ODYSSEE-MURE Fit4-55 (2022-2025)
Monitoring the Energy Efficiency Pillar for Climate Neutrality

Second regional meeting, ODYSSEE-MURE, 25-26 September 2024, Rome

Building policies: Overview and round table on best practices from Member States and EnC

Barbara Schlomann, Fraunhofer ISI

This project has received funding from the European Union's LIFE programme under grant agreement No. 101075902

The current EU energy efficiency policy framework for the building sector

ODYSSEE-MURE

Key facts on the EU building sector:

- 85% of EU buildings built before 2000
- 75% of those with poor energy performance

around 40%	over 1/3	+/- 80%
of energy consumed in the EU is used in buildings	of the EU's energy-related GHG emissions come from buildings	of energy used in EU homes is for heating, cooling and hot water

Key regulation for the building sector to boost the performance and to reach the target:
Energy Performance of Buildings Directive, revised in 2024 (EU/2024/1275)

Accompanying regulations:

- Energy Efficiency Directive, rev. 2023 (EED - EU/2023/1791)
- New emissions trading system for buildings and road transport
- Renewable Energy Directive, rev. 2023 (REDII – EU/2023/2413)

Source: European Commission (https://energy.ec.europa.eu/topics/energy-efficiency/energy-efficient-buildings/energy-performance-buildings-directive_en#key-facts-on-energy-and-eu-buildings)

Energy efficiency policies for buildings in the MURE database

ODYSSEE-MURE

- Building policies are usually found in MURE in the household sector (for residential buildings), in the service sector (for non-residential buildings) and in the cross-cutting sector (for cross-sectoral policies including provisions for buildings).
- Current status of building policies in the household sector (all countries, ongoing):

Database | Radar graph | Summary Table

Search :
Enter text to search in measures

Sector :
Household

Countries :
Countries

Measure type :
Select...

Targeted end-use :
Space heating | Hot water

Search

Clear All

More options

By default only ongoing measures are selected. For visualizing completed and proposed measures, click on "more options/status"

more detail

160 measures found

Export

Country	Sector	Title	EU	Type
Albania	Household	Minimum energy performance requirements for buildings, building units and building elements (Decision no. 537, dated 8.7.2020)	Yes	Mandatory standards
Austria	Household	klimaaktiv Buildings - Building Standard	No	Information/training
Austria	Household	Minimum thermal standards for new buildings and major renovations	Yes	Mandatory standards
Austria	Household	Energy audits (advice) for households	Yes	Financial, Information/training
Austria	Household	Energy Performance of Buildings EPBD Recast (Directive 2010/31/EU) - Energy Performance of Buildings Directive in Austria	Yes	Mandatory information
Belgium	Household	EU-related: Performance of Heat Generators for Space Heating/Hot Water (Directive 92/42/EEC) - Federal government - Minimum efficiency requirements for new central heating boilers (household sector)	No	Mandatory information, Mandatory standards
Belgium	Household	Brussels - Energy grant for households	No	Financial
Belgium	Household	EU-related: Energy Performance of Buildings (Directive 2002/91/EC) - Wallonia - Thermal regulation for buildings	Yes	Mandatory standards, Mandatory information
Belgium	Household	Federal government - Reduced VAT for renovation of old buildings	No	Fiscal
Belgium	Household	K-level thermal regulations of residential buildings (in use prior to the EPB directive)	No	Mandatory standards
Belgium	Household	EU-related: Energy Performance of Buildings (Directive 2002/91/EC) - Brussels - Act structurally on the demand through progressive reinforcement of the requirements of the EPB regulations in the residential sector	Yes	Mandatory standards, Mandatory information
Belgium	Household	EU-related: Energy Performance of Buildings (Directive 2002/91/EC) - Flanders - Insulation and energy performance regulation for residential buildings	Yes	Mandatory standards, Mandatory information
Bulgaria	Household	Minimum Thermal Insulation in Buildings (Минимални изисквания за топлоизолация на сгради)	No	Mandatory standards
Bulgaria	Household	Replacement of inefficient solid fuel stoves (Замяна на неефективни отоплителни уреди)	No	Financial
Cyprus	Household	Energy Audits	No	Financial, Information/training
Cyprus	Household	Grant scheme for the installation or replacement of solar water heating systems in households	Yes	Financial
Cyprus	Household	EU-related: Energy Performance of Buildings EPBD Recast (Directive 2010/31/EU) - Information, awareness campaigns, workshops , seminars for energy savings	Yes	Mandatory standards, Information/training
Czech Republic	Household	Loans to municipalities to upgrade housing	No	Financial
Czech Republic	Household	New Green Savings Programme Light	No	Financial
Czech Republic	Household	Regeneration of pre-fabricated concrete buildings - PANEL, NEW PANEL and PANEL 2013+ Programmes	No	Financial
Czech Republic	Household	JESSICA Programme	No	Financial
Czech Republic	Household	Prohibition of solid fuel boilers of 1st and 2nd class	No	Mandatory standards
Czech Republic	Household	New Green Savings Programme 2021+	No	Financial
Czech Republic	Household	Support for the modernisation of housing stock by means of building society savings schemes	No	Mandatory standards
Czech Republic	Household	Operational Programme Environment 2014 - 2020 (part households)	No	Financial
Czech Republic	Household	Joint Boiler Replacement Promotion Scheme	No	Financial
Czech Republic	Household	New Green Savings Programme 2014-2020	No	Financial
Denmark	Household	Agreement on green refurbishment of social housing	No	Financial
Denmark	Household	Subsidy scheme to replace oil burners with heat pumps in buildings outside the district heating and gas grids	No	Financial
Denmark	Household	Competitive subsidy scheme related to residential buildings	No	Financial

Results of the Policy Scoreboard for buildings / households: most effective policies in the Top 5

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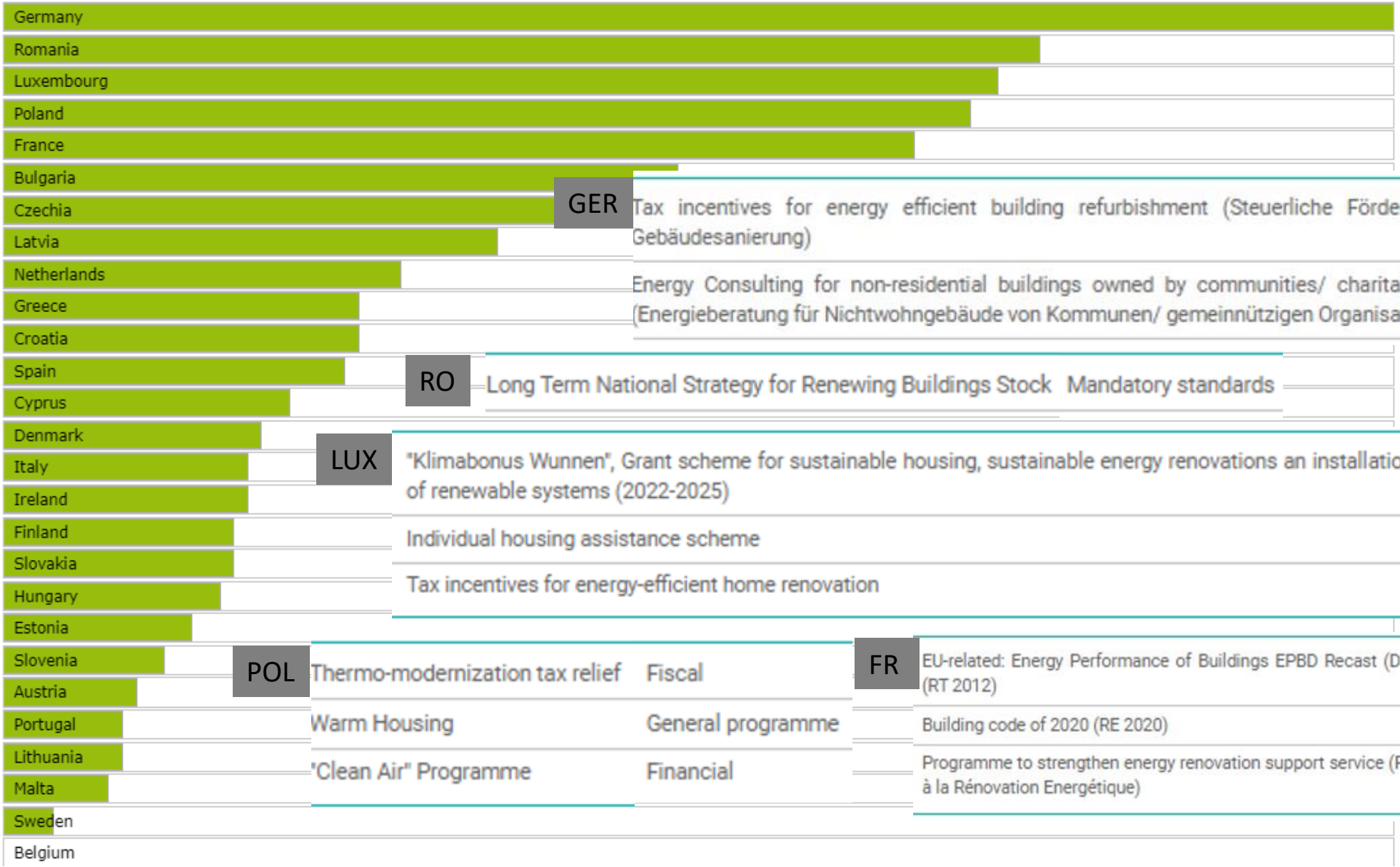


GER	Tax incentives for energy efficient building refurbishment (Steuerliche Förderung der energetischen Gebäudesanierung)	Fiscal
	Energy Consulting for non-residential buildings owned by communities/ charitable organisations - EBK (Energieberatung für Nichtwohngebäude von Kommunen/ gemeinnützigen Organisationen)	Financial
RO	Long Term National Strategy for Renewing Buildings Stock	Mandatory standards
LUX	"Klimabonus Wunnen", Grant scheme for sustainable housing, sustainable energy renovations an installation of renewable systems (2022-2025)	Financial
	Individual housing assistance scheme	Financial
	Tax incentives for energy-efficient home renovation	Fiscal
POL	Thermo-modernization tax relief	Fiscal
	Warm Housing	General programme
	"Clean Air" Programme	Financial
FR	EU-related: Energy Performance of Buildings EPBD Recast (Directive 2010/31/EU) - Building code of 2012 (RT 2012)	
	Building code of 2020 (RE 2020)	
	Programme to strengthen energy renovation support service (Programme SARE, Service d'Accompagnement à la Rénovation Energétique)	

Fraunhofer ISI

Estonia

Prof.Anna Volkova, PhD, Tallinn University of Technology (TalTech)

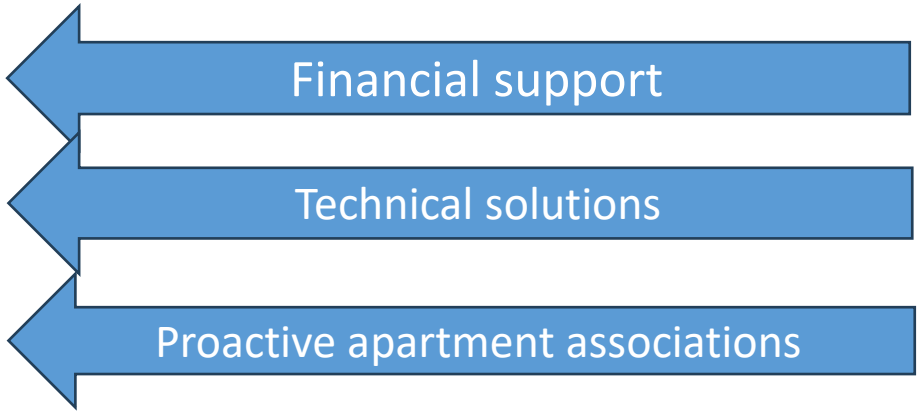
This project has received funding from the European Union's LIFE programme under grant agreement No. 101075902

Best practices of building policies in Estonia

ODYSSEE-MURE

Success story

- Apartment buildings have been fully renovated in Estonia for 10 years already, with the best results compared to the rest of the EU.



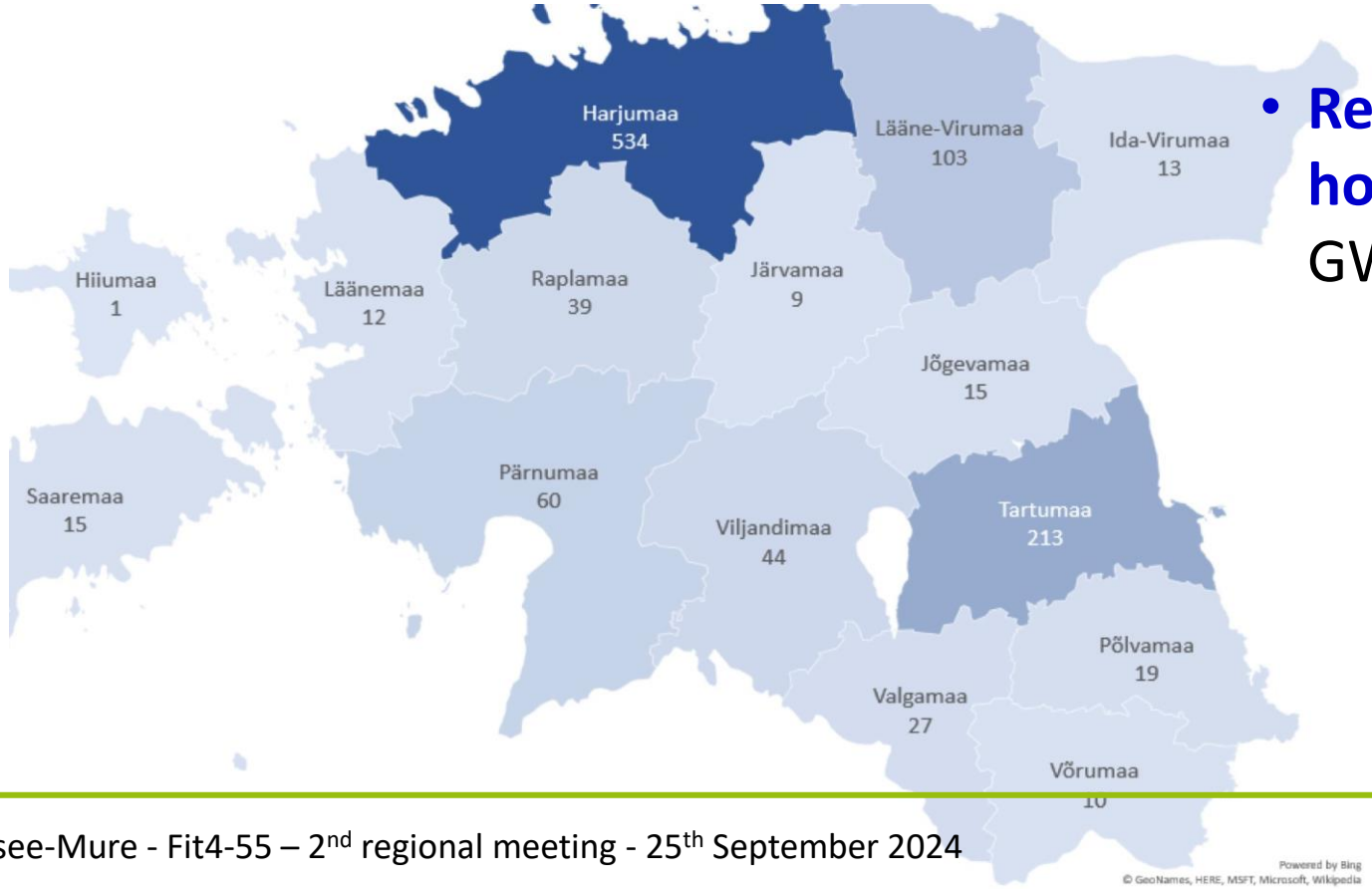
- Due to apartment building renovations, the energy consumption of dwellings has remained the same within the past 15 years, despite the construction of new buildings, i.e. increasing building stock.

Best practices of building policies in Estonia 2015-2023

ODYSSEE-MURE

Success story

- Renovation of apartment building cumulative savings: 234.4 GWh.



Not so active

- **Developed renovation of rental apartment** (cumulative savings: 0.37 GWh)

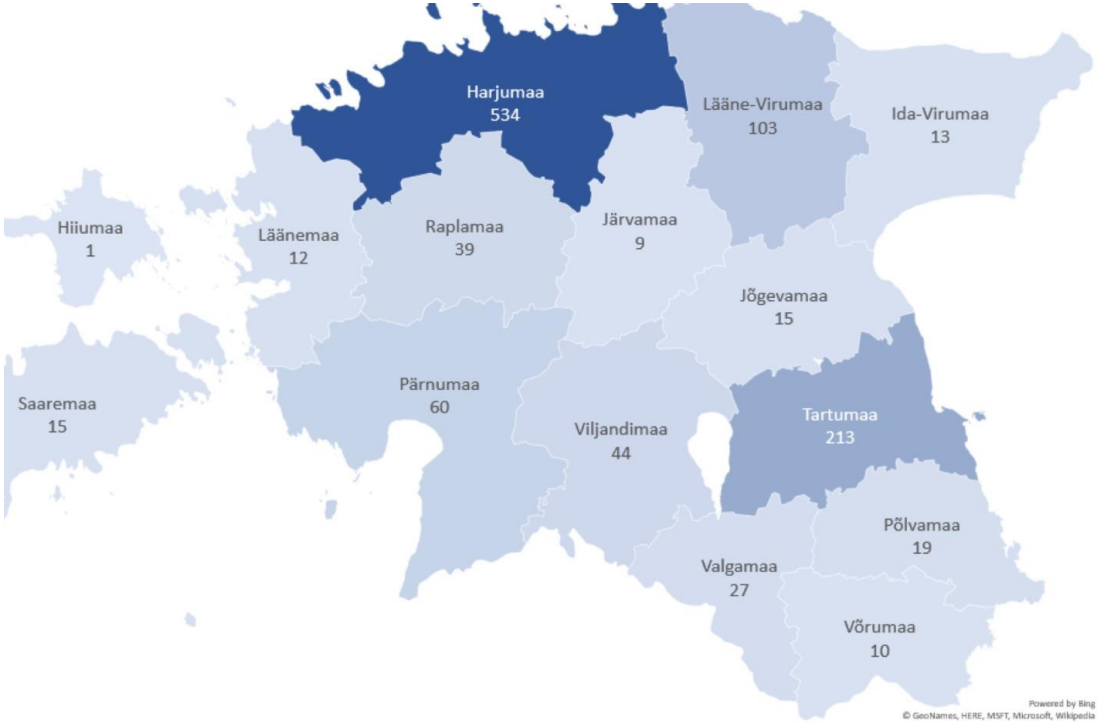
Small market

- **Renovation of private houses** (cumulative savings: 21.45 GWh).

Best practices of building policies in Estonia NEW CALLS

ODYSSEE-MURE

- Regional budgets - to promote measures **in region**, when small ammount of projects has been implemented
- In addition to a separate budget for **heritage buildings and factory reconstruction**
- The larger budget for **complete reconstruction** (energy efficiency class C) there is the subsidy rates are as follows: + 30% in Tallinn and Tartu for others 50%.
- In January 2024, a separate targeted measure was announced for the Eastern-Estonia: Renovation of apartment buildings **in Ida-Virumaa County**
- Reconstruction grant for **small residences**



Poland

Paweł Gilewski, PhD., The Polish National Energy Conservation Agency (KAPE)

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Best practices of building policies of Poland

Ministry of Economic Development and Technology
Republic of Poland

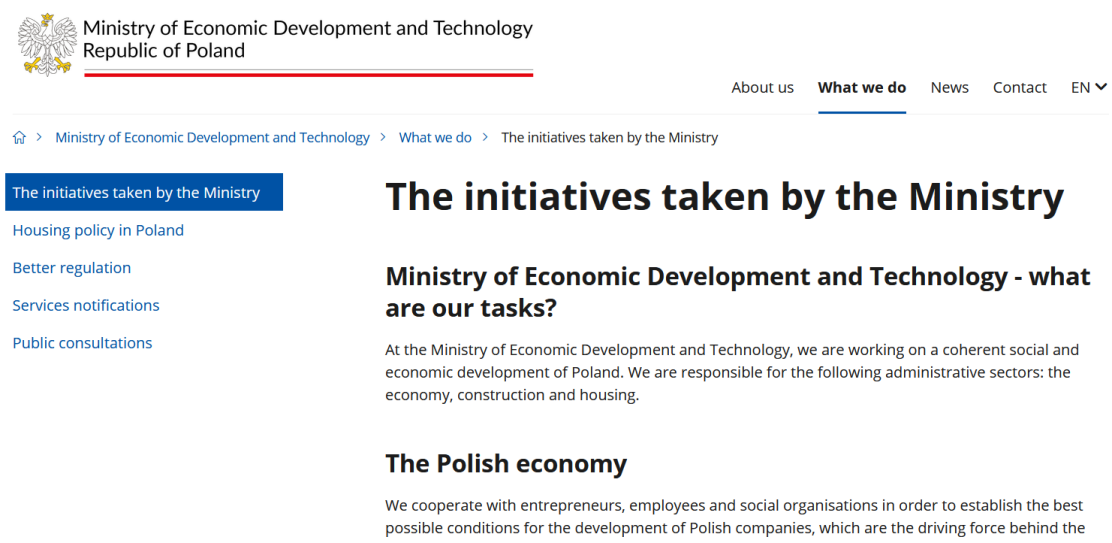
(energy efficiency of buildings; construction, architecture and geodesy; prosumer and distributed energy; housing policy)

Ministry of Climate and Environment
Republic of Poland

(district heating transition and energy efficiency)

NO DISPERSION OF COMPETENCES – FACILITATES POLICY COORDINATION

Best practices of building policies of Poland



Differences between the Polish and English versions of the Ministry of Economic Development and Technology website.

And there is still more…

Best practices of building policies of Poland

HOUSING POLICY

Housing cooperatives

Joint implementation of a housing investment for one's own needs by a group of natural persons. A housing cooperative is a group of individuals who decide to buy a plot of land and jointly build single-family houses or a multi-family building with apartments on it, in which they will then live themselves.

REGISTERS AND RECORDS

Central register of energy performance of buildings

Ensuring a consistent system for assessing the energy efficiency of buildings in Poland and free access to lists of authorized persons preparing energy performance certificates and inspections of the heating and air conditioning systems.

Finland

Lea Gynther, Motiva Oy

This project has received funding from the European Union's LIFE programme under grant agreement No. 101075902

Best practices of building policies in Finland

ODYSSEE-MURE

Policy 1: Communications Forum for Building Services technology

- See the next two slides

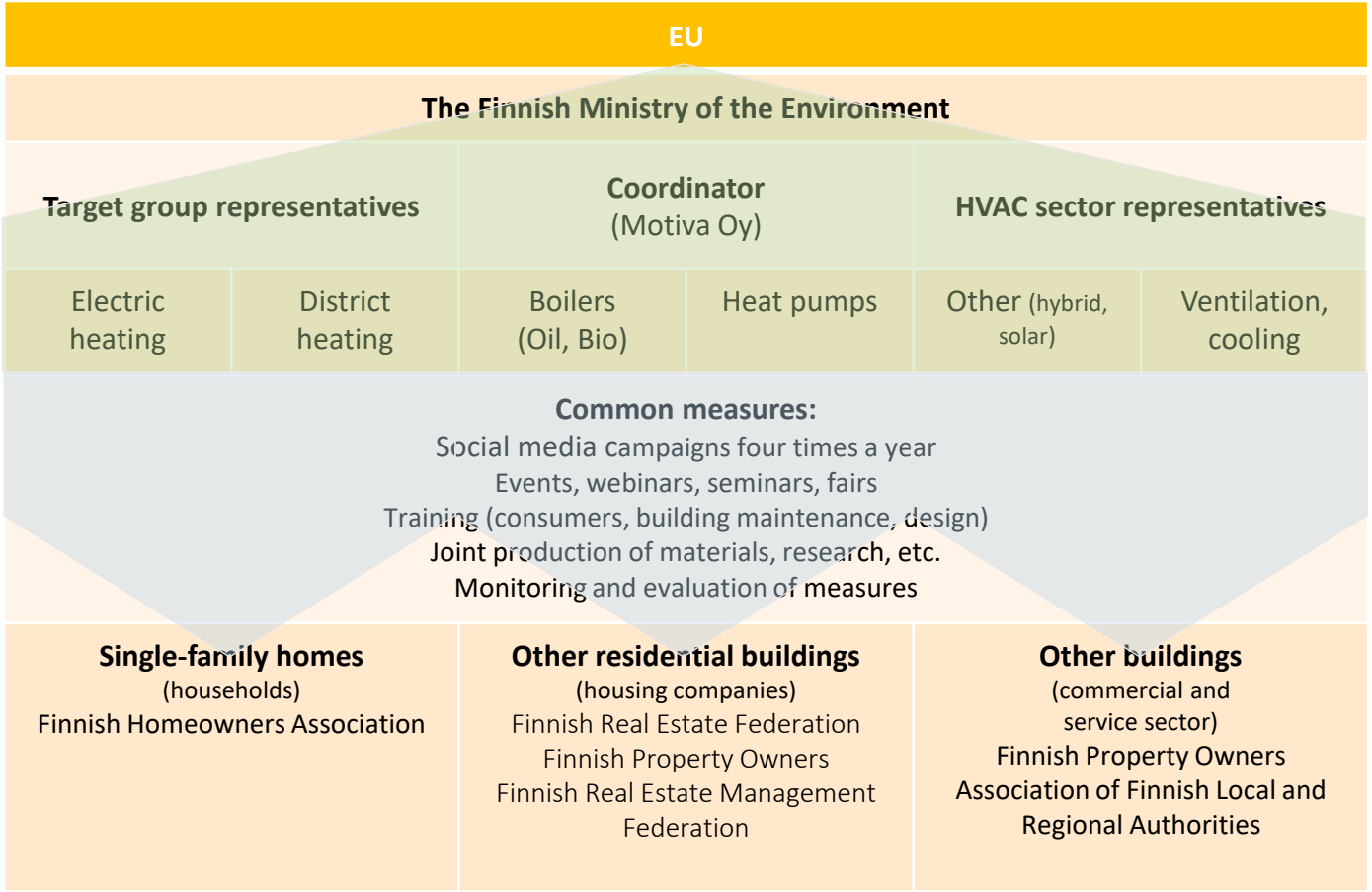
Policy 2: Abolishment of fossil oil heating by 2030 (final energy savings occur because usually the replacement is by air-water or ground source heat pumps)

- About 133 000 oil-heated single-family houses and 82 000 homes in terraced houses and blocks of flats in 2019. In addition, some oil heating in municipal buildings, but almost none in state buildings and not much in private services.
- Three financial support mechanisms for households:
  - ELY subsidies for replacement of oil and gas heating in single-family houses 2020- (about 30000 implemented by 8/2024, financing left for about 8000)
  - Higher household tax credit for replacement of oil heating systems in 2022-2027 (about 10000 used this benefit in 2022, 2023 data not finalised)
  - ARA subsidies for replacement of oil heating in single-family houses about 1500 houses and 5000 flats in 2020-2023. No budget for 2024.

Communication Forum for Building Services Technology

- **Implementing EPBD articles 14 and 15 with alternative measures**

- Motiva and 16 other organizations have established the Communications Forum for Building Services Technology, which focuses on measures improving the energy efficiency of heating, ventilation, and air conditioning (HVAC) in residential buildings as well as in business and service properties.
  - The target is to improve the energy efficiency of technology systems in the whole Finnish building stock while also ensuring better maintenance and good indoor air quality.
  - With alternative measures, Finland is determined to reach at least the same energy efficiency impacts of a mandatory inspection scheme but aiming for more.
- The key message of the Forum is that the **energy efficiency of a building should be systematically considered as part of its annual maintenance and upkeep.**
- Tips and guidelines are compiled into **annual calendars** that building owners and managers can use to check what to do at different times of the year to **improve the energy efficiency of systems** and **maintain good indoor conditions**.



Communication Forum for Building Services Technology

- **Monitoring and evaluation**

- Working together produces results: together, the Forum's members have already **had more than 3 million customer contacts** (since 2021).
- In 2023 alone, **more than 1.53 million contacts** were made: online and social media users, newsletter subscribers, magazine readers and participants in live events and webinars. This equals to ca 27 % of the full Finnish population.
- In three years, the actors involved in the Communication Forum have carried out almost 1,000 advisory and communication activities, such as webinars and events, social media communications and articles on websites, in the media and in newsletters.

What is monitored?	What is collected and calculated?	What is evaluated?
Campaign measures (four two-week campaigns per year)	Reach through **targeted newsletters** (number of subscriptions)	How widely are the target groups reached through the different means and channels?
Forum member's own measures	Reach through **social media** (X, LinkedIn, Facebook, Instagram)	How does the reach correspond to the different measures of the forum?
	Reach through **press / media** (press releases, articles, media contacts)	
	Reach through **events** (live and online events, numbers of participants, viewers	

France

Lucie Bioret, ADEME

This project has received funding from the European Union's LIFE programme under grant agreement No. 101075902

The Tertiary Decree (Décret Eco-Energie Tertiaire) : a sufficiency measure ?

An obligation of 40% energy consumption reduction by 2030 and 60% by 2050

- The tertiary sector accounts for 17% of the final energy consumption.
- In line with the new EPBD 2030 targets.
- Eco-Energy is a **regulatory obligation** that imposes **energy consumption reduction** of 40% by 2030, 50% by 2040, and **60% by 2050 compared to 2010 levels**.
- It is set up for **all** tertiary establishments, **both private and public**, that occupy a surface area of more than 1000 m².
    - This accounts for **around 80% of the sector's building stock** or around a billion square meters.

How does this work ?

- A decree defines the final energy **consumption targets (in kWh/m²/year) for each sub-sector**.
    - The targets depend on the sub-sector's characteristics such as typical building's size and energy-intensity.
- **Obligated parties**, have to meet either the **relative energy consumption reduction target in percentages** or **the final energy consumption targets** set by the decree for each sub-sector.
- **AND**, obligated parties have to **report their annual energy consumption** by type of energy **on the OPERAT platform**.

More on the reporting process and on the OPERAT database

Need some help ?

- ADEME and the OPERAT team have published a **user guide** to help with reporting.
- **Webinars** and **online trainings**.
- **CSV templates** for org. With high number of establishments.

Reporting at the establishment level including:

- **Annual final energy consumption** by energy type (**electricity, natural gas, fuel, coal, wood, district heat**, etc).
- Surface area occupied by the establishment, **heated and cooled surface**.
- Category of **activity**, **location**, and **ownership status**.

Entité fonctionelle | Activité | **Consommations d'énergie** | Ajustement climatique | Volume de l'activité | Synthèse

Consommations énergétiques annuelles *

Renseignez les consommations d'énergie [illegible] nelle assujettie dans le table

Pour les cas particuliers des centres com [illegible] commerciales, les espaces co [illegible] ation d'entité fonctionnelle à part entière. Dans ces cas, seules les deux pre [illegible] être renseignées.

Individual conso.

Shared collective consumption.

Electricity

Natural gas

	0	1	2	3	4
Type d'énergie	Consommations individuelles de l'entité fonctionnelle	Consommations réparties bénéficiant à l'entité fonctionnelle	Consommations des espaces communs affectées au tantième	Conversion PCI (en kWh)
Electricité (kWh) - Hors IRVE sous-comptée	127000	124000	32000	283000
Gaz naturel – réseaux (kWh)		237000	25000	235800
Gaz naturel liquéfié (kg)				0
Gaz propane (kg)				0
TOTAL				518800

RÉPUBLIQUE FRANÇAISE
Liberté
Égalité
Fraternité

ADEME
AGENCE DE LA TRANSITION ÉCOLOGIQUE

ODYSSEE-MURE

Building policies in France: a focus on tertiary and public buildings

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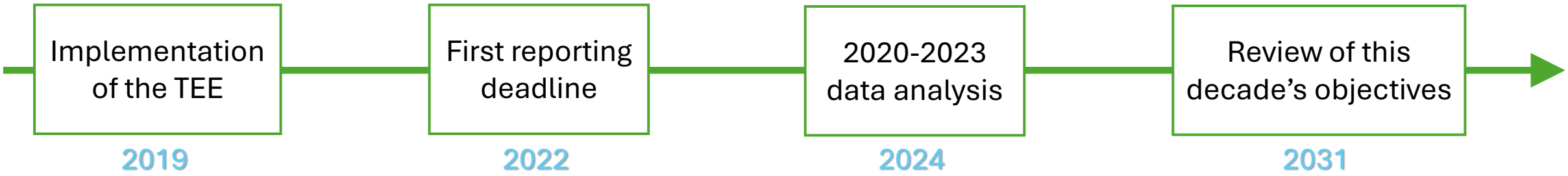

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Entité fonctionelle | Activité | Consommations d'énergie | Ajustement climatique | Volume de l'activité | Synthèse

Consommations énergétiques annuelles *

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TOTAL				518800

Some figures

➔ The 2021 **reporting covers 64% of the obligated surface area** as of August 2024, while the 2022 reporting covers 54% of the nearly 1B m² obligated.

➔ TEE **applies to widely different sectors**:
- Schools and universities (21%)
- Office buildings (20%)
- Hospitals and health sector (12%)
- Logistics (8%)

➔ Biases in the reporting ?
  ➔ Data **geographically correlated**
  ➔ Bias due to **under-reporting of stock-energies**

➔ Data shows a decrease in finale energy consumption between 2020-2021 and 2022.

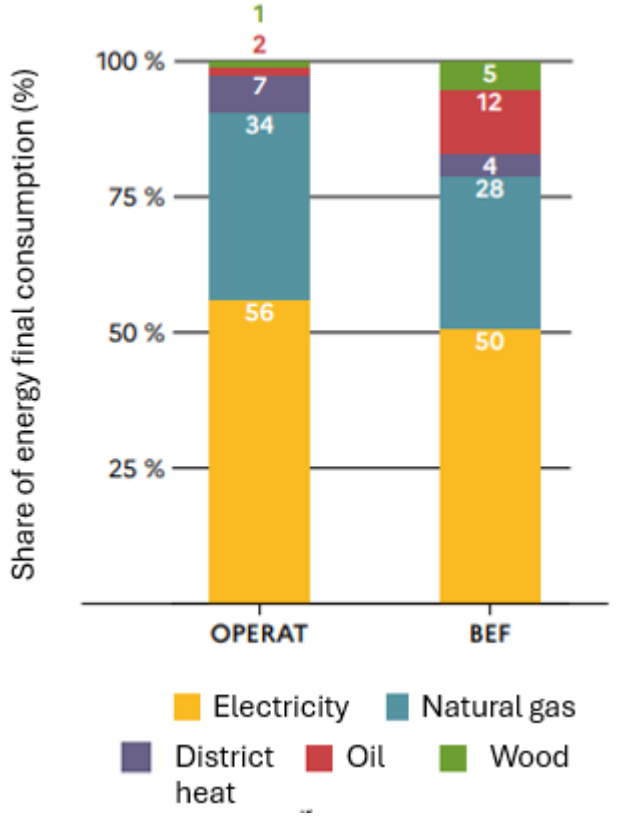

Figure 1: Finale energy consumption of the tertiary sector by type in OPERAT and in the National Energy Balance

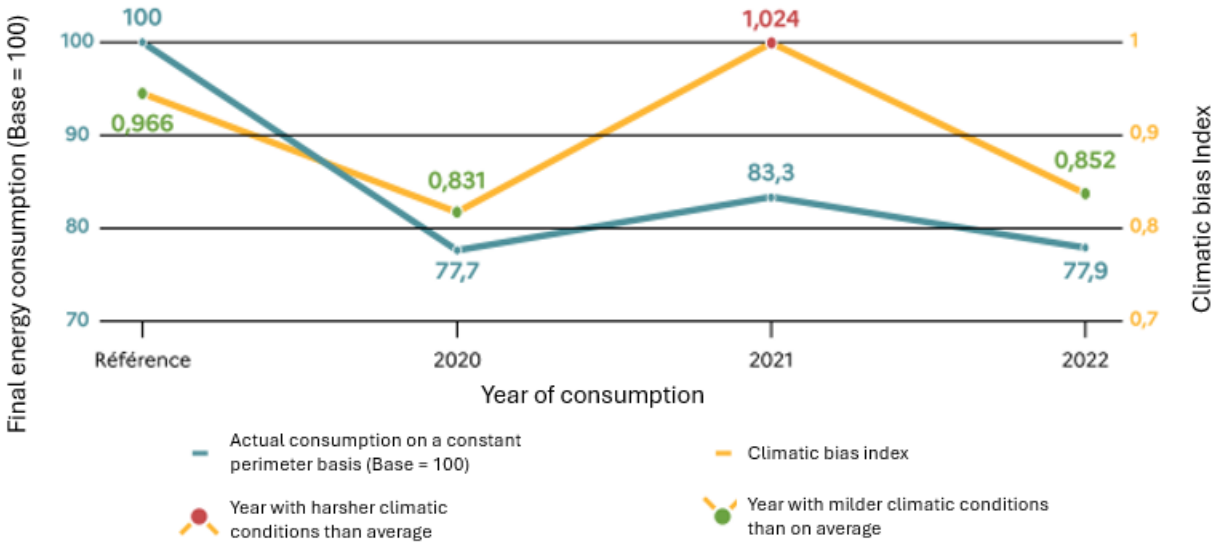

Figure 2: Final energy consumption on a constant perimeter basis and climatic index

Some conclusions

40% reduction
In 2030

50% reduction
In 2040

60% reduction
In 2050

➔ On the Tertiary Decree's targets:

- **High ambition**
- **Large targeted audience**
- BUT, need to **ensure compatibility with the future EPBD transposition**

➔ On the reporting:

- **Relatively high level of reporting compared to other regulations** such as the GHG reporting likely due to :
  - **readily available energy consumption data**
  - **No expert third-party needed** for the reporting
- BUT, as of yet, **no feedback** from the tool to the reporting entities on progress made and on potential solutions to put in place.

OPERAT
Observatoire de la Performance Energétique de la Rénovation et des Actions du Tertiaire

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Greece

Dimitris Mezartasoglou, CRES

This project has received funding from the European Union's LIFE programme under grant agreement No. 101075902

Best practices of building policies in Greece – ELECTRA Program (I)

ODYSSEE-MURE

In September 2022, Greece's Minister of Energy & Environment launched the *ELECTRA program*, the application guide as well as the electronic platform concerning the energy upgrading of the building stock of public sector (*i.e. Central Public Administration, Bodies of the General Government and Legal Entities of Public Law and their partnerships*).

It is the largest energy saving program aiming at:

- ✓ *promoting* the exemplary role of the State in improving the energy performance of buildings,
- ✓ *meeting* the annual energy renovation target of 3% of the useful floor area of central government buildings
- ✓ *achieving* the national energy efficiency targets.

Moreover, this program targets:

- ❒ at least at 30% savings of annual primary energy required for the needs of the technical systems and
- ❒ a 30% reduction in CO2 emissions.
- ❒ 2.5 million m^2 of public sector buildings will be upgraded by 2026.

ELECTRA program also encourages the development of Energy Saving Companies (ESCOs) market for the *energy renovation* of existing buildings and infrastructure of the public sector.
86 applications with 172 public buildings have already been approved with a total budget of €165 mn
The budget of program is €620 mn for the implementation of interventions in the building envelope and technical systems of the public sector.

Best practices of building policies in Greece – ELECTRA Program (II)

ODYSSEE-MURE

The targets achieved will be based on:

- **Energy Performance Certificates (EPC)**, prior to and after the implementation of energy efficiency measures and
- **Energy audit** (prior to and after the implementation of energy efficiency measures)

Expected outcome from the implementation of ELECTRA program:

- The total estimated reduction in electricity consumption per year will be 600 GWh.
- The reduction in annual electricity expenditure after the energy upgrade of buildings will reach €96 mn.
- The reduction in annual emissions from the energy upgrade of buildings will be 364,000 tonnes of CO_2eq.

Best practices of building policies in Greece – Save at Home Program

ODYSSEE-MURE

"Save Energy at Home" program (2014-2017) and **"Energy upgrading of residential buildings" (2021-2023)**

- Designed for implementing energy saving interventions in residential building sector
- Aiming at reducing energy needs & consumption of conventional fuels
- Operated by National Recovery & Resilience Plan with funding from EU-Next Generation EU

"Energy upgrading of residential buildings" (2023)

Individual Income (€)	Family Income (€)	Grant rate	
		Home ownership (%)	Free housing allowance /House rental (%)
<= 5.000	<=10.000	75	65
>5.000 – 10.000	>10.000 – 20.000	70	60
>10.000 – 20.000	>20.000 – 30.000	55	45
>20.000 – 30.000	>30.000 – 40.000	45	40
>30.000	>40.000	40	40