Interreg Baltic Sea Region

Co-funded by the European Union

ENERGY TRANSITION
CommitClimate

Guidance Document on the Use of the CommitClimate Household CO_2 Simulator for Citizen Empowerment

Practical guidance for municipalities, stakeholders and citizens on using the behaviour module outside the project consortium

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This guidance document explains how to use the CommitClimate Household CO_2 Simulator as the citizen-facing behaviour module of the CommitClimate project. It combines a practical user guide with facilitation recommendations for municipalities and other organisations that want to use the simulator in workshops, outreach activities and local climate planning processes.

This guidance document is also available in Latvian, Estonian, Polish and Swedish.

This project receives financial support from Interreg program

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1. Purpose and scope

The CommitClimate Household CO_2 Simulator was developed to make household-related emissions visible and understandable for citizens. It helps users explore how everyday choices linked to mobility, consumption, food, waste and energy use contribute to their annual carbon footprint and how selected reduction measures could change this result.

This document is intended for municipalities, local authorities, civil society organisations, educators, project partners and other stakeholders that want to use the simulator after the project period. It can be used as a stand-alone instruction document, but it is most effective when combined with a guided discussion or workshop.

> ***Core guidance message***
>
> *Do not present the simulator as only a technical calculator. Its strongest value is as a guided reflection and dialogue tool: first it makes individual emissions visible, then it helps citizens and municipalities discuss which changes are realistic, where support is needed and how individual behaviour connects to local climate action.*

2. What is the CommitClimate Behaviour Module?

In this guidance document, the CommitClimate Behaviour Module refers to the citizen-facing CommitClimate Household CO_2 Simulator and its reduction measures section. The simulator allows users to estimate their annual CO_2 emissions across five areas of everyday life: transport, products and services, food, waste and energy. After completing the input sections, users can test behaviour-related reduction measures and compare emissions before and after these changes.

The behaviour module should be understood as a practical component of citizen empowerment. It does not replace *the CommitClimate Simulator* used for municipal planning. Instead, it complements municipal-level modelling by giving citizens an accessible way to understand their own role in the energy transition and to discuss what types of local support would make low-carbon choices easier.

The CommitClimate For Citizens page describes *the Household CO_2 Simulator* as an interactive tool that helps users assess and reduce their carbon footprint, based on inputs related to daily choices such as energy use, transportation and diet. Access to the simulator is provided through the project website, with an English version and national language versions where available.

Component	Role in citizen empowerment
Household CO_2 Simulator	Helps citizens estimate a personalised annual carbon footprint based on everyday choices.
Reduction measures screen	Allows users to test how potential behaviour changes may reduce their emissions.
Instruction manual and tutorial video	Support first-time users and reduce barriers to using the tool independently.
Workshops and outreach materials	Turn individual results into local discussion, feedback and practical action.
Feedback process	Helps municipalities and tool developers understand what users find useful, confusing or difficult.

3. Simulator workflow and core functions

The simulator follows a simple workflow: the user opens the tool, reads the instruction manual if needed, enters baseline information in five thematic sections, reviews the results, tests reduction measures and then reviews final results. The tool runs online and does not require software installation, but access may require registration depending on the platform settings.

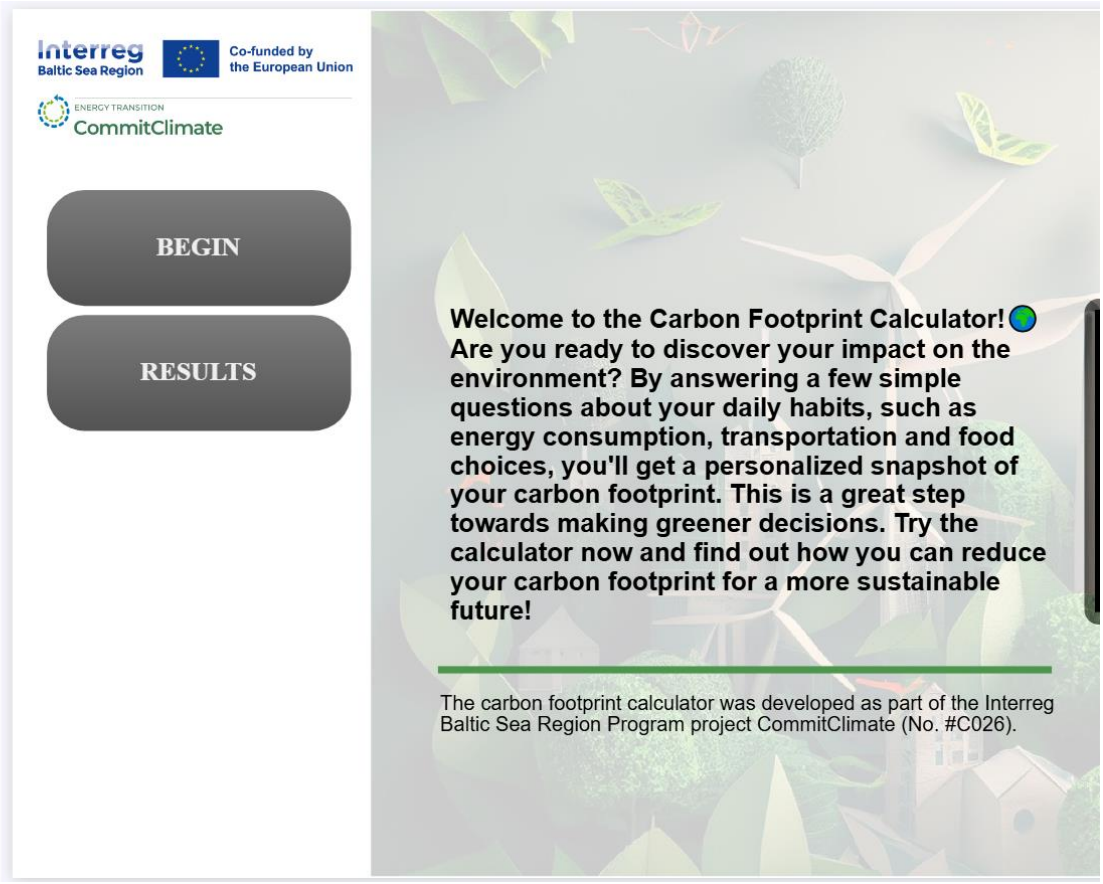

Figure 1. Homepage of the CommitClimate Household CO_2 Simulator with access to Begin, Results and Instruction Manual.

Simulator section	Main inputs	Main output or use
Transport	Daily travel, holiday travel, air and sea travel, car engine size and fuel type, number of passengers, public transport split.	Annual CO_2 emissions from transport modes and travel choices.
Products and services	Monthly expenditure on products and services; optional detailed purchasing habits for selected product and service groups.	Estimated annual CO_2 emissions linked to consumption.
Food	Weekly frequency of main food groups, meat/fish/egg composition and share of local or non-packaged food.	Estimated annual CO_2 emissions from diet-related choices.
Waste	Composition of the trash bin and types of waste sorted and recycled.	Estimated annual CO_2 emissions from waste and breakdown by waste type.
Energy	Household area, number of residents, heating source, monthly electricity consumption, energy efficiency level, cooking gas and renewables.	Estimated annual CO_2 emissions from household energy use.
Results	No new input.	Emissions by sector and comparison with the national average.
Reduction	Selection of reduction measures and implementation intensity from 0% to 100%.	Comparison of emissions before and after selected reduction measures.

Useful facilitator insight

The simulator asks for information with different time frames: daily travel, annual flights and sea trips, monthly spending, weekly food habits, household energy use and waste sorting. A short pre-workshop checklist helps participants prepare approximate answers and prevents the workshop from turning into a data-search exercise.

4. Step-by-step user guide

4.1 Before using the simulator

For the best user experience, participants should prepare approximate information before opening the tool. Exact values are useful, but they are not always necessary for educational use. The aim is to produce a meaningful estimate that can support reflection and discussion.

- Average number of trips per day and approximate trip length by car, walking, public transport and micro-mobility.
- Whether holiday travel patterns are like or different from working days.
- Approximate number of flights and sea trips per year.
- Approximate monthly expenditure on products and services; detailed categories can be filled in only if the user wants to specify them.
- Typical weekly food habits and the approximate split between meat, fish and eggs.
- Household area, number of residents, heating source and monthly electricity consumption.
- Waste sorting habits and the approximate composition of household waste.

4.2 Opening the tool and starting the calculation

1. Open the CommitClimate Household CO_2 Simulator from the project For Citizens page or from the direct simulator link.
2. Use the Instruction Manual if this is the first time using the tool. The manual explains interactive elements such as buttons, switches, knobs and sliders.
3. Click Begin to start the calculator.
4. Move through the sections using the navigation buttons at the top of the page.
5. Use the information icons to read additional explanations for each input where needed.

4.3 Transport

The transport section is divided into daily travel and air/sea travel. In the daily travel view, users enter the number of trips per day and average trip length for car, walking, public transportation and micro-mobility. The tool calculates daily kilometres by mode and shows transport-related emissions in tons of CO_2 per year.

Users can also specify whether holiday travel differs from working days, select car engine size and fuel type, enter the number of passengers in a car and adjust the public transport split. These options make the result more locally relevant, but they should be kept simple for first-time users.

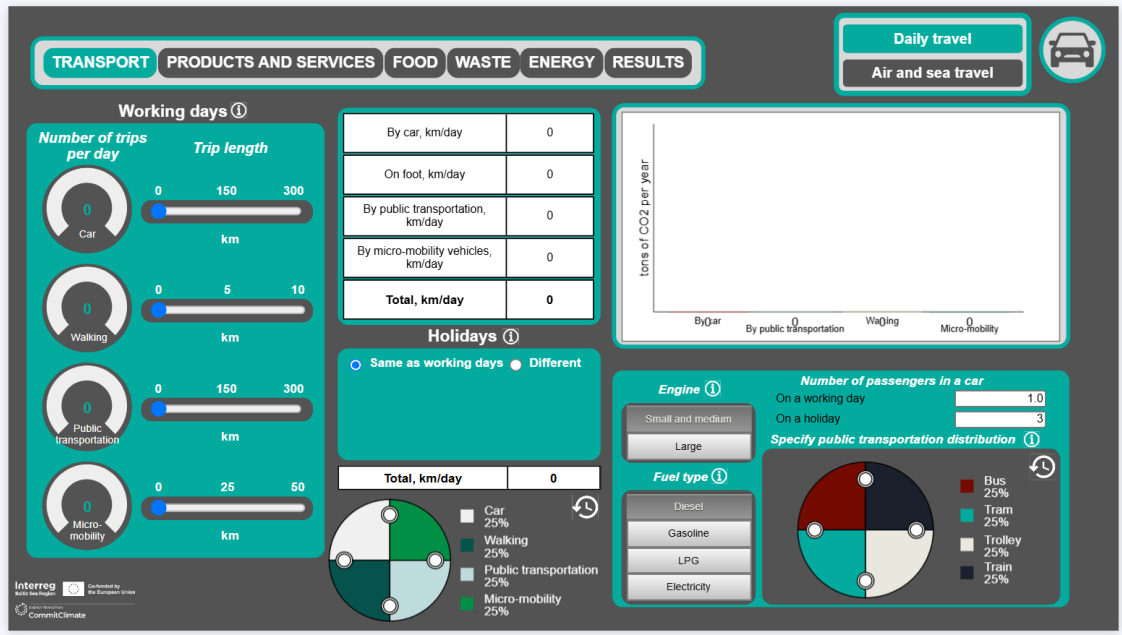

Figure 2. Daily travel input section: number of trips, average trip length, car and public transport specifications.

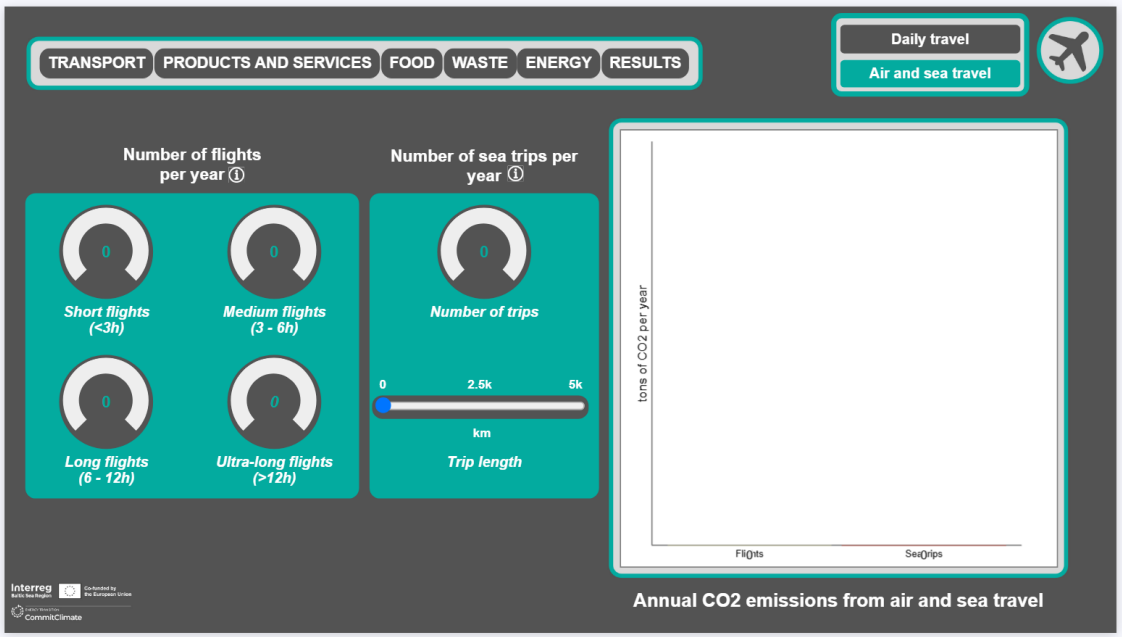

Figure 3. Air and sea travel section: annual flights by duration category and sea trips.

4.4 Products and services

The products and services section can be filled in either quickly or in more detail. The quick approach uses total monthly expenditure. Users who want a more specific estimate can activate detailed purchasing habits and distribute spending across categories such as clothing, books and newspapers, furniture, electronics, hygiene and cosmetics, toys, entertainment, education, health services, house repairs and financial services.

> ***Practical tip for workshops***
>
> *Products and services are often the most difficult section for participants because people rarely know exact monthly spending by category. For a short workshop, allow users to enter a rough monthly total and only use detailed categories if time allows.*

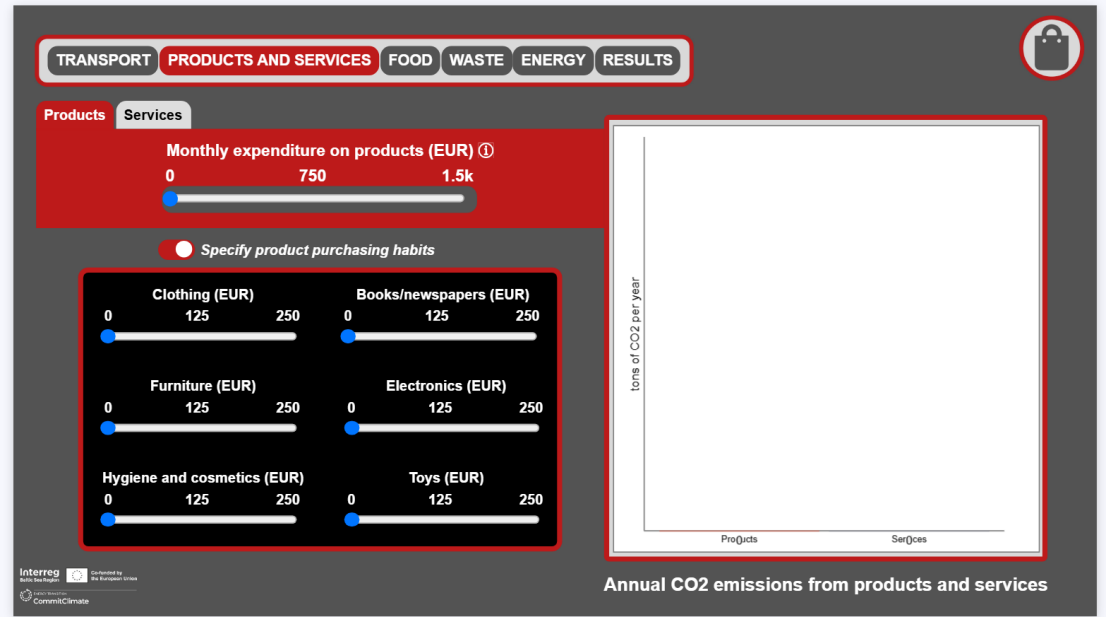

Figure 4. Products input screen with optional specification of product purchasing habits.

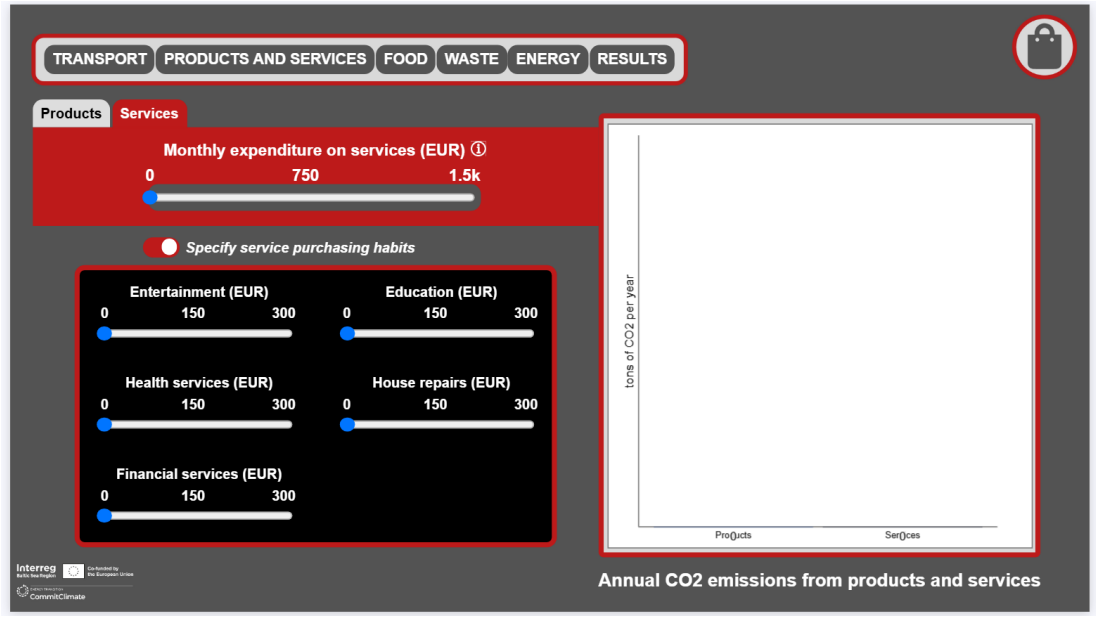

Figure 5. Services input screen with optional specification of service purchasing habits.

4.5 Food

The food section asks how many days per week the user eats selected food groups. It also allows users to specify the composition of meat, fish and egg consumption and the share of local and/or non-packaged food. The section is useful for showing that dietary choices have measurable climate impacts, while also opening a discussion about local availability, affordability and cultural habits.

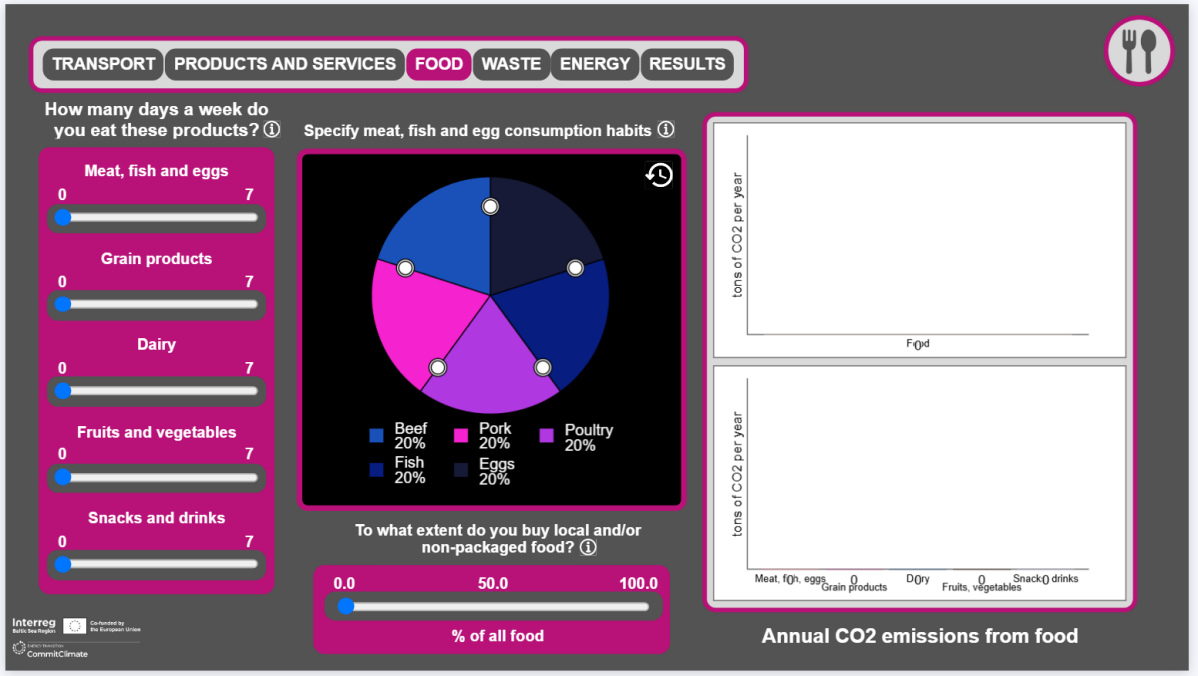

Figure 6. Food section: weekly food habits, meat/fish/egg split and local/non-packaged food share.

4.6 Waste

The waste section combines the composition of the trash bin with recycling and sorting choices. Users can indicate which types of waste they sort and recycle. This section is especially suitable for linking personal action to municipal services, because the possibility to sort waste depends strongly on local collection systems, information and infrastructure.

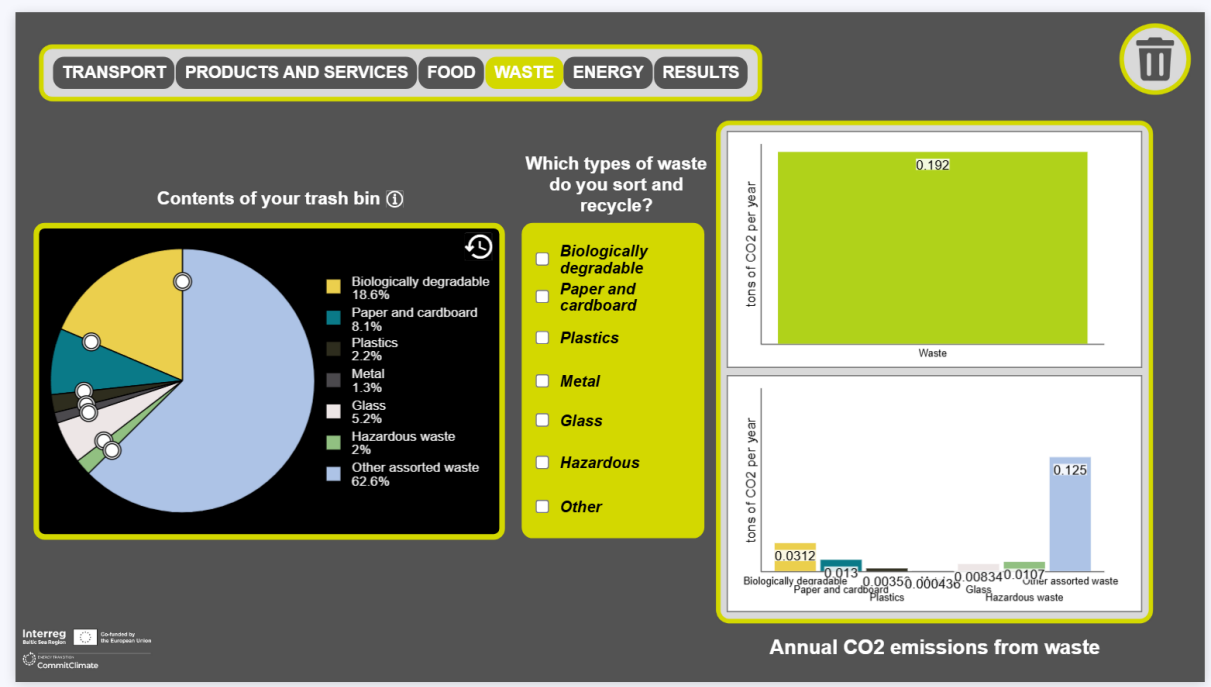

Figure 7. Waste section: trash bin composition and recycling choices.

4.7 Energy

The energy section asks for household area, number of household residents, heating source, combined heating if relevant, household energy efficiency level and monthly electricity consumption. Users can also indicate gas for cooking and renewable electricity generation. This section should be supported with practical examples, because participants may not always know their exact energy consumption or how to classify household energy efficiency.

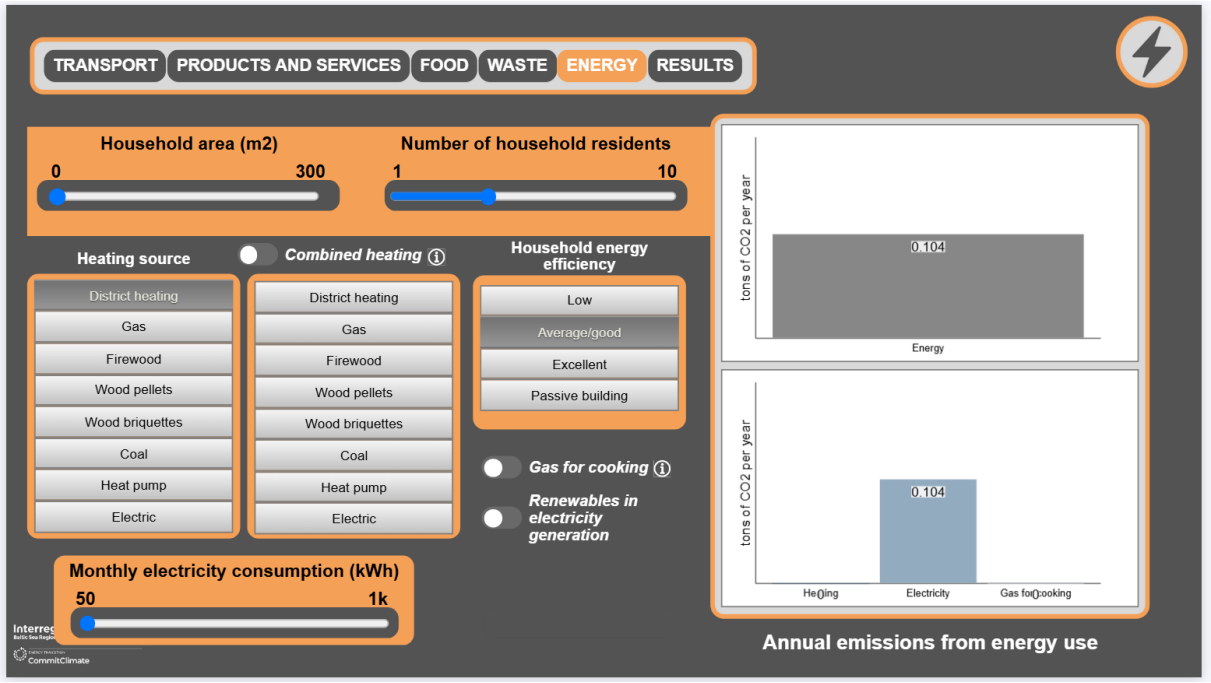

Figure 8. Energy section: household size, heating source, electricity use, energy efficiency and renewables.

5. Interpreting the results

After all five input sections are completed, the Results page shows the user's annual CO_2 emissions by sector and compares the total result with the average national emissions. The comparison is useful for creating context, but it should be presented carefully: the aim is not to rank or shame participants, but to identify where the largest reduction opportunities may be.

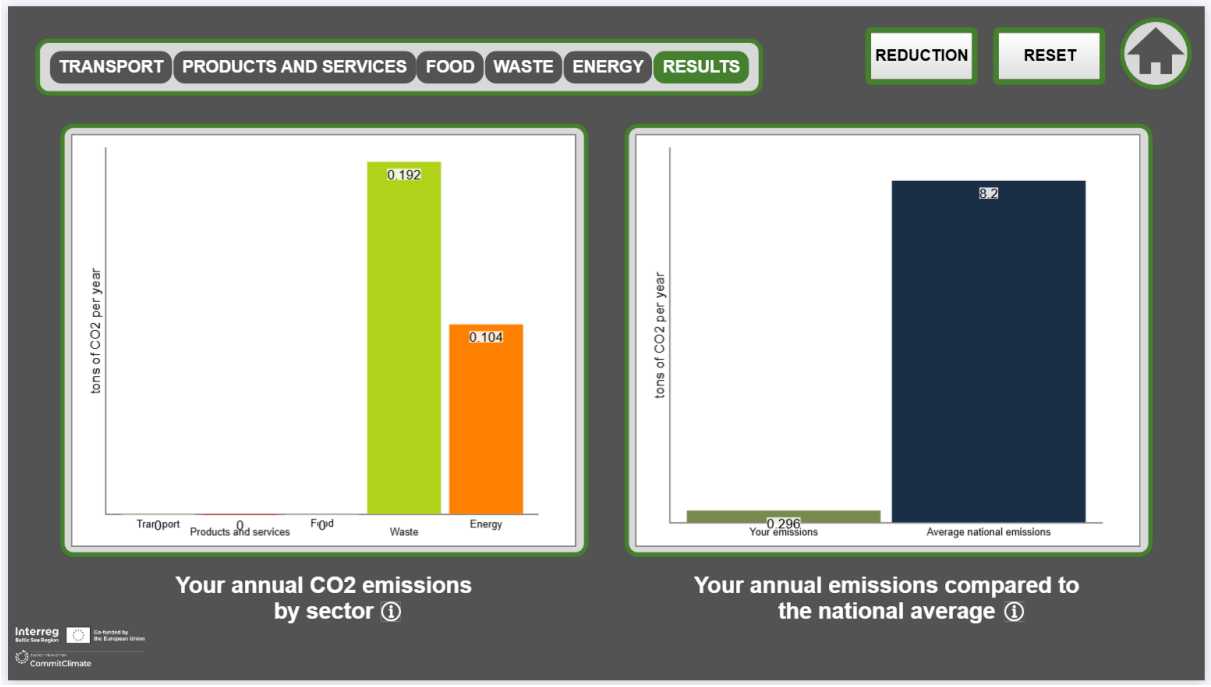

Figure 9. Results page: annual emissions by sector and comparison with the national average.

- **Use the sector breakdown first.** Ask which categories dominate the result and whether this feels expected or surprising.
- **Explain the national average as context.** It helps users compare their footprint with a reference value, but it is not a moral score.
- **Treat the result as an estimate.** The simulator is suitable for awareness raising and decision support, not as a certified household carbon audit.
- **Discuss local conditions.** Some choices depend on available public transport, housing type, heating systems, local waste services, income and access to support schemes.
- **Move quickly to the reduction screen.** The most empowering moment is when participants see which changes could reduce their result and which changes are difficult without municipal or policy support.

5.1 Important limitations to explain

Issue	How to explain it to users
Self-reported inputs	The calculation depends on the accuracy of the user's estimates. Approximate answers are acceptable for awareness raising.
Emission factors	The tool uses emission factors to estimate CO_2 emissions. Actual emissions may vary by technology, country, supplier or behaviour.

Issue	How to explain it to users
Household boundaries	Some inputs represent household-level choices, while the result is used to reflect the user's annual footprint. Household size is therefore important.
Consumption spending	Products and services are estimated using expenditure, which gives a useful approximation but does not capture every product-specific difference.
Local availability	Some reduction measures may not be equally feasible in all municipalities, especially in rural areas or where infrastructure is limited.

6. Using reduction measures for behaviour change

The Reduction screen is the core behaviour-change component of the simulator. It allows users to select and adjust potential reduction measures from 0% to 100%. The graph on the right compares emissions before and after the selected reduction measures. The user can then continue to final results.

The sliders should be explained as implementation intensity or willingness to apply a measure, not as a promise that the user will immediately achieve the displayed reduction. In workshops, the reduction screen works best when facilitators ask participants which measures are personally realistic, which require municipal support and which are blocked by cost, infrastructure, housing conditions or lack of information.

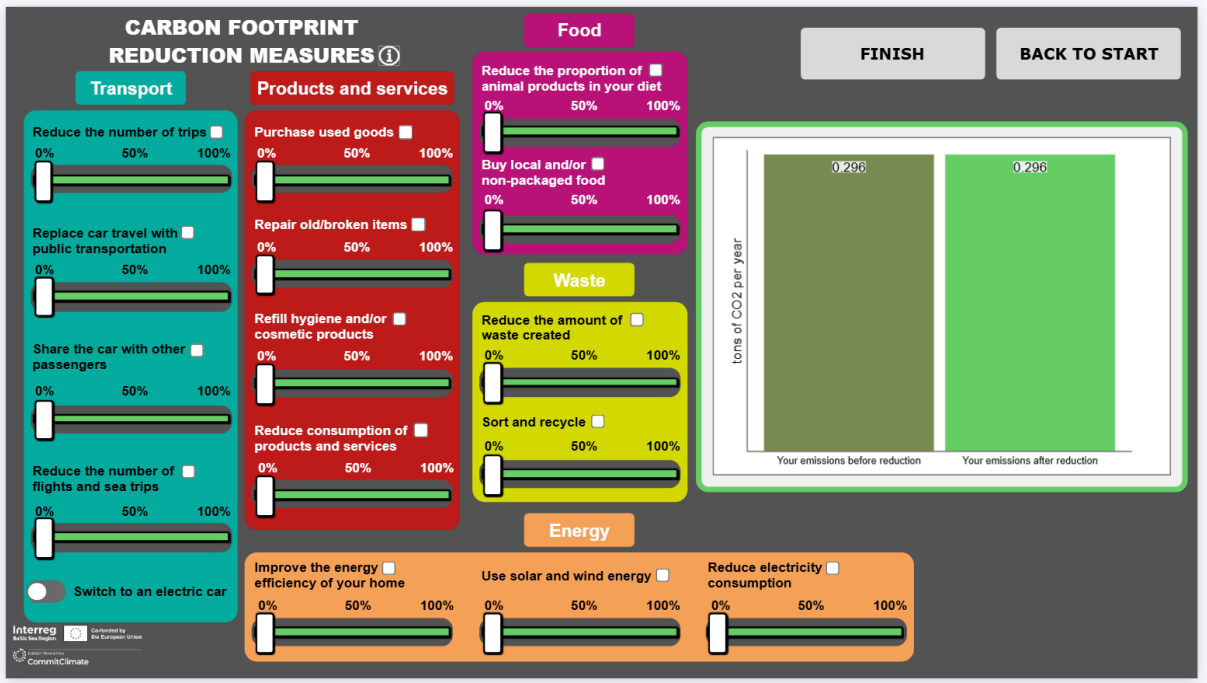

Figure 10. Reduction measures screen: testing how behavioural choices may reduce annual CO_2 emissions.

Area	Reduction measures included in the simulator	Useful discussion prompt
Transport	Reduce number of trips; replace car travel with public transportation; share the car with other passengers; reduce flights and sea trips; switch to an electric car.	Which transport choices are realistic now, and what would the municipality need to improve to make them easier?
Products and services	Purchase used goods; repair old or broken items; refill hygiene and cosmetic products; reduce consumption of products and services.	Where can people repair, borrow, refill or buy second-hand locally? Is this information easy to find?
Food	Reduce the proportion of animal products in the diet; buy local and/or non-packaged food.	What makes lower-carbon food choices attractive and accessible in this municipality?
Waste	Reduce the amount of waste created; sort and recycle.	Are sorting options understandable, nearby and consistent across the municipality?
Energy	Improve home energy efficiency; use solar and wind energy; reduce electricity consumption.	Which measures are under the household's control, and which require subsidies, advice, landlord action or renovation programmes?

Key insight for citizen empowerment

The reduction screen should be used to identify not only what citizens can do, but also what citizens cannot do alone. This is where the simulator can create constructive dialogue with municipalities: personal willingness becomes a basis for discussing infrastructure, advice, incentives and local planning.

7. Guidance for citizen workshops and municipal engagement

The simulator can be used individually, but the strongest project experience came from combining tool use with presentations, guided walkthroughs and structured group discussions. The Aggregated Results Report for Task 2.3 notes that the citizen engagement activity was designed to empower citizens as active contributors to local sustainable energy and climate strategies, combining structured guidance, implementation tools and transnational exchange.

7.1 Recommended workshop format

A two-hour format is recommended for first-time public use. Shorter sessions are possible for demonstrations, but they usually do not give participants enough time to complete the calculator and reflect on the reduction measures.

Time	Activity	Purpose
0-10 min	Welcome and local context	Explain why the municipality is discussing citizen behaviour, climate action and local energy transition.
10-20 min	Short introduction to carbon footprints	Make CO_2 emissions understandable without excessive technical detail.
20-30 min	Guided simulator demonstration	Show the homepage, instruction manual, input sections, results and reduction screen.
30-70 min	Individual calculator use	Participants complete the five input sections. Facilitators provide help with data estimates.
70-90 min	Results reflection	Discuss which sectors dominate and whether the national-average comparison is useful.
90-110 min	Reduction measures exercise	Participants test reduction measures and identify realistic actions and barriers.
110-120 min	Feedback and next steps	Collect feedback and explain how the municipality will use the insights.

7.2 Outreach and participant recruitment

Outreach should not focus only on people who are already interested in climate topics. To support broader empowerment, municipalities should combine digital outreach with local analogue channels and direct invitations through schools, libraries, community centres, neighbourhood groups, housing associations and NGOs.

- Use plain language and avoid presenting the event as a technical modelling session.
- Emphasise practical benefits: understanding household costs, mobility choices, waste sorting, energy efficiency and available local support.
- Offer national-language versions of the simulator where available.
- Invite diverse groups, including rural residents, young people, families, older residents, tenants and homeowners.
- Make participation easy: provide a clear link, starting time, location, expected duration and what information participants should bring.

7.3 Facilitation principles

Principle	Practical application
Start from daily life	Connect emissions to familiar topics such as commuting, heating bills, food shopping, waste sorting and home comfort.
Avoid blame	Frame results as a learning tool and a starting point for action, not as an individual performance score.
Use local examples	Translate reduction measures into concrete local opportunities: public transport routes, cycling infrastructure, repair services, energy advice, renovation support or waste collection systems.
Document barriers	Ask participants what prevents them from changing behaviour. These barriers can be more useful for municipalities than the individual footprint numbers themselves.
Close the feedback loop	Tell participants how feedback will be used and where results or follow-up actions will be shared.

Do not overfocus on the calculator result

The most useful workshop output is often not the exact number of tons of CO_2, but the conversation around it: which sectors surprised participants, which measures they are ready to try, which measures need municipal support, and what information was missing.

8. Practical insights from testing

The simulator and related citizen engagement activities were tested in the CommitClimate project through local citizen workshops and transnational exchange. According to the Task 2.3 Aggregated Results Report, seven citizen workshops were implemented with 126 participants across four countries. The workshops combined presentations, guided tool walkthroughs and group discussions, and feedback was collected using standardised forms and summary templates.

The testing showed that the tool has strong potential for awareness raising and dialogue, but it works best when supported by facilitation, local examples and clear guidance for first-time users.

8.1 Insights that should shape future use

Insight	Why it matters	How to apply it
Guided use is better than self-service for first-time users.	Some users need help with data input, navigation and interpretation of scenarios.	Use a short live demonstration, provide a prepared input checklist and have facilitators available.
Practical advice is valued more than theory.	Participants requested hands-on information on energy efficiency, household self-sufficiency, sustainable buildings and local solutions.	Pair the simulator with concrete advice, support schemes, local service maps and examples.
Local examples make abstract climate topics understandable.	Citizens connect more easily to comfort, costs, mobility, waste services and neighbourhood examples than to abstract carbon neutrality targets.	Use locally relevant case studies and explain what the municipality can realistically influence.
The reduction screen is the main empowerment moment.	It translates an emissions estimate into possible choices and questions about feasibility.	Use it as a structured discussion on what citizens can do and what local authorities need to enable.
Technical usability affects trust.	Difficult navigation, unclear instructions or loading issues can weaken confidence in the tool.	Test the link, browser, language version and devices before every session; prepare screenshots as a back-up.
Citizen engagement needs follow-up.	One workshop can raise awareness, but long-term change depends on continued communication and visible municipal response.	Share workshop outcomes, organise follow-up events and integrate feedback into climate planning or communication.

8.2 What participants and municipalities found valuable

- The workshops improved participants' understanding of local climate and energy policy and helped them see the link between personal choices and CO_2 emissions.
- Participants appreciated interactive formats and opportunities to discuss tangible solutions at personal and community level.
- Interest in energy efficiency, sustainable transport and energy communities appeared repeatedly across countries.
- Municipal staff saw potential for using the tool to communicate complex climate issues, but the level of perceived usefulness differed between contexts.
- Future use should include clearer instructions, local language versions, practical examples and stronger adaptation to local realities.

8.3 Common challenges to plan for

Challenge	Mitigation measure
Participants do not know exact input data.	Accept approximate values, provide examples and encourage participants to check exact bills or travel distances later.
The interface is new and contains many sliders and knobs.	Demonstrate one complete section before independent use and explain that information icons are available.
Some users may focus only on the national-average comparison.	Redirect discussion to sector breakdown and realistic reduction measures.
Users may feel discouraged if their emissions remain high after reduction measures.	Explain structural barriers and discuss municipal support, infrastructure and policy measures.
Language or technical barriers reduce participation.	Use national translations, provide printed instructions and offer in-person assistance.

9. Recommendations for future use outside the consortium

For future use outside the CommitClimate consortium, the simulator should be embedded into a clear engagement process. The following recommendations are intended for municipalities, NGOs, educators and other organisations that want to use the behaviour module in practice.

1. Define the purpose before the session: awareness raising, feedback on local climate planning, school education, energy advice or community dialogue.
2. Use the national-language version where possible and provide a simple one-page participant checklist.
3. Allocate enough time for the full workflow: baseline inputs, results, reduction measures and reflection.
4. Use the simulator together with local information: public transport options, cycling plans, waste sorting services, repair maps, energy advice and financial support schemes.
5. Collect both quantitative and qualitative feedback. Ask not only whether the tool was easy to use, but also what would make behaviour change possible locally.
6. Avoid publishing or comparing individual results. Discuss results anonymously and in aggregated form unless participants explicitly agree otherwise.
7. Use the reduction measures as a bridge between individual action and municipal responsibility. Document which measures require infrastructure, incentives, advice or policy support.
8. Plan follow-up communication. Participants should see that their input contributes to local climate dialogue, not only to a one-time workshop.

Most useful output for municipalities

A workshop should produce three outputs: (1) citizens understand their main footprint drivers; (2) citizens identify which reduction measures feel realistic; and (3) municipalities learn which barriers prevent action and what support citizens expect.

10. Quick checklists and templates

10.1 Participant preparation checklist

Send this checklist before a workshop or include it in the event invitation.

- ☐ Bring or estimate your monthly electricity consumption and heating type.
- ☐ Think about your average daily travel: number of trips and approximate distances by car, public transport, walking or micro-mobility.
- ☐ Estimate the number of flights and sea trips you take in a year.
- ☐ Estimate monthly spending on products and services. Exact categories are optional.
- ☐ Think about how often you eat meat, fish, eggs, dairy, grains, fruits and vegetables, snacks and drinks.
- ☐ Think about what waste you sort and what usually ends up in your household bin.
- ☐ Bring a laptop or tablet if possible. A smartphone can be used, but a larger screen is easier for first-time users.

10.2 Facilitator technical checklist

- ☐ Open the simulator link and language version before the event.
- ☐ Check whether registration or login is required and prepare guidance for participants.
- ☐ Test the tool on the browser and devices that will be used during the workshop.
- ☐ Prepare a projector demonstration and screenshots as a back-up in case of slow loading or internet problems.
- ☐ Prepare examples for approximate input values, especially for products and services, energy and transport.
- ☐ Prepare a short explanation of emission factors, national average comparison and limitations.
- ☐ Prepare a feedback form and decide how results and comments will be anonymised.

10.3 Suggested feedback questions

Theme	Question
Understanding	Did the simulator help you understand how everyday choices influence CO_2 emissions?
Municipal link	Did the session help you understand how individual behaviour relates to local climate and energy planning?
Usability	Which section was easiest to use? Which section was most confusing?
Reduction measures	Which reduction measure feels most realistic for you? Which one feels unrealistic and why?
Barriers	What would need to change locally to make lower-carbon choices easier?
Future use	Would you use the simulator again or recommend it to others? What should be improved first?

10.4 Short workshop invitation text

Template text

Join a practical session where you can use the CommitClimate Household CO_2 Simulator to estimate your carbon footprint and explore what everyday changes could reduce it. The workshop will include a short introduction, guided use of the simulator and a discussion on what support citizens need from the municipality to make low-carbon choices easier. No technical background is required.

11. Sources and useful links

CommitClimate Resources&Trainings page: https://br-commitclimate.rtu.lv/resources-and-training/

CommitClimate For Citizens page: https://br-commitclimate.rtu.lv/for-citizens/

CommitClimate Household CO_2 Simulator (English version): https://exchange.iseesystems.com/public/aiga/commitclimate-co2-footprint-calculator/index.html

Household Simulator links and language versions: https://br-commitclimate.rtu.lv/wp-content/uploads/HOUSEHOLD-SIMULATOR-LINKS.pdf

CommitClimate project page: https://interreg-baltic.eu/project/commitclimate/