



## Review of Riga's Climate and Energy Goals Using CommitClimate Tools

This report explores the application of the CommitClimate CO<sub>2</sub> simulator as a supporting tool for climate and energy planning in Riga municipality. It focuses on how modelling results can be used in the context of the upcoming revision of Riga's Sustainable Energy and Climate Action Plan (SECAP), which is planned for 2026.

The report complements the scenario-based assessment developed within the project (Deliverable D.2.2), which provides a detailed analysis of future energy demand and CO<sub>2</sub> emissions under different assumptions. While the scenario-based assessment focuses on modelling results, this report aims to demonstrate how these results can be interpreted and applied in practical decision-making and strategic planning processes.

The main objective of this report is to:

- illustrate the role of the CommitClimate tool in supporting municipal planning,
- highlight how modelling results can inform policy prioritisation,
- and outline potential use cases of the tool in the SECAP revision process.

This report does not aim to provide a detailed feasibility study or a comprehensive policy analysis. Instead, it presents a conceptual and practice-oriented perspective on how modelling tools can support climate governance at the municipal level.

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# 1. Introduction

Urban development and investments in improving the living environment are closely linked to climate policy. In planning its policies and measures for this decade, the Riga City Council has also set ambitious goals for reducing greenhouse gas (GHG) emissions and improving energy efficiency, as defined in the Sustainable Energy and Climate Action Plan 2030 (hereinafter SECAP) and the Climate City Contract. To achieve its climate goals, Riga is continuously implementing projects in various fields through the exchange of experiences with other European cities. One of the most current questions is about decision-making tools – how to develop strategic planning and monitoring systems to assess progress and refine actions to mitigate climate change and modernize energy systems.

As part of the Interreg Baltic Sea Region Programme **CommitClimate** Project, Riga Technical University, together with its project partners, developed a CO<sub>2</sub> simulator that enables the creation of forecasts for the city's energy consumption and CO<sub>2</sub> emissions and the assessment of the impact of various policy measures. Such scenarios are created to ensure that set targets can be achieved within a specific time frame and to select the most effective actions. In developing the emissions simulator and calculating results, the authors rely on assumptions regarding the characteristics of various technologies.

Riga Energy Agency used the **CommitClimate simulator** to compare the impact of measures included in Riga's planning documents and to assess long-term projections for achieving its targets. The SECAP plan aims to reduce the city's GHG emissions by 30% by 2030, while the Climate City Contract targets a reduction of up to 50% from 2019 levels. The municipality's progress toward climate neutrality is characterized by various indicators that are tracked on the climate goals monitoring platform.

A link to the Commit Climate CO<sub>2</sub> simulator is, upon registration, available here:

<https://br-commitclimate.rtu.lv/simulator/>

## 2. CommitClimate Tool in the Context of SECAP Revision

### 2.1. Role of modelling tools in climate planning

Achieving climate neutrality targets also requires the active participation of local governments. Local governments are required not only to set ambitious targets for themselves, but also to develop realistic pathways to achieve them, considering sectoral interaction, technological developments and behavioural factors. To support informed decision-making, effective climate and energy planning requires data-driven approaches.

This highlights the role of modelling tools, which facilitate policy planning to reduce energy demand and emissions under different assumptions. It allows policy makers to compare alternative strategies and better understand trade-offs between policy options. In this way, modelling tools help bridge the gap between strategic targets and practical implementation. Such tools also facilitate communication between the many stakeholders involved in climate governance and promote more transparent, evidence-based planning processes by offering an organized framework for analyzing complex systems.

## 2.2. Overview of the CommitClimate tool

The CommitClimate CO<sub>2</sub> simulator is a decision-making tool developed within the framework of the Interreg Baltic Sea region programme to help municipalities assess support emissions and plan climate change mitigation pathways. The developed tool allows for the use of policy outcomes and future energy demand in key sectors related to CO<sub>2</sub> emissions and the impact of assessed measures over time.

The modelling tool covers several sectors that are relevant for municipal climate planning, several buildings, transport, waste recycling, public infrastructure and energy supply. It allows for providing an overview of potential emission reduction pathways, integrating both technological and demand-side measures

A feature of the tool is its ability to operate at different levels of availability of key data. If detailed local data are not available, the model can be supplemented with facility assumptions, allowing municipalities to make the necessary indicators, gradually improving the quality of the data over time.

## 2.3. Approach used in this assessment

In the case of Riga, the CommitClimate tool was used to explore its potential application in supporting climate planning and the future revision of the SECAP.

The analysis builds on the scenario-based assessment developed within Deliverable D.2.2, where the model was applied to estimate long-term trends in energy demand and CO<sub>2</sub> emissions. In this report, the focus is not on developing new scenarios, but rather on interpreting existing modelling results and examining how they can inform planning decisions.

The assessment is based on:

- aggregated sectoral modelling results,
- combined application of policy measures,
- and simplified assumptions reflecting available data and planning needs.

As a result, the findings presented in this report should be understood as **indicative**. They provide a high-level overview of sectoral trends and potential priorities, rather than a detailed comparison of individual policy options.

This approach reflects the practical context in which municipalities operate, where modelling tools are often used iteratively - starting from simplified assessments and gradually moving towards more detailed analyses as data availability and planning capacity improve.

# 3. Linking Modelling Results to Planning Needs

## 3.1. Key findings from scenario-based assessment (D.2.2)

The scenario-based municipal case studies (D2.2. deliverable) provide an overview of the future energy consumption and CO<sub>2</sub> emission development in Riga across various sectors. The results indicate several important trends that have direct relevance to climate policy planning.

Firstly, the transport sector - private cars and heavy-duty vehicles - is the largest source of CO<sub>2</sub> emissions in the city (>50%). Both the baseline scenario and the policy scenarios suggest that without targeted measures, emissions in this sector will remain at a high level or even increase. At the same time, the modelling results show that significant emission reductions can be achieved by reducing transport demand and improving efficiency.

Secondly, buildings in the residential sector account for a significant share of total energy consumption and emissions. Energy efficiency measures, especially the renovation of multi-apartment buildings, allow for significant emission reductions, although their impact is more gradual than in the transport sector.

Thirdly, the impact of municipal infrastructure and other smaller sector measures on total emissions is relatively limited. While such measures are important from a governance and good practice perspective, their contribution to overall emissions reductions is relatively small.

Overall, the modelling results indicate that achieving climate goals requires a combination of measures across sectors, with particular attention to those solutions with the greatest potential for impact. Based on the modelling results, several **priority areas** for climate action in Riga can be identified:

1. **The transport sector** emerges as the key priority due to its large share in total emissions and high reduction potential. Measures that reduce travel demand, promote modal shift, and improve transport efficiency are therefore critical for achieving climate targets.
2. **The residential building sector** represents a secondary priority, where long-term investments in energy efficiency can ensure stable and sustainable emission reductions. However, the pace and extent of renovation play a crucial role in determining the overall impact.
3. **The energy sector** also remains important, particularly in terms of reducing the carbon intensity of energy supply. Decarbonisation of electricity and heat production can significantly enhance the effectiveness of measures implemented in other sectors.
4. At the same time, smaller sectors, such as **municipal infrastructure**, can play a supporting role by demonstrating best practices and increasing public awareness, even if their direct emission reduction impact is limited.

### 3.2. Municipal priorities and planned measures in Riga

Public transport and electric vehicles, building renovations, solar energy, and heat pumps – these are the technological choices that help reduce the negative impact of use of fossil energy resources on the environment. Riga has prepared plans for this decade that include detailed actions across various sectors. The greatest positive impact on emission reductions would come from electrification measures in the transport and energy production sectors. However, the municipality's ability to influence the actions of all stakeholders is limited, therefore, the city's priority is to maintain a unified planning framework, to develop support instruments, and to demonstrate examples of best practices through investments in public infrastructure. Below is a summary of possible directions in each sector considered:

- In **the transport sector** - the measures with the greatest impact are replacing the diesel and gasoline vehicle fleet with electric vehicles where technically feasible, as well as establishing appropriate charging infrastructure in all city neighbourhoods. Traffic calming and non-motorized daily mobility also play a significant role. Alongside urban planning, Riga's largest contribution consists of subsidies and investments in maintaining the public transport system

- In **the building sector** - Although Riga has committed to renovating 2,000 buildings by 2030, in practice this will amount to only a few hundred. However, interest among apartment owners is growing, and if the state provides financial support, the building renovation process will improve; moreover, the positive impact will be more clearly reflected in Riga's climate and energy indicators.
- In **the municipal infrastructure sector** - The Riga City Council is committed to minimizing the use of fossil fuels in the sectors of buildings, infrastructure, and transportation. Key measures include the procurement of renewable heat and electricity, the modernization of lighting, as well as building renovations and the replacement of gas boilers by 2030. The city plans to transition its vehicle fleet to electric vehicles. When deciding on the city's budget and priorities, the main area of influence lies precisely in the municipal sector. Though in Riga's overall GHG emissions balance, the municipal sector accounts for only 2%; energy production, transportation, and buildings managed by other institutions and residents have a greater impact. However, energy efficiency projects implemented by the municipality have significant added value, as they affect public buildings and other elements of the city's infrastructure that are important to the public.

## 4. Practical Application of the Tool in Municipal Planning

The upcoming revision of Riga's Sustainable Energy and Climate Action Plan (SECAP), planned for 2026, presents an opportunity to strengthen the use of data-driven approaches in municipal climate planning. In this context, the CommitClimate tool can be applied as a supporting instrument throughout different stages of the SECAP revision process: (1) It enables the development of a structured baseline, supports the assessment of future trends, and provides a framework for evaluating the potential impact of different policy directions; (2) In the scenario development phase, the tool allows municipalities to test combinations of measures and assess their potential impact on energy demand and emissions over time; (3) The tool can also facilitate the evaluation of draft plans by comparing expected results with pre-defined objectives, thus helping to ensure coherence between strategic objectives and planned activities.

While modelling results provide quantitative insights into potential emission pathways, their value in planning lies in how they are interpreted and applied. The results of the CommitClimate model can support decision-making in several ways:

- **Prioritisation of actions.** The model helps municipalities focus resources on the most impactful measures by identifying sectors with the greatest potential for reducing emissions.
- **Understanding trade-offs.** The model highlights the differences between short-term and long-term impacts of various measures, supporting more balanced policy design.
- **Supporting integrated planning.** The results demonstrate that no single measure is sufficient to achieve climate targets. Instead, a combination of technological solutions, policy interventions, and behavioural changes is required.
- **Improving communication.** Modelling outputs can be used to communicate complex system dynamics in a simplified way, helping stakeholders understand the rationale behind policy decisions. To explore how the modelling and visualization tools could engage audiences beyond professional circles, several interactive events were organized in schools across Riga. The educational programme "Energy Detective" focused on improving students' knowledge and understanding of energy efficiency in buildings and how it connects to city-wide energy savings and greenhouse gas emission reduction efforts.

***NB! The results provided should not be interpreted as fixed predictions, but as decision-support information. Their main value is to guide discussions, justify strategic choices, and support iterative planning processes.***

## 5. Key Considerations for Implementation

### 5.1. Data availability and quality

The application of modelling tools such as the CommitClimate simulator is closely linked to the availability and quality of input data. In many municipalities, including Riga, data may be fragmented, incomplete, or not available at the desired level of detail. The tool is designed to operate under such conditions by allowing the use of default assumptions and aggregated data. This makes it possible to perform initial assessments even when detailed information is lacking. However, the accuracy and reliability of the results depend on the quality of the input data.

Therefore, an important consideration for future use of the tool is the gradual improvement of data collection and management practices. Enhancing data availability—particularly at the sectoral level—would allow for more precise modelling and more robust policy evaluation.

### 5.2. Institutional capacity

The effective use of modelling tools in municipal planning also depends on the capacity of institutions, including their technical experience, and organizational resources. Thus, applying the CommitClimate tool requires:

- basic understanding of modelling principles,
- ability to interpret results,
- and capacity to integrate findings into planning processes.

In practice, this may require training of municipal staff, as well as the development of internal workflows that support the use of analytical tools in decision-making.

It is important to recognise that modelling tools are not standalone solutions. Their contribution depends on how they are integrated within existing planning structures and supported by institutional processes.

### 5.3. Integration of the tool into existing planning processes

For modelling tools to have a meaningful impact, they must be integrated into established planning and decision-making processes. In the case of Riga, this includes alignment with the SECAP revision process, existing climate and energy strategies and broader urban development planning frameworks.

This tool can support these processes to structure the analysis of potential measures and their impacts. However, its results need to be interpreted in the context of other considerations, such as policy options, financial constraints and stakeholder priorities.

Incorporation of the CommitClimate tool into a municipality's planning system, can also strengthen the link between analytical insights and practical implementation, supporting alignment and evidence-based climate governance. Although, for effective use of modelling results across sectors, a coordination between different departments and stakeholders is required.

## 6. Limitations of the Assessment

Several limitations of this analysis must be considered when interpreting the results.

- 1) First, the assessment is based on an aggregated modelling results and underlying assumptions.
- 2) Second, the analysis is based on available data and default assumptions when detailed local data were not available.
- 3) Finally, it is important to emphasise that modelling outputs represent potential pathways rather than fixed outcomes. Real-world results depend on a wide range of factors, including policy implementation, technological development, economic conditions, and behavioural responses.

As a result, the findings should be interpreted as *indicative* and *not as precise forecasts*. Despite these limitations, the analysis provides valuable insights into sectoral trends and supports informed decision-making in the context of climate planning.

## 7. Conclusions

This report demonstrates the potential of the CommitClimate tool as a practical instrument for supporting climate and energy planning in Riga. The tool connects modelling results with planning needs, which helps people understand emission trends, find priority sectors, and make decisions based on facts.

The results show that the transport sector is the largest source of emissions in Riga and has the most room for improvement. This highlights the importance of putting measures that improve travel patterns, travel demand and transport efficiency at the top of the list. At the same time, increasing the energy efficiency of buildings and switching to cleaner energy sources remain important steps that will help reduce emissions in the long term.

The study also highlights that an integrated approach is needed to achieve climate goals. No single measure is sufficient; instead, a combination of policies, technological solutions and behavioural changes are needed to achieve real progress towards climate neutrality.

The CommitClimate tool *can assist in many parts of the SECAP review process*, such as baseline development, scenario assessment, policy prioritization and monitoring. It is a useful tool for both internal decision-making and communication with stakeholders, as it can provide a clear and organised picture of the potential impacts.

The tool can only be used effectively if there is sufficient data, the institution has the resources to use it, and it is integrated into existing planning processes. Strengthening these areas will be important to maximize the use of modelling approaches in municipal climate management.

The report indicates that the CommitClimate tool can help Riga develop better, more consistent and effective climate plans in the context of the upcoming SECAP review.

***NB! The results presented in this report should not be interpreted as fixed predictions, but rather as decision-support data. Their primary purpose is to guide discussions, justify strategic decisions, and facilitate iterative planning processes.***