



Interreg
Baltic Sea Region



Co-funded by
the European Union

Empowering Municipalities for a Low-Carbon Future

CommitClimate

Igor Krupenski Enerhack, CEO





<https://interreg-baltic.eu/project/commitclimate/>

Project partners

LEAD PARTNER Riga Technical University	Municipality of Patecznica
City of Riga	Cesis Municipality
Tallinn University of Technology	Municipality of Raciechowice
Sustainable Business Hub Scandinavia AB	Enerhack Foundation NGO
Association of Municipalities Polish Network "Energie Cites"	Lapplands Municipal Association

1 Solution(s) in preparation

1 Solution(s) planned for use / upscale

1 Pilot activities

46 Benefitting organisations

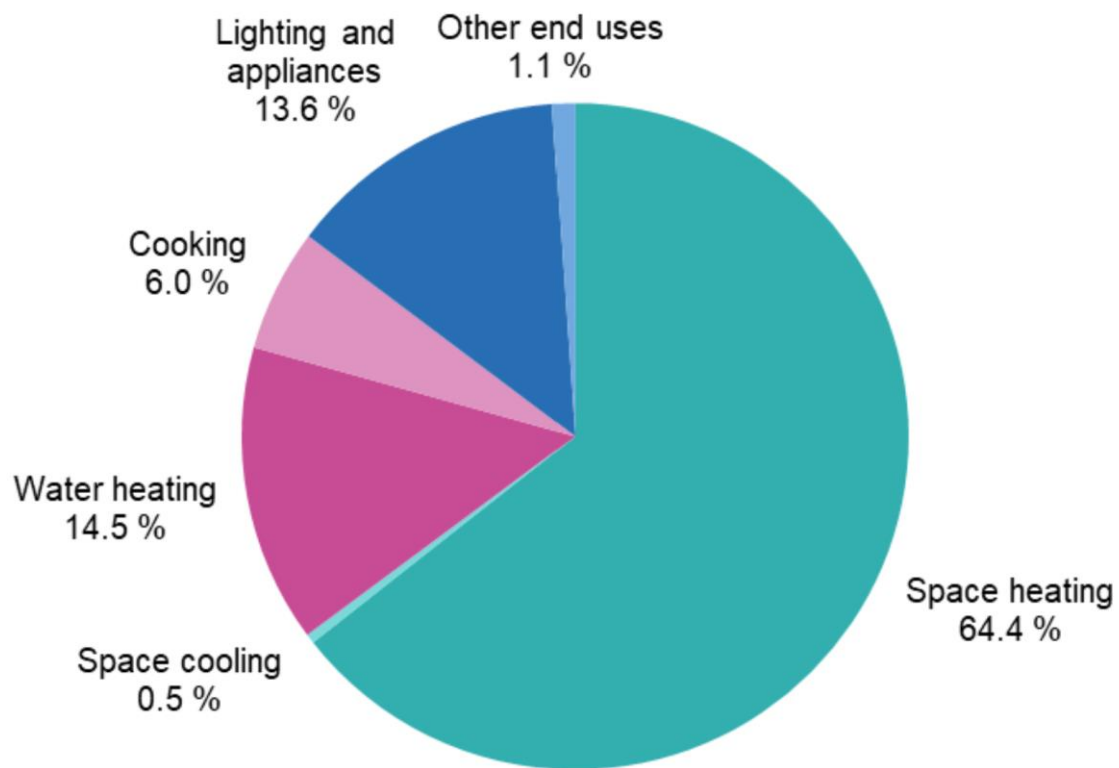
27 Organisations in the project

CommitClimate in numbers.

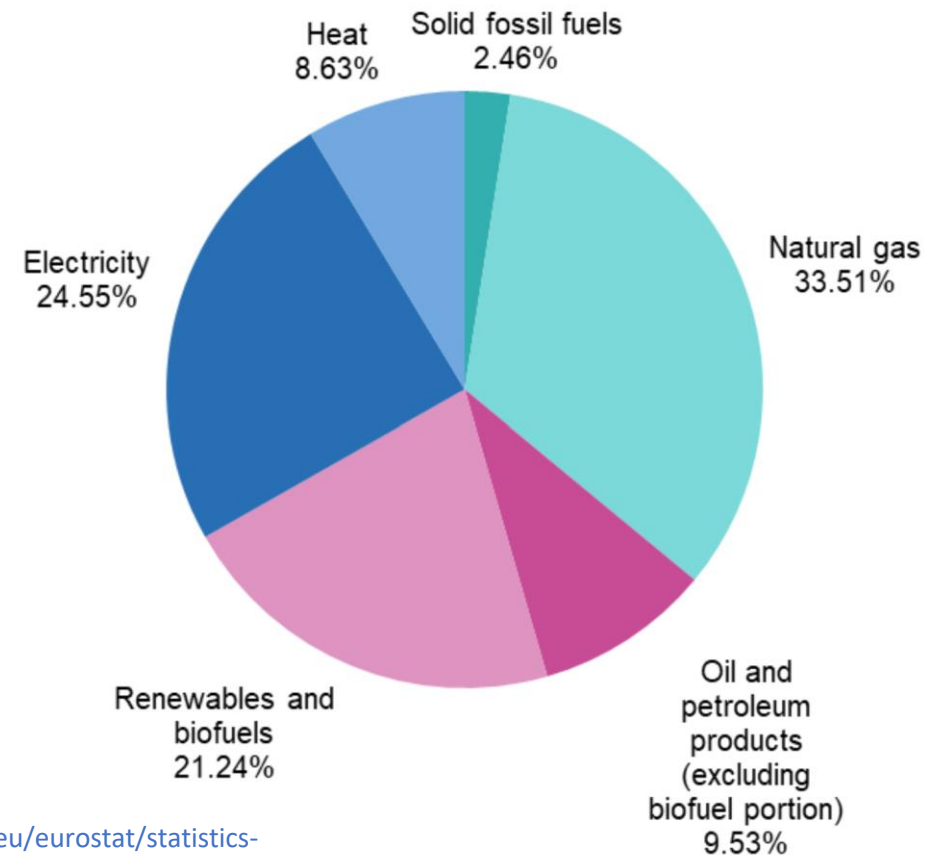
The Decarbonization Challenge for Local Governments

- Municipalities face significant challenges in reducing their carbon footprint, particularly in managing energy consumption for heating.
- CommitClimate equips local governments with the tools they need to create effective energy and climate action plans, simplifying the process of calculating emissions and planning for future reductions.
- Heating, especially district heating, accounts for a significant portion of local emissions, with 64.4% of residential energy consumption in Europe going toward space heating.
- By improving thermal energy efficiency and integrating renewable sources like biomass and waste heat, municipalities can make significant progress toward their climate goals.

Why Heating is Key to Decarbonization



https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Energy_consumption_in_households



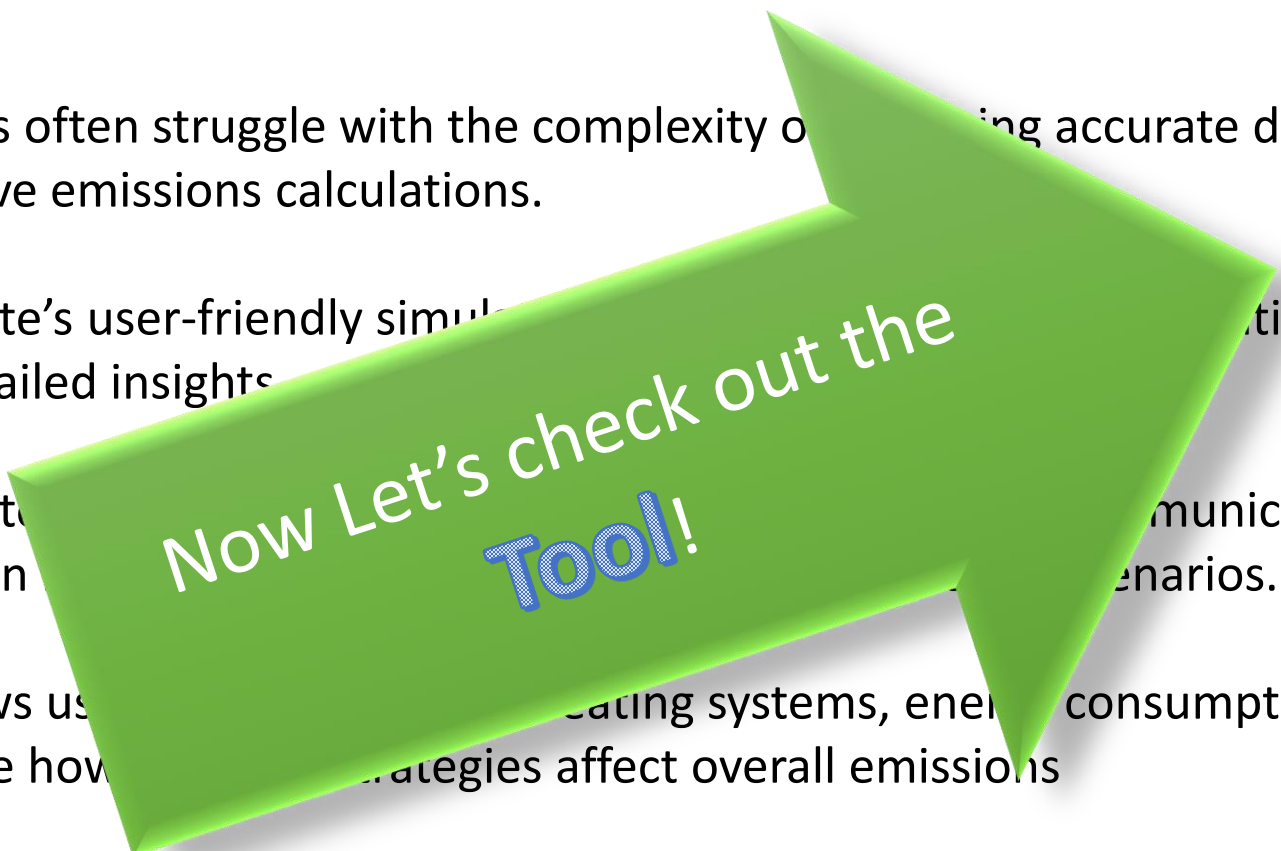
https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Energy_consumption_in_households

Challenges in Estimating Carbon Emissions

- Municipalities often struggle with the complexity of gathering accurate data and conducting comprehensive emissions calculations.
- CommitClimate's user-friendly simulation tool simplifies this by automating calculations and providing detailed insights, even for non-technical users.
- CommitClimate provides an easy-to-use simulation tool that helps municipalities calculate their current carbon footprint and model future emission reduction scenarios.
- The tool allows users to input data on heating systems, energy consumption, and renewable energy sources to see how different strategies affect overall emissions

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Now Let's check out the
Tool!

SECTOR: MUNICIPALITY BUILDINGS

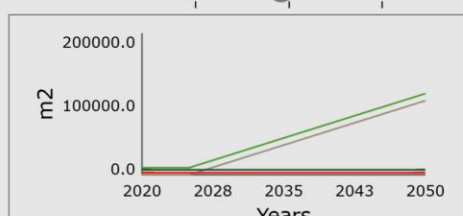
INPUT:

1.1. Municipal building stock m² of which renovated 0.0 100.0 %

connected to DH 0.0 100.0 %

1.2. Planned investment in new buildings M.EUR

Year of construction start



1.3. Average heat energy consumption of the existing building stock, kWh/m²/year

1.4. Average electricity consumption of the existing building stock, kWh/m²/year

EE policy ON OFF

Annual improvement, %/year 0.0 5.0 10.0

Electricity conservation policy

Annual improvement, %/year 0.0 10.0

YEAR: 2050

Reset

Next

Run

Heat: 702.2 CO₂ tons per year

Electricity: 662.3 CO₂ tons per year

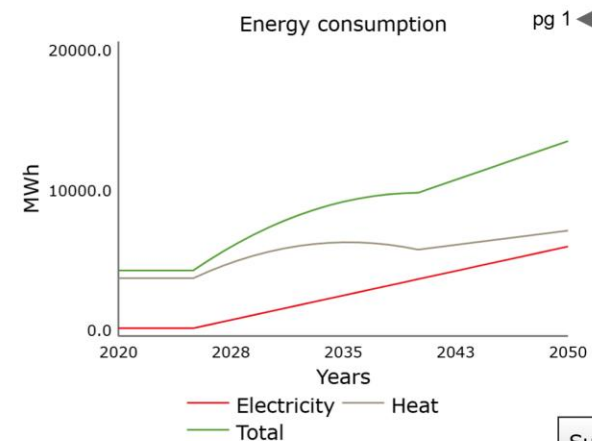
Total: 1364.4 CO₂ tons per year

Emission factors:

Heat

Electricity

RESULTS



Summary

Export

DISRTICT HEAT SUPPLY CO2 emission factor

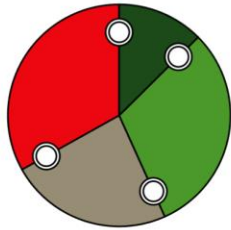
Back

Reset

Run

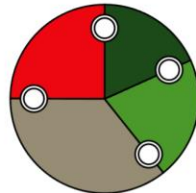
Step 1. Define fuel use, %

Current situation:

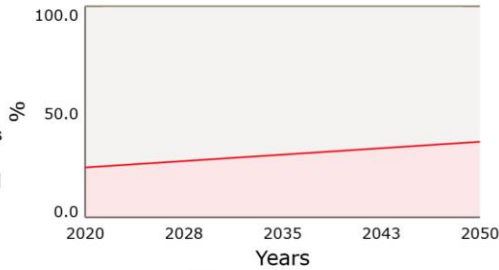


- Diesel 33.1%
- Biomass 23.6%
- Natural gas 30.7%
- Other fossil 12.6%

Target situation:



- Diesel 24.9%
- Biomass 35.8%
- Natural gas 21%
- Other fossil 18.3%



- RES share, %
- Fossil share, %

Fuel switch policy

Target year:

Step 2. Define heat losses, % (inactive, not added)

Back to households

Local district heat emission factor:

0.158

CO2 tons per MWh

SECTOR PRIVATE BUILDINGS (HOUSEHOLDS)

INPUT:

2.1. Number of households thousand

Planned increase of households, %/year 0.0 4.4 10.0

2.2. By type:

Multi-apartment, % 55.9%

Private houses, % 44.1%

Average size of living space (private house), m2 131.0

Average size of living space (multi-apartment), m2 53.0

2.5. Share of building stock with DH connection, % 0.0 38.0 100.0

2.3. Average heat energy consumption in households, kWh/m2/year 147.0

Average electricity consumption of the existing building stock, kWh/m2/year 30.0

2.4. Household energy efficiency policy ON OFF

Year of policy start

Speed of policy (H), %/year 0.0 1.8 5.0 10.0

Speed of policy (E), %/year 0.0 4.0 10.0

YEAR: 2050

Back

Next

Reset

Run

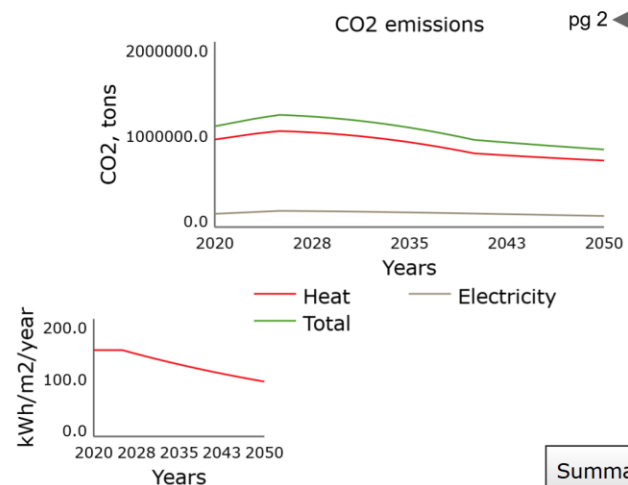
Heat: 720200.1 CO2 tons per year

Electricity: 120001.7 CO2 tons per year

Total: 840201.8 CO2 tons per year

Emission factors: Heat (individual) Heat (district heat) Electricity

RESULTS



Summary

Export

INDIVIDUAL HEAT SUPPLY

Energy emission factor

Current situation:



- Diesel 26.2%
- Biomass 19.7%
- Natural gas 36.9%
- Other fossil 17.2%

Target situation:



- Diesel 32.5%
- Biomass 35.1%
- Natural gas 15.5%
- Other fossil 16.8%

Fuel switch policy

Target year:

Local individual heat emission factor: 0.164 CO2 tons per MWh



RES share, %

Fossil share, %



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Challenges in Estimating Carbon Emissions

- These were only a few of the Tool's features.
- The Tool allows to calculate the CO2 emissions from Heat and Electricity production in the following sectors;

MUNICIPALITY BUILDINGS

PRIVATE BUILDINGS (HOUSEHOLDS)

PRIVATE BUILDINGS (OTHER)

Others (Public lighting, water management, agriculture)

MUNICIPALITY FLEET

URBAN PASSENGER TRANSPORT (Public and private)

Adaptability for Different Regions

- The CommitClimate tool can be customized to suit different regional needs, whether municipalities are in cold or warm climates, and can incorporate various renewable heating solutions.
- This adaptability ensures that local governments can tailor their plans to meet both their environmental goals and regional energy realities.
- CommitClimate supports long-term energy planning by providing reliable data and insights for decision-makers.
- By focusing on thermal energy efficiency and integrating renewable energy sources like biomass or waste heat, municipalities can significantly reduce their carbon footprint."



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Thank You for your attention!

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