiency targets in the transport sector requires drastic behavioural change of the population. Shifting towards clean and energy efficient vehicles is not motivated by financial reasons (given the high investment cost of such vehicles). Hence improving public awareness on the benefits of using clean and energy efficient vehicles instead of ICE vehicles in terms of health, environment and long-term economic savings is crucial.

3.7.3 Main steps or sub-actions to be taken, ranked by priority

This section develops the main steps and actions to be taken in order to design and implement the proposed energy efficiency measures to achieve car efficiency targets.

Revision of the proposed car taxation scheme

The main steps to be taken to revise the proposed car taxation scheme are as follows:

- **Conduct a market analysis and an opportunity assessment** to identify available energy-efficient vehicle options.
- Define adequate VAT reduction rates per category of vehicle.
- **Establish a proposal for the revision** of the proposed car taxation scheme (eco-bonus scheme) to be submitted to the Ministry of Finance.
- **Negotiate the proposed revision** with relevant ministries.
- **Implement the proposed revision** in collaboration with the Ministry of Finance.

Design of public procurement scheme for clean and energy efficient vehicles

The main steps to be taken to design the public procurement scheme are as follows:

- **Conduct a market analysis and an opportunity assessment** to identify available energy-efficient vehicle options and **precise the scope** of the public procurement scheme. Who are the concerned public bodies? Which categories of vehicles (e.g. cars, buses, trucks, etc.) are included?
- **Establish the design** of the public procurement scheme. This includes: defining clean and energy efficiency vehicles for each category as well as exempted categories of vehicles, fixing the target as share of vehicles that must comply with clean and energy efficiency criteria, distributing the target per type of vehicle and per public authority, defining the timeline of implementation, establishing rules for new public purchase contracts.
- **Assess the cost of purchasing** clean vehicles in comparison with ICE vehicles (evaluate market maturity), **analyse possible financial support** from national authorities and **define the most adequate support scheme**.
- **Consult** all public bodies with a first proposal of the public procurement scheme.
- Develop **concrete contractual provisions** for procurement.
- Implement the new public procurement scheme:
 - Set up a **monitoring scheme**;
 - Integrate the procedure into the public procurement legislation in Estonia, by **implementing provision in contracts**.

Deployment of charging infrastructure for EVs

The main steps to be taken to deploy charging infrastructure for EVs are as follows:

- **Organise a preliminary consultation** with charging infrastructure providers and operators, EV distributors and electricity system operators (DSOs/TSOs) to assess the potential, trends and barriers for the deployment of EV.
- From there, **define the need to deploy the infrastructure**, by private actors, and **precise the scope** (publicly available, privately owned) and the remaining barriers to EV charging infrastructure deployment.
- **Identify key areas** for the deployment of EV charging infra, in line with the needs.
- **Engage private actors** to invest, and take **required (public) actions to support** them.

3.7.4 Measures of the action plan

Vehicle tax for registration

Table 3-41 Summary table of the proposed measure

Type of measure	Price signal incentives
Main objective	Impose a tax on ICE vehicles at registration to disincentivize the purchase of personal vehicles. Provide VAT deductions to promote more efficient vehicles.
Monitoring KPIs	<ul style="list-style-type: none"> • Number of registrations annually, per category of vehicle • Average energy consumption of new vehicles sold • CO₂ reductions in the transport sector
New/existing measure in Estonia	The Ministry of Finance has proposed a new car taxation in Estonia, which is currently being discussed. This measure is aimed at revising the current proposed tax in Estonia.

The main issues associated with the current proposed vehicle registration tax are the following:

- The proposed taxation increases the fixed costs of owning an ICE vehicle and thus encourages people to use their cars more in order to reduce the per-kilometre cost. This is directly against the energy efficiency goals and GHG goals;
- Roughly half of the Estonian fleet can have lower tax rates in Latvia. Thus, people are financially encouraged to register their car in Latvia which lowers the estimated tax collection by 80%.

The proposed car taxation scheme should be completely discarded and replaced with the following:

- Instead of using a car tax as a punishing measure for people deprived of choice, the taxation should follow principle that increased efficiency is better for society. At this point, a large amount of the Estonian fleet is registered as company cars but are used as personal vehicles. There is little to no oversight on this practice. The main incentive for doing this is to save on VAT, which is currently 20% and will be 22% next year. Instead of writing this off as complete loss, it should be considered an opportunity to improve tax behaviour and increase energy efficiency. Therefore, we propose to implement an **eco-bonus scheme** for private citizens.
 1. If the car is rated as the most efficient vehicle certified in Estonia in same calendar year, it will be VAT taxed with rate of 0%.
 2. If it is rated as current average or higher, it will be taxed by 22% (complete VAT).
 3. Any value in between will be proportionally taxed.
- In 2022, this means the average new car was 78 Wh/km. For any vehicle at or above that figure, the VAT rate shall be 22%. The lowest energy consumption was 38 Wh/km. This would equal to rate of 0%. This incentivizes people to prefer more efficient cars while also providing them option to avoid potentially illegal schemes to skip paying VAT.

Annual vehicle tax

Table 3-42 Summary table of the proposed measure

Type of measure	Price signal incentives
Main objective	Impose an annual tax on ICE vehicles to discourage the use of personal vehicles powered by traditional fossil fuels.

Monitoring KPIs	• CO ₂ reductions in the transport sector
New/existing measure in Estonia	The Ministry of Finance has proposed a new car taxation in Estonia, which is currently being discussed. This measure is aimed at revising the current proposed tax in Estonia.

The same recommendations as for the car registration apply to annual taxation, which requires also a complete alignment of the scheme. Hence, we recommend adapting first the registration tax, and thereafter to review the annual car taxation accordingly.

Promotion of clean and energy efficient road transport vehicles in public procurement

Table 3-43 Summary table of the proposed measure

Type of measure	Positive incentives (grants, deductions,...)
Main objective	Integrate specific criteria regarding the energy efficiency of road transport vehicles into the public procurement process in order to stimulate a shift. These criteria should reflect a decrease in carbon emissions and energy use of public road transport vehicles.
Monitoring KPIs	<ul style="list-style-type: none"> • Number of public clean and energy efficient road transport vehicles vs. total number of public road transport vehicles • Average efficiency of public road transport vehicles • Energy savings of public road transport vehicles • Compliance with target
New/existing measure in Estonia	This measure has not yet been implemented, nor proposed in Estonia.

The following elements shall be considered to promote clean and energy efficient road transport vehicles in public procurement:

- Conduct a market analysis and an opportunity assessment to identify available energy-efficient vehicle options that are below certain CO₂ /fuel-efficiency thresholds. These vehicles include electric vehicles (EV), plug-in hybrid vehicles and vehicles fuelled with hydrogen, e-fuels or biofuels;
- The compliance with the Clean Vehicles Directive (CVD)⁵ targets shall be ensured:
 - Target vehicles of the CVD are cars, vans, trucks and buses when procured through (1) purchase, lease, rent or hire purchase contracts, (2) public service contracts, (3) services contract;
 - The minimum percentages of clean vehicles to achieve in Estonia in accordance with the CVD are:
 - Light-duty: 23.1% between 2021 and 2030;
 - Trucks: 7% between 2021-2025 and 9% between 2026-2030;
 - Buses: 31% between 2021-2025 and 43% between 2026-2030;
- Based on the CVD targets, the proposed targets for clean and energy efficient road transport vehicles in public procurement should be as follows:
 - Target 1: clean and energy efficient vehicles as a share of total fleet must **at least align with CVD targets**;

⁵ [Clean Vehicles Directive \(europa.eu\)](https://european-council.europa.eu/media/e3000420/1/161702main_en.pdf)

- Target 2: we propose to go beyond the CVD target and ensure that **all new contracts must be clean and energy efficient vehicles.**
- The target should then be distributed per authority or per type of vehicle, for example:
 - Cars: All public cars are clean and energy efficient vehicles by 2035;
 - Buses: All public buses are clean and energy efficient vehicles by 2035;
 - Light-duty: 50% of public light-duty are clean and energy efficient vehicles by 2035 and 100% by 2040;
 - Heavy-duty: 50% of public heavy-duty are clean and energy efficient vehicles by 2035 and 100% by 2040.
- Based on the targets set, energy efficiency criteria shall be designed (e.g. number of clean vehicles at the beginning of the contract, fleet transformation targets and plans, etc.). For example, the following criteria can be considered in Estonia:
 - For ongoing public procurement contracts: insert clause to have at least 25% of clean and energy efficient road transport vehicles in 2 years, then increase it by 25% every 3 years;
 - For new contracts: foresee 30% of clean and energy efficient road transport vehicles from the first year onwards, then increase it by 35% every 3 year.
- Define exemptions, these can be aligned with CVD exemptions (i.e. coaches; agricultural and forestry vehicles; two- and three-wheeled vehicles and quadricycles; track-laying vehicles; mobile machinery; special vehicles for use by armed services, civil protection, fire services and police forces as well as on construction sites, quarries, ports, airports; armoured vehicles, ambulances, hearses, wheelchair accessible cars, mobile cranes).
- The government should assess the cost of purchasing clean vehicles in comparison with ICE vehicles (evaluate market maturity), analyse possible financial support from national authorities and define the most adequate support scheme.
- Once the measure is designed, conduct a consultation of all public bodies with a first proposal of the public procurement scheme.
- The government should then develop concrete contractual provisions for procurement and reach a final agreement.
- A monitoring scheme (to verify compliance) shall be determined. This should at least consider:
 - An annual reporting by concerned authorities of the number of clean and energy efficient road transport vehicles through public procurement;
 - Fines for non-compliance.
- Finally, integrate the procedure into the public procurement legislation in Estonia, by implementing provision in contracts.

Electric charging infrastructure for existing inhabited areas

Table 3-44 Summary table of the proposed measure

Type of measure	Investment in infrastructure / fleet
Main objective	Increase the number of electric vehicles (EV) that can be charged in public spaces by installing a large amount of electric charging infrastructure available in existing inhabited areas.
Monitoring KPIs	<ul style="list-style-type: none"> • Number of charging stations (per km² of existing inhabited areas - identified through the strategic mapping of necessary infrastructure, see measure description below) versus the number of EVs

	<ul style="list-style-type: none"> • Correlation between increase in number of charging stations and number of EVs • CO₂ emissions reductions
New/existing measure in Estonia	This measure has not yet been implemented, nor proposed in Estonia.

For the large-scale deployment of electric charging infrastructure in existing inhabited areas, the following elements shall be considered:

- The government should first conduct an assessment of existing infrastructure (including home charging), electricity capacity, and local demand for EVs (consider expected increase in EV with charging deployment):
 - The assessment should also include a benchmark based on comparable cities.
 - The assessment should cover both large cities (Tartu/Tallin) and smaller urban areas (in particular, where people live in apartment building and have no possibility to use own electricity system to charge).
 - The results of the assessment will need to define the types of charging infrastructure and number of charging infrastructure per type (as a ratio of the number of charging infrastructure per EV, in relation with the overall EV target) that is necessary to implement.
- Based on the results of the assessment, the government should develop a strategic mapping aimed at identifying suitable locations for the deployment of charging infrastructure. The mapping will include the following steps:
 - Step 1 - Engage with stakeholders (local residents, businesses, communities, landowners, energy companies) to identify charging needs and critical location points;
 - Step 2 - Identify critical location points, considering factors such as proximity to residential areas, parking availability, and grid capacity (areas with sufficient transformer and distribution capacity for the charger type being installed);
 - Step 3 - Estimate the number of charging infrastructure per critical location point (based on demand, i.e. traffic, number of cars passing by the location);
 - Step 4 - Identify necessary funding sources and options for the deployment of necessary infrastructure.
- To install charging infrastructure based on the strategic mapping, the government should then:
 - Select service providers through public procurement;
 - Update local policies and incentives to encourage - or require - others to build charging infrastructure.
- The government should set up a monitoring system consisting of:
 - An annual assessment of the deployment of public and private charging infrastructure, including reporting obligations for private installers of charging infrastructure;
 - A platform to track usage of public charging infrastructure, user satisfaction, and infrastructure performance, allowing for adjustments of the strategic mapping based on real-time data.

Technical capacity building

Table 3-45 Summary table of the proposed measure

Type of measure	Enabling measures
Main objective	Building technical capacity to ensure that the measure of this action plan can adequately be implemented.

Monitoring KPIs	<ul style="list-style-type: none"> • Jobs created / Job placement and advancement • Number of trained charging infrastructure installers • Completion rate of training programmes • Partnerships and collaboration
New/existing measure in Estonia	This measure has not yet been implemented, nor proposed in Estonia.

The government should ensure technical capacity building via the development of training for professionals to ensure they have the necessary skills and competences to implement the measure of this action plan.

More specifically training programs should be made available for:

- Electricity system operators (DSOs and TSOs) on grid planning and improvement allowing the integration of distributed energy resources (including EVs).
- Public administration on the following topics:
 1. New public procurement procedure for fleet and general fleet management to achieve public clean and energy efficient vehicles targets;
 2. Planning deployment of charging infrastructure;
 3. Designing new car taxation.

Set up supporting instruments

Table 3-46 Summary table of the proposed measure

Type of measure	Enabling measures
Main objective	Developing instruments that will support the implementation of the measure of this action plan.
Monitoring KPIs	<ul style="list-style-type: none"> • Energy consumption of public vehicle (total and average)
New/existing measure in Estonia	This measure has not yet been implemented, nor proposed in Estonia.

To support the promotion of clean and energy efficient road transport vehicles in public procurement, platform to track progress of public procurement of vehicles should be developed. This platform will be aimed at allowing:

- Public authorities to record their contribution to the target (via existing fleet management software monitoring fuel and electricity use by public vehicle);
- To share best practices between different public authorities.

Two main instruments shall be developed to support the deployment of public charging infrastructure:

- An app allowing EV subscription for public recharging, to be developed by service providers directly;
- A monitoring system to track usage of public charging infrastructure, user satisfaction, and infrastructure performance to be developed by service providers. The data collected shall be shared with public authorities to ensure the necessary adjustments of the measure.

New technological solutions

Table 3-47 Summary table of the proposed measure

Type of measure	Enabling measures
Main objective	Developing new technological solutions that will support the implementation of the measure of this action plan.
Monitoring KPIs	<ul style="list-style-type: none"> • Grid usage during off-peak hours and during hours of high renewable electricity production
New/existing measure in Estonia	This measure has not yet been implemented, nor proposed in Estonia.

The large-scale deployment of EVs will not be possible without grid modernisation. Two main solutions should be implemented by public authorities (in collaboration with NRAs) in this context:

- Ensure that system operators (DSOs and TSOs) make the necessary planning and investment to have a grid that is suitable for purpose to integrate large-scale deployment of EV charging infrastructures;
- Implement time of use/dynamic tariffs to incentivise the charging of EVs during off-peak times.

Raising awareness and incentives to shift towards the use of alternative transport modes

Table 3-48 Summary table of the proposed measure

Type of measure	Enabling measures
Main objective	Raising awareness on the benefits of energy efficient vehicles and providing incentives to shift towards such vehicles.
Monitoring KPIs	<ul style="list-style-type: none"> • Media reach
New/existing measure in Estonia	This measure has not yet been implemented, nor proposed in Estonia.

This measure concern the launch of a public awareness campaign to educate consumers as well as public authorities about benefits of energy-efficient vehicles. This measure should be launched in parallel with the new car taxation scheme to ensure consumers understand the rationale behind this new taxation scheme. The message should be clearly defined and focus on aspects such as:

- Social benefits - Positive impact on health of reduced air pollution, reduced congestion and lower time spent in transport, etc.;
- Economic benefits - Cost savings, new job openings, use of EVs as storage device for self-generated electricity, etc.;
- Environmental benefits - Lower GHG emissions, reduced air pollution, etc.;
- Increased prioritisation of clean and energy efficient vehicles in public policy - Growing number of parking spots for clean and energy efficient vehicles at the expense of decreasing number of parking spots for ICE vehicles (including associated sanctions, e.g. fines and controls).

Required legislative, regulatory, fiscal, institutional and procedural changes and reforms that Estonia should undertake

- **Legislative:** integration of energy efficiency criteria into legislation on public procurement of vehicles
- **Regulatory:** obligation for public authorities to contribute to the targets for clean and energy efficient road transport vehicles in public procurement
- **Fiscal:** revision of the proposed car taxation
- **Institutional changes:** integration of energy efficiency and GHG emissions criteria into car taxation // requires high level of collaboration with Ministry of Finance
- **Reforms:** revision of the proposed car taxation

3.7.5 Involved parties roles and responsibilities

The table below presents the roles and responsibilities of the different parties in the implementation of the measures included in this action plan.

Table 3-49 - Involved parties, roles and responsibilities

Actors	Roles, responsibilities and tasks
Ministry of Energy and Climate (department of mobility and investment), in collaboration with Estonian Transport Administration	Coordination of all measures, mainly: <ul style="list-style-type: none"> • In coordination with tax authorities, set up, collect and monitor annual and registration vehicle taxation • Adapt the public procurement procedure for road transport vehicles and distribute target among national and local authorities • Conduct preliminary assessment and develop strategic mapping for the deployment EV charging infrastructure • Provide necessary funds for implementation of the measures
Ministry of Finance	Set up, collect and monitor annual and registration vehicle taxation
Local authorities	Contribute to: <ul style="list-style-type: none"> • Strategic planning of EV charging infrastructure deployment • Adapt public procurement of road transport vehicles and contribute to the target
System operators (DSOs and TSOs) and NRAs	<ul style="list-style-type: none"> • Ensure grid infrastructure modernisation • Implement time of use/dynamic tariffs
Local residents, businesses, communities, landowners, energy companies	<ul style="list-style-type: none"> • Participation in the strategic mapping of EV charging infrastructure deployment through public consultation

3.7.6 Risks and opportunities

The table below presents the main risks and opportunities associated with the implementation of the measures included in this action plan.

Table 3-50- Risks and opportunities associated with the implementation of the measures

Risks	Opportunities
<ul style="list-style-type: none"> • Current debate/discussion about the proposed vehicle taxation system, which does not incentivise shift to more efficient vehicles. 	<ul style="list-style-type: none"> • Minor changes in the car taxation scheme can have major positive impact on the transport sector. Therefore a taxation scheme that fully

Risks	Opportunities
<ul style="list-style-type: none"> Insufficient investments in grid modernisation can hinder the deployment of EV. 	incentivises the shift towards clean and energy efficient vehicles is crucial.

3.7.7 Summary of the action plan

The action plan is designed in two blocks:

- One **overarching Action Plan**, describing the overall timeline, the responsible and other parties involved, the cost (precising whether it is about investments, or administrative costs such as providing training session or setting up awareness campaigns), and the source of public money (for support schemes, or simply for bearing the administrative costs)
- A **detailed short term Action Plan**, to show the horizon 2030 (2035) perspective for the measures design and implementation, describing what actions should be taken in the coming 3 years.

Overarching action plan

Table 3-51 - Overarching action plan for transport - car efficiency

Action - car efficiency	Timeline	Responsible	Other parties	Cost - Investments or Administrative	Source of public money
Energy efficient vehicles in public procurement	Preparatory phase - short term (2024) Design phase - short term (2025-2026) Agreement & implementation - medium term (2026-2029)	Ministry of Climate (department mobility), Estonian Transport Administration	Ministry of finance; local authorities; system operators and NRA; Local residents, businesses, communities, landowners, energy companies	Investment in new vehicle fleet	Gov. budget
Deploy EV charging infrastructure	Preparatory - short term (2024) Development and implementation (2025-2029)	Ministry of Climate (department mobility), Estonian Transport Administration	Ministry of finance; local authorities; system operators and NRA; Local residents, businesses, communities, landowners, energy companies	Investment in charging infrastructure; 50% public budget	ETS revenues
Set up a vehicle tax registration scheme	Preparatory - short term (2024) Proposal & negotiation - short term (2025) Implementation - medium term (from 2025)	Ministry of Climate (department mobility), Estonian Transport Administration	Ministry of finance; local authorities; system operators and NRA; Local residents, businesses, communities, landowners, energy companies	Purchase of more efficient vehicles; Private purchase	

Set up a annual vehicle tax scheme	Preparatory - short term (2024) Proposal & negotiation - short term (2025) Implementation - medium term (from 2025)	Ministry of Climate (department mobility), Estonian Transport Administration	Ministry of finance; local authorities; system operators and NRA; Local residents, businesses, communities, landowners, energy companies	Purchase of more efficient vehicles; Private purchase	
All Tallinn and Tartu taxis run on electricity	Consult taxi companies - short term (2024) Implementation - medium term (2025-2028)	Ministry of Climate (department mobility), Estonian Transport Administration	Ministry of finance; local authorities; system operators and NRA; Local residents, businesses, communities, landowners, energy companies	Support scheme from the public with 30% support in average	ETS revenues
Technical capacity building	Assess capacity needs - short/medium term (2025) Implement capacity building - medium term (2026-2030)	Ministry of Climate (department mobility), Estonian Transport Administration	Local authorities; system operators and NRA; businesses, energy companies	Admin costs;	Gov. budget
Set up EV subscription for public transport	Assess needs for EV subscription - short term (2024) Implement EV subscription - short term (2025-2030)	Ministry of Climate (department mobility), Estonian Transport Administration	Local authorities; system operators and NRA; businesses, energy companies	Admin costs;	Gov. budget
Develop user-friendly application	Assess needs for mapping application - short/medium term (2025) Develop the application - short/medium (2026-2030)	Ministry of Climate (department mobility), Estonian Transport Administration	Local authorities; system operators and NRA; businesses, energy companies	Admin costs;	Gov. budget
Implement a campaign inciting the purchase of more efficient vehicles	Campaign to promote new taxation regime - short term (from 2025)	Ministry of Climate (department mobility), Estonian Transport Administration	Ministry of finance; Local authorities; system operators and NRA; businesses, energy companies;	Admin costs;	Gov. budget

Detailed short term Action Plan

This plan is available in D4 model, in the “AP Transport” Tab.

Energy efficiency categorisation		Action plan color code												
Positive incentives (grants, deduction, ...)		Development actions	R=Revision for potential update											
Voluntary with positive incentive		Follow up / Implementation actions												
Investment in infrastructure / fleet		F->D means that all buildings above D EPC label should be renovated to D level												
Fiscal measures		Preliminary savings thanks to the measure												
Normative (obligation, MEPS, ...)		Effective savings thanks to the measure												
Enabling measures		High level of savings thanks to the measure												
		Maximum level of savings thanks to the measure (before slow down)												
Measures for car efficiency			2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Promotion of clean and energy efficient road transport vehicles in public procurement	Tot INV [Meur/y]		88	89	91	93	95	97	99	101	103	105	107	
	Public support [Meur/y]		88	89	91	93	95	97	99	101	103	105	107	
Preparatory phase (conduct market analysis; assess public bodies' vehicle fleets; define concerned public bodies & vehicle categories)	Responsible => Ministry of Climate (department of mobility and investment), in collaboration with Estonian Transport Administration													
Development & design phase (define clean vehicles; define exemptions; fix & distribute targets; define timeline; rules for new purchase; establish financial support scheme)	Support => Ministry of finance; local authorities; system operators and NRA; Local residents, businesses, communities, landowners, energy companies													
Agreement phase (draft concrete provisions; reach final agreement)						R								
Implementation phase (implement provisions in contract)							R							
Monitoring phase (set up and operate monitoring scheme)														
Electric charging infrastructure for existing inhabitation areas	Tot INV [Meur/y]		6,7	7	7	7	7	7	7	7	7	7	7	
	Public support [Meur/y]		3,4	3	3	3	3	3	3	3	3	3	3	
Preparatory phase (conduct comprehensive assessment to identify the needs for charging infrastructure; benchmark with comparable cities)	Responsible => Ministry of Climate (department of mobility and investment), in collaboration with Estonian Transport Administration													
Development phase (strategic mapping; stakeholders consultation; map & identify key location points based on the assessment)	Support => Ministry of finance; local authorities; system operators and NRA; Local residents, businesses, communities, landowners, energy companies													
Implementation phase (engage private actors via information campaign; public actions to support private actors)						R			R			R		
Monitoring phase (set up and operate monitoring scheme)														
Vehicle tax for registration	Tot INV [Meur/y]		0	-	-	-	-	-	-	-	-	-	-	
	Public support [Meur/y]		0	-	-	-	-	-	-	-	-	-	-	
Annual vehicle tax	Tot INV [Meur/y]		0	-	-	-	-	-	-	-	-	-	-	
	Public support [Meur/y]		0	-	-	-	-	-	-	-	-	-	-	
Preparatory phase (define vehicle categories; define VAT reduction rates per category of vehicle)	Responsible => Ministry of Climate (department of mobility and investment), in collaboration with Estonian Transport Administration													
Proposal & negotiation phase (establish a proposal for the revision of the proposed car taxation scheme; negotiate the proposal)	Support => Ministry of finance; local authorities; system operators and NRA; Local residents, businesses, communities, landowners, energy companies													
Implementation phase (implement the proposal)						R			R			R		
All Tallinn and Tartu taxis run on electricity	Tot INV [Meur/y]		0	0	0	0	0	0	0	0	0	0	0	
	Public support [Meur/y]		-	-	-	-	-	-	-	-	-	-	-	
Consult taxi companies to assess feasibility	Responsible => Ministry of Climate (department of mobility and investment), in collaboration with Estonian Transport Administration													
Implement the promotional scheme (obligation, incentive, norm)	Support => Ministry of finance; city authorities; taxi companies													
Technical capacity building (e.g. for charging infra deployment)	Responsible => Ministry of Climate (department of mobility and investment), in collaboration with Estonian Transport Administration													
Set up instruments	Support => Ministry of finance; local authorities; system operators and NRA; Local residents, businesses, communities, landowners, energy companies													
Assess need for an EV subscription for public recharging														
Implement the EV subscription for public recharging														
New technological solutions (e.g. digital userfriendly application,)														
Assess the need for a combined ticketing system & user-friendly mapping application														
Develop the application (in key cities)														
Incite passengers to purchase more efficient cars (ICE or EVs)														

3.8 Transport - public transport

3.8.1 Introduction

This action plan addresses all measures that need to be implemented to reach the energy efficiency targets set for public transport. The following table presents the energy efficiency targets set for public transport in Estonia, and the different measures proposed to reach these targets.

3.8.2 Barriers to the energy efficiency target

The main barriers to the deployment of alternative modes of transport such as public transport and active and micro mobility (see dedicated Action Plan in section 0) in Estonia mainly relate to **inadequate or insufficient infrastructure**, which is further setback by the **lack of financial capacity** to provide incentives for energy efficient transport as well as issues related to **public awareness**.

Inadequate or insufficient infrastructure

There is generally a lack of adequate (public) infrastructure for alternative transport modes such as public transport and active and micro mobility. With regards to public transport:

- The bus network has not been adapted to changes in land use (i.e. oversupply in former economic regions and lack of supply in new developed regions);
- There is a lack of trains connecting the countryside/suburban areas with large cities, and connecting large cities among each other.

The current transport infrastructure in Estonia is car-oriented (many highways, roads and parking infrastructure that are adapted to cars only; no emission free zones within large cities). Over the past 20 years, car use has risen sharply,⁶ partially due to car-oriented city planning in Estonia and the increasing affordability of cars. These trends have encouraged urban sprawl, which further increases car usage and energy consumption while at the same time making the development of reliable public transport infrastructure more difficult.⁷ To encourage a modal shift towards public transport and active and micro mobility, there needs to be adequate and efficient infrastructure to attract new users and support the influx of passengers. This is particularly a concern in rural and suburban areas, where implementing efficient public transport can be difficult.

One of the main reasons behind inadequate or insufficient infrastructure in Estonia is the lack of consideration of alternative transport modes in spatial and urban planning. The development of new residential and business districts is done independently of transport and mobility strategy as well as existing infrastructure for alternative transport modes (public transport or active and micro mobility). A better optimisation of the (public) land located close to existing infrastructure would be necessary.

Financial capacity

There is a lack of financial capacity to provide incentives for modal shift as well as lack of long-term funding schemes in the public sector to develop infrastructure for public transport and active/micro mobility.⁸

⁶ Foresight Centre. 29.04.2022. The sustainability of Estonia's transport system mostly depends on Harju County, <https://arenguseire.ee/en/news/the-sustainability-of-estonias-transport-system-mostly-depends-on-harju-county/>

⁷ Kantar. 2022. Opinion survey on energy efficiency of residents, entrepreneurs and local governments. Available at: <https://www.mkm.ee/media/7853/download>

⁸ https://iea.blob.core.windows.net/assets/21965e0d-c9a9-4617-b1ad-5b4539d91ad7/Estonia_2019_Review.pdf

Public awareness

Achieving energy efficiency targets in the transport sector, and more specifically via measures aimed at incentivising a shift in transport modes towards alternative methods of transport (such as public transport or active/micro mobility), requires drastic behavioural change of the population. The benefits provided by personal cars in terms of comfort and flexibility are a major barrier. In addition, the growing wealth of population in Estonia has stimulated car ownership.

In order to reduce the energy intensity of transport, alternative methods of transport need to be more attractive. However, the current organisation of public transport in Estonia reduces its attractiveness and does not provide incentives for behavioural changes, i.e. complex registration/ticketing systems (e.g. no common ticket bus-train-tram), costly service (i.e. due to lack of integrated fare systems, the combination of multiple public transport modes is very costly for commuters), unreliable public transport (e.g. delays, long durations)...

3.8.3 Main steps or sub-actions to be taken, ranked by priority

This section develops the main steps and actions to be taken in order to design and implement the proposed energy efficiency measures to achieve car efficiency targets.

Conduct a comprehensive assessment of mobility

- Conduct a comprehensive assessment of mobility
- This step is a preliminary requirement for the Action Plans ‘Public Transport’ (section 3.8) and ‘Active and Micro Mobility’ (section 3.9). It should **built on existing assessments** of mobility that have already been conducted in Estonia and should fill in the gaps.
- The assessment will consist of three levels:
 1. Start with the train as main backbone of public transport (big capacity, fast connections, limited points/hubs/nodes to connect) to connect rural areas with large cities - Level 1 (public);
 2. Develop a second network to connect a larger number of points/hubs/nodes (with smaller capacities) to increase the number of alternative mobility options in sub-urban and urban areas - Level 2 (public);
 3. These will be complemented by active and micro mobility infrastructure (cf. Action Plan ‘Active and Micro Mobility’ in section 3.9), for an additional granularity and to increase the number of alternative mobility options in sub-urban and urban areas - Level 3 (micro).
- For public transport (levels 1 and 2), **map the needs** in cities (bus, tram, underground, train), in suburban areas (train, bus) and in rural areas (train, bus), linking living-working-shopping areas together.

Update the Transport and Mobility Development Plan

- Based on the comprehensive assessment of mobility, **update the Estonian Transport and Mobility Development Plan.**
- Integrate at least the following topics/items:
 1. Deployment of public transport infrastructure and services;
 2. Incentivize people to use public transport which are made available;
 3. Disincentive the use of personal/passenger cars.

Stakeholder consultation

- Conduct a **consultation process** to validate and prioritise the options with stakeholders.

Prioritisation and implementation of actions of the Transport and Mobility Development Plan

- Score and rank the needs for public transport
- **Identify and implement quick wins/no-regret actions** with regards to infrastructure, services and support schemes. The measures that should be prioritised for a **short- and medium- term** implementation are:
 1. **Ensure that transport and mobility issues are integrated into urban planning and linked with the development of new residential and business district.** *This measure is new in Estonia.*
 2. **Set up a combined public transport ticketing system (tram / train / bus).** *This measure is planned in the Estonian Transport and Mobility Development Plan, but a study of the feasibility, cost and impact should be conducted for a more adequate implementation.*
 3. **Develop convenient and modern public transport.** *This measure is new in Estonia.*
 4. **Develop railroad infrastructure.** *This measure is planned in the Estonian Transport and Mobility Development Plan. The government should support railroad operators in the implementation of this measure.*
 5. **Invest in new passenger trains.** *Investments in new passenger trains are planned for 2025. The government should support railroad operators in this process.*
 6. **Electrify old diesel railroad.** *The electrification of part of the railroad network is foreseen in the Plan for Estonian Railway Electrification 2020-2028 of Eesti Raudtee, which maps lines that will be converted. The government should support the implementation of this plan by establishing regulatory procedures (environmental assessment, permitting, land acquisition), providing single point of contact and developing communication strategies. In addition, it should plan the electrification of the remaining railroad network.*
 7. **Develop new tram lines in Tallinn.** *Five lines are already considered by the municipal administration (Pelguranna; Kalaranna; Narva mnt; Liivalaia; Järve). The government should support the municipal administration in the development of these lines.*
 8. **Establish a subsidy for public transport usage instead of personal vehicle.** *This measure is new in Estonia.*
 9. **Establish a congestion charge scheme in Tallinn and Tartu.** *This measure is new in Estonia.*
- **Identify and implement** actions for a long-term implementation:
 1. **Develop training for professionals of the public transport sector;**
 2. **Develop supporting technological solutions (digital public transport application);**
 3. **Awareness raising through information campaigns.**

Monitoring

- Monitor the implementation of actions of the Transport and Mobility Development Plan

3.8.4 Measures of the action plan

Development of convenient and modern public transport

Table 3-52 Summary table of the proposed measure

Type of measure	Investment in fleet
Main objective	Provide a reliable and efficient public transport system that is affordable and available to all citizens, regardless of their location or economic status
Monitoring KPIs	<ul style="list-style-type: none"> • Number of people using public transport (and type of transport) • Quality of public transport (frequency, delays, connectivity, territorial coverage, ticketing system, comfort and safety, use of clean vehicles, accessibility to all, etc.) • Customer satisfaction on public transport services
New/existing measure in Estonia	This measure has not yet been implemented, nor proposed in Estonia.

The development of convenient and modern public transport shall be based on the results of the comprehensive assessment of mobility (see Action ‘technical capacity building’ for further details).

Higher efficiency of public transport should be competitive with personal cars based not only direct costs but also value of time. This means not only reducing ticket prices, but also reducing the time wasted from changing modes of transport or waiting for the first leg of transport. This necessitates the following steps:

- Synchronized route plans between transport modes;
- Accessible parking areas near public transport hubs at the border of densely and sparsely populated areas;
- Data-based routes based on actual needs, not historical tradition.

A monitoring system to track progress of the development of convenient and modern public transport should be developed, including SMART performance indicators.

Subsidy for public transport usage instead of personal vehicle

Table 3-53 Summary table of the proposed measure

Type of measure	Positive incentives (grants, deductions,...)
Main objective	Encourage and promote the use of public transport over personal vehicles as a more sustainable and efficient mode of transportation. Reduce individual car usage and traffic congestion, lower carbon emissions, improve air quality, and enhance overall urban mobility
Monitoring KPIs	<ul style="list-style-type: none"> • Number of people using public transport • Number company vehicles, number of personal vehicles
New/existing measure in Estonia	This measure has not yet been implemented, nor proposed in Estonia.

The development and implementation of a subsidy for public transport usage involve should be as follows:

- As a first step, the government should conduct a comprehensive analysis to determine the need for a subsidy aimed at promoting the use of public transport. The analysis should consider factors related to local transportation patterns, environmental concerns, commuting behaviours and company car policies.
- If the analysis shows that a subsidy would allow to increase the use of public transport instead of a personal car, the government should determine the appropriate channel for providing the subsidy. We propose two different options:
 1. **Option 1 - Reduced price of public transport for users without personal car**
When buying their public transport subscription, users would need to prove they do not have a personal car and would then benefit from a reduced price.
 2. **Option 2 - Subsidy or fiscal advantage for companies to pay public transport to employees instead of providing a company car**
For example, in Germany, companies of any size can offer a tax-exempt reimbursement of public transport to their employee as mobility benefit.⁹ The public transport allowance applies to all types of public transport tickets (monthly subscriptions, annual passes, season tickets, weekly and individual tickets).
- Depending on the option selected, the government should determine eligibility criteria for the subsidy, e.g. whether it is for companies only or also for individuals.
- Finally, the appropriate amount of the subsidy should be defined (per trip, ticket or subscription) based on the affordability of public transport, the expected impact of the subsidy on ridership and the available budget. The subsidy can also be differentiated per level of income, remoteness of habitat or the amount spent in public transport monthly (e.g. in Hong-Kong, the government provides a subsidy that is equal to 1/3 of the actual monthly public transport expenses in excess of \$400¹⁰). If Option 1 is selected, the government should collaborate with public transport agencies to integrate the subsidy into their ticketing fare structures and mobile applications.

Developing the railroad infrastructure (includes the building of Rail Baltic)

Table 3-54 Summary table of the proposed measure

Type of measure	Investment in infrastructure / fleet
Main objective	Enhance the accessibility, reliability, and convenience of rail travel, encouraging people to opt for train transportation as a sustainable and efficient mode of travel. The measure includes the construction and enhancement of Rail Baltic, a major cross-border railway project connecting several European countries.
Monitoring KPIs	<ul style="list-style-type: none"> • Number of people having access to railroad • Number of people using railroad • Territorial coverage of railroad
New/existing measure in Estonia	This measure exists in Estonia - The Estonian Transport and Mobility Development Plan already include a measure to develop an 'Efficient, Safe and Fast Railroad'. This measure led to the development of the 'Roadmap for the development of public rail infrastructure 2021-2028'.

⁹ [Public transport tickets allowance in Germany explained | NAVIT](#)

¹⁰ [Public Transport Fare Subsidy Scheme - Purpose and Features \(ptfss.gov.hk\)](#); [Public Transport Fare Subsidy Scheme - Subsidy Calculation \(ptfss.gov.hk\)](#)

This measure aims to implement the measure ‘Efficient, Safe and Fast Railroad’ of the Estonian Transport and Mobility Development Plan, which plans to:

- Invest in railroads to reduce the need for future road investments, promoting sustainable and safe transportation;
- Increase speed on railroads by creating bypasses, straightening curves, ensuring railway crossing safety, and establishing non-stop train services between major cities;
- Improve safety by updating traffic management systems, constructing level crossings, and other technical safety measures;
- Integrate railroad with other transport modes such as regional and bus connections;
- Invest in railroad efficiency adopting telematic applications for better information flow and transitioning to alternative fuels (e.g. hydrogen);
- Improve the quality and usability of existing infrastructure by creating intermodal terminals, making investments to shift freight from roads to railways, and integrating railways with other modes of transport and mobility services.

An assessment of current railroad infrastructure was conducted in the context of the development of the ‘Roadmap for the development of public rail infrastructure 2021-2028’. The assessment should be completed by the results of the comprehensive assessment of mobility (see Action ‘technical capacity building’ for further details) to ensure the integration and linkage with other transport modes. It should consider the following elements:

- Assess the needs for commuting, long-distance travels, goods carriage;
- Consider multi-modality (e.g. bikes in trains), distance of stations from departure and arrival points (2km walking, 5km by bike, 15km by car);
- Identify routes with the highest passenger demand, as well as currently underserved routes, and prioritise their electrification and modernization.

The government should encourage the implementation of actions planned as part of the measure ‘Roadmap for the development of public rail infrastructure 2021-2028’. To facilitate the implementation of these actions, the government should e.g.:

- Secure funding from multiple sources, such as government funds, EU grants, and public-private partnerships.
- Establish streamlined and expedited regulatory procedures for environmental assessments, permitting, and land acquisition.
- Provide a single point of contact for project coordination and approvals.
- Engage early on with local communities, businesses, and environmental groups in the planning process to address concerns and build support.

A monitoring system to track progress of the railroad strategic plan implementation should be developed, including SMART performance indicators.

Railroad electrification

Table 3-55 Summary table of the proposed measure

Type of measure	Investment in infrastructure / fleet
Main objective	Develop the electrification of railroads to decrease the amount of CO ₂ emitted by rail transport and to promote a greener and more sustainable rail transportation system.
Monitoring KPIs	<ul style="list-style-type: none"> • Electrified railroad (km) • Rate of electrification (% total length of railroad that is electrified)

New/existing measure in Estonia	This measure exists in Estonia - Eesti Raudtee has developed a plan on the Electrification of Railroads 2020-2028
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The current situation regarding electrification of railroad in Estonia is as follows: ¹¹

- Eesti Raudtee is the largest railroad company in Estonia (state-owned). The overall length of its railroads is 1219 km, of which only 225 km are electrified. It aims to electrify an additional 680 km of railroad by 2028.
- The remaining railroad network (222 km) is owned by the private company AS Edelaraudtee and is not electrified.

This measure aims to ensure that:

- Eesti Raudtee achieves its 2028 electrification objectives and sets objectives for the full electrification of its railroad.
- AS Edelaraudtee electrifies its railroad.

To do so, the government should:

- In collaboration with railroad operators, develop a step-by-step plan to replace old diesel lines that are planned to be electrified and for electrification of the remaining railroad network.
- Secure funding from multiple sources, such as government funds, EU grants, and public-private partnerships.
- Establish streamlined and expedited regulatory procedures for environmental assessments, permitting, and land acquisition.
- Provide a single point of contact for project coordination and approvals.
- Engage early on with local communities, businesses, and environmental groups in the planning process to address concerns and build support.
- Develop comprehensive communication strategies to highlight the benefits of electrification and address misconceptions of railroad operators regarding electrification.

Acquisition of additional passenger trains

Table 3-56 Summary table of the proposed measure

Type of measure	Investment in infrastructure / fleet
Main objective	Enhance and expand the existing rail transport services by acquiring additional passenger trains to improve the efficiency, capacity, and overall quality of passenger rail services.
Monitoring KPIs	<ul style="list-style-type: none"> • Number of passengers per train, in peak hours • Number of trains, number of departures per hour • Seat capacity per kilometre
New/existing measure in Estonia	This measure exists in Estonia - The government aims to increase the number of passenger trains by 54 in 2027.

The number of passenger trains will be increased by 54 in 2027. To support railroad operators in doing so, the government should:

¹¹ <https://www.mkm.ee/media/6948/download>

- In collaboration with railroad operators, develop a step-by-step plan to acquire the planned new passenger trains.
- Secure funding from multiple sources, such as government funds, EU grants, and public-private partnerships.
- Streamline the procurement process while ensuring transparency, fair competition, and compliance with procurement regulations
- Establish a constant monitoring of the demand for passenger train to adapt the supply of additional passenger trains to the adequate level.

New tram lines in Tallinn

This measure is considered to be a priority to reach the energy efficiency targets in the transport sector. Therefore, the proposed measure goes beyond what is currently proposed in Estonia.

Table 3-57 Summary table of the proposed measure

Type of measure	Investment in infrastructure / fleet
Main objective	Enhance public transportation in Tallinn by constructing new tram lines, thereby expanding the existing network and improving overall accessibility and connectivity within the city.
Monitoring KPIs	<ul style="list-style-type: none"> • Number of people using public transport • Quality of public transport (frequency, delays, connectivity, territorial coverage, ticketing system, comfort and safety, use of clean vehicles, accessibility to all, etc.) • Customer satisfaction on public transport services
New/existing measure in Estonia	This measure exists in Estonia - The municipal administration of Tallinn is considering five new tram lines

The implementable tram lines serve as an alternative to current transport modes on strategically important routes. Using rail-based transport is more efficient in transporting more people at once. Also, this necessitates less road space allowing more infrastructure for micro mobility. The direct effect of these tram lines is reduced personal car traffic, but also reduced need for buses on same routes. This also has tertiary benefit of allowing winter maintenance be focused on tram lines and walkways with less focus on smooth car travel.

Five new tram lines (Pelguranna; Kalaranna; Narva mnt; Liivalaia; Järve) are already considered by the municipal administration. A budget of 40 million EUR has been approved by the Climate Minister (Kristen Michal) to build new infrastructure in Tallin, including new tram lines.¹² A study was conducted in 2022 to evaluate the potential of the five considered lines. The top-three lines are: Liivalaia, Järve and Pelguranna.

The government should support and ensure the development of these lines by elaborating an action plan which would address the following:

¹² [Tallinn decides which new tram line to built next | News | ERR](#)

- In collaboration with municipal administration, develop a step by step approach to construct new tram lines.
- Collaboration with key stakeholders along the value chain to design the tram line layout, station locations, and integration with existing infrastructure, such as urban planners, architects, engineers, and transportation experts.
- Prioritisation of energy-efficient features, accessibility, and safety in the development of new tram lines.
- Identify appropriate technical and financial resources to construct these new tram lines.

In parallel, the government should evaluate whether other potential additional tram routes could be developed based on the comprehensive assessment of mobility (see Action ‘technical capacity building’ for further details) in Tallin by assessing ridership demand.

Tallinn and Tartu congestion charge

Table 3-58 Summary table of the proposed measure

Type of measure	Price signal incentives
Main objective	Impose a road use tax for cars and vans to reduce motor vehicle traffic during peak hours, alleviate traffic congestion, improve air quality and promote sustainable transportation alternatives.
Monitoring KPIs	<ul style="list-style-type: none"> • Number of cars in critical congestion points during peak hours • CO₂ reductions in the transport sector • Air quality
New/existing measure in Estonia	This measure has not yet been implemented, nor proposed in Estonia.

The congestion charge would take the form of a flexible road use tax aimed at reducing traffic during peak hours. The first step for designing the congestion charge is to determine the vehicles that would be concerned by the tax. It is relevant to charge vehicles that have an impact on road congestion, i.e. cars, van and trucks. Public service vehicles would be exempted from the tax. A reduction of the tax can also be considered for:

- Vulnerable households (i.e. below a certain level of income) and people with disabilities;
- Essential travels during peak hours (e.g. reimbursement of the congestion charge if travel was made for a medical visit).

In parallel, a thorough assessment of current traffic and transportation patterns should be conducted as part of the comprehensive assessment (see Action ‘technical capacity building’ for further details) to determine the optimal areas in Tallinn and Tartu (i.e. most affected by congestion) as well as the times during which congestion charges would be applied. In London, for example, a congestion charge is applied in specific zones between 7am and 6pm from Monday to Friday, and between 12pm and 6pm during week-ends and on bank holidays.¹³

Once the main design features have been determined, the government should develop an implementation plan:

¹³ <https://tfl.gov.uk/modes/driving/congestion-charge>

- This plan should contain at least the timeline of implementation, the fee structure per hour/day, the target vehicles and exemptions, the concerned areas and the roles and responsibilities of each party in the implementation and monitoring of the tax.
- The implementation plan should be integrated into the broader mobility and transport strategy to ensure that the revenue generated from congestion charges is transparently reinvested into sustainable urban transportation infrastructure and services, such as expanding public transport options or enhancing facilities for active and micro mobility.
- It should also define clear and measurable indicators to monitor both the implementation and the impact of the measure in the short-, medium- and long-term.

The tax authorities should then set up the tax payment procedure.

Integration of transport and mobility into urban planning

Table 3-59 Summary table of the proposed measure

Type of measure	Enabling measures
Main objective	Increased optimisation of the existing transport infrastructure by ensuring that transport and mobility issues are integrated into urban planning and the development of new residential and business district.
Monitoring KPIs	<ul style="list-style-type: none"> • Integration of transport and mobility measures and considerations into urban/real estate development strategies • Share of new real estate units (residential, business) developed close (less than 1 km away) from public transport connections
New/existing measure in Estonia	This measure has not yet been implemented, nor proposed in Estonia.

This enabling measure consists in the provision of national guidelines for municipalities, and more importantly cities, to integrate transport and mobility considerations into their urban planning.

- This should include the development of an action plan included within existing or upcoming urban development strategies and plans, which outlines specific actions aimed at promoting the use of existing infrastructure and directing new real estate developments towards this infrastructure.
- This can also include the strategic purchase of land close to existing and efficient transport infrastructure in order to build new districts.

Set up supporting instruments

Table 3-60 Summary table of the proposed measure

Type of measure	Enabling measures
Main objective	Developing instruments that will support the implementation of the measure of this action plan.
Monitoring KPIs	<ul style="list-style-type: none"> • Number of people using public transport • Total amount paid for congestion charge
New/existing measure in Estonia	<ul style="list-style-type: none"> • Integrated fares/tickets for public transport is a measure that is part of the Estonian Transport and Mobility Development Plan

	<ul style="list-style-type: none"> • The measure on setting up an online payment procedure for the congestion charge has not yet been implemented, nor proposed in Estonia.
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The Estonian Transport and Mobility Development Plan plans to modernise the ticket system by creating a unified nationwide ticket sales system where the same ticket products/channels can be used both on public and commercial lines regardless of the mode of transport:

- This proposed measure also includes the opening of the ticket sales market, i.e., to allow reselling, ticket products, and order-based multimodal solutions.
- To make public transport more affordable, a more flexible pricing of public transport will be ensured, offering discounts to those who need them.

We would encourage that the government ensures the creation of an integrated tickets for public transport which includes all public transport (train, tram and bus + shared mobility solutions) and that can be accessed via smartphone app and at physical payment points in public transport stations. To do so, a study of the feasibility, cost and impact of such integrated tickets for public transport should be conducted for a more adequate implementation.

The government should set up an online payment procedure for the congestion charge. In doing so, the government should:

- Determine payment frequency with dynamic pricing starting from hourly up to annual tickets based on actual use.
- Set up an alternative offline procedure for households with no access to online tools.
- Establish a road usage certificate that shall be granted when congestion charge has been paid and which can be shown during peak hours road controls.

Technical capacity building

Table 3-61 Summary table of the proposed measure

Type of measure	Enabling measures
Main objective	<ul style="list-style-type: none"> • This measure aims to conduct a comprehensive assessment of mobility to update the Estonian Transport and Mobility Development Plan and ensure it allows to reach energy efficiency targets. • It also aims to build technical capacity by providing training to professionals of the transport sector.
Monitoring KPIs	<ul style="list-style-type: none"> • Strategic mobility plan actions implementation, respect of timeline • Number of people using public transport • Quality of public transport (frequency, delays, connectivity, territorial coverage, ticketing system, comfort and safety, use of clean vehicles, accessibility to all, etc.) • Customer satisfaction on public transport services
New/existing measure in Estonia	<ul style="list-style-type: none"> • Various assessments of mobility have already been conducted in Estonia. This measure aims to update these assessment and ensure all transport modes are covered (both public transport and active and micro-mobility). • Trainings for professionals of the transport sector are not yet available in Estonia.

The design and implementation of the measures of this action plan must be based on a comprehensive assessment of mobility:

- A comprehensive assessment of mobility should be conducted that includes both public transport and active and micro mobility in order to provide a reliable and efficient transport system that is affordable and available to all citizens, regardless of their location or economic status. This measure is a preliminary requirement for the Action Plans ‘Public Transport’ (section 3.8) and ‘Active and Micro Mobility’ (section 3.9).
- The coverage of the assessment is Estonia as a whole, with specific assessments for Tallin and Tartu. The comprehensive assessment should hence start with large cities, and then smaller cities and rural areas. The assessment will consist of three levels:
 1. Start with the train as main backbone of public transport (big capacity, fast connections, limited points/hubs/nodes to connect) to connect rural areas with large cities - Level 1 (public);
 2. Develop a second network to connect a larger number of points/hubs/nodes (with smaller capacities) to increase the number of alternative mobility options in sub-urban and urban areas - Level 2 (public);
 3. These will be complemented by active and micro mobility infrastructure (cf. Action Plan ‘Active and Micro Mobility’ in section 3.9), for an additional granularity and to increase the number of alternative mobility options in sub-urban and urban areas - Level 3 (micro).
- The objective of the comprehensive assessments on public transport is to evaluate the Estonian public transport network as a whole (including trunk lines, regional lines and local lines):
 1. To determine current and potential needs:
 - Current needs can be assessed considering factors such as population density, travel patterns/ behaviour (per type of user) existing infrastructure and characteristics of public transportation
 - Potential needs can be estimated by developing scenarios of potential evolution of transportation, based on population growth, urban development, future demand.
 2. To identify priority areas where to develop further public transport;
 3. To map potential routes to meet the needs.
- It should also consider active and micro mobility infrastructure in order to ensure multimodality.
- The comprehensive assessment should also determine technical and financial viability, necessary investments and available funding.

Based on the results of the comprehensive assessment, the Estonian Transport and Mobility Development Plan shall be updated:

- Stakeholders should be involved in the update of the Estonian Transport and Mobility Development Plan (local public authorities, citizens, businesses, transport agencies and operators, etc.).
- The Estonian Transport and Mobility Development Plan should take a whole-network approach: physical planning of infrastructure, integrated payment system for passengers, integrated operations (single/few responsible transport agency).

The government should rank actions of the Estonian Transport and Mobility Development Plan based on their priority and ensure their appropriate implementation.

A monitoring system to track progress of the Estonian Transport and Mobility Development Plan implementation should be developed, including SMART performance indicators.

Technical capacity building can also be ensured by developing comprehensive trainings for professionals of the transport sector and urban planning in order to optimise existing and new infrastructure dedicated to public transport and guarantee their appropriate integration into the urban planning.

These trainings can concerns the following topics (non-exhaustive list):

- Safety requirements for infrastructure dedicated to public transport;
- Benefits of a shift in alternative modes of transport;
- Efficient adaptation of urban areas and the link between urban planning and transport;
- Etc.

Before developing the trainings, the government should first consult professionals concerned sectors (transport and urban planning) to assess the needs and gaps in terms of expertise and skills. Then, the government should work in collaboration with educational institutions in order to establish adequate programs that allow to address the necessary expertise and skills. Finally, it should ensure that these trainings are accessible to all concerned professionals, by providing public funding and informing on their existence.

New technological solutions

Table 3-62 Summary table of the proposed measure

Type of measure	Enabling measures
Main objective	Developing new technological solutions that can support the uptake of public transport.
Monitoring KPIs	• Number of app users/downloads
New/existing measure in Estonia	Technological solutions supporting the uptake of public transport exist in Estonia, but should be improved.

The existing applications for public transport in Estonia only provide information to single modes of transport at the time.

This measure aims to recommend that the government develop a digital user-friendly (smartphone) application for public transport, which:

- Provides information on possible routes for all types of public transport (buses, trams and trains), real-time schedules and congestion rates;
- Allows users to buy public transport tickets;
- Allows the government and public transport operators to collect data on public transport usage and on user perception of public transport in order to make the necessary adjustments to improve the public transport services.

The application should be developed in collaboration with the different public transport operators.

Raising awareness and incentives to shift towards the use of alternative transport modes

Table 3-63 Summary table of the proposed measure

Type of measure	Enabling measures
Main objective	Raising awareness on the benefits of public transport and providing incentives to shift towards public transport.
Monitoring KPIs	<ul style="list-style-type: none"> • Media reach • Number using public transport • Number of vehicles during peak hours
New/existing measure in Estonia	This measure has not yet been implemented, nor proposed in Estonia.

This measure involves the development of large-scale public awareness campaigns to promote modal shift from private vehicles to public transport. The government should clearly define the message that needs to be shared (considering e.g. environmental, economic, and health benefits of using public transport while addressing concerns such as safety, cleanliness, and convenience). Different types of users can be targeted for which different channels can be used:

- For the large public, the main channel would be the media (adds on radio, TV, written press and social media);
- For companies, other types of communication can be prioritised such as carbon roadmap communications, networking events, via sector associations, etc.;
- The government can also consider the organisation of events/trainings in schools to promote and educate about public transport.

In addition to public awareness campaigns, communication strategies should be developed to inform various actors about the public transport measures such as:

- Communication strategies towards public transport agencies to highlight the need for a reliable, safe, convenient and modern public transport network. This includes in particular highlight the benefits of railroad electrification and address misconceptions railroad agencies/operators may have.
- Communication strategies towards the general public to educate about the rationale behind congestion charges, the benefits they bring, and how revenue will be reinvested in improving public transportation and urban infrastructure.

Required legislative, regulatory, fiscal, institutional and procedural changes and reforms that Estonia should undertake

- **Fiscal:** congestion charge in Tallin and Tartu
- **Institutional changes:** important collaboration between various public actors (Ministry of Climate and Energy, Ministry of Regional Affairs and Estonian Transport Administration) and public transport operators // integration of mobility and transport issues within urban planning
- **Procedural changes:** promotion of active and micro mobility via public subsidization

3.8.5 Involved parties roles and responsibilities

The table below presents the roles and responsibilities of the different parties in the implementation of the measures included in this action plan.

Table 3-64 - Involved parties, roles and responsibilities

Actors	Roles, responsibilities and tasks
Ministry of Regional Affairs (department on public transport), in collaboration with Estonian Transport Administration	Coordinate all measures, mainly: <ul style="list-style-type: none"> • Design the subsidy for public transport • Conduct comprehensive assessment of mobility, and develop and implement the strategic mobility plan • In coordination with tax authorities, set up, collect and monitor congestion charge • Act as single point of contact for railroad electrification • Provide necessary funds for implementation of the measures and attract private financing
Tax authorities	Set up, collect and monitor congestion charge
Public transport agencies/operators	Implement actions related to the development of public transport and railroad
Citizens, business, communities, public transport agencies/operators, urban planners, architects, engineers, and transportation experts	<ul style="list-style-type: none"> • Consultation for the assessment of mobility and development of the strategic mobility plan

3.8.6 Risks and opportunities

The table below presents the main risks and opportunities associated with the implementation of the measures included in this action plan.

Table 3-65- Risks and opportunities associated with the implementation of the measures

Risks	Opportunities
<ul style="list-style-type: none"> • Requires high degree of planning and integration between the different actions related to developing infrastructure for public transport and micro-mobility • Many actors involved/consulted in the process, which increases complexity of implementation 	<ul style="list-style-type: none"> • Measures allow to significantly improve the well-being of citizens (air quality, health, less congestion, improved connections) • Demand-side data exists, which can facilitate implementation

3.8.7 Summary of the action plan

The action plan is designed in two blocks:

- One **overarching Action Plan**, describing the overall timeline, the responsible and other parties involved, the cost (precising whether it is about investments, or administrative costs such as providing training session or setting up awareness campaigns), and the source of public money (for support schemes, or simply for bearing the administrative costs)

- A **detailed short term Action Plan**, to show the horizon 2030 (2035) perspective for the measures design and implementation, describing what actions should be taken in the coming 3 years.

Overarching action plan

Table 3-66 - Overarching action plan for public transport

Action - public transport	Timeline	Responsible	Other parties	Cost - Investments or Administrative	Source of public money
Subsidy for public transport use instead of personal vehicle	Preparatory phase - short term (2024) Implementation phase - short term (2024-2025) Monitoring & adaptation phase - medium term (from 2025)	Ministry of Climate (department mobility), Estonian Transport Administration	Ministry of finance; local authorities; system operators and NRA; Local residents, businesses, communities, landowners, bus operators	Subsidies to households, enterprises, public institutions	ETS revenues; ETS2 revenues
Develop convenient and modern public transport	Comprehensive assessment - short term (2024-2025) Update Transport & Mobility Plan and consult - short/medium term (2025-2026) Prioritisation and implementation - medium term (2026-2028) Monitoring (from 2026)	Ministry of Climate (department mobility), Estonian Transport Administration	Ministry of finance; local authorities; system operators and NRA; Local residents, businesses, communities, landowners, bus operators	Investment infrastructure; 100% public budget	ETS revenues; ETS2 revenues
Develop the railroad infrastructure (includes the building of Rail Baltic)	Comprehensive assessment - short term (2024-2025) Update Transport & Mobility Plan and consult - short/medium term (2025-2026) Prioritisation and implementation - medium term (2026-2028) Monitoring (from 2026)	Ministry of Climate (department mobility), Estonian Transport Administration	Ministry of finance; local authorities; system operators and NRA; Local residents, businesses, communities, landowners, energy companies	Investment infrastructure; 100% public budget	ETS revenues; ETS2 revenues
Proceed with the electrification of the railroad	Comprehensive assessment - short term (2024-2025) Update Transport & Mobility Plan and consult - short/medium term (2025-2026)	Ministry of Climate (department mobility), Estonian Transport Administration	Ministry of finance; local authorities; system operators and NRA; Local residents, businesses, communities, landowners, energy companies	Investment infrastructure; 100% public budget	ETS revenues; ETS2 revenues

	Prioritisation and implementation - medium term (2026-2028) Monitoring (from 2026)				
Acquire additional passenger trains	Comprehensive assessment - short term (2024-2025) Update Transport & Mobility Plan and consult - short/medium term (2025-2026) Prioritisation and implementation - medium term (2026-2028) Monitoring (from 2026)	Ministry of Climate (department mobility), Estonian Transport Administration	Ministry of finance; local authorities; system operators and NRA; Local residents, businesses, communities, landowners, energy companies	Investment infrastructure; 100% public budget	ETS revenues; ETS2 revenues
Develop new tram lines in Tallinn	Comprehensive assessment - short term (2024-2025) Update Transport & Mobility Plan and consult - short/medium term (2025-2026) Prioritisation and implementation - medium term (2026-2028) Monitoring (from 2026)	Ministry of Climate (department mobility), Estonian Transport Administration	Ministry of finance; local authorities; system operators and NRA; Local residents, businesses, communities, landowners, energy companies	Investment infrastructure; 100% public budget	ETS revenues; ETS2 revenues
All Tallinn and Tartu taxis run on electricity	Consult taxi companies - short term (2024) Implementation - medium term (2025-2028)	Ministry of Climate (department mobility), Estonian Transport Administration	Ministry of finance; local authorities; system operators and NRA; Local residents, businesses, communities, landowners, energy companies	Support scheme from the public with 30% support in average	ETS revenues; ETS2 revenues
Mobilise required land to deploy the infrastructure	Assess land availability & needs - short term (2024) Mobilise land - short term (2024-2030)	Ministry of Climate (department mobility), Estonian Transport Administration	Ministry of finance; local authorities; Local residents, communities, landowners, energy companies	Admin costs;	Gov. budget
Build technical capacity	Assess capacity needs - short/medium term (2025) Implement capacity building - medium term (2026-2030)	Ministry of Climate (department mobility), Estonian Transport Administration	Local authorities; system operators and NRA; businesses, energy companies	Admin costs;	Gov. budget

<p>Set up combined tickets system</p>	<p>Design the combined ticketing scheme - short term (2024) Implement the combined ticket - short term (2025-2030)</p>	<p>Ministry of Climate (department mobility), Estonian Transport Administration</p>	<p>Local authorities; system operators and NRA; businesses, energy companies</p>	<p>Admin costs;</p>	<p>Gov. budget</p>
<p>Implement a campaign inciting alternatives to personal vehicles</p>	<p>Campaign to promote new taxation regime - short term (from 2025)</p>	<p>Ministry of Climate (department mobility), Estonian Transport Administration</p>	<p>Ministry of finance; Local authorities; system operators and NRA; businesses, energy companies;</p>	<p>Admin costs;</p>	<p>Gov. budget</p>

Detailed short term Action Plan

This plan is available in D4 model, in the “AP Transport” Tab.

Energy efficiency categorisation	Action plan color code
Positive incentives (grants, deduction, ...)	Development actions
Voluntary with positive incentive	R=Revision for potential update
Investment in infrastructure / fleet	Follow up / Implementation actions
Fiscal measures	F->D means that all buildings above D EPC label should be renovated to D level
Normative (obligation, MEPS, ...)	Preliminary savings thanks to the measure
Enabling measures	Effective savings thanks to the measure
	High level of savings thanks to the measure
	Maximum level of savings thanks to the measure (before slow down)

Measures for public transport

		2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Subsidy for public transport usage instead of personal vehicle	Tot INV [Meur/y]	-	1	1	1	1	1	1	1	1	1	1	1
	Public support [Meur/y]		1	1	1	1	1	1	1	1	1	1	1
Preparatory / development phase (identify target users; design subsidy - combine with active implementation phase (provide subsidy to households, enterprises, public institutions)	Responsible => Ministry of Climate (department of mobility and investment), in collaboration with Estonian Transport Support => Ministry of finance; local authorities; system operators and NRA; Local residents, businesses, communities, landowners, energy companies												
Monitoring phase (monitoring attractiveness and interest, effective use and savings; report and propose changes)						R		R					
Development of convenient and modern public transport	Tot INV [Meur/y]	-	7	10	13	16	20	23	-	-	-	-	-
	Public support [Meur/y]		7	10	13	16	20	23	-	-	-	-	-
Developing the railroad infrastructure (includes the building of Rail Baltic)	Tot INV [Meur/y]	420	420	187	-	-	-	-	-	-	-	-	-
	Public support [Meur/y]		420	187	-	-	-	-	-	-	-	-	-
The railroad electrification	Tot INV [Meur/y]	5	37	26	46	16	18	9	-	-	-	-	-
	Public support [Meur/y]		37	26	46	16	18	9	-	-	-	-	-
Acquisition of additional passenger trains	Tot INV [Meur/y]	-	-	-	-	-	-	-	-	-	-	-	-
	Public support [Meur/y]		-	-	-	-	-	-	-	-	-	-	-
New tram lines in Tallinn	Tot INV [Meur/y]	-	55	-	-	-	-	-	-	-	-	-	-
	Public support [Meur/y]		55	-	-	-	-	-	-	-	-	-	-
Conduct a comprehensive assessment of low carbon mobility (level 1 for train, level 2 for other public transport, level 3 for active or micro mobility; map the needs for public transport in cities, suburban & rural areas)	Responsible => Ministry of Climate (department of mobility and investment), in collaboration with Estonian Transport Administration												
Update Transport & Mobility Plan (update existing plan based on assessment; integrate at least the deployment of public infrastructure & services, incentives to use public transport and disincentives to use personal cars)	Support => Ministry of finance; local authorities; system operators and NRA; Local residents, businesses, communities, landowners, bus operators												
Conduct a stakeholders consultation process													
Prioritisation & implementation (score & rank the needs for public transport; identify & implement quick wins/no-regret actions - short/medium term implementation; identify & implement action for long-term implementation)													
Monitor (monitor implementation of actions of the Transport & Mobility plan)									R				R
Tallinn and Tartu congestion charge	Tot INV [Meur/y]		0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1
	Public support [Meur/y]		0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1
Assess opportunity for a congestion charge scheme (availability of alternatives incl. easiness of connection, free parking areas, availability of services, etc.)	Responsible => Ministry of Climate (department of mobility and investment), in collaboration with Estonian Transport Administration												
Consult & design congestion charge scheme	Support => Ministry of finance; city authorities; taxi												
Implement congestion charge scheme													
Mobilise required land to deploy the infrastructure	Tot INV [Meur/y]												
	Public support [Meur/y]												
Assess land availability to deploy public transport infrastructure (incl. parking areas)	Responsible => Ministry of Climate (department of mobility and investment), in collaboration with Estonian Transport Support => Ministry of finance; local authorities; system operators and NRA; Local residents, businesses, communities, landowners, bus operators												
Mobilise land													
Technical capacity building (strategic mobility plan, training operators)	Tot INV [Meur/y]												
	Public support [Meur/y]												
Set up instruments (e.g. combined tickets train-tram-bus, ...)													
Design the combined ticketing scheme for train-tram-bus													
Implement the combined ticketing scheme for train-tram-bus													
Incite passengers to use car alternatives	Tot INV [Meur/y]												
	Public support [Meur/y]												

3.9 Transport - active/micro mobility

3.9.1 Introduction

This action plan addresses all measures that need to be implemented to reach the energy efficiency targets set for active/micro-mobility. **Active/micro mobility** includes:

- Active mobility modes of transport such as walking and cycling that are low-cost and zero emission and bring about health co-benefits associated with more active lifestyles¹⁴; and
- Micro mobility which refers to a range of small, lightweight human powered or electric vehicles operating at speeds below 25 km/h, e.g. (e-)bikes, (e-)scooters, (e-)skateboards, shared bicycles, etc.^{15,16}

3.9.2 Barriers to the energy efficiency target

The main barriers to the deployment of alternative modes of transport such as public transport (see dedicated Action Plan in section 3.8) and active and micro mobility in Estonia mainly relate to **inadequate or insufficient infrastructure**, which is further setback by the **lack of financial capacity** to provide incentives for energy efficient transport as well as issues related to **public awareness**.

Inadequate or insufficient infrastructure

There is generally a lack of adequate (public) infrastructure for alternative transport modes such as public transport and active and micro mobility.

The current transport infrastructure in Estonia is car-oriented (many highways, roads and parking infrastructure that are adapted to cars only; no emission free zones within large cities). Over the past 20 years, car use has risen sharply,¹⁷ partially due to car-oriented city planning in Estonia and the increasing affordability of cars. These trends have encouraged urban sprawl, which further increases car usage and energy consumption while at the same time making the development of reliable public transport infrastructure more difficult.¹⁸ To encourage a modal shift towards public transport and active and micro mobility, there needs to be adequate and efficient infrastructure to attract new users and support the influx of passengers. This is particularly a concern in rural and suburban areas, where implementing efficient public transport can be difficult.

One of the main reasons behind inadequate or insufficient infrastructure in Estonia is the lack of consideration of alternative transport modes in spatial and urban planning. The development of new residential and business districts is done independently of transport and mobility strategy as well as existing infrastructure for alternative transport modes (public transport or active and micro mobility). A better optimisation of the (public) land located close to existing infrastructure would be necessary.

¹⁴ [Active mobility: walking and cycling \(europa.eu\)](https://ec.europa.eu/eurostat/tgm/table.do?tab=table&init=1&code=sdg_13_3_10&plugin=1)

¹⁵ [ITDP. The Electric Assist - Leveraging E-bikes and E-scooters for More Livable Cities.pdf](#)

¹⁶ [Transportation Transformation: Is Micromobility Making a Macro Impact on Sustainability? - Michael McQueen, Gabriella Abou-Zeid, John MacArthur, Kelly Clifton, 2021 \(sagepub.com\)](#)

¹⁷ Foresight Centre. 29.04.2022. The sustainability of Estonia's transport system mostly depends on Harju County, <https://arenguseire.ee/en/news/the-sustainability-of-estonias-transport-system-mostly-depends-on-harju-county/>

¹⁸ Kantar. 2022. Opinion survey on energy efficiency of residents, entrepreneurs and local governments. Available at: <https://www.mkm.ee/media/7853/download>

Financial capacity

There is a lack of financial capacity to provide incentives for modal shift as well as lack of long-term funding schemes in the public sector to develop infrastructure for public transport and active/micro mobility.¹⁹

Public awareness

Achieving energy efficiency targets in the transport sector, and more specifically via measures aimed at incentivising a shift in transport modes towards alternative methods of transport (such as public transport or active/micro mobility), requires drastic behavioural change of the population. The benefits provided by personal cars in terms of comfort and flexibility are a major barrier. In addition, the growing wealth of population in Estonia has stimulated car ownership.

In order to reduce the energy intensity of transport, alternative methods of transport need to be more attractive. However, the current organisation of public transport in Estonia reduces its attractiveness and does not provide incentives for behavioural changes, i.e. complex registration/ticketing systems (e.g. no common ticket bus-train-tram), unreliable public transport (e.g. delays, long durations)...

3.9.3 Main steps or sub-actions to be taken, ranked by priority

Conduct a comprehensive assessment of mobility

- Conduct a comprehensive assessment of mobility
- This step is a preliminary requirement for the Action Plans ‘Public Transport’ (section 3.8) and ‘Active and Micro Mobility’ (section 3.9). It should **build on existing assessments** of mobility that have already been conducted in Estonia and should fill in the gaps.
- The assessment will consist of three levels:
 1. Start with the train as main backbone of public transport (big capacity, fast connections, limited points/hubs/nodes to connect) to connect rural areas with large cities - Level 1 (public);
 2. Develop a second network to connect a larger number of points/hubs/nodes (with smaller capacities) to increase the number of alternative mobility options in sub-urban and urban areas - Level 2 (public);
 3. These will be complemented by active and micro mobility infrastructure (cf. Action Plan ‘Active and Micro Mobility’ in section 3.9), for an additional granularity and to increase the number of alternative mobility options in sub-urban and urban areas - Level 3 (micro).
- For active and micro mobility (level 3), **map the needs** for active and micro mobility infrastructure in cities and in suburban areas, linking living-working-shopping areas together and pay specific attention to the needs for the development of mobility hubs close to existing public transport infrastructure.

Update the Transport and Mobility Development Plan

- Based on the comprehensive assessment of mobility, **update the Estonian Transport and Mobility Development Plan.**
- Integrate at least the following topics/items:
 1. Development of mobility hubs;

¹⁹ https://iea.blob.core.windows.net/assets/21965e0d-c9a9-4617-b1ad-5b4539d91ad7/Estonia_2019_Review.pdf

2. Development of safe and attractive infrastructure for active/micro mobility;
3. Incentivise people to use active and micro mobility transport modes;
4. Disincentive the use of personal/passenger cars.

Stakeholder consultation

- Conduct a **consultation process** (with citizens, communities, businesses, (architects), urban planners, transportation experts and active mobility stakeholders/operators) to validate and prioritise the options with stakeholders.

Prioritisation and implementation of actions of the Transport and Mobility Development Plan

- Score and rank the needs for active and micro mobility
- **Identify and implement quick wins/no-regret actions** with regards to infrastructure, services and support schemes. The measures that should be prioritised for a **short- and medium- term** implementation are:
 1. **Ensure that transport and mobility issues are integrated into urban planning and linked with the development of new residential and business district.** *This measure is new in Estonia.*
 2. **Develop mobility hubs.** *This measure is new in Estonia.*
 3. **Develop new and adapt existing active and micro mobility infrastructure to make it safe and attractive.** *This should be based on a study determining the need for active and micro mobility. This measure is new in Estonia.*
 4. **Provide subsidy for active and micro mobility usage instead of personal vehicle.** *This measure is new in Estonia.*
- **Identify and implement** actions for a **long-term** implementation:
 1. **Develop training for professions of the active and micro mobility sector;**
 2. **Develop supporting instruments/services (digital application with the mapping of paths and lanes + available shared active and micro mobility solutions);**
 3. **Awareness raising through information campaigns.**

Monitoring

- Monitor the implementation of actions of the Transport and Mobility Development Plan

3.9.4 Measures of the action plan

Mobility hubs

Table 3-67 Summary table of the proposed measure

Type of measure	Investment in infrastructure / fleet
Main objective	Develop mobility hubs in Estonia to connect different modes of transport and foster multi-modality.
Monitoring KPIs	<ul style="list-style-type: none"> • Deployment of infrastructure dedicated to hubs • Urban passenger car travel (vehicle-kms)
New/existing measure in Estonia	This measure has not yet been implemented, nor proposed in Estonia.

To provide opportunities for car users to avoid taking their vehicles inside cities, mobility hubs must be developed. This means places where cars which are used to travel distances not covered by public transport or from regions too sparsely populated for efficient public transport can be safely stored while their owners utilize the public transport in densely populated region.

Monetary cost is related to procuring the land needed and developing necessary infrastructure.

Efficiency is directly related to the number of cars possible to store in them.

Safe and attractive infrastructure for active/micro mobility

Table 3-68 Summary table of the proposed measure

Type of measure	Investment in infrastructure / fleet
Main objective	Construct new or release existing infrastructure (e.g. sidewalks, bicycle paths, priority lanes for micro mobility such as e-scooters, bicycle/micro mobility parking lots around public transport hubs, etc.) for active and micro mobility to enhance the safety, accessibility, and convenience of active and micro mobility modes for commuters and travellers.
Monitoring KPIs	<ul style="list-style-type: none"> • Deployment of infrastructure dedicated to active and micro mobility modes (kilometres of infrastructures, identified connection with public transport hubs) • Usage of infrastructure dedicated to active and micro mobility modes (number of passages through dedicated roads/lanes)
New/existing measure in Estonia	This measure has not yet been implemented, nor proposed in Estonia.

As part of the comprehensive assessment of mobility (see Action ‘technical capacity building’ for further details), the government should:

- Assess the existing infrastructure dedicated to active and micro mobility, in particular:
 - Dedicated paths and lanes, i.e. sidewalks, bicycles paths and priority lanes for micro mobility;
 - Parking lots for bicycles and micro mobility around public transport hubs.
- Identify the gaps and potential suitable routes for active and micro mobility, considering existing public transport infrastructure and most frequently used routes. In the comprehensive assessment of infrastructure dedicated to active and micro mobility, factors such as traffic flow, connectivity, safety, and integration with other modes of transportation should be considered.
- Conduct a stakeholder consultation to better understand the needs for additional or adapted infrastructure dedicated to active and micro mobility.

The results of the comprehensive assessment will allow to identify the needs for first adapting existing infrastructure dedicated to active and micro mobility and if deemed necessary, building new infrastructure:

- **Potential adaptations to existing infrastructure** can include repainting road markings and installing traffic signs on existing dedicated paths and lanes, adding physical barriers to protect existing dedicated roads, increasing space and safety of existing parking lots for bicycles and micro mobility, etc.

- **New construction of infrastructure** would involve road dieting to free up space for adding sidewalks, bicycle paths or priority lanes for micro mobility, constructing new parking lots, etc.

In any case, the government should ensure that the infrastructure meets safety standards and is accessible for all users, including pedestrians and people with disabilities. In this context, the government should also ensure that mechanisms for enforcing rules and regulations regarding the use dedicated infrastructure is adequate.

This process should be prioritised in large and dense cities (Tallin, Tartu, Narva and Pärnu). In a second instance, it should be replicated in smaller towns.

Once the infrastructure has been adapted and/or built, regular assessments (e.g. every 3 to 5 years) should be conducted to evaluate the effectiveness of the infrastructure and make adjustments if necessary. This can be done through stakeholder consultation (e.g. surveys) and traffic flow analyses.

Subsidy for active/micro mobility usage instead of personal vehicle

Table 3-69 Summary table of the proposed measure

Type of measure	Positive incentives (grants, deductions,...)
Main objective	Provide a subsidy for active and micro mobility usage instead of personal cars to incentivise individuals to opt for small, lightweight vehicles (e.g. walk, bicycle or micro mobility) for short-distance trips within the city.
Monitoring KPIs	<ul style="list-style-type: none"> • Evolution of sales for bicycles and micro-mobility vehicles • Number of cars during peak hours
New/existing measure in Estonia	This measure has not yet been implemented, nor proposed in Estonia.

As a first step, the government should conduct an analysis to determine the need for a subsidy aimed at promoting active and micro mobility usage. The analysis should consider factors related to local transportation patterns, environmental concerns, commuting behaviours and company car policies.

If the analysis shows that a subsidy would allow to increase the use of active and micro mobility instead of a personal car, the government should determine the appropriate channel for providing the subsidy.

We propose two different options:

- **Option 1 - Fiscal advantage for all companies to remunerate employees who walk/bike to work**

This option takes the form of a tax-exempt remuneration that can be granted by employers to their employees per kilometres walked or biked on the distance between work and home. For example, in Belgium, a kilometre allowance can be granted by employers to employees who use a bicycle to cover all or part of the distance between home and work. The allowance is exempt from any tax up to 0.25 €/km. If an employer grants a higher kilometre allowance, the excess is taxed as professional income.²⁰

²⁰ Bicycle kilometre allowance in Belgium: https://finances.belgium.be/fr/particuliers/transport/deduction_frais_de_transport/trajet_domicile_travail/velo#q2

- **Option 2 - Obligation for companies (>10 FTEs) to remunerate employees who walk/bike to work**

This option obliges employers medium- and large-sized companies to provide a remuneration to employees per kilometres walked or biked on the distance between work and home. The remuneration is not necessarily tax-exempt.

Depending on the option selected, the government should determine eligibility criteria for the subsidy, e.g. whether it is for companies only or also for individuals, whether it should be for people below a certain level of income, etc. If Option 2 is selected (obligation), potential exemptions can be defined.

Finally, the appropriate amount of the subsidy should be defined (per kilometre or as a % of the investment cost with maximum amount), and if deemed necessary, the varying rates per types of bicycle. In doing so, the available budget should be considered.

Tallinn and Tartu congestion charge

Congestion charges are supporting the move to public transport (as described under 3.8.5), but are also supporting an increased use of active mobility, when infrastructure are readily available, as a complement to public transport.

The measure description is the same.

Integration of transport and mobility into urban planning

Table 3-70 Summary table of the proposed measure

Type of measure	Enabling measures
Main objective	Increased optimisation of the existing transport infrastructure by ensuring that transport and mobility issues are integrated into urban planning and the development of new residential and business district.
Monitoring KPIs	<ul style="list-style-type: none"> • Integration of transport and mobility measures and considerations into urban/real estate development strategies • Share of new real estate units (residential, business) developed close (less than 1 km away) from public transport connections
New/existing measure in Estonia	This measure has not yet been implemented, nor proposed in Estonia.

This enabling measure consists in the provision of national guidelines for municipalities, and more importantly cities, to integrate transport and mobility considerations into their urban planning. This should include the development of an action plan included within existing or upcoming urban development strategies and plans, which outlines specific actions aimed at promoting the use of existing infrastructure and directing new real estate developments towards this infrastructure. This can also include the strategic purchase of land close to existing and efficient transport infrastructure in order to build new districts.

Technical capacity building

Table 3-71 Summary table of the proposed measure

Type of measure	Enabling measures
Main objective	Building technical capacity to ensure that the measure of this action plan can adequately be implemented.
Monitoring KPIs	• Number of accredited mobility engineers
New/existing measure in Estonia	This measure has not yet been implemented, nor proposed in Estonia.

The design and implementation of the measures of this action plan must be based on a comprehensive assessment of mobility:

- A comprehensive assessment of mobility should be conducted that includes both public transport and active and micro mobility in order to provide a reliable and efficient transport system that is affordable and available to all citizens, regardless of their location or economic status. This measure is a preliminary requirement for the Action Plans ‘Public Transport’ (section 3.8) and ‘Active and Micro Mobility’ (section 3.9).
- The coverage of the assessment is Estonia as a whole, with specific assessments for Tallin and Tartu. The comprehensive assessment should hence start with large cities, and then smaller cities and rural areas. The assessment will consist of three levels:
 1. Start with the train as main backbone of public transport (big capacity, fast connections, limited points/hubs/nodes to connect) to connect rural areas with large cities (cf. Action Plan ‘Public Transport’ in section 3.8) - Level 1 (public);
 2. Develop a second network to connect a larger number of points/hubs/nodes (with smaller capacities) to increase the number of alternative mobility options in sub-urban and urban areas (cf. Action Plan ‘Public Transport’ in section 3.8) - Level 2 (public);
 3. These will be complemented by active and micro mobility infrastructure, for an additional granularity and to increase the number of alternative mobility options in sub-urban and urban areas - Level 3 (micro).
- The objective of the comprehensive assessment on active and micro mobility is to evaluate existing infrastructure and services for active and micro mobility:
 1. To determine current and potential needs:
 - Current needs can be assessed considering factors such as population density, travel patterns/ behaviour (per type of user) and existing infrastructure
 - Potential needs can be estimated by developing scenarios of potential evolution of transportation, based on population growth, urban development, future demand.
 2. To identify priority areas where to develop further infrastructure for active and micro mobility;
 3. To map potential routes to meet the needs.
- The comprehensive assessment should also determine technical and financial viability, necessary investments and available funding.

Based on the results of the comprehensive assessment, the Estonian Transport and Mobility Development Plan shall be updated:

- Stakeholders should be involved in the update of the Estonian Transport and Mobility Development Plan (local public authorities, citizens, businesses, transport agencies and operators, etc.).

The government should rank actions of the Estonian Transport and Mobility Development Plan based on their priority and ensure their appropriate implementation.

A monitoring system to track progress of the Estonian Transport and Mobility Development Plan implementation should be developed, including SMART performance indicators.

Technical capacity building can also be ensured by developing comprehensive trainings for professionals of the transport sector and urban planning in order to optimise existing and new infrastructure dedicated to active and micro mobility and guarantee their appropriate integration into the urban planning. These trainings can concerns the following topics (non-exhaustive list):

- Safety requirements for infrastructure dedicated to active and micro mobility;
- Benefits of a shift in alternative modes of transport;
- Efficient adaptation of urban areas and the link between urban planning and transport;
- Etc.

Before developing the trainings, the government should first consult professionals concerned sectors (transport and urban planning) to assess the needs and gaps in terms of expertise and skills. Then, the government should work in collaboration with educational institutions in order to establish adequate programs that allow to address the necessary expertise and skills. Finally, it should ensure that these trainings are accessible to all concerned professionals, by providing public funding and informing on their existence.

New technological solutions

Table 3-72 Summary table of the proposed measure

Type of measure	Enabling measures
Main objective	Developing new technological solutions that can support the uptake of active and micro mobility.
Monitoring KPIs	• Number of app users/downloads
New/existing measure in Estonia	This measure has not yet been implemented, nor proposed in Estonia.

Digital user friendly applications should be developed in order to support the uptake of active and micro mobility. Such as application should include the following information:

- Mapping of existing infrastructure (e.g. safe parking areas dedicated to bicycle and micro-mobility, bicycle paths, safest routes, priority lanes for micro mobility vehicles, charging infrastructure for electric micro mobility vehicles, etc.) to inform active and micro mobility users.
- Integration of all shared active and micro mobility solutions (such as shared e-scooters, e-bikes, etc.) of different providers into a single application.

This would ensure that information about existing infrastructure and available transport modes is centralised. This application can be developed by the public sector, either at national level or by municipalities/cities, in collaboration with active and micro mobility shared services providers. This application could even be integrated with the public transport integration in order to get a full overview of the available transport services.

Raising awareness and incentives to shift towards the use of alternative transport modes

Table 3-73 Summary table of the proposed measure

Type of measure	Enabling measures
Main objective	Raising awareness on the benefits of active and micro mobility and providing incentives to shift towards the use of active and micro mobility modes of transport.
Monitoring KPIs	<ul style="list-style-type: none"> • Media reach • Number of personal/company vehicles • Number of people using shared active mobility solutions
New/existing measure in Estonia	This measure has not yet been implemented, nor proposed in Estonia.

This measure involves the development of large-scale public awareness campaigns to educate about the benefits of and change public perception about active and micro mobility. The government should clearly define the message that needs to be shared (considering e.g. environmental, financial, social, health benefits that are associated with the use of active and micro mobility) as well as the target population. Several channels should be used to share the campaign messages based on target population

- For the large public, the main channel would be the media (adds on radio, TV, written press and social media);
- For companies, other types of communication can be prioritised such as carbon roadmap communications, networking events, via sector associations, etc.;
- The government can also consider the organisation of events/trainings in schools to promote and educate about active and micro mobility.

The public awareness campaign should only be launched when infrastructure dedicated to active and micro mobility is available, safe, reliable and affordable and supporting services are available.

Required legislative, regulatory, fiscal, institutional and procedural changes and reforms that Estonia should undertake

- **Fiscal:** congestion charge in Tallin and Tartu **Institutional changes:** important collaboration between (Ministry of Climate and Energy, Ministry of Regional Affairs and Estonian Transport Administration) and public transport operators // integration of mobility and transport issues within urban planning
- **Procedural changes:** promotion of active and micro mobility via public subsidization

3.9.5 Involved parties roles and responsibilities

The table below presents the roles and responsibilities of the different parties in the implementation of the measures included in this action plan.

Table 3-74 - Involved parties, roles and responsibilities

Actors	Roles, responsibilities and tasks
Ministry of Regional Affairs (department on public transport), in collaboration with Estonian Transport Administration	Coordinate all measures, mainly: <ul style="list-style-type: none"> • Conduct comprehensive assessment of road network and coordinate the building necessary infrastructure for active mobility lanes • Design the subsidy for micro mobility • In coordination with tax authorities, set up, collect and monitor congestion charge
Tax authorities	Set up, collect and monitor congestion charge
Citizens	Consultation via public/citizen participation to better understand their needs
Communities, businesses, architects, urban planners, transportation experts and active mobility stakeholders/ operators	<ul style="list-style-type: none"> • Consultation for the assessment of Safe and attractive infrastructure for active/micro mobility • Consultation for the development of adequate trainings

3.9.6 Risks and opportunities

The table below presents the main risks and opportunities associated with the implementation of the measures included in this action plan.

Table 3-75- Risks and opportunities associated with the implementation of the measures

Risks	Opportunities
<ul style="list-style-type: none"> • Requires high degree of planning and integration between the different actions related to developing infrastructure for public transport and active mobility • Many actors involved/consulted in the process, which increases complexity of implementation. 	<ul style="list-style-type: none"> • Measures allow to significantly improve the well-being of citizens (air quality, health, less congestion, improved connections)

3.9.7 Summary of the action plan

The action plan is designed in two blocks:

- One **overarching Action Plan**, describing the overall timeline, the responsible and other parties involved, the cost (precising whether it is about investments, or administrative costs such as providing training session or setting up awareness campaigns), and the source of public money (for support schemes, or simply for bearing the administrative costs)
- A **detailed short term Action Plan**, to show the horizon 2030 (2035) perspective for the measures design and implementation, describing what actions should be taken in the coming 3 years.

Overarching action plan

Table 3-76 - Overarching action plan for active/micro mobility

Action - active mobility	Timeline	Responsible	Other parties	Cost - Investments or Administrative	Source of public money
Develop priority lanes for micro/active-mobility	Comprehensive assessment - short term (2024-2025) Update Transport & Mobility Plan and consult - short/medium term (2025-2026) Prioritisation and implementation - medium term (2026-2028) Monitoring (from 2026)	Ministry of Climate (department mobility), Estonian Transport Administration	Ministry of finance; local authorities; system operators and NRA; Local residents, businesses, communities, landowners, bus operators	Investment infrastructure; 100% public budget	ETS revenues; ETS2 revenues
Provide subsidy for micro/active mobility usage instead of personal vehicle	Preparatory phase - short term (2024) Implementation phase - short term (2024-2025) Monitoring & adaptation phase - medium term (from 2025)	Ministry of Climate (department mobility), Estonian Transport Administration	Ministry of finance; local authorities; system operators and NRA; Local residents, businesses, communities, landowners, bus operators	Subsidies to households, enterprises, public institutions	ETS revenues; ETS2 revenues
Set up a congestion charge in Tallinn and Tartu	Assess the opportunity for a charge - short term (2024) Consult and design the charge - short/medium term (2025-2026) Implement - medium term (from 2026)	Ministry of Climate (department mobility), Estonian Transport Administration	Ministry of finance; local authorities; system operators and NRA; Local residents, businesses, communities, landowners, bus operators	Investment infrastructure and service; 100% public budget	ETS revenues
Mobilise required land to deploy the infrastructure	Assess land availability & needs - short term (2024) Mobilise land - short term (2024-2030)	Ministry of Climate (department mobility), Estonian Transport Administration	Ministry of finance; local authorities; Local residents, communities, landowners, energy companies	Admin costs;	Gov. budget
Build technical capacity	Assess capacity needs - short/medium term (2025) Implement capacity building - medium term (2026-2030)	Ministry of Climate (department mobility), Estonian Transport Administration	Local authorities; system operators and NRA; businesses, energy companies	Admin costs;	Gov. budget

<p>Set up combined tickets system</p>	<p>Design the combined ticketing scheme - short term (2024) Implement the combined ticket - short term (2025-2030)</p>	<p>Ministry of Climate (department mobility), Estonian Transport Administration</p>	<p>Local authorities; system operators and NRA; businesses, energy companies</p>	<p>Admin costs;</p>	<p>Gov. budget</p>
<p>Implement a campaign inciting alternatives to personal vehicles</p>	<p>Campaign to promote new taxation regime - short term (from 2025)</p>	<p>Ministry of Climate (department mobility), Estonian Transport Administration</p>	<p>Ministry of finance; Local authorities; system operators and NRA; businesses, energy companies;</p>	<p>Admin costs;</p>	<p>Gov. budget</p>

Detailed short term Action Plan

This plan is available in D4 model, in the “AP Transport” Tab.

Energy efficiency categorisation	Action plan color code
Positive incentives (grants, deduction, ...)	Development actions
Voluntary with positive incentive	Follow up / Implementation actions
Investment in infrastructure / fleet	F->D means that all buildings above D EPC label should be renovated to D level
Fiscal measures	Preliminary savings thanks to the measure
Normative (obligation, MEPS, ...)	Effective savings thanks to the measure
Enabling measures	High level of savings thanks to the measure
	Maximum level of savings thanks to the measure (before slow down)

Measures for micro/active mobility		2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Priority lanes for micro/active mobility	Tot INV [Meur/y]		20	20	20	20	20	20	20	20	20	20	20
	Public support [Meur/y]		16	16	16	16	16	16	16	16	16	16	16
Conduct a comprehensive assessment of low carbon mobility (level 1 for train, level 2 for other public transport, level 3 for active or micro mobility; map the needs for public transport in cities, suburban & rural areas)	Responsible => Ministry of Climate (department of mobility and investment), in collaboration with Estonian Transport Administration												
Update Transport & Mobility Plan (update existing plan based on assessment; integrate at least the deployment of public infrastructure & services, incentives to use public transport and disincentives to use personal cars)	Support => Ministry of finance; local authorities; system operators and NRA; Local residents, businesses, communities, landowners, bus operators												
Conduct a stakeholders consultation process													
Prioritisation & implementation (score & rank the needs for public transport; identify & implement quick wins/no-regret actions - short/medium term implementation; identify & implement action for long-term implementation)													
Monitor (monitor implementation of actions of the Transport & Mobility plan)								R					R
Subsidy for micromobility usage instead of personal vehicle	Tot INV [Meur/y]		0,4	0,4	0,4	0,4	0,4	0,4	0,4	0,4	0,4	0,4	0,4
	Public support [Meur/y]		0,4	0,4	0,4	0,4	0,4	0,4	0,4	0,4	0,4	0,4	0,4
Preparatory / development phase (identify target users; design subsidy - combine with active mobility)	Responsible => Ministry of Climate (department of mobility and investment), in collaboration with Estonian Transport Administration												
Implementation phase (provide subsidy to households, enterprises, public institutions)	Support => Ministry of finance; local authorities; system operators and NRA; Local residents, businesses, communities, landowners, energy companies												
Monitoring phase (monitoring attractiveness and interest, effective use and savings; report and propose changes)						R		R					
Tallinn and Tartu congestion charge	Tot INV [Meur/y]		0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1
	Public support [Meur/y]		0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1
Assess opportunity for a congestion charge scheme (availability of alternatives incl. easiness of connection, free parking areas, availability of services, etc.)	Responsible => Ministry of Climate (department of mobility and investment), in collaboration with Estonian Transport Administration												
Consult & design congestion charge scheme	Support => Ministry of finance; city authorities; taxi												
Implement congestion charge scheme													
Mobilise required land to deploy the infrastructure	Responsible => Ministry of Climate (department of mobility and investment), in collaboration with Estonian Transport Administration												
Assess land availability to deploy active mobility infrastructure	Support => Ministry of finance; local authorities; system operators and NRA; Local residents, businesses, communities, landowners, bus operators												
Mobilise land													
Technical capacity building (strategic mobility plan, training planners)													
Set up instruments (e.g. application for infrastructure mapping, combined with public transport...)													
Identify the need for application & design													
Implement an application for infrastructure mapping, combined with public transport													
Incite passengers to use car alternatives													

3.10 Cross-cutting - fiscal and taxation

3.10.1 Introduction

This action plan addresses all measures that need to be implemented to reach the energy efficiency relating to fiscal and taxation measures. The overarching objective of the fiscal/tax measures is two-fold, i.e. double dividend, where the measures should bring two benefits:

1. Incentivise reduction in energy consumption by raising cost of energy use; and
2. Revenues from the measures should finance energy savings actions (*).

(*) Among Estonia's State Budget Strategy principles in relation to budget policy, we know one principle is seeking to increase budget flexibility. However, we highly recommend reconsidering this principle with regard to the polluter pays principle and the double dividend to redirect new income generated by climate policy towards the same climate agenda.

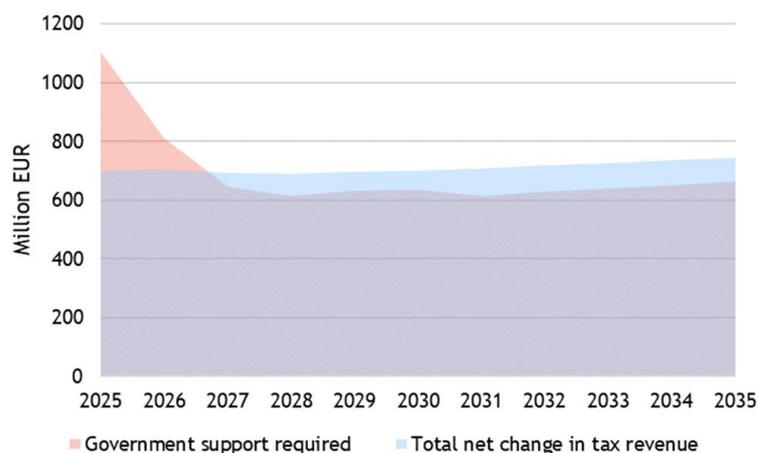
The following table presents the energy efficiency targets set for each measure.

Table 3-77 - Energy efficiency fiscal measures

All fiscal measures combined	Savings target [GWh/y]	additional savings [%/y]	Tot INV [Meur/y]	Public support [Meur/y]	Total revenue per year [Meur/y]
<i>Approximate energy use all sectors included [GWh, 2022 data]</i>					31.588
Tax deduction for renovation works by private persons (=parallel track for single family)	6,5	0,02%	33	-	-3
Residential property tax (according to EPC levels)	36,3	0,11%	184	55	68
CO2 tax for end energy use of residential	36,3	0,11%	184	55	68
Non-residential property tax (according to EPC)	19,6	0,06%	184	55	68
CO2 tax for end energy use of non-residential	19,6	0,06%	184	55	68
Vehicle tax for registration	0,1	0,00%	0,2	0	58
Annual vehicle tax	0,3	0,00%	0,2	0	2
Tallinn and Tartu congestion charge	-	0,00%	0,1	0	-
Excise and value added tax of natural gas	2,7	0,01%	0,1	0	6
Excise and value added tax of electricity	3,7	0,01%	0,3	0	37
Excise and value added tax in heating sector	15,9	0,05%	0,4	0	45
Excise and value added tax of gasoline	1,1	0,00%	1,2	1	0
Excise and value added tax of diesel fuel and	11,9	0,04%	2,1	0	76
Value added tax of firewood	4,0	0,01%	0,1	0	0
Renewable energy fee	-	0,00%	-	-	-
Wood chips and waste VAT	0,3	0,00%	0,0	0	1
Total	158	0,50%	775	223	492

The figure below illustrates to what extent the estimated overall revenues generated by the proposed fiscal measures (including tax revenue from energy efficiency investments) cover the government costs for the existing and newly proposed energy efficiency measures. From 2025 to 2027, the existing measures are still ongoing, which are mainly funded by EU funds. From 2027 onwards, after the halt of existing measures (grants under RRF), the net gain in tax revenues covers the government support requirements from the new energy efficiency measures.

Figure 3-2 - Government support required vs. total net gain in tax revenue (tax revenues from measures - reduction in taxes from energy savings) (MEUR) (2025-2035)



Source : Excel sheet “D4 Modelling v8”, tab “AP Fiscality”

3.10.2 Barriers to fiscal and taxation measures

The main barriers to implementing fiscal and tax measures are public perception and awareness, social impact, administrative barriers and international competitiveness.

Public perception and awareness

One of the major challenges to implementing fiscal measures (i.e. taxes, negative incentives) is the resistance from the public, which are generally averse to higher costs and taxes. This can be exacerbated by a lack of awareness of the need and (long-term) benefits of fiscal measures. On the other side this could also be compensated by feeding back to the “payers” by other ways (e.g. reduced VAT on specific goods, or reduced personal taxation).

Social impact

Increasing taxes can directly adversely impact consumers’ purchasing the good concerned by the tax (fuel, car or property), especially for low-income households. When essential goods and services, particularly heating costs, become more expensive via taxation, this can lead to a lower standard of living for citizens. Therefore, it is important that tax schemes are designed equitably and additional measures developed to support low-income households. Among the measures, supporting massively low-income households to insulate rapidly their dwelling (or live in well insulated dwellings, in case of rental). This can be done via more advantageous grants (cf section on building), or via dedicated programs targeting these households in priority. Access to public transport in some areas having currently limited options, to offer alternatives to the use of personal cars.

Administrative barriers

Designing effective fiscal systems that will specifically address energy efficiency while also taking into account fairness and limiting overburdening taxpayers can be a complex task. This requires thorough research, planning of tax policies, implementation into legislation, setting up the tax collection infrastructure and ensuring compliance. This complexity can create delays in implementation as well as impact the effectiveness (e.g. unintended loopholes).

International competitiveness

Higher energy costs due to taxes facing local businesses can impact the international competitiveness of these companies on the global market. This can have adverse effects on profits, employment and potentially lead to businesses relocating to other countries with more favourable fiscal policies. Therefore, it's important to create a balanced fiscal scheme which ensures that domestic businesses remain competitive in the global market.

3.10.3 Main steps or sub-actions to be taken, ranked by priority

To implement the fiscal measures, coordination between all taxation departments and services is key, by creating a cohesive approach and collaboration between the different tax systems to ensure a balanced taxation system:

- Ensure the overall tax burden is distributed equitably across the population and sectors of the economy;
- Ensure that various tax schemes are consistent to avoid confusion and loopholes;
- Organise how revenues are collected at municipal or national level, where municipalities cannot be regulated on how they use the revenues;
- Monitor and evaluate the coordinated tax schemes over time.

3.10.4 Measures of the action plan

Tax deduction for renovation works by private persons

Table 3-78 Summary table of the proposed measure

Type of measure	Positive incentives
Main objective	Incentivise single-family homeowners to renovate
Monitoring KPIs	<ul style="list-style-type: none"> • Energy savings - reduced energy consumption (kWh) • (Deep) renovation rates
New/existing measure in Estonia	

This tax deduction would take the form of reduced VAT (from the standard Estonian VAT rate of 20%, starting from 2024 VAT rate of 22%). There are two possible options for applying the reduced VAT on renovation works:

- ✓ Option 1 - Direct application, i.e. eligible renovation or construction work carried out by professionals is directly invoiced at reduced VAT rate once it has been approved by public authorities; or
- ✓ Option 2 - Refund of the difference between normal and reduced VAT.

For works applying to the eligibility criteria, a reduced VAT rate would apply to the work (salaries), to the materials, or to both. We would suggest that all types of residential buildings may benefit from a tax deduction in order to encourage energy renovation. Ideally, a direct application is the most effective and easy to stimulate renovation works.

The measure assumes that renovation work is taxed at a rate of 6% instead of 20%, leading to a renovation of 0.9% of the single-family building stock each year. The tax deduction measure would bring

an additional 6.5 GWh/year of energy savings (200,000 m² renovated/year)²¹, inciting roughly 33 MEUR per year in renovation investments. The reduction in VAT would reduce tax revenue by 3 MEUR per year; additionally, the additional energy savings would decrease tax revenues by an additional 0.1 MEUR per year. The increase in renovation would increase employment by about 500 jobs per year.

To make this measure more equitable and target low-income households, there are several options, such as:

- **Progressive scheme**, with higher deduction for lower-income households. However, this can be difficult to administrate; and
- **Eligibility criteria**, where VAT deduction is only available for households under a certain income threshold or based on EPC rating (to target worst-performing buildings). This is more simple than a progressive scheme, but is a less inclusive measure.

Residential and non-residential property tax (according to EPC level)

Table 3-79 Summary table of the proposed measure

Type of measure	Price signal incentives
Main objective	To impose a property tax based on energy performance of the buildings (i.e. EPC rating)
Monitoring KPIs	<ul style="list-style-type: none"> • Renovation rates • Tax revenue
New/existing measure in Estonia	Currently, property owners pay a land tax (<i>maamaks</i>), which rate depends on the type of property.

Taxes on property are intended to incentivise renovation by sending a price signal to property owners of buildings with a low EPC rating. There would be a standard property tax, where property owners can apply for an exemption based on EPC rating (i.e. energy performance of the building). Currently, every property owner is liable to pay land tax (*maamaks*), which rate depends on the type of real property. From 2024, residential land will be taxed at most 0.1-0.5%.

Three options of organising the property tax:

- Organised by the municipality, which have the freedom to design, and additional income would go to municipal budget (and cannot be used by central government for other purposes)
- Organised by central government, and fully (or partially) redistributed to the municipality (e.g. on the basis of no. of citizens). If additional income is going to the municipal budget, then it cannot be used by central government for other purposes
- Organised by central government, and not redistributed to the municipality, but only used to support other EE measures (e.g. grants for houses, etc.)

The measure for the residential sector assumes that the average tax per year is 1 EUR/m², bringing in 50 MEUR per year in tax revenue and leading renovation of 0.7% of the residential building stock per year. The tax measure would bring an additional 40 GWh/year of energy savings (370,370 m²

²¹ Assume that the required investment for renovation is 150EUR/m², with energy savings of 34kWh/m² of heat and 2 kWh/m² of electricity.

renovated/year)²², inciting roughly 167 MEUR per year in renovation investments. The property tax itself and the taxes on renovation works would bring in about 68 MEUR in tax revenue per year, whereas energy savings would decrease energy tax revenue by an additional 0.6 MEUR per year (bringing up to almost 6 MEUR decrease in taxes by 2035). On average, the measure would (net) increase tax revenue by 64 MEUR. The increase in renovation would increase employment by about 2800 jobs per year.

The measure for the non-residential sector assumes that the average tax per year is 2 EUR/m², bringing in 50 MEUR per year in tax revenue and leading renovation of 5.9% of the non-residential building stock per year. The tax measure would bring an additional 72 GWh/year of energy savings 1.3 million m² renovated/year)²³, inciting roughly 167 MEUR per year in renovation investments. The property tax itself and the taxes on renovation works would bring in about 68 MEUR in tax revenue per year, whereas energy savings would decrease energy tax revenue by an additional 0.1 MEUR per year (bringing up to almost 0.8 MEUR decrease in taxes by 2035). On average, the measure would (net) increase tax revenue by 67 MEUR. The increase in renovation would increase employment by about 2800 jobs per year.

However, there are concerns that this property tax (exemption) is not equitable, as primarily wealthier property owners can afford to have energy efficient buildings (high EPC rating) and property owners may pass on the property tax costs to tenants. There are several actions to make this measure more equitable:

- **Tenant protection**, by implementing regulation to prevent landlords from passing costs on to tenants (e.g. rent caps);
- **Targeted assistance programmes in tandem**, such as grants and tax deductions, which are already included in this action plan. Educating property owners of the available resources for improvements is also important so that property owners are knowledgeable of what options they have for energy renovation, as renovation will not only decrease the property tax but also decrease energy costs. These support schemes can be designed in a more targeted manner to focus on vulnerable households;
- **Progressive tax structure**, where properties with larger energy consumption face higher taxes.

CO₂ tax for end energy use of residential and non-residential buildings

Table 3-80 Summary table of the proposed measure

Type of measure	Price signal incentives
Main objective	Impose an additional tax on end energy use of residential buildings, on top of the existing excise and VAT taxes, based on carbon emissions.
Monitoring KPIs	<ul style="list-style-type: none"> • CO₂ reductions • Renovation rates • Tax revenue
New/existing measure in Estonia	End energy use is already taxed via excise and VAT taxes, but this is not directly linked to carbon emissions. The impending introduction of ETS in the building and transport sectors will put a price on carbon for these sectors as well.

²² Assume that the required investment for renovation is 450EUR/m², with energy savings of 102kWh/m² of heat and 6 kWh/m² of electricity.

²³ Assume that the required investment for renovation is 125EUR/m², with energy savings of 29kWh/m² of heat and 25 kWh/m² of electricity.

Carbon taxes for end energy use of buildings is intended to decrease energy use by directly putting a price of emissions. There is currently no direct tax on emissions in the building sector, where this tax would be on top of the existing excise and VAT tax on energy use. The tax would be calculated based on based on the type and quantity of energy consumed (i.e., electricity use, natural gas, heating oil, etc.) and calculating the resulting CO₂ emissions. The tax is then collected through energy bills or through a separate tax mechanism. Energy providers, such as utilities, are responsible for billing and collecting the tax on behalf of the government.

The carbon tax for the residential sector assumes that the average tax per year is 1 EUR/m², bringing in 50 MEUR per year in tax revenue and leading renovation of 0.7% of the residential building stock per year. The tax measure would bring an additional 40 GWh/year of energy savings (370,370 m² renovated/year)²⁴, inciting roughly 167 MEUR per year in renovation investments. The CO₂ tax itself and the taxes on renovation works would bring in about 68 MEUR in tax revenue per year, whereas energy savings would decrease energy tax revenue by an additional 0.6 MEUR per year (bringing up to almost 6 MEUR decrease in taxes by 2035). On average, the measure would (net) increase tax revenue by 64 MEUR. The increase in renovation would increase employment by about 2800 jobs per year.

The carbon tax for the non-residential sector assumes that the average tax per year is 2 EUR/m², bringing in 50 MEUR per year in tax revenue and leading renovation of 5.9% of the non-residential building stock per year. The tax measure would bring an additional 72 GWh/year of energy savings 1.3 million m² renovated/year)²⁵, inciting roughly 167 MEUR per year in renovation investments. The property tax itself and the taxes on renovation works would bring in about 68 MEUR in tax revenue per year, whereas energy savings would decrease energy tax revenue by an additional 0.1 MEUR per year (bringing up to almost 0.8 MEUR decrease in taxes by 2035). On average, the measure would (net) increase tax revenue by 67 MEUR. The increase in renovation would increase employment by about 2800 jobs per year.

When developing this CO₂ tax, it is also important to take into account the impending implementation of ETS2 in the buildings and transport sector, where developing a complete scheme for an intermediate period would make no sense, unless it is designed and implemented for the long run.

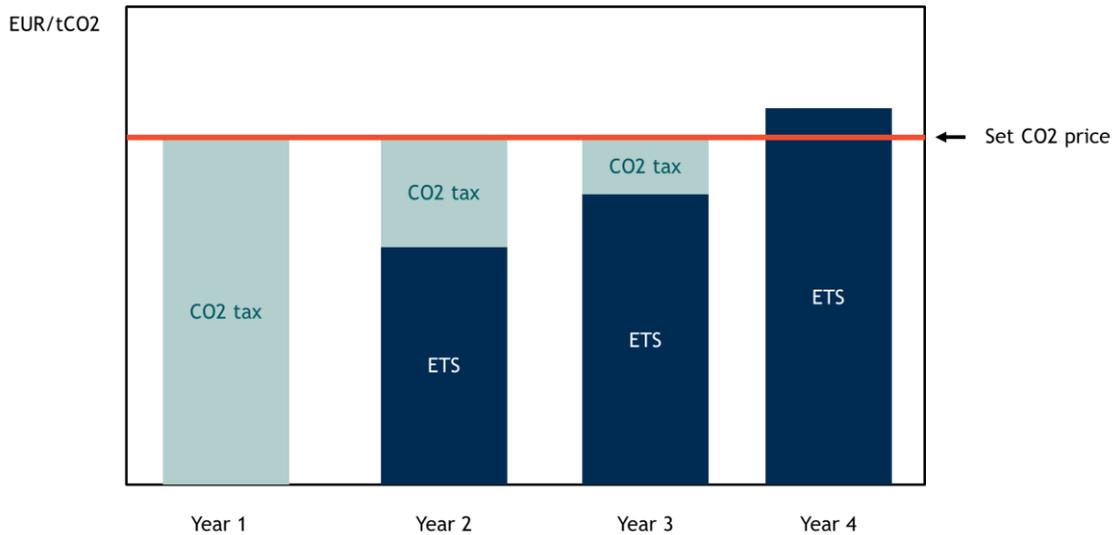
Having both CO₂ tax and ETS2 could overburden the energy consumers like households and the service sector, unless the short-term CO₂ tax is designed to already take into account the new ETS2 scheme. A good example of mitigation is provided by [Dutch CO₂ tax for industry](#) (CO₂ -heffing), with the CO₂ tax acting as a minimum cost of emissions, setting a total carbon price for CO₂, where the CO₂ tax is the difference between this CO₂ price and the ETS price if the ETS price is lower than the set CO₂ price (

Figure 3-3).

²⁴ Assume that the required investment for renovation is 450EUR/m², with energy savings of 102kWh/m² of heat and 6 kWh/m² of electricity.

²⁵ Assume that the required investment for renovation is 125EUR/m², with energy savings of 29kWh/m² of heat and 25 kWh/m² of electricity.

Figure 3-3 CO₂ tax based on ETS price



Source: own illustration

Vehicle tax for registration

Table 3-81 Summary table of the proposed measure

Type of measure	Price signal incentives
Main objective	Impose a tax on thermal vehicles at registration to disincentivize the purchase of personal vehicles. This tax is aimed at revising the current proposed tax in Estonia, which does not provide an incentive to promote energy efficient cars.
Monitoring KPIs	<ul style="list-style-type: none"> • Number of registrations annually, per category of vehicle • CO₂ reductions in the transport sector • Tax revenue
New/existing measure in Estonia	The Ministry of Finance has proposed a new car taxation in Estonia, which is currently being discussed. This measure is aimed at revising the current proposed tax in Estonia.

The purpose of imposing a tax on vehicle registration (described in Section 3.7.4) is to minimise the purchase of personal vehicles and ultimately incentivise other modes of transport. This tax is aimed at revising the current proposed tax in Estonia, which does not provide an incentive to promote energy efficient cars. All thermal vehicle owners who are registering a new or second-hand vehicle must pay a one-time tax, including trucks, buses, vans, SUVs, cars and motorcycles. There is an exemption for public service vehicles and a zero rate loan facility for vulnerable households. The rates would vary based on the type and weight of the vehicle.

It is assumed that the tax would affect 6.75% of the Estonian fleet, where the current tax rate is 192 EUR and the proposed rate is 1.595 EUR. Every year, the tax would save an additional 3.5 GWh. There would be 0.2 MEUR of administrative costs in the first year of implementation. The tax would bring in 58 MEUR of tax revenue each year. Where there would be on average a 0.01 MEUR loss of tax revenue

from energy taxes (via the energy savings). There would be on average an additional 285 jobs lost each year from the tax, due to the decrease in demand for vehicle services (e.g. logistics, maintenance).

Annual vehicle tax

Table 3-82 Summary table of the proposed measure

Type of measure	Price signal incentives
Main objective	Impose an annual tax on thermal vehicles to discourage the use of personal vehicles powered by traditional fossil fuels. <i>This tax is aimed at revising the current proposed tax in Estonia, which does not provide an incentive to promote energy efficient cars.</i>
Monitoring KPIs	<ul style="list-style-type: none"> • CO₂ reductions in the transport sector • Tax revenue
New/existing measure in Estonia	The Ministry of Finance has proposed a new car taxation in Estonia, which is currently being discussed. This measure is aimed at revising the current proposed tax in Estonia.

The purpose of imposing an annual vehicle tax (described in Section 3.7.4) is to minimise the ownership of personal, fossil fuel-powered vehicles and ultimately incentivise other modes of transport. This tax is aimed at revising the current proposed tax in Estonia, which does not provide an incentive to promote energy efficient cars.

It is assumed that the tax would affect 6.75% of the Estonian fleet, where the current tax rate is 60 EUR and the proposed rate is 100 EUR. Every year, the tax would save an additional 17.6 GWh. There would be 0.2 MEUR of administrative costs in the first year of implementation. The tax would bring in 2 MEUR of tax revenue each year. Where there would be on average a 0.1 MEUR loss of tax revenue from energy taxes (via the energy savings). There would be on average an additional 285 jobs lost each year from the tax, due to the decrease in demand for vehicle services (e.g. logistics, maintenance).

Talinn and Tartu congestion charge

Table 3-83 Summary table of the proposed measure

Type of measure	Price signal incentives
Main objective	Impose a road use tax for cars and vans to reduce motor vehicle traffic during peak hours, alleviate traffic congestion, improve air quality and promote sustainable transportation alternatives.
Monitoring KPIs	<ul style="list-style-type: none"> • Number of cars in critical congestion points during peak hours • CO₂ reductions in the transport sector • Tax revenue
New/existing measure in Estonia	This measure has not yet been implemented, nor concretely proposed in Estonia.

The congestion charge (described in Section 3.8.4) would take the form of a flexible road use tax aimed at reducing traffic during peak hours. To make sure the tax does not adversely impact low-income households, a reduction of the tax can also be considered for:

- Vulnerable households (i.e. below a certain level of income) and people with disabilities;
- Essential travels during peak hours (e.g. reimbursement of the congestion charge if travel was made for a medical visit).

It is assumed that the tax would affect 6.75% of the Estonian fleet. Every year, the tax would save an additional 0 GWh. There would be 0.1 MEUR of administrative costs in the first year of implementation. The tax would bring in 0 MEUR of tax revenue each year.

Excise and/or VAT of (1) natural gas, (2), electricity, (3) heating, (4) gasoline, (5) diesel and light fuel oil, (6) firewood and (7) wood chips and waste

Table 3-84 Summary table of the proposed measure

Type of measure	Price signal incentives
Main objective	Increase the rate of taxation of energy sources to incentivise the reduction of energy consumption for all sectors.
Monitoring KPIs	<ul style="list-style-type: none"> • Tax revenue • CO₂ reductions • Energy consumption reduction
New/existing measure in Estonia	Excise and VAT for energy sources already exists, where the proposal is to increase the rates of these taxes.

Excise duty and VAT on energy sources effectively incentivises the reduction of energy consumption across all sectors. These taxes already exist, where the proposal is to increase these taxes over the next few years. Excise duty is to increase for natural gas (+100% from 2023 to 2025), electricity (+350%), fuel oils (+30%) and diesel (+30%) in 2024 and 2025. VAT remains at 20%, but energy prices increase, increasing the VAT collected (households only). The tax is then collected through energy bills. Energy providers, such as utilities, are responsible for billing and collecting the tax on behalf of the government.

The rate of increase of the energy taxes is based on the 2020 [KPMG study](#) on fiscal measures to reduce energy consumption, where it is assumed that the increase in taxes will be implemented in 2024 (compared to 2021 in the study). Based on the price elasticity of various energy sources, in impact on energy consumption is estimated.

Table 3-85 Increase in energy tax rates (excise and VAT) from 2021 to 2035

Total tax		2021	2022	2023	2024	2025	...	2030	...	2035
Gas	Excise only	4.55	4.55	4.55	7.52	9.00		9.00		9.00
Gas - industry	Excise only	1.29	1.29	1.29	1.29	1.29		1.29		1.29
Gas - households	Excise + VAT	13.26	13.52	13.79	17.03	18.80		20.36		22.17
Heat	Excise only	1.62	1.62	1.62	2.29	2.66		2.66		2.66
Heat - households	Excise + VAT	14.22	14.60	14.99	16.06	16.84		19.10		21.72
Electricity	Excise only	1.00	1.00	1.00	3.31	4.47		4.47		4.47
Electricity - industry	Excise only	1.28	1.28	1.28	3.59	4.75		4.75		4.75
Electricity - households	Excise + VAT	17.36	17.85	18.36	21.19	22.88		25.82		29.22
Motor gasoline	Excise only	59.26	59.26	59.26	59.26	59.26		59.26		59.26
Motor gasoline - households	Excise + VAT	72.91	73.32	73.74	74.17	74.62		77.07		79.90
Heavy fuel oil	Excise only	37.60	37.60	37.60	45.74	49.81		49.81		49.81
Light fuel oil	Excise only	34.80	34.80	34.80	42.35	46.12		46.12		46.12
Diesel	Excise only	39.16	39.16	39.16	47.65	51.89		51.89		51.89
Diesel - households	Excise + VAT	50.72	51.07	51.43	60.29	64.91		66.99		69.39
Wood chips and waste	VAT only	2.39	2.46	2.54	2.61	2.69		3.12		3.62
Firewood	VAT only	7.55	7.78	8.01	8.25	8.50		9.85		11.42
Specially marked diesel	Excise only	10.53	10.53	10.53	12.84	14.00		14.00		14.00

Source: excel sheet "D4 Modelling v8", tab "Assumptions", cell "B278"

All changes in excise/VAT of the various energy sources is estimated to save about 40 GWh per year. This will increase tax revenue by about 155 MEUR per year (164 MEUR from increase in tax rate minus 9 MEUR from energy savings).

3.10.5 Involved parties roles and responsibilities

The table below presents the roles and responsibilities of the different parties in the implementation of the measures included in this action plan.

Table 3-86 - Involved parties, roles and responsibilities

Actors	Roles, responsibilities and tasks
Ministry of Climate	<ul style="list-style-type: none"> property taxation: develop together a guideline for municipalities, also involving local authorities' central administration CO₂ tax: determine appropriate tax level to check with relevant tax authorities Tax deduction: define scope of eligibility
Energy providers/utilities	Key role in tax collection and offering energy performance contracts
Local authorities (cities and municipalities)	To contribute in designing property taxation. They are close to households, so they know their concerns. Involvement at an early stage is required
Ministry of Mobility and Transport	<ul style="list-style-type: none"> In coordination with tax authorities, set up, collect and monitor annual and registration vehicle taxation Provide necessary funds for implementation of the measures
Tax authorities/Ministry of Finance	Set up, collect and monitor: <ul style="list-style-type: none"> Congestion charge Energy taxation Annual and registration vehicle taxation

3.10.6 Risks and opportunities

The table below presents the main risks and opportunities associated with the implementation of the measures included in this action plan.

Table 3-87- Risks and opportunities associated with the implementation of the measures

Risks	Opportunities
<ul style="list-style-type: none"> • There are social equity concerns about fiscal measures as they may disproportionately impact low-income households by raising energy costs, which can lead to (energy) poverty • Fiscal measures can be met with resistance from individuals and businesses, as this increases costs • Increasing the cost of energy via taxes may cause Estonian businesses to lose their competitiveness with businesses outside of Estonia. Further, if taxes make costs too high (and energy efficiency measures are not taken), some businesses might leave to a country where the cost of energy is lower. 	<ul style="list-style-type: none"> • Fiscal measures are an efficient way to nudge individuals and businesses to reduce their energy consumption • Fiscal measures increase tax revenues for the government which can be used to support other energy efficiency initiatives • There are long-term cost savings from the energy efficiency induced by fiscal measures

3.10.7 Summary of the action plan

The action plan is designed in two blocks:

- One **overarching Action Plan**, describing the overall timeline, the responsible and other parties involved, the cost (precising whether it is about investments, or administrative costs such as providing training session or setting up awareness campaigns), and the source of public money (for support schemes, or simply for bearing the administrative costs)
- A **detailed short term Action Plan**, to show the horizon 2030 (2035) perspective for the measures design and implementation, describing what actions should be taken in the coming 3 years.

Overarching action plan

Table 3-88 - Overarching action plan for cross-cutting fiscal measures (not comprised in the other action plans)

Action - fiscality	Timeline	Responsible	Other parties	Cost - Investments or Administrative	Source of public money
Adapt excise and value added tax of all fuels (*)	Establish tax rates - short term (2024) Adjust existing legislation - short/medium term (2024-2025) Implement - medium term (from 2026)	Ministry of Climate (department mobility), Estonian Transport Administration	Ministry of finance; local authorities; system operators and NRA; Local residents, businesses, communities, landowners, bus operators	Investment infrastructure and service; 100% public budget	ETS revenues

(*) the adaptation of the fuels' excises and VAT should consider the entry into force of the ETS2, from 2027, and be seen as an introductory or intermediary scheme.

Detailed short term Action Plan

This plan is available in D4 model, in the "AP Fiscal" Tab.

It comprises all fiscal measures, including those that are also included in the sub-sector action plans.

<u>Energy efficiency categorisation</u>	<u>Action plan color code</u>						
Positive incentives (grants, deduction, ...)	Development actions	R-Revision for potential update					
Voluntary with positive incentive	Follow up / Implementation actions						
Investment in infrastructure / fleet	F->D means that all buildings above D EPC label should be renovated to D level						
Fiscal measures	Preliminary savings thanks to the measure						
Normative (obligation, MEPS, ...)	Effective savings thanks to the measure						
Enabling measures	High level of savings thanks to the measure						
	Maximum level of savings thanks to the measure (before slow down)						

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

		2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
All fiscal measures combined													
Tax deduction for renovation works by private persons (=parallel track for single family)	Tot INV [Meur/y]		30	31	31	32	32	33	34	34	35	36	37
	Public support [Meur/y]		-	-	-	-	-	-	-	-	-	-	-
Integrate Energy Efficiency in all grants related to digitalisation	Responsible => Ministry of Finance & Ministry of climate, building and housing (department of building)				R								
Increase existing grant volume (grant calculation methodology; eligibility criteria; associated guarantee fund; expand KredEx as administering body)	Support => KredEx												
Grant allocation (framework for grant allocation & prioritisation; user friendly application; distribution process via KredEx)													
Implementation (monitoring of savings; feedback & adaptation; include information for awareness raising campaigns; digital platform)								R					R
Residential property tax (according to EPC levels)	Tot INV [Meur/y]		-	-	-	-	-	184	188	191	195	199	203
	Public support [Meur/y]		-	-	-	-	-	55	56	57	59	60	61
CO2 tax for end energy use of residential buildings	Tot INV [Meur/y]		-	-	173	177	180	184	188	191	195	199	203
	Public support [Meur/y]		-	-	52	53	54	55	56	57	59	60	61
Establish tax rate differential (renovation vs new construction; scope of works; scope of fuels for CO2 tax)	Responsible => Ministry of Finance							R					R
Implementation Method (automatic vs homeowner application)	Support => Ministry of climate, building and housing (department of building)												
Monitoring & verification (documentation & reporting; refund process; ensure property owners have access to methodology)													
non-residential property tax (according to EPC levels)	Tot INV [Meur/y]		-	-	173	177	180	184	188	191	195	199	203
	Public investment [Meur/y]		-	-	52	53	54	55	56	57	59	60	61
CO2 tax for end energy use of non-residential buildings	Tot INV [Meur/y]		-	-	-	-	-	184	188	191	195	199	203
	Public investment [Meur/y]		-	-	-	-	-	55	56	57	59	60	61
Establish tax rate differential (renovation vs new construction; scope of works; scope of fuels for CO2 tax)	Responsible => Ministry of Finance							R					R
Implementation Method (guidelines for municipalities, introduce a phase in period & Monitoring & verification (documentation & reporting; refund process; ensure property owners have access to methodology)	Support => Ministry of climate, building and housing (department of building)												
Vehicle tax for registration	Tot INV [Meur/y]		0	-	-	-	-	-	-	-	-	-	-
	Public support [Meur/y]		0	-	-	-	-	-	-	-	-	-	-
Annual vehicle tax	Tot INV [Meur/y]		0	-	-	-	-	-	-	-	-	-	-
	Public support [Meur/y]		0	-	-	-	-	-	-	-	-	-	-
Preparatory phase (define vehicle categories; define VAT reduction rates per category of vehicle)	Responsible => Ministry of Climate (department of mobility and investment), in collaboration with Estonian Transport Administration												
Proposal & negotiation phase (establish a proposal for the revision of the proposed car taxation scheme; negotiate the proposal)	Support => Ministry of finance; local authorities; system operators and NRA; Local residents, businesses, communities, landowners, energy companies												
Implementation phase (implement the proposal)						R		R				R	
Tallinn and Tartu congestion charge	Tot INV [Meur/y]		0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1
	Public support [Meur/y]		0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1
Assess opportunity for a congestion charge scheme (availability of alternatives incl. easiness of connection, free parking areas, availability of services, etc.)	Responsible => Ministry of Climate (department of mobility and investment), in collaboration with Estonian Transport Administration												
Consult & design congestion charge scheme	Support => Ministry of finance; city authorities; taxi												
Implement congestion charge scheme													
Excise and value added tax of natural gas	Tot INV [Meur/y]		0,06	0,06	0,06	0,06	0,06	0,06	0,06	0,06	0,06	0,06	0,06
	Public support [Meur/y]		0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Excise and value added tax of electricity	Tot INV [Meur/y]		0,28	0,28	0,28	0,28	0,28	0,28	0,28	0,28	0,28	0,28	0,28
	Public support [Meur/y]		0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Excise and value added tax in heating sector	Tot INV [Meur/y]		0,35	0,35	0,35	0,35	0,35	0,35	0,35	0,35	0,35	0,35	0,35
	Public support [Meur/y]		0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Excise and value added tax of gasoline	Tot INV [Meur/y]		1,20	1,20	1,20	1,20	1,20	1,20	1,20	1,20	1,20	1,20	1,20
	Public support [Meur/y]		1,2	1,2	1,2	1,2	1,2	1,2	1,2	1,2	1,2	1,2	1,2
Excise and value added tax of diesel fuel and light fuel oil	Tot INV [Meur/y]		2,10	2,10	2,10	2,10	2,10	2,10	2,10	2,10	2,10	2,10	2,10
	Public support [Meur/y]		0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1
Value added tax of firewood	Tot INV [Meur/y]		0,09	0,09	0,09	0,09	0,09	0,09	0,09	0,09	0,09	0,09	0,09
	Public support [Meur/y]		0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Renewable energy fee	Tot INV [Meur/y]		-	-	-	-	-	-	-	-	-	-	-
	Public support [Meur/y]		-	-	-	-	-	-	-	-	-	-	-
Wood chips and waste VAT	Tot INV [Meur/y]		0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01
	Public support [Meur/y]		0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Establish tax rates (define new rates, update tax structure)	Responsible => Ministry of Climate (department of mobility and investment), in collaboration with Estonian Transport Administration												
Adjust existing legislation (incorporate new tax rates /structure)	Support => Ministry of finance; local authorities												
Implementation (launch first tax payment procedure) + monitoring of compliance													

4 Financing & fundings

This chapter develops the different funding and financing sources that might be considered to support the implementation of the different EE measures requiring funding (e.g. support and grants). The eligibility of the measure is assessed, and the availability of the source is evaluated to a certain extent, and the timetable shall provide detailed planning for government actions in this regard.

Sources	Fund	Interest short evaluation
EU funds (4.1)	The RRF	As main instrument for EE in EU, RRF is an important source for grant schemes in Estonian policies. It ends in 2027, which will create an important stop.
	MFF 2021-2027 Cohesion policy funds (eligible until 2029)	Highly relevant for large infrastructure like rail lines and for Energy Efficiency (e.g. in buildings), if funds still available beyond 2029.
	Mobilising investments through InvestEU	Not a priority, providing loans and other financial products where regular finance remains inaccessible
	ELENA	Highly relevant to develop dedicated services to assist building managers or even industry operators to accelerate their energy efficiency transition
	Horizon Europe (until 2027)	Target RD&I, especially cluster 5 on Climate, Energy and Mobility
	Innovation fund	This could support the transition of some industries, moving to new innovative processes lowering carbon emissions
	European Energy Efficiency Fund (EEEF)	innovative PPP dedicated to mitigating climate change through energy efficiency measures, focuses on financing EE and clean urban transport projects targeting municipal, local and regional authorities and public and private entities
	The modernisation fund	The Modernisation Fund supports investments consistent with the 2030 climate and energy objectives of the Union, as well as the Paris Agreement. However, it has already been forecasted for Estonia (for public buildings and transport)
National carbon revenues	Current ETS	The revenues from the current ETS should be used as a priority, particularly to support the industry (e.g. Voluntary Agreement financial compensation in case of need, hiring and SME office, support, etc.). It should also be used

		before the entry into force of ETS2 for the building and transport sectors.
	Coming ETS2, on Building & Road Transport (BRT)	The revenues of the ETS2 (to come at the end of the obligatory period 2021-2030) should be used to prolong current support scheme, with a specific focus on vulnerable households

4.1 EU funds

The major EU funds are provided, to feed in the discussion and provide new insights for Estonia, to find EU funds on the long term.

The European Commission’s multi-annual financial framework 2021-2027 and the NextGenerationEU instrument have different relevant funds available to directly co-finance energy efficiency investments in the EU, and specifically Estonia: The Recovery and Resilience Facility²⁶, and cohesion policy funds.²⁷

Research and innovation in energy efficiency (Horizon Europe, Innovation Fund, LIFE clean energy transition) might still be needed, although they cannot finance investments, and would therefore only have a limited impact.

4.1.1 Recovery and Resilience Facility (RRF)

The RRF is intended to be the main source of public funding for energy efficiency in Europe in the coming years. The Facility focuses on public and residential buildings, including social housing. 37% of the total budget of €672.5 billion is mandated to go toward climate action. Based on the Recovery and Resilience plans submitted by EU countries, energy efficiency and building renovation are key components in almost all plans.

The RRF is the core of the REPowerEU plan implementation, providing additional EU funding. EU countries can use the remaining Recovery and Resilience Facility loans (currently €225 billion) and new grants funded by the auctioning of Emission Trading System allowances, currently held in the Market Stability Reserve, worth €20 billion. Estonia already added a REPowerEU chapter to its Recovery and Resilience Plans to channel investments to REPowerEU priorities and make the necessary reforms. There is therefore no more free resources available.

An important share of the Estonian budget is allocated to the digital transition, which is not considering Energy Efficiency, although it is a key technology for the climate transition.

²⁶ https://commission.europa.eu/business-economy-euro/economic-recovery/recovery-and-resilience-facility/country-pages/estonias-recovery-and-resilience-plan_en

²⁷ https://energy.ec.europa.eu/topics/energy-efficiency/financing/eu-programmes/current-funding_en#:~:text=Modernisation%20Fund,-This%20fund%20was%20text=It%20has%20a%20total%20budget,systems%20and%20energy%20efficiency%20improvements.

Current budget allocation in Estonia

There are several [existing projects in Estonia being funded by the RRE](#), all have to do with transport and include tram and rail infrastructure. Key measures for energy efficiency in the frame of the green transition:

The plan supports energy efficiency through:

- the construction of the Rail Baltic viaducts (€31 million),
- setting up the Green Fund to support innovative green technologies (€90 million).
- Energy-efficient renovation of 3500 dwellings (€75 million)
- Connecting Rail Baltic to sea connections with the Nordic Countries via the construction of the Tallinn Old Port tram line (€36.5 million)

In addition, key reforms concerning energy efficiency include:

- strengthening advisory services and digital tools to promote energy efficient renovations,
- adopting a new strategic approach to mobility and implementing a common transport system for the Tallinn capital region.

4.1.2 Cohesion policy funds

Cohesion policy funds include several more specific funds set up for EU funding, these include the European Regional Development Fund, the European Social Fund Plus, the Cohesion Fund, the Just Transition Fund and INTERREG. The total budget is €373 billion.

The Cohesion Fund supports investments in the field of environment and trans-European networks in the area of transport infrastructure. For the 2021-2027 period, the Cohesion Fund concerns Bulgaria, Czechia, Estonia, Greece, Croatia, Cyprus, Latvia, Lithuania, Hungary, Malta, Poland, Portugal, Romania, Slovakia and Slovenia.

Examples of projects outside Estonia that are funded by the cohesion policy funds, that could inspire Estonia for the future:

- [Spain high-speed rail](#)
- [Poland railway electrification](#)

4.1.3 Mobilising investment through InvestEU

InvestEU has a budget of €26.2 billion and is designed as a single investment support mechanism, providing loans, and guarantees and other market-based instruments, thereby replacing all the existing centrally managed financial instruments. InvestEU also streamlines current technical assistance options under the common umbrella of its Advisory Hub.

InvestEU is divided into 4 policy windows: sustainable infrastructure (€ 9.9 billion); research, innovation and digitisation (€ 6.6 billion); SMEs (€ 6.9 billion); social investment and skills (€ 2.8 billion). While energy efficiency measures qualify under all windows, EE measures are primarily supported under sustainable infrastructure.

However, due to the complexity of setting up the appropriate InvestEU framework, we recommend to consider this option later on only, if finance is still missing.

4.1.4 European Local Energy Assistance ([ELENA](#))

ELENA is implemented by the European Investment Bank on behalf of the EC and provides technical assistance grants for energy efficiency projects.²⁸ ELENA grants cover up to 90% of the technical support costs needed for a given project/programme.

An example of a project initially supported by ELENA is

- The [RenoWatt project](#) aims to improve the energy efficiency of public buildings. It provides comprehensive assistance to local authorities to support them in the energy renovation of their buildings. It is a one-stop shop which takes care of the conclusion of the energy performance contract (EPC), selects buildings worthy of interest for renovation, groups them into pooling, launches the public procurement procedure and supports municipalities in implementing EPC. So many tasks that small communities cannot take on alone to achieve the objectives of renovating public buildings and comply with European requirements in this area. This project was financed until December 2022, for technical assistance, by the European Investment Bank (EIB) via the [ELENA subsidy](#), for an amount of 3.5 million euros. In addition to this subsidy, RenoWatt was also subsidized by the Walloon Region to the tune of 1.7 million euros.

Such project could make a lot of sense for Estonia, to address its public buildings while engaging local authorities.

4.1.5 Horizon Europe

[Horizon Europe](#), formerly Horizon 2020 (H2020), is a research and innovation funding programme, with a budget of €95.5 billion until 2027. Its “Cluster 5” focuses on climate, energy and mobility, including energy efficiency in buildings and industry and a sustainable-built environment.

However, Horizon Europe concerns research and innovation, and is therefore not oriented to transform existing markets, and should not be considered as a priority.

In addition, according to ([oPEN LAB h2020](#)), compared to Horizon 2020, Estonia’s participation in new **European Partnerships** will be more strategic and better aligned with national priorities. Participation is associated with the focus areas defined in the new Research and Development, Innovation and Entrepreneurship (RDIE) Strategy for 2021-2035. In addition, national level co-funding mechanisms were re-designed to allow a wider range of actors to join EU partnerships.

Example of [Latvia using H2020](#).

4.1.6 Innovation Fund

The [Innovation Fund](#) is one of the world’s largest funding programmes for demonstrating innovative low-carbon technologies in the areas of energy intensive industry, renewable energy, energy storage and carbon capture and storage. The fund supports innovations in the sectors covered by the EU ETS that can cut out emissions significantly (other sectors are not eligible), for instance by replacing high energy intensive processes and technologies with more energy-efficient alternatives.

²⁸ https://energy.ec.europa.eu/topics/energy-efficiency/financing/capacity-building-and-technical-assistance_en

4.1.7 LIFE clean energy transition

The [LIFE-Clean Energy Transition programme](#) has a budget of €1 billion. It aims to support energy efficiency by addressing structural or organisational obstacles, creating favourable enabling frameworks and building the capacity of public and private participants. It will continue successful funding initiatives removing market barriers and developing EU- wide best practice for energy efficiency policy implementation.

4.1.8 European Energy Efficiency Fund

The [European Energy Efficiency Fund](#) (EEEF) is an innovative public-private partnership dedicated to mitigating climate change through energy efficiency measures and the use of renewable energy in the MS of the EU.

The European Energy Efficiency Fund (eeef) targets investments in the Member States of the European Union.

The final beneficiaries of eeef are municipal, local and regional authorities as well as public and private entities acting on behalf of those authorities such as utilities, public transportation providers, social housing associations, energy service companies etc.

To reach its final beneficiaries, eeef can pursue two types of investments:

- Direct Investments, comprising projects from project developers, energy service companies (ESCOs), small scale renewable energy and energy efficiency service and supply companies that serve energy efficiency and renewable energy markets in the target countries.
- Investments into Financial Institutions, including investments in local commercial banks, leasing companies and other selected financial institutions that either finance or are committed to financing projects of the Final Beneficiaries meeting the eligibility criteria of eeef.

In December 2023, the European Energy Efficiency Fund [published on its website](#) that it is issuing long-term subordinated debt facility to Coop Pank in Estonia for the purpose of financing sustainable projects. In collaboration with eeef, Coop Pank will identify, evaluate and finance energy efficiency, renewable energy, and clean urban transport projects in Estonia.

4.1.9 Modernisation fund

The Modernisation Fund (MF) supports investments consistent with the 2030 climate and energy objectives of the Union, as well as the Paris Agreement. The majority of the resources of the Modernisation Fund (at least 70%) must be invested in priority areas specified in Article 10d(2) of the ETS Directive.

However, Estonia is using MF support through 2 long-term (2021-2030) programmes: Public Sector Buildings Energy Efficiency Programme (MF) and Public Transport Energy Efficiency Programme (MF). Consequently, the forecasted amounts of MF support available for Estonia within 2021-2030 have already been fully programmed, in relation to energy efficiency of the buildings and transport sector.

4.2 National carbon revenues

The new income generated by schemes like the ETS, or the new ETS BRT should be considered as the main sources for funding the climate measures, and particularly energy efficiency.

In line with the EU ETS Directive and Estonia's Atmospheric Air Protection Act, Estonia has since the 2013-2020 trading period been using EU ETS revenues for measures supporting the climate and energy policy objectives. In accordance with the mentioned Act, these measures (as well as the long-term programmes supported under the Modernisation Fund also related to the ETS sectors) are already included in the long-term strategic planning process and in the State Budget Strategy (e.g. In Annex 5 to the State Budget Strategy 2024-2027). From 2024 on, 100% of the EU ETS revenues will be allocated for these objectives (until 2023, the mandatory share was 50%). Such allocation is crucial to progressively replace some of the EU funds (e.g. RRP), while tackling energy poverty challenges, considering the new instruments/measures to be implemented (e.g. MEPS).

4.3 Other national practices

4.3.1 Home Energy Efficiency Programmes for Scotland (HEEPS)

The [HEEPS](#) funds local authorities to develop and deliver energy efficiency programmes (mainly solid wall insulation) in areas with high levels of [fuel poverty](#). This funding is blended with Energy Company Obligation funding, owners contributions and funding from registered social landlords who may choose to insulate their homes at the same time.

The area-based schemes are designed and delivered by councils with local delivery partners. They target fuel-poor areas to provide energy efficiency measures to a large number of Scottish homes while delivering emission savings and helping reduce fuel poverty.

Since 2013 we have helped to deliver energy efficiency measures to over 100,000 households. Including 2021/2022 allocations we have made available over £482 million to local authorities.

4.3.2 Home energy grants in Ireland

The [Home Energy Grant](#) is a service managed by the Sustainable Energy Authority of Ireland (SEAI) and includes:

- home survey
- contractor selection
- contractor works
- follow up Building Energy Rating (BER)

SEAI Fully Funded Energy Upgrades, comprising the Warmer Homes Scheme, is co-funded by the Government of Ireland and the European Union through the ERDF Northern and Western and Southern, Eastern & Midland Regional Programmes 2021-27.

4.3.3 Home Energy Scotland

[Home Energy Scotland](#), funded by the Scottish Government, is a network of local advice centres covering all of Scotland.

4.3.4 Norway

<https://klimatilskudd.no/isolasjon-boliger>

4.3.5 Austria - transport

<https://www.klimaticket.at/en/>

5 Conclusions & overall action plan

This chapter comprises

- The summary of major risks per Action Plan and their related mitigation & alternatives;
- The overall timeline of the 10 Action Plans.

5.1 Risk and mitigation measures

Risks are assessed at the level of the Action Plans, and then at the level of individual measures, to identify the mitigation or even alternatives to the specific Energy Efficiency measure.

The colour code illustrates the level of the global risk associated with each Action Plan's EE measure.

Table 5-1- risk and mitigation measures for each action plan

High risks	
Medium risks	
Limited risks	
Action Plan (sections 3.x)	Risk for specific EE measures that may jeopardize the action plan (sections 3.x.6) & mitigation measures or alternative measures
3.01. Residential buildings - detached	<p>There is an important risk that no (or limited) budget can be found after 2027, compromising grants, and consequently requiring to accelerate the uptake of normative (MEPS) & fiscal measures (fuel CO₂);</p> <p>There is apparently limited capacity to improve the grant schemes (e.g. more adapted level of support, to avoid over-subsidization);</p> <p>MEPS will be complex, and possibly require several iterations. If there is a massive political/social blockage, then it should be reduced to focus on a very limited number of buildings while providing important grant/support.</p>
3.02. Residential buildings - apartments	<p>There is apparently limited capacity to improve the grant schemes (e.g. more adapted level of support, to avoid over-subsidization);</p> <p>Lack of skilled labour makes it difficult to properly implement measures, especially to meet the increased demand caused by grant availability;</p> <p>Complex decision-making process of multiple person ownership makes implementing measures timely and difficult.</p>
3.03. Non-residential - public (central government & municipal)	<p>No capacity to improve the grant schemes (more adapted level of support, to avoid over-subsidization);</p> <p>MEPS will be complex, and possibly require several iterations. If there is a massive political/social blockage, then it should be reduced to focus on a very limited portfolio while providing important grant/support;</p> <p>Lack of skilled workforce to implement the measures - there are resource constraints related to training and capacity building, as well as overall funding.</p>
3.04. Non-residential - commercial	<p>Large risk due to the administrative burden of setting up, running and implementing both a MEPS scheme as well as an EEOS;</p> <p>Lack of interest/will given barriers and timing associated with implementing measures.</p>

<p>3.05. Industry (agro-forestry) - large plants</p>	<p>For the Voluntary Agreement, the financial advantage or compensation for the industry might not be straight nor attractive enough for the industry to seriously commit;</p> <p>Lack of resources on Ministry side to conduct the process which will be demanding to prepare and negotiate VA;</p>
<p>3.06. Industry (agro-forestry) - SMEs</p>	<p>Lack of strong counterparty from business side, representing SMEs, and agricultural/fisheries/forestry exploitations;</p> <p>Lack of resources on Ministry side to conduct the process of preparing measures which will be demanding to liaise with the businesses on the most cost-efficient and necessary aspects to raise attractiveness.</p>
<p>3.07. Transport - car efficiency</p>	<p>Action plan: Current debate/discussion about the proposed vehicle taxation system, which does not incentivise shift to more efficient vehicles Insufficient investments in grid modernisation can hinder the deployment of EV</p> <p>Car taxation: No integration of GHG emissions concerns into car taxation Impact on vulnerable people, who often have older and hence less efficient cars</p> <p>Public procurement: Non-compliance of public authorities with the targets for clean and energy efficient public road transport vehicles</p> <p>Electric charging infrastructure: Lack of skilled workforce for implementation of charging infrastructure Lack of grid modernization Inappropriate deployment of charging infrastructure (too slow/too rapid, in wrong places, etc.)</p>
<p>3.08. Transport - public transport</p>	<p>Action plan: Requires high degree of planning and integration between the different actions related to developing infrastructure for public transport and micro-mobility Many actors involved/consulted in the process, which increases complexity of implementation Lack of harmonization between development of mobility and transport infrastructures and new residential/business districts</p> <p>Development of public transport services and infrastructure: Lack of cooperation from public transport operators Lack of skilled workforce to construct infrastructure Lack of funding available to develop the necessary infrastructure</p> <p>Subsidy for public transport usage: Low uptake of the subsidy, preference for company/personal car usage</p> <p>Congestion charge: Impact on vulnerable people</p>
<p>3.09. Transport - multi modal</p>	<p>Action plan: Requires high degree of planning and integration between the different actions related to developing infrastructure for public transport and micro-mobility Many actors involved/consulted in the process, which increases complexity of implementation Lack of harmonization between development of mobility and transport infrastructures and new residential/business districts</p> <p>Development of infrastructure: Lack of consideration of existing public transport infrastructure to develop mobility hubs Lack of skilled workforce to construct infrastructure Lack of funding available to develop the necessary infrastructure</p>

	<p>Subsidy for micro and active mobility usage: Low uptake of the subsidy, preference for company/personal car usage</p> <p>Congestion charge: Impact on vulnerable people</p>
3.10. Cross-cutting - fiscal & taxation	<p>Property tax: there is concern of the social impact of property taxes because: 1) wealthier households tend to have higher energy performance dwellings (will have low property tax) and 2) property owners can pass down the cost of the tax to tenants. The property tax needs to be designed (e.g. progressive tax based on amount of energy consumption) or supplemented with support schemes to avoid adverse impacts on vulnerable households.</p> <p>CO₂ tax: can potentially lead to an overburdening of costs of consumers, given the upcoming implementation of ETS for buildings/transport. Important to take ETS into account when developing the CO₂ tax (for instance setting a CO₂ price, where the CO₂ tax is the difference between the ETS price and set CO₂ price)</p>

5.2 Major considerations since the D3 pathway analysis

This section assesses the main changes to consider since the assessment of the pathways and their modelling under Deliverable 3. Considering the time required to design, negotiate and then implement some of the measures, their entry into force can unfortunately not start in 2025 as planned. This conclusion follows the in-depth analysis of the actions to be taken in this Deliverable. It concerns mainly:

- Property taxation, to be rediscussed later on, has been removed (we model a start in 2031)
- MEPS' entry into force is unlikely to happen before 2026 (we model a start in 2026)
- CO₂ on fuel should wait until the new ETS BRT is entering into force. The same could apply to excise on fuels but coming back to the previous level is required as soon as possible (we model a start in 2027, corresponding to the new BRT ETS)
- Obligation scheme should not be implemented at this stage, to avoid launching too many measures to implement at the same time (we model a start in 2031)
- VA scheme could enter into force in 2025, with the first investments realised in 2025 and their savings coming from 2026
- VA scheme will use rebate on renewable energy tax on electricity tax as an advantage for companies that sign the agreement (previously in D3 VA advantage was access to EE measures that would have been made exclusive for VA).

5.2.1 Carbon taxation & fuel excise

From 2027, the buildings sector will be included in the new EU ETS (ETS Buildings and Road Transport sector) and will also have to apply the new MEPS scheme (Minimum Energy Performance Standard). In the new ETS BRT, for emissions related to fossil fuels used for heating and cooling of the buildings, CO₂ allowances will need to be purchased, at an estimated unit price level of € 40 / 45 €/t CO₂ eq (for the first years of this ETS). For the longer term, the European Commission has indicated its intention to propose integrating the new BRT ETS into the existing. This would probably lead to a considerable increase of the unit cost of CO₂ allowances.

Such measure would need to be implemented before the start of the new BRT ETS (since from 2027 on it would most probably be replaced by the new ETS). This would leave very limited time for the preparation, reaching agreement and decisions on, entering into force and implementing of such measures.

5.2.2 Property taxation

Rationale

A taxation on residential immovable property that is well-designed can play a crucial role in a country's overall tax mix and tackle different policy concerns, such as inequality. Recurrent immovable property taxes are considered to be among the taxes that have the least negative impact on growth and can be developed in a manner that reduces the wealth gap and post-tax income disparities within the population.

Furthermore, recurrent immovable property taxes can support the green transition outlined in the European Green Deal, which states that taxation can play a crucial role in the transition towards an inclusive and climate-neutral economy. Recurrent taxes on immovable property can be an effective tool in addressing the worldwide challenge of climate change, provided that they are designed appropriately and encourage the positive incentives²⁹.

A property tax base that is based on value may discourage investments in making a building more energy efficient and create a trade-off between equity and environmental objectives. Since the tax base is likely to increase as a result of an energy efficiency improvement, value-based property taxation may discourage building upgrades, especially if energy consumption taxes fail to account for the full environmental cost of energy consumption.

However, adjusting the property tax base to include a building's energy performance could be a solution. Studies have indicated that redistributing the tax burden from more energy-efficient to less energy-efficient buildings based on energy performance would shift taxation from suburban to rural properties, with urban properties remaining largely unaffected. While taxes for apartments would decrease, those for terraced houses would increase. Therefore, should energy efficiency become a factor in property taxation, distributional effects must be considered. Households with higher incomes are more likely owners of energy-efficient buildings and would not be as much affected as households with lower incomes.³⁰

The design of tax incentives for energy-efficient investments is critical for their effectiveness, as otherwise they may unfairly benefit high-income earners. While cost is often the primary barrier to renovation, evidence on the impact of income tax incentives for clean energy investments is not clear. As households may use tax incentives to finance energy-efficiency investments while simultaneously increasing their energy consumption, energy consumption taxes may be necessary as an additional measure.

Furthermore, the question of which types of renovation should be supported is significant, as minor renovations may create lock-in effects and delay highly effective major renovations.³¹ There may be a trade-off between increased energy efficiency and redistributive objectives, as tax reductions related to energy efficiency have been shown to primarily benefit higher-income households due to factors such

²⁹ Leodolter A, Princen S and Rutkowski A; "Immovable Property Taxation for Sustainable & Inclusive Growth", European Economy Discussion Paper 156 (2022)

³⁰ Davis P., M. McCord, W.J. McCluskey, E. Montgomery, M. Haran and J. McCord; "Is Energy Performance too taxing: A CAMA approach to modelling residential energy in housing in Northern Ireland", *Journal of European Real Estate Research* 10/2: 142-148 (2017)

³¹ Dubois Maarten and Karen Allacker; "Energy Savings from Housing: Ineffective Renovation Subsidies vs Efficient Demolition and Reconstruction Incentives", *Resources and Energy* 10(3): 191-212 (2015).

as their exclusive availability to homeowners, the non-refundable nature of tax credits, and limited access to credits for lower-income households.³²

Potential for a property taxation in Estonia that creates positive incentives for energy efficiency

Property taxation is found in all EU member states and the level of taxation varies. However, many Member States have relatively low levels of recurrent taxation on immovable property, where Estonia currently has the lowest revenues from property taxation (as percent of GDP in the EU, Sources: EU Commission 2019, OECD 2021). This implies that creating positive incentives within the current levels of taxation will be difficult. The Estonian context with regards to the overall tax system plays an important role here. Taxation on property has always been very low in Estonia, where focus so far has been on consumption and income taxes. Furthermore, while the property tax is formally a national tax, 100% of the revenue is redistributed to the local authorities. They can also, within certain limits, decide the level of property tax in their own municipality.

Property taxation with an “energy component” risks to be a regressive taxation and especially so for the about one third of Estonian population currently living in or close to poverty. There are also large regional socioeconomic disparities in the country. Furthermore, there is an exception in Estonian property tax legislation for homes where a person lives permanently are exempt from property tax. In this context, the current construction of a property tax for apartments and private homes cannot provide positive incentives for energy efficiency measures.

One area where property taxation could provide stimuli for energy efficiency measures is commercial property. It is more difficult to manipulate and avoid taxation for business property and the incentives to make energy efficiency measures could be connected to the tax level. However, also in this case the regional disparities need to be accounted for when designing such a tax.

Conclusion

With the design of the tax system in Estonia and its current tax mix, it is very difficult to introduce a property tax related to energy efficiency of buildings. Furthermore, the risk of increased burden on the lower income households, as outlined above, cannot be ignored. While from many aspects it would make sense to introduce an energy efficiency component in the property tax it would need an overhaul of the entire taxation system (especially the tax mix) to be politically feasible.

Timing is another issue that plays role here. Introducing new taxes in the current political debate in Estonia seems very difficult, if not impossible. The introduction of a property tax in Estonia that takes into account the energy efficiency of a building could be a valid measure in the future and then after reengineering the entire tax system towards higher taxation on property and wealth.

5.2.3 Impact on the achievement of the EED targets

Disclaimer: *the Estonian contribution to the EU energy efficiency target (art 4(1) EED(2023/1791)) with regard to final energy consumption (EU should be limited to 763Mtoe) is based on Estonia’s draft NECP of June 2023, and amounted to 2.59 Mtoe for Estonia. A more (January 2024) recent figure was communicated and amount to 33.1 TWh, which is closer to the previous target (EED(2018) amounted to 33.3 TWh).*

³² Borenstein, Severin and Lucas W. Davis; “The Distributional Effects of US Clean Energy Tax Credits”, “Tax Policy and the Economy, Volume 30”, University of Chicago Press (2015).

With regard to primary energy consumption (EU should be limited to 992.5 Mtoe), the Estonian contribution was communicated to be 5.13 Mtoe.

This study is based on these figures.

If, in application of Article 4(5) of EED(2023/ 1791), Estonia is asked to have a more ambitious contribution for final energy consumption, efforts will need to be increased.

These changes have an impact on the achievements of the various EED targets, especially the cumulative savings decrease significantly. The following table illustrates the impact of these changes, under the CEER2 bis column (to be compared to the CEER2 results coming from D3).

Table 5-2 - Achievement of the EED targets with the revised version

	Year	Unit	EED target	NECP 2030	CEER2 bis	CEER2
Final energy consumption	2030	TWh	30,0	33,3	29,3	28,7
Cumulative energy savings	2021-2030	TWh	21,3	/	18	20,7
Final energy savings rate	2030	%	1,90%	1,90%	1,96%	1,96%
Final energy savings rate, average	2024-2030	%	1,50%	1,50%	1,6%	1,86%
Primary energy consumption	2030	TWh	45,7	63,9	46,2	45,1
Final energy savings of public sector/buildings	2021-2030	%	1,9%		1,0%	1,6%
Renovation rate of public owned buildings	2021-2030	%	3,0%		3,8%	6,4%
Total renovated area of central government buildings	2021-2030	mln. m2		0,30	0,54	0,92
Industry annual energy savings	2030	GWh		232	836	836
Transport fuel consumption	2030	TWh		8,3	8,6	8,6

5.3 Overall Action Plan on 2030 / 2035 horizon

To implement the 10 action plans and their related actions, we should take the following elements into account:

- There is need to properly plan and synchronise actions and balance efforts between short, medium and long-term implementation,
- There is need to properly consider the need to streamline support, normative, measures and enabling/assistance measures;
- For most areas, there is a need to hire new staff that would be in charge to implement the actions;

5.3.1 Buildings

Table 5-3 - Compilation of buildings action plan

Action - residential buildings	Timeline	Responsible	Other parties	EE Investment Cost	Source of public money
Set up MEPS (single family and non-residential)	Adapt EPC & design MEPS - short term (2025-2027) Implement - medium term (from 2027)	Ministry of climate (building department)	Architects, construction, building owners and operators, local authorities	177 Meur in 2026 to 211 Meur in 2035 tot. Inv. (100% private)	/
Continue renovation grants (for residential)	Design grant - short term (2025-2027) Implement - medium term (from 2027)	Ministry of climate (building department)	KredEx, architects, construction, building owners and operators	522 Meur in 2026 to 636 Meur in 2035 tot. Inv. (~30% from public)	ETS revenues; ETS2 revenues
Continue renovation grants for central & local gov buildings	Adapt grant - short term (2025-2026) Implement - medium term (from 2027)	Ministry of climate (building department) and finance	Application unit, architects, construction, local authorities	81 Meur in 2026 to 99 Meur in 2035 tot. Inv. (100% public)	Budget & ETS revenue; ETS1 & ETS2 revenues
Implement tax deduction (single family)	Design tax scheme - short term (2025-2027) Implement - medium term (from 2027)	Ministry of Finance	Ministry of climate, KredEx, architects, construction, building owners and operators	30 Meur in 2026 to 37 Meur in 2035 tot. Inv. (100% private)	/
Implement property tax (all buildings)	Design tax scheme - medium term (2029-2030) Implement - medium/long term (from 2031)	Ministry of Finance	Ministry of climate, architects, construction, building owners and operators	366 Meur in 2030 to 404 Meur in 2035 tot. Inv. (average ~30% public, with a share depending on the design,	ETS revenues; ETS2 revenues

				e.g. bonus, malus, neutral)	
Implement CO₂ tax (all buildings)	Preparation (incl. awareness) - short term (2025-2027) Implement ETS2 - medium term (from 2027)	Ministry of Finance	Ministry of climate, architects, construction, building owners and operators	345 Meur in 2027 to 404 Meur in 2035 tot. Inv.	/

Table 5-4 - Compilation of buildings action plan investment cost (private and public)

RESIDENTIAL BUILDINGS		2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Measures in single family houses													
MEPS targeting rented/selling dwellings	Tot INV [Meur/y]	-	149	152	155	158	161	164	167	171	174	178	
	Public support [Meur/y]	-	-	-	-	-	-	-	-	-	-	-	-
Renovation grants for single family houses (20-30% support)	Tot INV [Meur/y]	33	34	35	35	36	37	38	38	39	40	41	
	Public support [Meur/y]	10	10	10	10	10	11	11	11	11	11	12	
Tax deduction for renovation works by private persons (=parallel track for single family)	Tot INV [Meur/y]	30	31	31	32	32	33	34	34	35	36	37	
	Public support [Meur/y]	-	-	-	-	-	-	-	-	-	-	-	-
Property tax (according to EPC levels)	Tot INV [Meur/y]	-	-	-	-	-	79	81	83	84	86	88	
	Public support [Meur/y]	-	-	-	-	-	24	24	25	25	26	26	
CO2 tax for end energy use of residential buildings	Tot INV [Meur/y]	-	-	75	76	78	79	81	83	84	86	88	
	Public support [Meur/y]	-	-	22	23	23	24	24	25	25	26	26	
Measures in multifamily buildings / housing associations													
Renovation grants for multifamily buildings/housing associations (30% support average)	Tot INV [Meur/y]	489	498	508	519	529	540	550	561	573	584	596	
	Public support [Meur/y]	139	142	145	148	151	154	157	160	163	167	170	
Property tax (according to EPC levels)	Tot INV [Meur/y]	-	-	-	-	-	102	104	106	108	111	113	
	Public support [Meur/y]	-	-	-	-	-	31	31	32	33	33	34	
CO2 tax for end energy use of residential buildings	Tot INV [Meur/y]	-	-	96	98	100	102	104	106	108	111	113	
	Public support [Meur/y]	-	-	29	29	30	31	31	32	33	33	34	
NON-RESIDENTIAL BUILDINGS													
Measures in public buildings (central government & municipalities)													
Obligation scheme for service sector	Tot INV [Meur/y]	-	-	-	-	-	24	24	25	25	26	26	
	Public investment [Meur/y]	-	-	-	-	-	-	-	-	-	-	-	-
Central government buildings renovation support (100% support)	Tot INV [Meur/y]	15	15	16	16	16	17	17	17	18	18	18	
	Public investment [Meur/y]	15	15	16	16	16	17	17	17	18	18	18	
Public and municipality buildings renovation support (60% support in)	Tot INV [Meur/y]	66	67	69	70	71	73	74	76	77	79	80	
	Public investment [Meur/y]	66	67	69	70	71	73	74	76	77	79	80	
Property tax (according to EPC levels)	Tot INV [Meur/y]	-	-	-	-	-	52	53	54	55	56	57	
	Public investment [Meur/y]	-	-	-	-	-	16	16	16	17	17	17	
CO2 tax for end energy use of residential buildings	Tot INV [Meur/y]	-	-	49	50	51	52	53	54	55	56	57	
	Public investment [Meur/y]	-	-	15	15	15	16	16	16	17	17	17	
Minimum energy performance standards for non-residential buildings (regulatory requirements for EPC class E and F)	Tot INV [Meur/y]	14	14	14	15	15	15	16	16	16	17	17	
	Public support [Meur/y]	-	-	-	-	-	-	-	-	-	-	-	-
Measures in commercial building stock													
Obligation scheme for service sector	Tot INV [Meur/y]	-	-	-	-	-	60	62	63	64	65	67	
	Public investment [Meur/y]	-	-	-	-	-	-	-	-	-	-	-	-
Property tax (according to EPC levels)	Tot INV [Meur/y]	-	-	-	-	-	132	135	137	140	143	146	
	Public investment [Meur/y]	-	-	-	-	-	40	40	41	42	43	44	
CO2 tax for end energy use of residential buildings	Tot INV [Meur/y]	-	-	124	127	129	132	135	137	140	143	146	
	Public investment [Meur/y]	-	-	37	38	39	40	40	41	42	43	44	
Minimum energy performance standards for non-residential buildings (regulatory requirements for EPC class E and F)	Tot INV [Meur/y]	14	14	14	15	15	15	16	16	16	17	17	
	Public support [Meur/y]	-	-	-	-	-	-	-	-	-	-	-	-

Source: Excel sheet "D4 Modelling v8", tab "AP Buildings (2)"

5.3.2 Industry

Table 5-5 - Compilation of industry action plan

Action - industry	Timeline	Responsible	Other parties	EE investment cost	Source of public money
Set up a Voluntary Agreement scheme with top 30 companies	Design & develop VA - short term (2024-2025) Implement - short/medium term (from 2025) First investments (from 2025, first savings 2026)	Ministry of Economic Affairs (dpt industry)	Ministry of climate, companies; representatives of auditors	3 Meur in 2026 to 33 Meur in 2035 tot. Inv. (100% private, but there is financial compensation from public)	ETS revenues; Exemption of fees to support RES electricity
Set up a Voluntary Agreement scheme for sectors	Design & develop VA - medium term (2026-2027) Implement - medium term (from 2028) First investments (from 2029)				
Promotion of resource-efficient green tech of ind. (all sizes)	Implementation - short term (ongoing - until 2026) Revision and extension (from 2027)	Ministry of Economic Affairs (dpt industry)	Ministry of climate, companies; representatives of auditors	16.5 Meur in 2025 and 7.1 Meur in 2026 tot. Inv. (~30% public)	ETS revenues
Supporting EE investments in energy-intensive companies	Implementation - long term (ongoing - until 2035) Revision in the frame of VA (from 2025)	Ministry of Economic Affairs (dpt industry)	Ministry of climate, companies; representatives of auditors	0.3 Meur in 2025 and 0.3 Meur in 2035 tot. Inv. (~30% public)	Budget
Investment support food ensuring SoS (all sizes)	Implementation - long term (ongoing - until 2024) Revision and extension (from 2025)	Ministry of Economic Affairs (dpt industry)	Ministry of climate, companies; representatives of auditors	23.3 Meur in 2024 tot. Inv. (~30% public)	ETS revenues
Supporting energy efficiency investments in companies (all sizes)	Implementation - long term (ongoing - until 2035) Revision in the frame of VA (from 2025)	Ministry of Economic Affairs (dpt industry)	Ministry of climate, companies; representatives of auditors	5.8 Meur in 2025 and 5.8 Meur in 2035 tot. Inv. (~30% public)	ETS revenues
Energy efficiency measures in the fisheries sector	Revision and design - medium term (2026) Implementation (from 2027)	Ministry of Regional and Rural Affairs	Ministry of climate, industry associations, KredEx	1.6 Meur in 2027 and 1.6 Meur in 2030 tot. Inv. (~30% public)	ETS revenues

Table 5-6 - Compilation of industry action plan investment cost (private and public)

Industry - large		2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Industry (agro-forestry) - large plants/factories													
Voluntary scheme for the industry, with binding targets based on incentives	Tot INV [Meur/y]	-	3	6	11	17	21	21	21	22	22	22	22
	Public support [Meur/y]	-	-	-	-	-	-	-	-	-	-	-	-
Promotion of resource-efficient green technologies of industrial enterprises (RRP)	Tot INV [Meur/y]	6,9	2,9	-	-	-	-	-	-	-	-	-	-
	Public support [Meur/y]	6,9	2,9	-	-	-	-	-	-	-	-	-	-
Supporting energy efficiency investments in energy-intensive companies	Tot INV [Meur/y]	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3
	Public support [Meur/y]	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1
Investment support for the food industry to ensure security of energy supply	Tot INV [Meur/y]	9,7	-	-	-	-	-	-	-	-	-	-	-
	Public support [Meur/y]	2,9	-	-	-	-	-	-	-	-	-	-	-
Supporting energy efficiency investments in companies	Tot INV [Meur/y]	2,4	2,4	2,4	2,4	2,4	2,4	2,4	2,4	2,4	2,4	2,4	2,4
	Public support [Meur/y]	1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0
Industry - small													
Industry (agro-forestry) - SMEs and small-scale plants													
Promotion of resource-efficient green technologies of industrial enterprises (RRP)	Tot INV [Meur/y]	9,7	4,2	-	-	-	-	-	-	-	-	-	-
	Public support [Meur/y]	9,7	4,2	-	-	-	-	-	-	-	-	-	-
Investment support for the food industry to ensure security of energy supply	Tot INV [Meur/y]	14	-	-	-	-	-	-	-	-	-	-	-
	Public support [Meur/y]	4,1	-	-	-	-	-	-	-	-	-	-	-
Supporting energy efficiency investments in companies	Tot INV [Meur/y]	3,4	3,4	3,4	3,4	3,4	3,4	3,4	3,4	3,4	3,4	3,4	3,4
	Public support [Meur/y]	1,3	1,3	1,3	1,3	1,3	1,3	1,3	1,3	1,3	1,3	1,3	1,3
Energy consulting and networking events for small and medium enterprises (SMEs) <i>{details under enabling measures below}</i>	Tot INV [Meur/y]	2,3	2,3	2,3	2,3	2,3	2,3	2,3	2,3	2,3	2,3	2,3	2,3
	Public support [Meur/y]	2,3	2,3	2,3	2,3	2,3	2,3	2,3	2,3	2,3	2,3	2,3	2,3
Audits in large agricultural holdings <i>{details under enabling measures below}</i>	Tot INV [Meur/y]	-	-	-	-	-	-	-	-	-	-	-	-
	Public support [Meur/y]	-	-	-	-	-	-	-	-	-	-	-	-
Energy efficiency measures in the fisheries sector	Tot INV [Meur/y]	-	-	1,6	1,6	1,6	1,6	-	-	-	-	-	-
	Public support [Meur/y]	-	-	0,6	0,6	0,6	0,6	-	-	-	-	-	-

Source: Excel sheet "D4 Modelling v8", tab "AP Industry (2)"

5.3.3 Transport

Table 5-7 - Compilation of transport action plan

Action - transport	Timeline	Responsible	Other parties	Investment cost	Source of public money
Energy efficient vehicles in public procurement	Preparatory phase - short term (2024)	Ministry of Climate (department mobility), Estonian Transport Administration	Ministry of finance; local authorities; system operators and NRA; Local residents, businesses, communities, landowners, energy companies	88 Meur in 2025 and 107 Meur in 2035 tot. Inv. (100% public in new fleet)	Gov. budget
	Design phase - short term (2025-2026)				
	Agreement & implementation - medium term (2026-2029)				
Deploy EV charging infrastructure	Preparatory - short term (2024)	Ministry of Climate (department mobility), Estonian Transport Administration	Ministry of finance; local authorities; system operators and NRA; Local residents, businesses, communities, landowners, energy companies	7.7 Meur in 2025 and 7 Meur in 2035 tot. Inv. (50% public in charging infrastructure)	ETS revenues
	Development and implementation (2025-2029)				

Set up a vehicle tax registration scheme	Preparatory - short term (2024) Proposal & negotiation - short term (2025) Implementation - medium term (from 2025)	Ministry of Climate (department mobility), Estonian Transport Administration	Ministry of finance; local authorities; system operators and NRA; Local residents, businesses, communities, landowners, energy companies	Purchase of more efficient vehicles	
Set up a annual vehicle tax scheme	Preparatory - short term (2024) Proposal & negotiation - short term (2025) Implementation - medium term (from 2025)	Ministry of Climate (department mobility), Estonian Transport Administration	Ministry of finance; local authorities; system operators and NRA; Local residents, businesses, communities, landowners, energy companies	Purchase of more efficient vehicles	
All Tallinn and Tartu taxis run on electricity	Consult taxi companies - short term (2024) Implementation - medium term (2025-2028)	Ministry of Climate (department mobility), Estonian Transport Administration	Ministry of finance; local authorities; system operators and NRA; Local residents, businesses, communities, landowners, energy companies	0.2 Meur in 2025 and 0.2 Meur in 2035 tot. Inv. (100% private)	ETS revenues
Subsidy for public transport use instead of personal vehicle	Preparatory phase - short term (2024) Implementation phase - short term (2024-2025) Monitoring & adaptation phase - medium term (from 2025)	Ministry of Climate (department mobility), Estonian Transport Administration	Ministry of finance; local authorities; system operators and NRA; Local residents, businesses, communities, landowners, bus operators	0.8 Meur subsidies between 2025 and 2035 (for households, enterprises, public institutions)	ETS revenues; ETS2 revenues
Develop convenient and modern public transport	Comprehensive assessment - short term (2024-2025) Update Transport & Mobility Plan and consult - short/medium term (2025-2026) Prioritisation and implementation - medium term (2026-2028) Monitoring (from 2026)	Ministry of Climate (department mobility), Estonian Transport Administration	Ministry of finance; local authorities; system operators and NRA; Local residents, businesses, communities, landowners, bus operators	6.6 Meur in 2025 and 23 Meur in 2030 tot. Inv. (100% public)	ETS revenues; ETS2 revenues
Develop the railroad infrastructure (includes the	Comprehensive assessment - short term (2024-2025) Update Transport & Mobility Plan and consult -	Ministry of Climate (department mobility),	Ministry of finance; local authorities; system operators and NRA; Local residents,	420 Meur in 2025 and 167 Meur in 2026	ETS revenues; ETS2 revenues

building of Rail Baltic)	short/medium term (2025-2026) Prioritisation and implementation - medium term (2026-2028) Monitoring (from 2026)	Estonian Transport Administration	businesses, communities, landowners, energy companies	tot. Inv. (100% public)	
Proceed with the electrification of the railroad	Comprehensive assessment - short term (2024-2025) Update Transport & Mobility Plan and consult - short/medium term (2025-2026) Prioritisation and implementation - medium term (2026-2028) Monitoring (from 2026)	Ministry of Climate (department mobility), Estonian Transport Administration	Ministry of finance; local authorities; system operators and NRA; Local residents, businesses, communities, landowners, energy companies	5 Meur in 2024, 37 in 2025 and 9 Meur in 2026 tot. Inv. (100% public)	ETS revenues; ETS2 revenues
Acquire additional passenger trains	Comprehensive assessment - short term (2024-2025) Update Transport & Mobility Plan and consult - short/medium term (2025-2026) Prioritisation and implementation - medium term (2026-2028) Monitoring (from 2026)	Ministry of Climate (department mobility), Estonian Transport Administration	Ministry of finance; local authorities; system operators and NRA; Local residents, businesses, communities, landowners, energy companies	/	ETS revenues; ETS2 revenues
Develop new tram lines in Tallinn	Comprehensive assessment - short term (2024-2025) Update Transport & Mobility Plan and consult - short/medium term (2025-2026) Prioritisation and implementation - medium term (2026-2028) Monitoring (from 2026)	Ministry of Climate (department mobility), Estonian Transport Administration	Ministry of finance; local authorities; system operators and NRA; Local residents, businesses, communities, landowners, energy companies	55 Meur in 2025 tot. Inv. (100% public)	ETS revenues; ETS2 revenues
Develop priority lanes for micro/active-mobility	Comprehensive assessment - short term (2024-2025) Update Transport & Mobility Plan and consult - short/medium term (2025-2026) Prioritisation and implementation - medium term (2026-2028) Monitoring (from 2026)	Ministry of Climate (department mobility), Estonian Transport Administration	Ministry of finance; local authorities; system operators and NRA; Local residents, businesses, communities, landowners, bus operators	20 Meur in 2025 and 20 Meur in 2035 tot. Inv. (80% public)	ETS revenues; ETS2 revenues

<p>Provide subsidy for micro/active mobility usage instead of personal vehicle</p>	<p>Preparatory phase - short term (2024) Implementation phase - short term (2024-2025) Monitoring & adaptation phase - medium term (from 2025)</p>	<p>Ministry of Climate (department mobility), Estonian Transport Administration</p>	<p>Ministry of finance; local authorities; system operators and NRA; Local residents, businesses, communities, landowners, bus operators</p>	<p>0.4 Meur subsidies between 2025 and 2035 (for households, enterprises, public institutions)</p>	<p>ETS revenues; ETS2 revenues</p>
<p>Set up a congestion charge in Tallinn and Tartu</p>	<p>Assess the opportunity for a charge - short term (2024) Consult and design the charge - short/medium term (2025-2026) Implement - medium term (from 2026)</p>	<p>Ministry of Climate (department mobility), Estonian Transport Administration</p>	<p>Ministry of finance; local authorities; system operators and NRA; Local residents, businesses, communities, landowners, bus operators</p>	<p>0.8 Meur subsidies between 2025 and 2035</p>	<p>ETS revenues</p>

Table 5-8 - Compilation of transport action plan investment cost (private and public)

Transport - car efficiency		2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Measures for car efficiency													
Promotion of clean and energy efficient road transport vehicles in public procurement	Tot INV [Meur/y]	88	89	91	93	95	97	99	101	103	105	107	
	Public support [Meur/y]	88	89	91	93	95	97	99	101	103	105	107	
Electric charging infrastructure for existing inhabitation areas	Tot INV [Meur/y]	6,7	7	7	7	7	7	7	7	7	7	7	
	Public support [Meur/y]	3,4	3	3	3	3	3	3	3	3	3	3	
Vehicle tax for registration	Tot INV [Meur/y]	0	-	-	-	-	-	-	-	-	-	-	
	Public support [Meur/y]	0	-	-	-	-	-	-	-	-	-	-	
Annual vehicle tax	Tot INV [Meur/y]	0	-	-	-	-	-	-	-	-	-	-	
	Public support [Meur/y]	0	-	-	-	-	-	-	-	-	-	-	
All Tallinn and Tartu taxis run on electricity	Tot INV [Meur/y]	0	0	0	0	0	0	0	0	0	0	0	
	Public support [Meur/y]	-	-	-	-	-	-	-	-	-	-	-	
Transport - public													
Measures for public transport													
Subsidy for public transport usage instead of personal vehicle	Tot INV [Meur/y]	-	1	1	1	1	1	1	1	1	1	1	1
	Public support [Meur/y]	1	1	1	1	1	1	1	1	1	1	1	1
Development of convenient and modern public transport	Tot INV [Meur/y]	-	7	10	13	16	20	23	-	-	-	-	-
	Public support [Meur/y]	7	10	13	16	20	23	-	-	-	-	-	-
Developing the railroad infrastructure (includes the building of Rail Baltic)	Tot INV [Meur/y]	420	420	187	-	-	-	-	-	-	-	-	-
	Public support [Meur/y]	420	187	-	-	-	-	-	-	-	-	-	-
The railroad electrification	Tot INV [Meur/y]	5	37	26	46	16	18	9	-	-	-	-	-
	Public support [Meur/y]	37	26	46	16	18	9	-	-	-	-	-	-
Acquisition of additional passenger trains	Tot INV [Meur/y]	-	-	-	-	-	-	-	-	-	-	-	-
	Public support [Meur/y]	-	-	-	-	-	-	-	-	-	-	-	-
New tram lines in Tallinn	Tot INV [Meur/y]	-	55	-	-	-	-	-	-	-	-	-	-
	Public support [Meur/y]	55	-	-	-	-	-	-	-	-	-	-	-
Tallinn and Tartu congestion charge	Tot INV [Meur/y]	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1
	Public support [Meur/y]	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1
Transport - active mobility													
Measures for micro/active mobility													
Priority lanes for micro/active mobility	Tot INV [Meur/y]	20	20	20	20	20	20	20	20	20	20	20	20
	Public support [Meur/y]	16	16	16	16	16	16	16	16	16	16	16	16
Subsidy for micromobility usage instead of personal vehicle	Tot INV [Meur/y]	0,4	0,4	0,4	0,4	0,4	0,4	0,4	0,4	0,4	0,4	0,4	0,4
	Public support [Meur/y]	0,4	0,4	0,4	0,4	0,4	0,4	0,4	0,4	0,4	0,4	0,4	0,4
Tallinn and Tartu congestion charge	Tot INV [Meur/y]	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1
	Public support [Meur/y]	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1

Source: Excel sheet "D4 Modelling v8", tab "AP Transport (2)"

5.3.4 Cross-cutting fiscal measures

Table 5-9 - Compilation of fiscal action plan

Action - fiscality	Timeline	Responsible	Other parties	Investment cost	Source of public money
Adapt excise and value added tax of all fuels (*)	Establish tax rates - short term (2024) Adjust existing legislation - short/medium term (2024-2025) Implement - medium term (from 2026)	Ministry of Climate (department mobility), Estonian Transport Administration	Ministry of finance; local authorities; system operators and NRA; Local residents, businesses, communities, landowners, bus operators	4.1 Meur in 2025 and 4.1 Meur in 2030 tot. Inv. In all types of energy efficiency (100% private)	/

5.4 Overarching action plan

The following table groups the policy measures by similar types, and sum up the actions to be taken at sector and measure (set of measures) level.

Table 5-10 - action plan per set of measures

Set of measures	Timeline for action	Responsible	Other parties	Source of public money
BUILDINGS				
Set up MEPS (single family and non-residential)	Adapt EPC & design MEPS - short term (2025-2027) Implement - medium term (from 2027)	Ministry of climate (building department)	Architects, construction, building owners and operators, local authorities	/
Continue renovation grants for all buildings	Design or design grant - short term (2025-2027) Implement - medium term (from 2027)	Ministry of climate (building department)	KredEx, architects, construction, building owners and operators	ETS revenues; ETS2 revenues
Implement tax deduction (single family)	Design tax scheme - short term (2025-2027) Implement - medium term (from 2027)	Ministry of Finance	Ministry of climate, KredEx, architects, construction, building owners and operators	/
Implement property tax (all buildings)	Design tax scheme - medium term (2029-2030) Implement - medium/long term (from 2031)	Ministry of Finance	Ministry of climate, architects, construction, building owners and operators	ETS revenues; ETS2 revenues
Implement CO₂ tax (all buildings)	Preparation (incl. awareness) - short term (2025-2027) Implement ETS2 - medium term (from 2027)	Ministry of Finance	Ministry of climate, architects, construction, building owners and operators	/
INDUSTRY & AGRICULTURE				
Voluntary Agreement scheme with top 30 companies	Design & develop VA - short term (2024-2025) Implement - short/medium term (from 2025) First investments (from 2025, first savings 2026)	Ministry of Economic Affairs (dpt industry)	Ministry of climate, companies; representatives of auditors	ETS revenues or Exemption of fees to support RES electricity
Voluntary Agreement scheme for all sectors	Design & develop VA - medium term (2026-2027) Implement - medium term (from 2028) First investments (from 2029)			

Continue grants for industry	Implementation - short to long term (ongoing - until 2026 or 2035) Revision in the frame of VA (from 2025)	Ministry of Economic Affairs (dpt industry)	Ministry of climate, companies; representatives of auditors	ETS revenues
TRANSPORT				
Energy efficient vehicles in public procurement	Preparatory phase - short term (2024) Design phase - short term (2025-2026) Agreement & implementation - medium term (2026-2029)	Ministry of Climate (department mobility), Estonian Transport Administration	Ministry of finance; local authorities; system operators and NRA; Local residents, businesses, communities, landowners, energy companies	Gov. budget
Deploy EV charging infrastructure	Preparatory - short term (2024) Development and implementation (2025-2029)	Ministry of Climate (department mobility), Estonian Transport Administration	Ministry of finance; local authorities; system operators and NRA; Local residents, businesses, communities, landowners, energy companies	ETS revenues
Set up a vehicle tax (registration & annual) scheme	Preparatory - short term (2024) Proposal & negotiation - short term (2025) Implementation - medium term (from 2025)	Ministry of Climate (department mobility), Estonian Transport Administration	Ministry of finance; local authorities; system operators and NRA; Local residents, businesses, communities, landowners, energy companies	
Subsidy for public transport & active mobility instead of personal vehicle	Preparatory phase - short term (2024) Implementation phase - short term (2024-2025) Monitoring & adaptation phase - medium term (from 2025)	Ministry of Climate (department mobility), Estonian Transport Administration	Ministry of finance; local authorities; system operators and NRA; Local residents, businesses, communities, landowners, bus operators	ETS revenues; ETS2 revenues
Develop public transport (rail, bus, tram)	Comprehensive assessment - short term (2024-2025) Update Transport & Mobility Plan and consult - short/medium term (2025-2026) Prioritisation and implementation - medium term (2026-2028) Monitoring (from 2026)	Ministry of Climate (department mobility), Estonian Transport Administration	Ministry of finance; local authorities; system operators and NRA; Local residents, businesses, communities, landowners, bus operators	ETS revenues; ETS2 revenues

<p>Develop priority lanes for micro/active-mobility</p>	<p>Comprehensive assessment - short term (2024-2025) Update Transport & Mobility Plan and consult - short/medium term (2025-2026) Prioritisation and implementation - medium term (2026-2028) Monitoring (from 2026)</p>	<p>Ministry of Climate (department mobility), Estonian Transport Administration</p>	<p>Ministry of finance; local authorities; system operators and NRA; Local residents, businesses, communities, landowners, bus operators</p>	<p>ETS revenues; ETS2 revenues</p>
<p>Set up a congestion charge in Tallinn and Tartu</p>	<p>Assess the opportunity for a charge - short term (2024) Consult and design the charge - short/medium term (2025-2026) Implement - medium term (from 2026)</p>	<p>Ministry of Climate (department mobility), Estonian Transport Administration</p>	<p>Ministry of finance; local authorities; system operators and NRA; Local residents, businesses, communities, landowners, bus operators</p>	<p>ETS revenues</p>
<p>Adapt excise and value added tax of all fuels (*)</p>	<p>Establish tax rates - short term (2024) Adjust existing legislation - short/medium term (2024-2025) Implement - medium term (from 2026)</p>	<p>Ministry of Climate (department mobility), Estonian Transport Administration</p>	<p>Ministry of finance; local authorities; system operators and NRA; Local residents, businesses, communities, landowners, bus operators</p>	<p>/</p>

The following table summarises the time horizon of each policy measure, providing the total investments need at 2030 (to reach the new EED targets).

Table 5-11 - Action plan per sector

Set of measures	Timeline	Responsibility	EE total investment 2024-2030 needed to fill 2030 targets	
BUILDINGS			9 747 Meur	
Existing measures	2021 - 2024	RAM	346 Meur (~30% public)	RRP
Property taxation	2030 ->	RAM	1 003 Meur (100% private)	
Other taxes (deduction, CO ₂)	2027 ->	RAM	2 338 Meur (100% private)	
Continue renovation grants for all buildings	2027 - 2035	KLIM	3 875 Meur (~30% public)	ETS & ETS2 revenues
Minimum Energy Performance Standards	2027 ->	KLIM	2 100 Meur (100% private)	
Obligation scheme for non residential	2030 ->	KLIM	84 Meur (100% private)	
INDUSTRY & AGRICULTURE			430 Meur	
Existing measures	2021 - 2024	MKM	170 Meur (~30% public)	RRP
Continue renovation grants for all buildings	2024 ->	MKM	122 Meur (~30% public)	ETS revenues
Minimum Energy Performance Standards	2024 - 2035	MKM	139 Meur (100% private)	ETS revenues or Exemption of fees to support RES electricity
TRANSPORT			2 667 Meur	
Existing measures	2021 - 2027	KLIM, TRAM	10 Meur (100% private)	
Fiscal measures (vehicle tax, congestion charge)	2025 ->	KLIM, TRAM	1 Meur (100% private)	
Deploy EV charging infrastructure	2025 - 2035	KLIM, TRAM	40 Meur (50% private)	ETS revenues
Energy efficient vehicles in public procurement	2025 - 2035	KLIM, TRAM	552 Meur (100% public)	Gov budget
Subsidise public transport use & active mobility	2025 - 2035	KLIM, TRAM	8 Meur (100% public)	ETS & ETS2 revenues
Develop public transport & priority lanes for active mobility	2025 ->	KLIM, TRAM	2 056 Meur (100% public)	ETS & ETS2 revenues
Excises & Fuel VAT (existing)			1 062 Meur	
Cross cutting	2021 ->	RAM	1 062 Meur (100% private)	
TOTAL			13 906 Meur	
		KLIM	13 906 Meur	

Source of data: "D4 Modelling v8.2.xlsx", tab "AP Building" cells B139-O145 for building figures; tab "AP Industry" cells B114-O117; "AP Transport" cells B127-O133; "AP Fiscalty" cells B118-O119.

In the **building sector**, grants remain the main driver of renovation and performance up to 2030 (assuming those will continue after the 2027 end of RRF). From 2030, more normative measures like MEPS and fiscal measures like property and carbon taxation should take over and become the main drivers of continuous renovation.

In the **industry sector**, grants will continue to accompany the transformation, while Voluntary Agreement will only start progressively during the second half of the decade, while it will become the main driver and will provide significant results only after 2030.

In the **transport sector**, the first period will require important investments in infrastructure (public transport and active mobility), with some additional subsidise to incite the use of alternative to individual cars. At the end of the period, fiscal measures like vehicle and fuel taxation will progressively ramp up and become slowly more prominent. Public procurement has also an important role to play and will drive substantive investments, that will support structuring the market.

The last Table 5-12 summarises a few indicators for the same set of measures within each sector.

Table 5-12 - Summary indicators complementing the Action plan per sector

Main measures to fill EED targets for 2030	Average yearly energy saving 2021-2030 [%]	GHG reduction 2021-2030 [MCO2t]	GHG reduction 2021-2030 [MCO2t] in addition to scenario w/o measures	Total investment costs 2021-2030 [MEUR]	Total public costs 2021-2030 [MEUR]	Responsible bodies
Buildings existing measures	0,00%	-0,71	0,08	346,39	225,48	Ministry of climate (building department)
Property taxation	0,02%	-0,78	0,01	1.003,36	110,41	Ministry of finance
Other building tax (deduction, CO2)	0,12%	-0,61	0,17	2.337,84	428,81	Ministry of climate (building department)
Grants	0,34%	-0,22	0,57	3.875,29	1.470,96	Ministry of climate (building department)
MEPS	0,17%	-0,46	0,33	2.100,18	-	Ministry of climate (building department)
Obligation scheme	0,01%	-0,78	0,01	84,26	-	Ministry of climate (building department)
Buildings total	0,66%	0,39	1,18	9.747,31	2.235,66	
Industry existing measures	0,06%	-0,14	0,65	169,62	81,30	Ministry of Economic Affairs (dpt industry)
Industry new measures (grants)	0,08%	-0,42	0,37	121,53	73,86	Ministry of Economic Affairs (dpt industry)
Including Voluntary Agreements	0,15%	-0,48	0,30	138,79	-	Ministry of Economic Affairs (dpt industry)
Industry total	0,29%	0,54	1,32	429,95	155,16	
Transportation existing measures	0,00%	-0,73	0,06	10,29	10,29	Ministry of Climate (department mobility), Estonian Transport Administration
Fiscal measures (vehicle tax, congestion charge)	0,00%	-0,79	0,00	0,90	0,90	Ministry of finance
Deploy EV charging infrastructure	0,00%	-0,78	0,01	40,32	20,16	Ministry of Climate (department mobility), Estonian Transport Administration
Energy efficient vehicles in public procurement	0,04%	-0,71	0,08	551,98	551,98	Ministry of Climate (department mobility), Estonian Transport Administration
Subsidise public transport use & active mobility	0,07%	-0,60	0,19	8,38	6,95	Ministry of Climate (department mobility), Estonian Transport Administration
Develop public transport & priority lanes for act	0,47%	0,59	1,38	2.055,60	2.031,60	Ministry of Climate (department mobility), Estonian Transport Administration
Transportation total	0,57%	0,93	1,72	2.667,47	2.621,87	
Existing excises and fuel VAT	0,08%	0,41	1,20	1.061,62	13,72	Ministry of Finance
Fiscal total	0,08%	0,41	1,20	1.061,62	13,72	
ALL MEASURES IN TOTAL	1,60%	4,63	5,42	13.906,34	5.026,41	

Source of data: "D4 Modelling v8.1.xlsx", tab "Per sector"