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Baltic Sea Region



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ENERGY TRANSITION

Climate-4-CAST

Introduction to CADS Tool

1.9.2026 Climate Budget Training Course Module 4, in Turku

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interreg-baltic.eu/project/climate-4-cast/





What Is the CADS Tool?

The Climate Action Decision Support (CADS) Tool is **an open-source tool developed** to help municipalities **plan, assess and prioritise** their climate actions in a transparent and evidence-based way.

It allows for **emissions and financial impact** assessments, thereby supporting the principles of **climate budgeting**.

Key Benefits for Cities and Decision-Makers

The CADS Tool strengthens political decisions by providing a clear and transparent analytical basis

The CADS Tool helps cities use limited resources more efficiently



Helps identify the **most impactful and cost-effective** climate actions



Helps track progress toward **climate neutrality targets**



Brings climate and financial data together in **one integrated framework**



Creates **transparency** and improves **communication** with decision-makers



Supports **annual climate budgeting** and prioritisation



Supports **cross-departmental collaboration** (climate, energy, transportation, finance)

Core features of CADS Tool

Core Feature 1

Climate Action Impact Modelling:

Assessment of individual climate actions by comparing their emission reduction impacts and economic implications, such as costs, savings and cost-effectiveness.

Core Feature 2

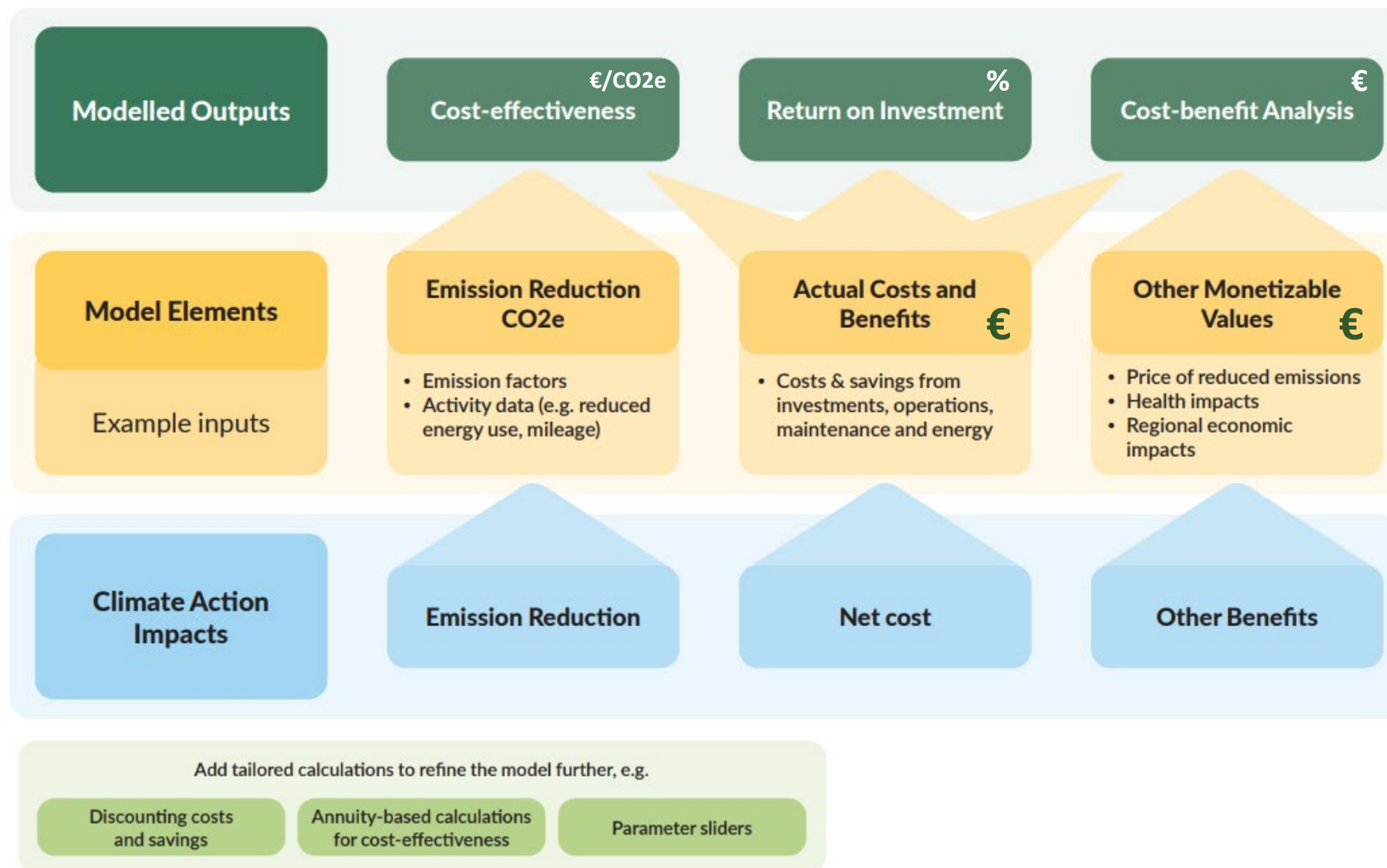
City-Level Emission Scenario Visualisation:

Development of city-level emission scenarios over time, integrating baseline trends, implemented measures and climate targets..



Shutterstock

Feature 1: Climate Action Impact Modelling



Notes and tips!

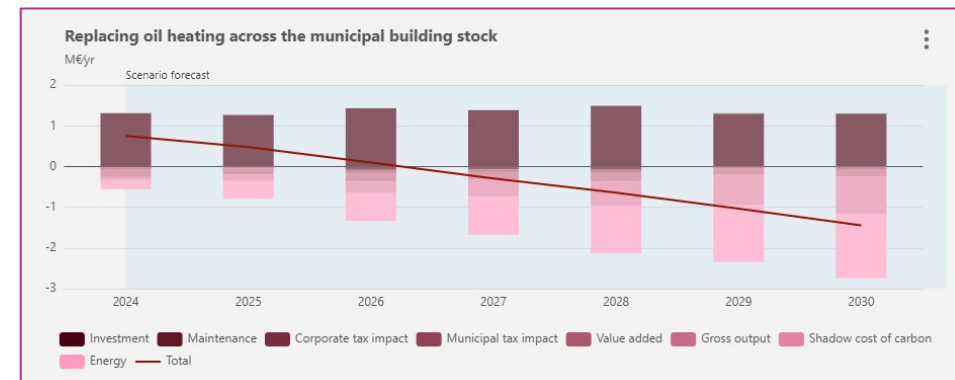
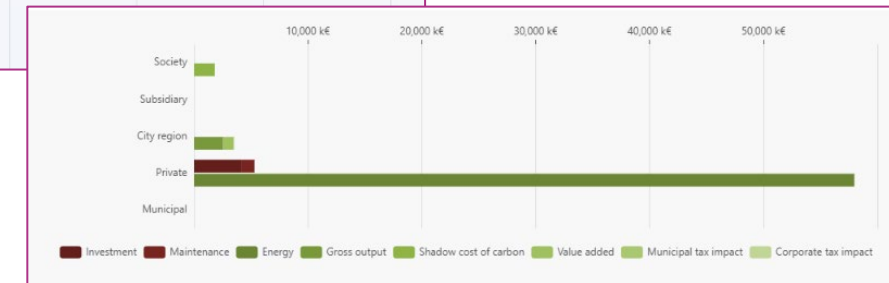
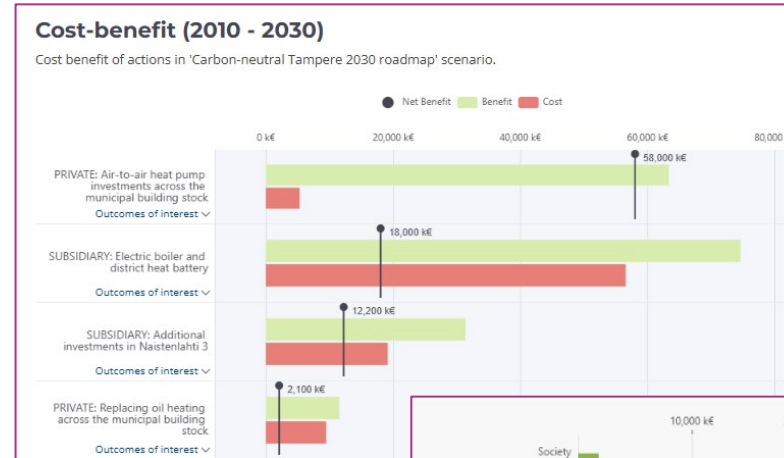
- Data provided in yearly time-trends.
- Climate action impact needs to be in line with your baseline emission forecast.
- Tool is flexible. No need for perfect data.
- Before you start modelling, think about your data strategy.

Feature 1: Climate Action Impact Modelling

Visualisation options to compare and view impacts

- **Action lists:**
Measures sorted by impact, cost or emission sector
- **Marginal Abatement Cost curve:**
Which actions are most cost-effective?
- **Return on Investment:**
How much benefit do the investments generate relative to their costs? When is the break even point?
- **Cost and benefit graphs:**
What are the economic implications of climate measures?
- **Action-specific node graphs:**
How are costs and benefits broken down to different dimensions?

Type	Entity	Indicator scenario	2020 Impact (M€)	2030 Impact (M€)	2020/2030	Cost/Abatement (€)
Electricity consumption	PRIVATE: Building renewable electricity production (PV)	✓	-12.3 tCO ₂ e	-2.53 tCO ₂ e/yr	-103,000,000 €	-8,370 €/tCO ₂ e
Electricity consumption	CITY: Replacing street lighting with LEDs	✓	-0.36 tCO ₂ e	-0.045 tCO ₂ e/yr	-1,970,000 €	-5,490 €/tCO ₂ e
Building heating	PRIVATE: Air-to-air heat pump investments across the municipal building stock	✓	-9.83 tCO ₂ e	-1.96 tCO ₂ e/yr	-52,100,000 €	-5,300 €/tCO ₂ e
Building heating	CITY: Energy efficiency renovations in city's building stock	✓	-0.526 tCO ₂ e	-0.092 tCO ₂ e/yr	-928,000 €	-1,770 €/tCO ₂ e



Feature 2: Emission scenario visualisations

Understanding the development of City-Level Emissions over time

Key Scenario Elements

1

Baseline inventory

Emission development in previous years

2

Baseline scenario

Emission development in future without climate actions

3

Target overlay

City's official climate neutrality target

4

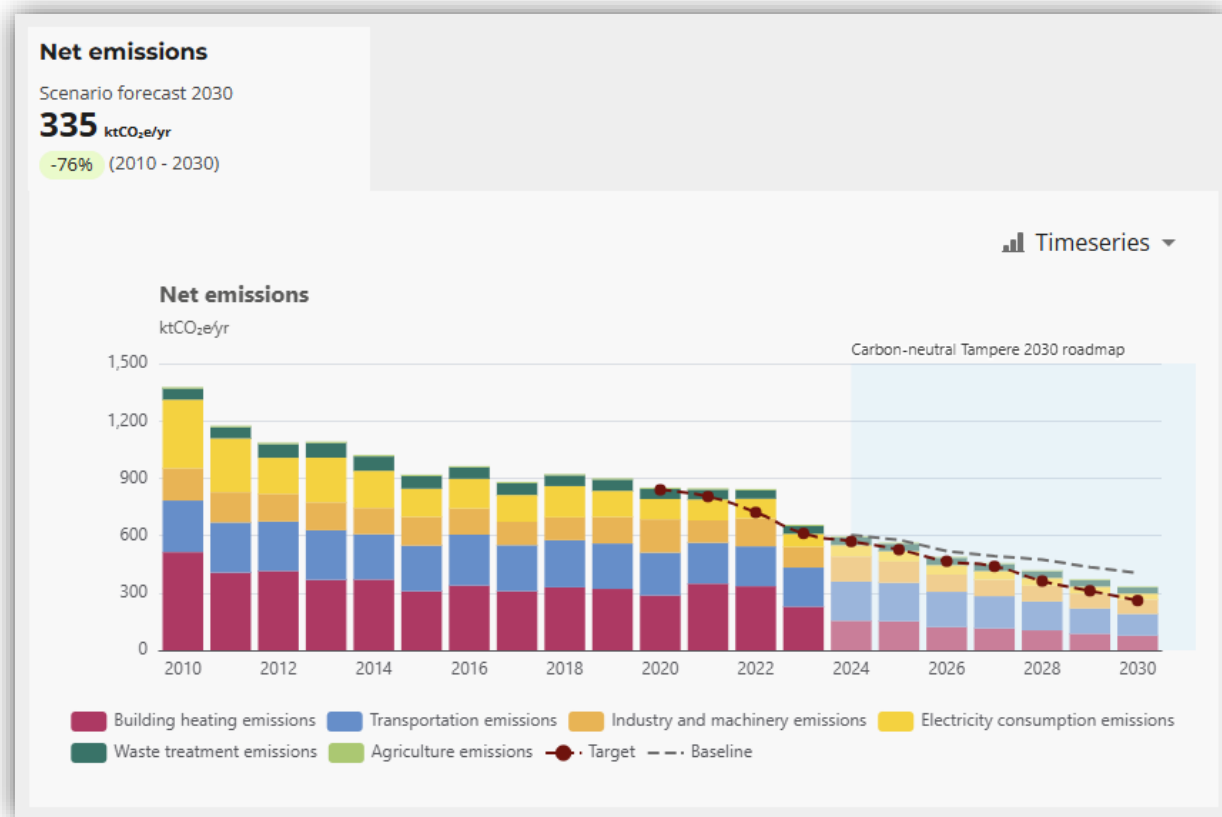
Climate action plan scenario

Development with all climate actions ON

5

Tailored scenarios

Scenario building with certain action ON/OFF



Scenario visualisations support:

- Comparing baseline and action-based scenarios
- Assessing progress towards climate targets
- Identifying the emission gap to targets
- Supporting strategic discussions and decisions

Emission sector division:
GHG Protocol as default or build your own emission categorisation.

Feature 2: Emission scenario visualisations

Building up the data base – different approaches

How data can be provided:

- As total emissions (CO₂e) or,
- Broken down to **emission factor** and **activity data** (energy consumption / mileage).

Organisational and/or territorial emissions:

- **Östersund and Norderstedt:** organisational and territorial emissions

Different approaches to prepare baseline forecasts:

1. **A Static Business as Usual (BAU) model:** assumes that emissions remain at their latest reported level or follow a simple continuation of recent trends.
2. **Detailed forecasting approach:** A more advanced approach involves modelling key drivers of emissions for each sector, such as population or economic growth, technology shifts, policy developments, energy market trends, and sector specific future trajectories.



How to get started?

Getting started with the CADS Tool does not require perfect data or complex modelling

Five Steps to Operationalise the CADS Tool

1

Define the tool's purpose:
What decisions will the tool support, and who will use it?

2

Set up the tool and data:
Baseline emissions, action data, targets and modelling level.

3

Assign roles and responsibilities:
Who updates data, who uses results, who ensures quality?

4

Integrate into decision-making:
Climate budgeting, planning, reporting and political discussions.

5

Maintain and improve:
Annual updates, scenario testing and learning over time.

The CADS Tool is designed to be **flexible** and **scalable**, allowing cities to start with available data and gradually deepen the level of analysis.

Typical starting points for cities:

- Prioritisation of individual investments and measures
- Climate action plan or roadmap update
- Climate budget preparation
- Scenario discussion with political leadership

What a city needs to get started:

- ☒ A recent city-level emission inventory
- ☒ A defined emissions reduction target
- ☒ Planned or existing climate actions
- ☒ Basic information on actions' emissions impacts, costs or benefits.
- ☒ If available, additional details on contributing factors to action impacts such as energy price or interest rates, etc.
- ☒ A responsible team or coordinator

Open-Source Solution for All Cities

Three access options

1. **Browser based online tool:** A ready-to-use web version. [CADS Tool web version](#).
2. **Self-hosted open-source tool code-package** (GitHub under AGPL-3.0 licence): use own IT-staff to implement the tool
3. **Supported deployment via service providers** (SaaS solution): contract external support for implementation, maintenance and further development of the tool through specialised service providers

Scan the code for tool access options and quick set-up info:

kausal.gitbook.io/climate-4-cast-tool



For more detailed info about CADS Tool basics go see our Final Output: <https://interreg-baltic.eu/project/climate-4-cast/#output-0>

There you can find:

- Detailed calculation and modelling methods
- Modelling examples from C4C pilot cities
- Empty sheets for tool operationalisation

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Kiitos! Thank you!

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