



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

## Comprehensive Executive Summary

(REFORM/SC2022/067)

Trinomics 

**TAL  
TECH**

**Energex**  
ENERGY  
EXPERTS

**SWECO** 



This project is carried out with funding by the European Union via the Technical Support Instrument and in cooperation with the Directorate General for Structural Reform Support of the European Commission.

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(REFORM/SC2022/067)

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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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## Executive summary

**Technical support project :** Support to the renovation wave - energy efficiency pathways and energy saving obligation in Estonia

**Technical support provider:** Trinomics, Energex, TalTech, Sweco

**Overall objective of the project:** Support Estonia in identifying an action plan to achieve the Energy Efficiency targets for 2030 and beyond, to revise its ESDP<sup>1</sup> and NECP<sup>2</sup>, focusing on policy measures in the building, transport, industry and agriculture sectors.

**Duration of the project:** Nov 2022 - March 2024

**Beneficiary authority:** Estonian Ministry of Climate

**Outputs:** a report on data collection and baseline scenario (deliverable 2, incl. XLS); a comprehensive study of energy efficiency pathways for Estonia (deliverable 3, incl. XLS); an action plan for implementing the optimal energy efficiency pathway (deliverable 4, incl. XLS); a detailed concept of the energy efficiency flagship policy, including a monitoring and verification approach (deliverable 5, incl. XLS); a catalogue of energy saving measures and calculation methodologies (deliverable 6, incl. XLS); an internal report (on lessons) ; a final synthesis report and its Comprehensive Executive Summary.

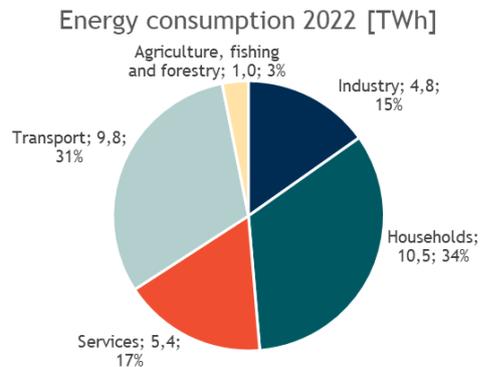
### Energy use in Estonia

While final energy demand in Estonia has experienced a slight decline of 4% over the past decade (2012-2022), Estonia is still the most energy intensive of the Baltic states, due to the use of oil shale, and the presence of energy intensive industry. The bulk of the decline can be attributed to a shift from manufacturing to services in the country.

The energy demand is divided among different sectors, as depicted by Figure 0-1.

Following the ongoing recast of the EED, Estonia will need to seriously adjust its energy efficiency strategy to be aligned with the new energy saving targets. There remains potential for savings in each sector to reach the target, but these will need to be adjusted to sector specific constraints, and cost effectiveness.

Figure 0-1 - Energy consumption by sector, 2022



Source: Trinomics, Energex & TalTech

<sup>1</sup> Energy Sector Development Plan, at 2035 time horizon

<sup>2</sup> National Energy and Climate Plan, at 2030 time horizon

## Energy Efficiency Directive Target

The recast Energy Efficiency Directive ([2023 EED<sup>3</sup>](#)) sets a binding target of reducing EU final energy consumption by 11.7% by 2030, compared to the projected energy use for 2030<sup>4</sup>. It translates into a primary energy consumption target of 992.5 million tons of oil equivalent (Mtoe) and a final energy consumption target of 763 Mtoe by 2030. Additionally, the Directive foresees an increase of the annual energy savings **obligation for Member States from the current level of 0.8% to average 1.5% energy savings between 2024 to 2030, and achieve 1.9% for 2028, 2029 and 2030**. This increased target has a huge impact and will require significant reinforcement of energy savings policies and measures, probably in all sectors.

Table 0-1 illustrates all targets that have been fixed by the 2023 EED, and compare some of them with targets set in the previous [2018 EED](#).

Table 0-1 - 2030 energy efficiency targets and savings

Targets derived from EED	EED 2018	EED 2023	Reference
Final energy consumption in 2030 (TWh)	33	30	Art 4, binding at EU, Estonia contribution
Primary energy consumption in 2030 (TWh)		45.7	Art 4, indicative at EU, Estonia contribution
Annual final savings rate, 2024-2030 average (%)	0.8%	1.5%	Art 8(1), binding per MS
Annual final energy savings rate in 2030 (%)	NA	1.90%	Art 8(1), binding per MS
Cumulative savings over the 2021-2030 period (TWh)	14.767	21.279	Art 8(1), binding per MS

## Current policy measures are not enough

**Despite current plans, strategies, and associated ongoing policies, Estonia will not reach the previous EED targets** set by EED (2018), due to the too limited energy savings generated by existing measures (probably due to the lack of political willingness to mobilize more public money or to activate a stronger price signal, via taxation). In particular it will not reach the 0.8% annual energy savings defined in the 2018 EED, and consequently is far from reaching the new target of 1.5%, as depicted by

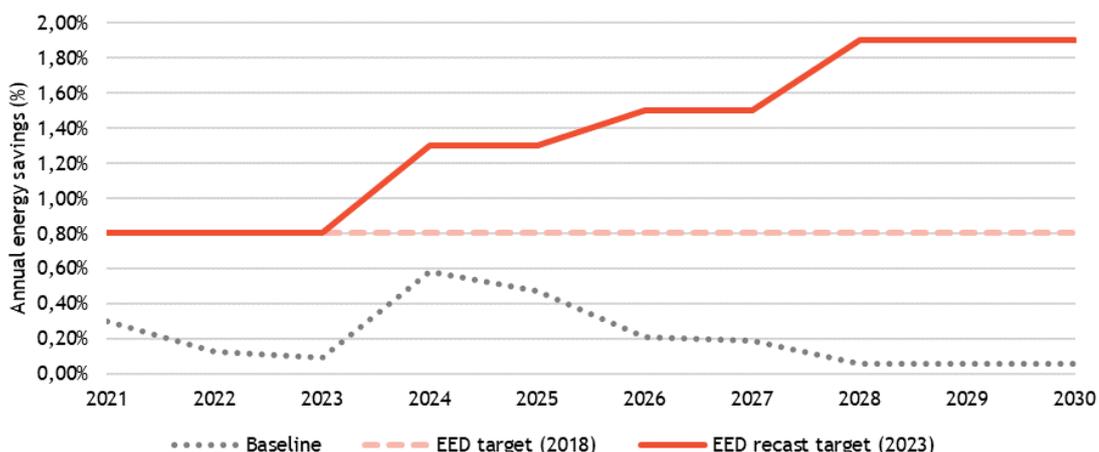
Figure 0-2 - Forecast of annual energy savings with the existing energy efficiency measures shows that Estonia is far behind the EED target (the baseline dotted line refers to the “business as usual” situation with the existing policy measures, showing a drop in 2027 after the disbursement of funds from the Recovery and Resilience Facility). The proposed measures and the related energy efficiency targets in the 2019 National Energy and Climate Plan (NECP) and its updated 2023 version are too low.

Energy efficiency investments involve high up-front costs, making them unattractive and often untenable for individuals as the generated savings are not paying back the investment (due to among others low energy prices). Insufficient incentives and norms exist to improve energy efficiency. Overall, addressing these challenges is crucial for Estonia to achieve its energy efficiency targets, to comply with the EED new energy efficiency targets.

**Figure 0-2 - Forecast of annual energy savings with the existing energy efficiency measures shows that Estonia is far behind the EED target**

<sup>3</sup> DIRECTIVE (EU) 2023/1791 of 13 Sept 2023 on energy efficiency and amending Regulation (EU) 2023/955 (recast)

<sup>4</sup> [https://energy.ec.europa.eu/topics/energy-efficiency/energy-efficiency-targets-directive-and-rules/energy-efficiency-targets\\_en](https://energy.ec.europa.eu/topics/energy-efficiency/energy-efficiency-targets-directive-and-rules/energy-efficiency-targets_en)



Source: Trinomics, Energex & TalTech

To conclude, there is urgency to significantly **accelerate (having in mind that savings are cumulative over the period) and increase the amount of the existing energy efficiency measures in all sectors and implement new ones, to reach the 2030 energy saving target, and continue the trends towards the carbon neutrality goal.**

## New measures are necessary to reach the targets

Reaching the energy efficiency targets is challenging and will require a large set of Energy Efficiency policies and measures in all concerned sectors. Considering the high ambition level, all sectors should be concerned and contribute significantly to the collective efforts.

In the **building sector**, 8 measures are analyzed for residential and 8 other measures for non-residential buildings. Those measures include Minimum Energy Performance Standards (MEPS) at rental/selling point, carbon taxation, various grants or incentives, an obligation scheme for commercial buildings and a property taxation in function of the Energy Performance Certificate (EPC) level.

For the **industry and agriculture**, 6 policy measures are considered, among which a voluntary agreement (VA) and a set of various grants and support schemes.

The **transport** sector encompasses the largest number of measures, given its broader scope. The measures concern vehicle taxation to encourage more efficient engines, EV (Electric Vehicle) charging stations deployment, obligation to use efficient vehicles for specific fleets (e.g. public procurement, taxis), investments in public transport and active mobility infrastructure (rail, tram, active lanes), congestion charges in cities, incentives to use public transport and active mobility.

Among these measures, Minimum Energy Performance Standards and voluntary agreement are considered to be important new policy measures for the future, and as such are considered to be flagship policies.

Although not budgeted under the model, various additional measures have to be taken<sup>5</sup> with regard to building the technical and organizational capacity, setting up the awareness and support instruments (e.g. One-Stop-Shop, Energy Performance Contracting, audits, public transport ticketing, active mobility applications), facilitating the access to finance, facilitating the deployment of new technologies (e.g. digitalization), empowering end-consumers, or awareness campaigns. The model focused on quantifying investment needs (e.g. in infrastructure) rather than looking at operational costs

<sup>5</sup> However, they are not comprised within the model (and not budgeted)

(e.g. hiring additional civil servants to manage the different reforms and policies). This is why these “enabling” measures were not budgeted in the model.

This technical support project identified relevant EE measures, bundled them into different pathways varying the efforts between the sectors. Six pathways were analyzed, out of which four were more sector oriented: the Energy Efficiency Obligation Scheme (EEOS) focused on the industry and building; the Voluntary Agreement (VA) focused on the industry; the Renovation Wave (RenoWave) focused on the building (residential and non-residential) and the Energy Efficiency Transport focused on transport (EET). Two additional pathways were analyzed, proposing a balanced allocation of measures among the sectors, combining incentive, normative and enabling measures: the Comprehensive Energy Efficiency Reform (CEER) 1 & 2. The second pathway (CEER2), reinforcing some policy measures of the first (CEER1), was considered to be the optimal pathway, allowing to reach the highest number of 2023 EED targets with the most balanced set of policy measures, as presented hereafter.

## Measures implementation towards the EED targets

Table 0-2 depicts the results for all targets set in the EED, but also additional targets set by Estonia in its NECP/ESDP<sup>6</sup>, among which the target for reducing transport fuel consumption by 2030 remains hard to reach (only EET allows to reach this target). Almost all pathways, except the EEOS and VA pathways, achieves the final energy consumption target set by EED. However, the cumulative savings cannot be reached in 2030 by any of the 6 pathways.

Table 0-2 - Summary of the optimal pathway achieving the targets

Objective	Year	Unit	EED target	NECP 2030 <sup>7</sup>	Baseline	CEER2
Final energy consumption	2030	TWh	30	33,3	32,8	29,3
Cumulative energy savings	2021-2030	TWh		21,3	5,5	18,0
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%	1,6%
Primary energy consumption	2030	TWh	45,7	63,9	51,5	46,2
Final energy savings of public sector/buildings	2021-2030	%	1,90%		0,0%	1,0%
Renovation rate of public owned buildings	2021-2030	%	3,00%		0,9%	3,8%
Total renovated area of central government buildings	2021-2030	mln. m <sup>2</sup>		0,3	0,12	0,54
Industry annual energy savings	2030	GWh		232	313	833,4
Transport fuel consumption	2030	TWh		8,3	10,1	8,6

Source: Trinomics, Energex & TalTech

Even for CEER2, the required cumulative savings is only achieved at the end of 2031, due to the weak performance during the first half of the obligation period (2020-2025), and the target fixed for transport remains highly challenging even for a pathway based on transport measures, due to the important dependence on behavioral change to reduce energy use in transport (e.g. the availability of public transport does not mean that people will consequently use them). On top of investment (e.g. in

<sup>6</sup> Energy Sector Development Plan, at 2035 time horizon

<sup>7</sup> [Directive \(EU\) 2023/1791](#)

infrastructure and fleets) individual motivation is needed to ensure people are using bikes and public transport.

## Impact assessment

Table 0-3 - Summary of impact assessment

Indicator	Time period	Unit	Baseline	CEER2
GHG emission reduction, cumulative	2021-2030	MtCO <sub>2</sub>	1,26	4,63
Investment costs (total), cumulative	2021-2030	MEUR	1.588	13.306
<i>of which public support, cumulative</i>	2021-2030	MEUR	331	5.026
Cost savings, cumulative	2021-2030	MEUR	489	1.796
Impact on GDP	2021-2030	%	0,6%	4,4%
Impact on disposable income	2021-2030	%	0,8%	3,6%
Impact on employment (Average annual job creation)	2021-2030	Thousand employees	0,83	17,41
Impact on tax revenue	2021-2030	%	0,6%	2,1%
Average energy cost as a share of household disposable income	2021-2030	%	7,98%	7,46%
Average yearly GDP	2021-2030	MEUR	42.823	44.423
Average yearly Investment costs (total)	2021-2030	MEUR	159	1.331
Average yearly tax revenue	2021-2030	MEUR	16.042	16.274
<i>Average yearly public support</i>	2021-2030	MEUR	33	503

Source: Trinomics, Energex & TalTech

**Residential buildings and transport are each representing approximately 1/3 of final energy use and should be addressed as first.** However, renovation of dwellings requires important investments and a strong incentive to carry them out. Also, energy efficiency in transport has some limits and requires important behavioral changes (e.g. public transport or active mobility lane can be deployed, they still need citizens to use them) which takes time. Almost all pathways are not able to reach the transport target fixed by the transport and mobility development plan until 2035 to consume less than 8.3 TWh, while the sector faces clear growth. Only EET can reach the target, but this requires rapid changes which are more than likely not realistic.

**Non-residential buildings and industry (including agroforestry) are each representing approximately 1/6 of final energy use.** These 2 sectors could be left aside regarding financial support measures (to concentrate efforts on residential and transport), but non-residential offers substantial perspective for energy savings with regulatory minimum energy performance standards (MEPS) (where there is currently a very bad level of performance, leaving potential for substantial energy savings), while industry should be accompanied along its decarbonization path, to remain competitive and attractive at EU scale. For that reason, there are no mandatory schemes or obligations proposed for industry. Consequently, the important efforts towards energy saving targets set by the EED has to be spread properly between sectors, which is the aim of the proposed set of measures. The targets are too ambitious to leave any sector aside.

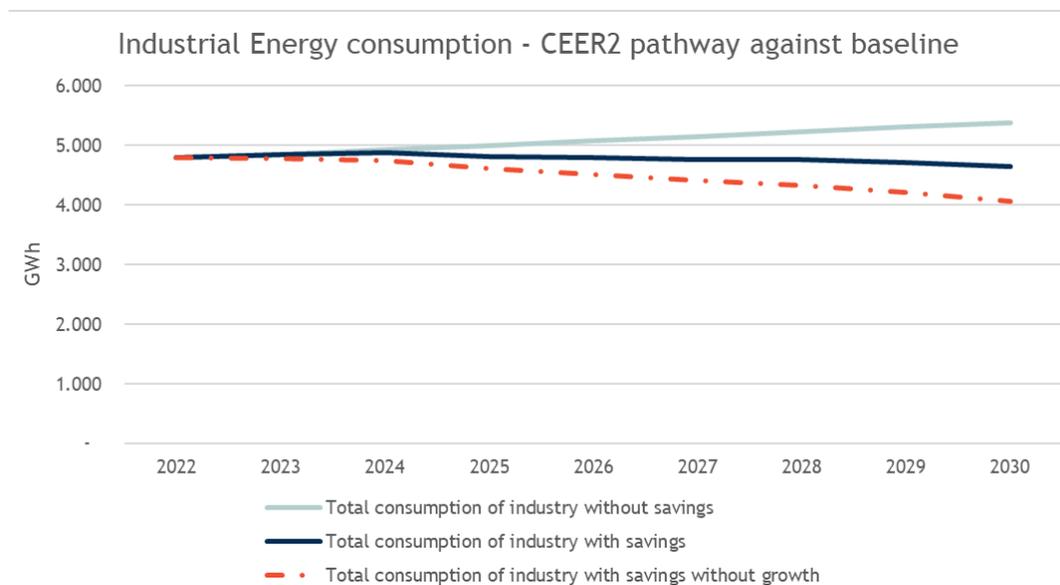
## Energy efficiency and growth

Increasing energy efficiency should not become an obstacle to growth in the country. In that regard, the baseline scenario (deliverable 2) was built on growth expectations.

Figure 0-3 - Comparison of industrial consumption in a growth scenario and in a status quo scenario illustrates the case of the industry:

- The light blue line shows the expected energy consumption of the industry in a growth scenario, with an average yearly increase of 1.5% of industrial activity (all sectors included), without considering any savings;
- The dark blue line shows the results when applying energy efficiency measures to the industry. The difference between these lines shows the savings, highlighting that the difference between 2030 and 2022 is rather small (savings being compensated by growth);
- The red dotted line shows a fictive scenario where there is no growth in the industrial production. This is what would happen if there is no change in the industrial production, but energy savings are made across the industry. The difference between the dark blue and the red lines shows the potential for growth, including the arrival of new industrial players within Estonia.

Figure 0-3 - Comparison of industrial consumption in a growth scenario and in a status quo scenario



Source: Trinomics, Energex & TalTech

## Risks of the pathway

The implementation of all these energy efficiency policies and measures are facing various risks, which are tentatively summarized below:

- The major risk relates to the sharp decrease in public fundings beyond the RRF (finishing in 2027), if the government does not anticipate with adequate budget mobilization. Grants may over-subsidize beneficiaries with a lumpsum level of support (usually 30% in Estonia). This must change to increase the efficiency of the scheme (adapting to the effective Levelized Cost of the investments). Also, there is need to adapt the level of support to overcome energy poverty issues (e.g. by providing higher grants to low-income households).

- MEPS will be complex to set up, and be socially sensitive to implement, therefore starting with a limited portfolio (i.e. targeted buildings) should be considered.
- The lack of skilled labor makes it difficult to properly implement measures, especially to meet the increased demand. There are resource constraints related to training and capacity building, as well as overall funding. The complex decision-making process of multiple person ownership makes implementing measures timely and difficult.
- The lack of interest of building occupiers and owners remains a major barrier.
- 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. The lack of resources on Ministry side to conduct the process to prepare and negotiate VA and other measures like the SME office (these processes will be demanding). The lack of a strong counterparty from business side, representing SMEs, and agricultural/fisheries/forestry exploitations makes it difficult to enter the dialogue.
- There are currently debate/discussion about the proposed vehicle taxation system, which does not incentivize the shift to more efficient vehicles (to low carbon), given that it could impact on vulnerable people, who often have older and hence less efficient cars. Insufficient investments in grid modernization can hinder the deployment of EV.
- Public authorities do not comply with the targets for clean and energy efficient public road transport vehicles. There is lack of skilled workforce for implementation of charging infrastructure, and a lack of grid modernization (inappropriate deployment of charging infrastructure (too slow/too rapid, in wrong places, etc.)).
- Deploying public transport and active mobility requires high degree of planning and integration. Many actors should be involved/consulted in the process, which increases complexity of implementation. There is currently a lack of harmonization between development of mobility and transport infrastructures and new residential/business districts. There is a lack of cooperation from public transport operators, a lack of skilled workforce to construct infrastructure, and a lack of funding available to develop the necessary infrastructure. There is a lack of consideration of existing public transport infrastructure to develop mobility hubs.
- There is concern about 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. These are the main reasons for postponing the property taxation (after 2030).

## Overarching action plan

As already highlighted, there is urgency to implement new measures, to ensure they still can produce effects and contribute rapidly to cumulative savings expected by 2030. If all measures should be implemented as soon as possible, it is also clear that some will take more time to enter into force than others. On the other side their duration also depends on the type of measure. E.g. measures relying on public budget (like subsidies) cannot be continuous, while normative measures (like MEPS) will have a longer duration. Therefore, deliverable 4 describes into the details all actions that should be taken in order to design, develop and implement all measures selected in CEER2. The following series of tables summarize the grouping of measures (by measure category) for each sector, showing their time horizon

(entry into force and duration), providing the total investments need at 2030 (to be as close as possible to the new 2023 EED targets), and showing which authority should take their responsibility.

Table 0-4 - Action plan per sector

Set of measures	Timeline	Responsibility	EE total investment 2024-2030 needed to fill 2030 targets	Financing
<b>BUILDINGS</b>			<b>9 147 Meur</b>	
Existing measures	2021 - 2024	RAM <sup>8</sup>	346 Meur (~30% public)	RRP
Property taxation	2030 ->	RAM	403 Meur (100% private)	
Other taxes (deduction, CO <sub>2</sub> )	2027 ->	RAM	2 338 Meur (100% private)	
Continue renovation grants for all buildings	2027 - 2035	KLIM <sup>9</sup>	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)	

Set of measures	Timeline	Responsibility	EE total investment 2024-2030 needed to fill 2030 targets	Financing
<b>INDUSTRY &amp; AGRICULTURE</b>			<b>430 Meur</b>	
Existing measures	2021 - 2024	MKM <sup>10</sup>	170 Meur (~30% public)	RRP
Grants and subsidies for all plants (large, SMEs, agricultural)	2024 ->	MKM	122 Meur (~30% public)	ETS revenues
Voluntary Agreement	2024 - 2035	MKM	139 Meur (100% private)	ETS revenues or Exemption of fees to support RES electricity

Set of measures	Timeline	Responsibility	EE total investment 2024-2030 needed to fill 2030 targets	Financing
<b>TRANSPORT</b>			<b>2 667 Meur</b>	
Existing measures	2021 - 2027	KLIM, TRAM <sup>11</sup>	10 Meur (100% private)	
Fiscal measures (vehicle tax, congestion charge)	2025 ->	KLIM, TRAM	1 Meur (100% private)	

<sup>8</sup> RAM is the Ministry of Finance

<sup>9</sup> KLIM is the Ministry of Climate

<sup>10</sup> MKM is the Ministry of Economic Affairs and Communication

<sup>11</sup> TRAM is the transport Agency

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

Set of measures	Timeline	Responsibility	EE total investment 2024-2030 needed to fill 2030 targets	Financing
<b>Excises &amp; Fuel VAT (existing)</b>			<b>1 062 Meur</b>	
Cross cutting	2021 ->	RAM	1 062 Meur (100% private)	
<b>TOTAL</b>				
		<b>KLIM</b>	<b>13 306 Meur</b>	

After a thorough analysis of several pathways (conducted in deliverable 3), this Comprehensive Energy Efficiency Reform pathway has been considered to be the most optimal, as it reaches the highest number of EED targets. It will require around EUR 13.3 billion over the obligation period (2021-2030), with approximately 88% of the investments to be made during the 2025-2030 period. However, it should be pointed out that its feasibility is not obvious, and it remains highly challenging, due to the high EED ambition. This pathway also contains several risks (identified above) that will require attention in the next phases of planning EE actions.

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. It is expected that Voluntary Agreement will become the main driver to increase energy efficiency within the industry and therefore provide significant results after 2030.

In the **transport sector**, the first period will require important investments in infrastructure (public transport and active mobility), with some additional subsidize 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 0-5 summarizes a few indicators for the same set of measures within each sector.

**Table 0-5 - 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	225	Ministry of Climate (building department)
Property taxation	0,02%	-0,78	0,01	403	110	Ministry of Finance
Other building tax (deduction, CO2)	0,12%	-0,61	0,17	2.338	429	Ministry of Climate (building department)
Grants	0,34%	-0,22	0,57	3.875	1.471	Ministry of Climate (building department)
<i>MEPS</i>	0,17%	-0,46	0,33	2.100	-	Ministry of Climate (building department)
Obligation scheme	0,01%	-0,78	0,01	84	-	Ministry of Climate (building department)
<b>Buildings total</b>	<b>0,66%</b>	<b>0,39</b>	<b>1,18</b>	<b>9.147</b>	<b>2.236</b>	
Industry existing measures	0,06%	-0,14	0,65	170	81	Ministry of Economic Affairs & Communications (dpt industry)
Industry new measures (grants)	0,08%	-0,42	0,37	122	74	Ministry of Economic Affairs & Communications (dpt industry)
<i>Including Voluntary Agreements</i>	0,15%	-0,48	0,30	139	-	Ministry of Economic Affairs & Communications (dpt industry)
<b>Industry total</b>	<b>0,29%</b>	<b>0,54</b>	<b>1,32</b>	<b>430</b>	<b>155</b>	
Transportation existing measures	0,00%	-0,73	0,06	10	10	Ministry of Climate (department mobility), Estonian Transport Administration
Fiscal measures (vehicle tax, congestion charge)	0,00%	-0,79	0,00	1	1	Ministry of Finance
Deploy EV charging infrastructure	0,00%	-0,78	0,01	40	20	Ministry of Climate (department mobility), Estonian Transport Administration
Energy efficient vehicles in public procurement	0,04%	-0,71	0,08	552	552	Ministry of Climate (department mobility), Estonian Transport Administration
Subsidise public transport use & active mobility	0,07%	-0,60	0,19	8	7	Ministry of Climate (department mobility), Estonian Transport Administration
Develop public transport & priority lanes for act	0,47%	0,59	1,38	2.056	2.032	Ministry of Climate (department mobility), Estonian Transport Administration
<b>Transportation total</b>	<b>0,57%</b>	<b>0,93</b>	<b>1,72</b>	<b>2.667</b>	<b>2.622</b>	
Existing excises and fuel VAT	0,08%	0,41	1,20	1.062	14	Ministry of Finance
<b>Fiscal total</b>	<b>0,08%</b>	<b>0,41</b>	<b>1,20</b>	<b>1.062</b>	<b>14</b>	
<b>ALL MEASURES IN TOTAL</b>	<b>1,60%</b>	<b>4,63</b>	<b>5,42</b>	<b>13.306</b>	<b>5.026</b>	

## Conclusions and way forward

Political commitment in Estonia is crucial to achieve energy efficiency gains in buildings, industry and transport to meet the ambitious targets at the European Union level. **Given the current trajectory and measures, Estonia is not on track to meet the Energy Efficiency Directive Targets.** It is imperative to take additional actions to fully unlock the potential of cost-effective energy savings, including ramping up measures and investment in energy efficiency. With all measures, additional resources need to be considered to **address energy poverty**. This would entail a prioritization of measures, identifying vulnerable groups, developing tailored support to allow easy and fair distribution of costs and benefits.

To reach EED targets, Estonia will need to **invest approximately EUR 13.3 billion up to 2030**, with EUR 9.1 billion in the building sector, EUR 0.4 billion in the industry and EUR 2.6 billion in transport. An additional EUR 1.2 billion of investments will come from the different sectors (building and transport) thanks to fuel taxation. Out of the total investment needs, EUR 5 billion will be public money (grants and support but also investment in public infrastructure and activities). Given the large public and private investments, where both the public and financial sector need to be involved, a wide array of financial instruments needs to be mobilized - from funds, grants to loans and guarantees.

Developing and implementing the optimal pathway (CEER2) towards the 2030 target requires the **mobilization of all administrations** concerned by the building sector; the public authorities, health, education (as administrative building owners); the economic affairs (to address private service buildings and SMEs); transport and spatial planning; the industry (to engage all important sub sectors); and the finance and budget (to manage incomes and outcomes).

There is now need to dig into the details of the selected energy efficiency policies and measures that were analyzed and developed in the study (cf. deliverables 4 and 5). Decision makers should take ownership of these policies to **complete their design, proceed with consultation, guide the political discussion, and implement them rapidly**. Each policy or measure requires a step by step process, requiring phased actions (described in deliverable 4) to develop it properly with all parties that will play a role in its implementation. Among the Energy Efficiency measures, some are well known since more than two decades (like grants and support, public transport infrastructure, carbon price, subsidies, ...), and others that are more recent or even unknown for Estonia, like a Voluntary Agreement, MEPS, an obligation scheme, or a vehicle/property taxation.

**All types of policies and measures are necessary** to move to continuously increase energy efficiency across all sectors in Estonia. Support schemes (for building renovation, more efficient industrial processes or stimulating the use of alternatives to passenger cars) are needed on the short term to stimulate fast changes and investments, but are not affordable on the long term (public cost). Normative measures have the aim to conduct to progressive but long-term changes thanks to market signals, but their implementation requires more time and should cautiously pay attention to vulnerable households. Voluntary measures such as a Voluntary Agreement with the industry can strengthen the relationship between decision-making and the industry well beyond energy efficiency, to deal with the worldwide transition and its consequences on all economic activities.

**Hiring new staffs in the concerned administration** will more than likely be required to manage the different files, as some will require new knowledge to be built, new expertise to be developed, and new activities to be conducted. Among the activities, carrying out **important consultation processes** to get all concerned parties involved and engaged will be key to ensure the successful implementation of the measures.

To conclude, we highly recommend the authorities to designate the **responsibilities within each concerned ministry**, to rapidly **implement the proposed action plan of energy efficiency measures and policies**. It becomes urgent to set up a coherent and comprehensive package of policies to move to an energy resilient Estonia.