



NET ZERO CITIES

NetZeroPlanner

Creating, implementing, and
iterating your Climate Action Plan

Follow-up & Iteration Guide

November 11, 2024



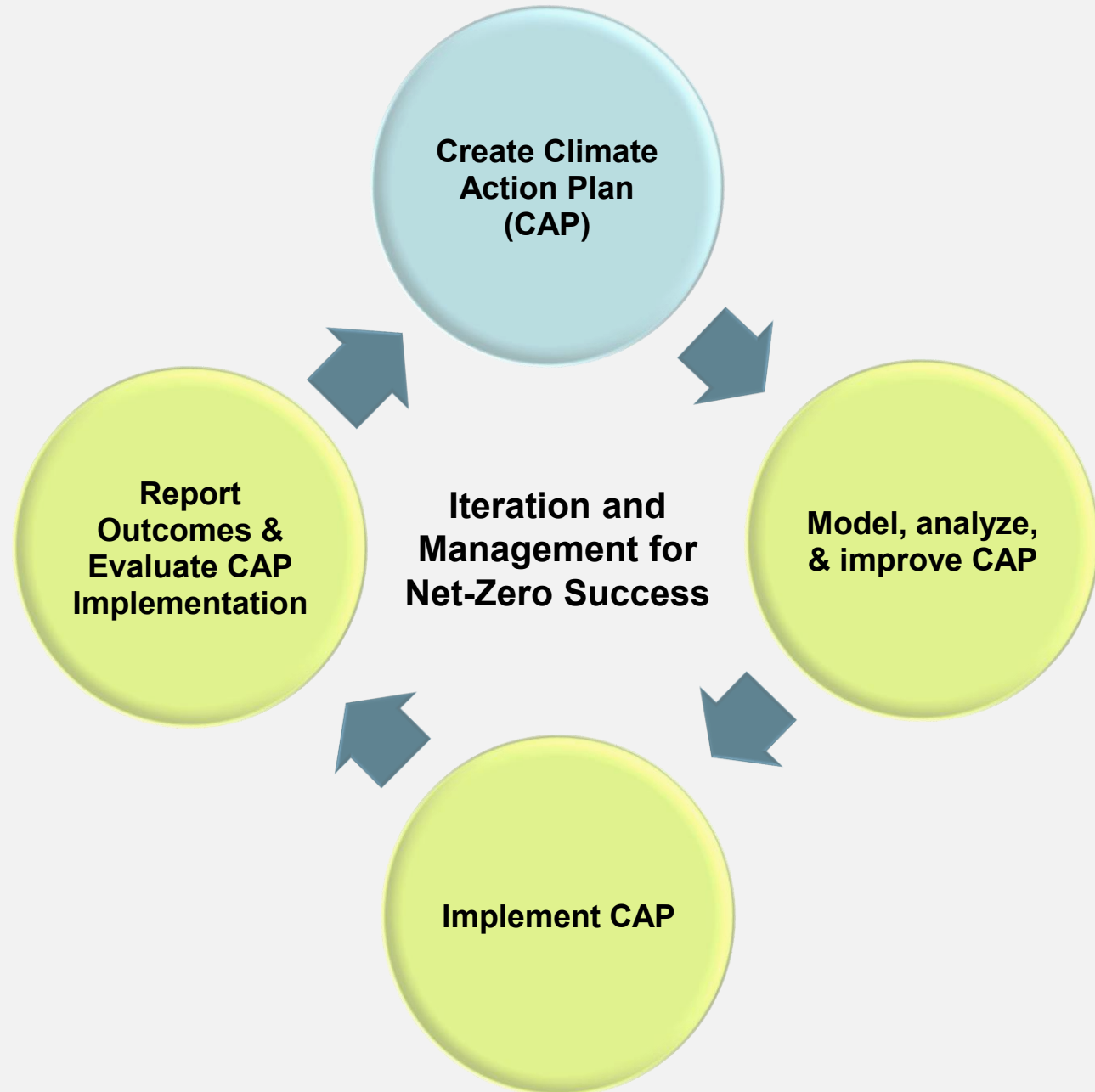
NetZeroPlanner supports learning and iteration of Climate Action Plans and Investment Plans



- **NetZeroPlanner (NZIP) builds upon the planning and analysis capabilities of the NZC Economic Model while adding substantial improvements**
 - Web-based self-service climate and financial planning; “what-if” scenarios allow for learning and plan iteration
 - Model upgrades bring the analysis up to date based on the climate planning expertise of our development partner, Kausal (All cities that produced a plan using the NZC Economic Model will see their data and assumptions in NZIP. Outputs will not exactly match CCC submissions due to model upgrades.)
 - Plans are visible and editable only by city users to protect privacy
 - Comparable city data and assumptions allow for data input validation
 - Plan baseline year can be set to any year up to 2023
 - Sector emissions by year available in graphical and table format on the Dashboard
 - Progress Tracker to report actual emissions against plan (available in December 2024)

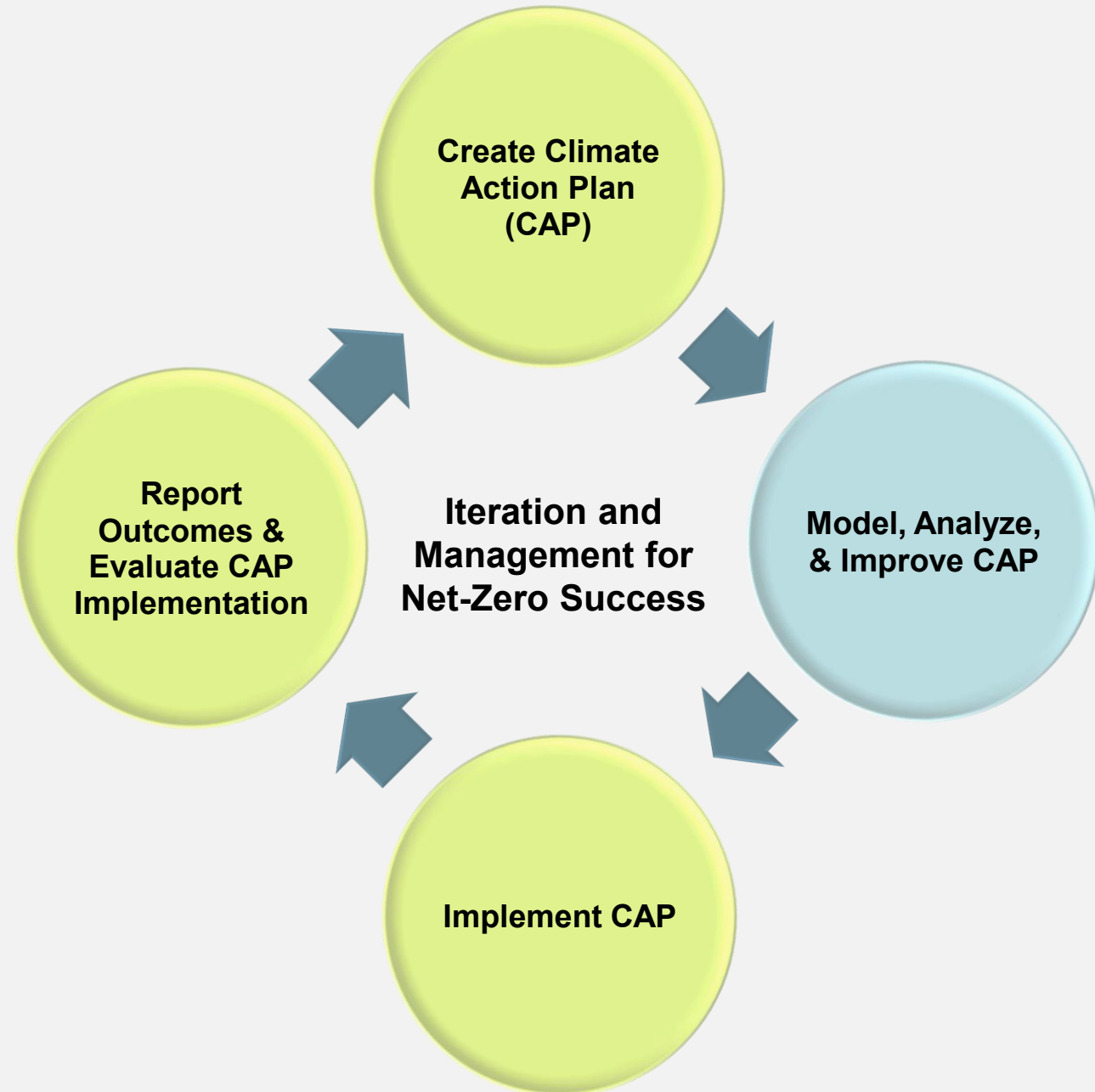


The Climate Action Plan (CAP) iteration process requires a quantitative analysis of progress toward decarbonization goals to allow for learning and adjustment as needed to achieve carbon neutrality





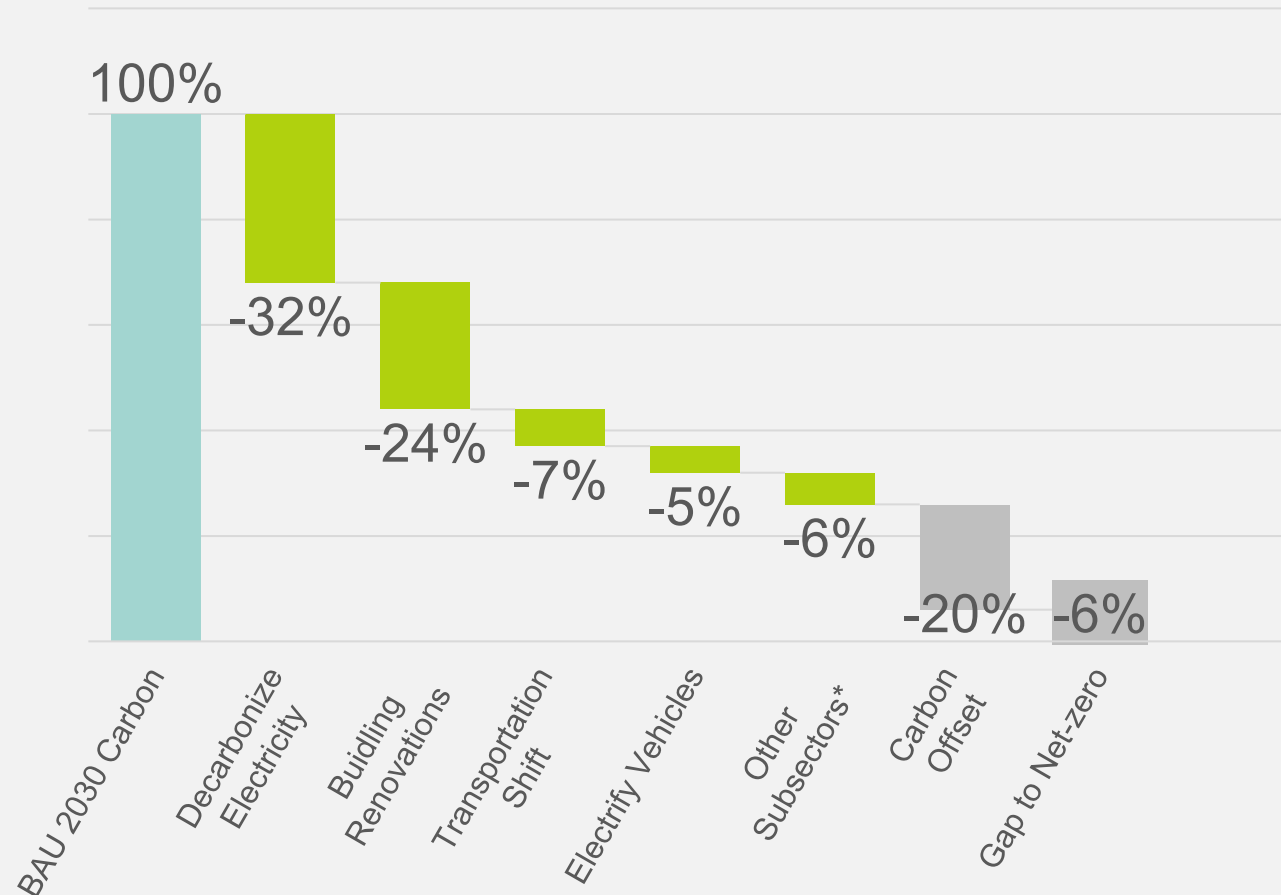
By modeling the impacts of your Climate Action Plan, NetZeroPlanner allows you to run scenarios to improve your plan before you begin implementation



Analysis of 41 city CAPs show 74% decarbonization from the 2030 Business as Usual case with 26% carbon remaining



Carbon reductions - 41 NZC cities
% reductions from the 2030 BAU case



- NZC guidelines allow for 20% of carbon to be offset leaving a gap of 6% to achieve net-zero
- Excluding Industry, CAPs from these 41 cities reduce BAU CO₂e from 3.2 ktons to .9 ktons in 2030
- 32% of the total reduction comes from decarbonizing the electrical grid.
- 24% of the total reduction comes from a 3X increase in annual building renovations.
- 7% of the total carbon reduction comes from ambitious targets for a 25% reduction in motorized trips and a 30% shift from cars to public transportation.
- The shift to electric vehicles reduces carbon another 5%.

* Other subsectors include: Increased car-pooling, Optimized logistics, New energy-efficient buildings, and Increased waste recycling

NetZeroPlanner is accessed through the NZC Portal



City provides city-specific baseline year data inputs and 2030 Climate Action Plan assumptions

Decarbonization Dashboard and downloadable Excel tables

Valencia CAP 2030

Data completion score: 100%

Your score rates how complete city data is, weighing important local values for accurate predictions. Enter city data to improve your score and get better projections.

High priority: 132/132

Moderate priority: 38/38

Low priority: 29/29

View Outcomes Dashboard

Export Outcomes as Excel

Data collection center

Data collection (2019)

Future assumptions (2030)

Collect essential data about your city's current state across key sectors. This phase focuses on gathering raw data to establish a baseline for your city's climate initiatives.

1. Demographic data

2/2

1/1

2. Passenger transportation

10/10

4/4

7/7

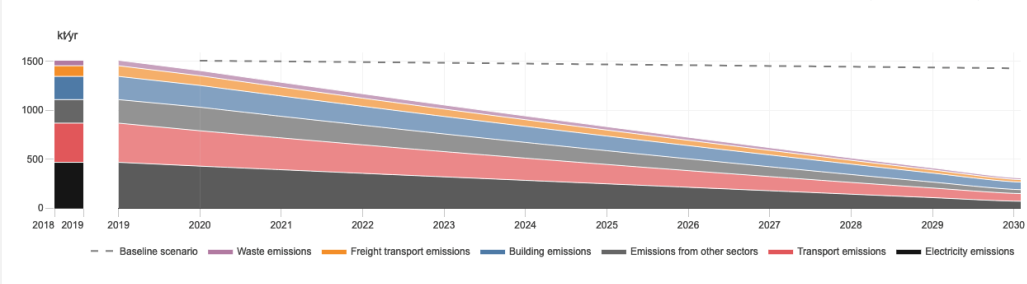
Label	Value	Unit	Comparable City Value	Priority	Internal Notes
Transportation need					
Total transportation need - passenger transport					
Transport need - passenger cars + motorcycles	2,935	Mpkm/year	2,595	High	https://ri.unet.upv.es/handle/10251/175281

NetZeroPlanner tool:

mathematical

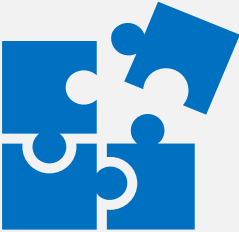
calculations for

validation and analysis



Subsectors					
Electricity emissions	Transport emissions	Emissions from other sectors	Building emissions	Freight transport emissions	Waste emissions
Scenario forecast 2030 70 ktyr Change 2019 - 2030 -85%	Scenario forecast 2030 79 ktyr Change 2019 - 2030 -80%	Scenario forecast 2030 41 ktyr Change 2019 - 2030 -83%	Scenario forecast 2030 78 ktyr Change 2019 - 2030 -67%	Scenario forecast 2030 26 ktyr Change 2019 - 2030 -76%	Scenario forecast 2030 17 ktyr Change 2019 - 2030 -69%

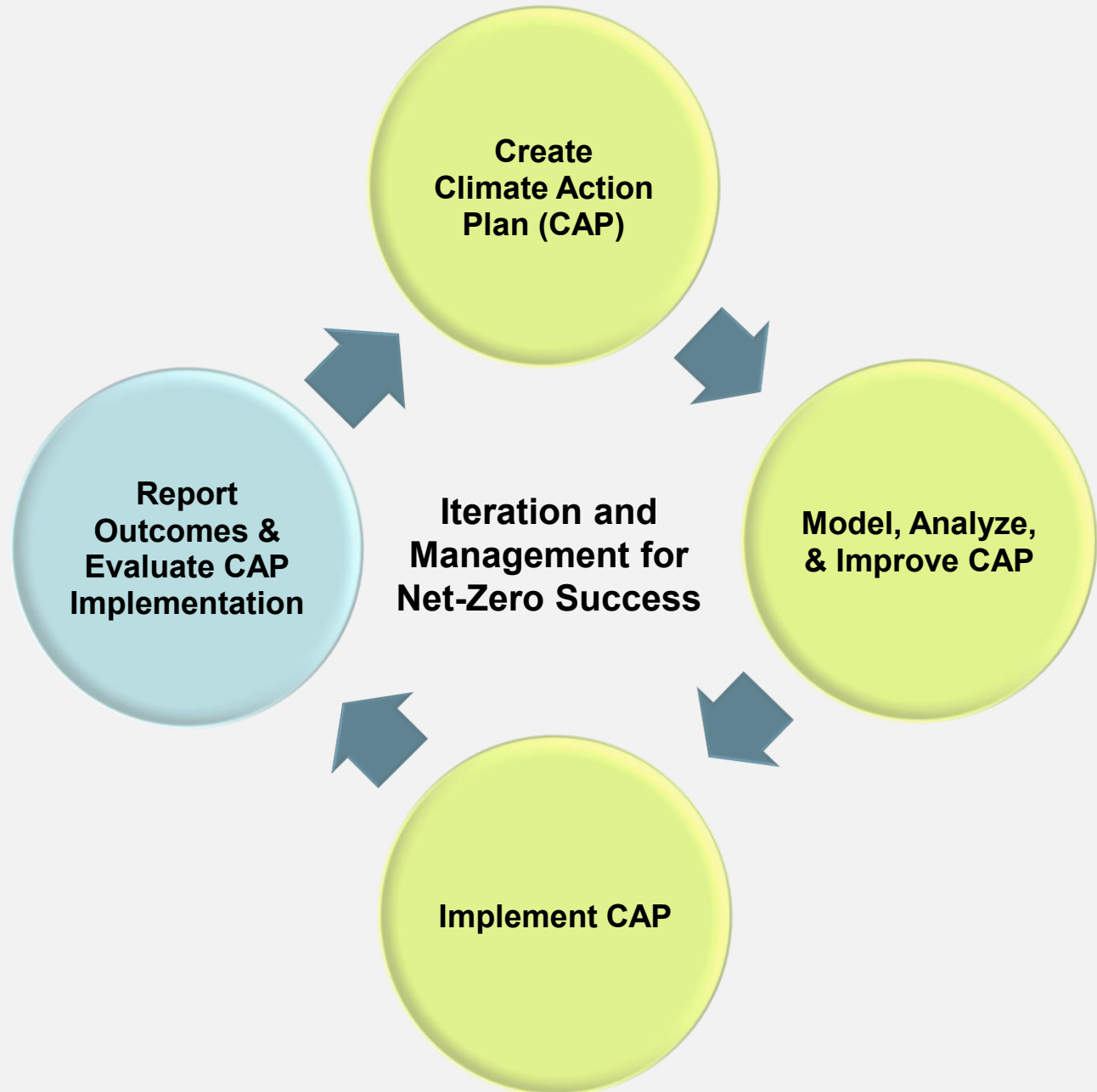
NZP Database: Research-based non-city-specific data and assumptions



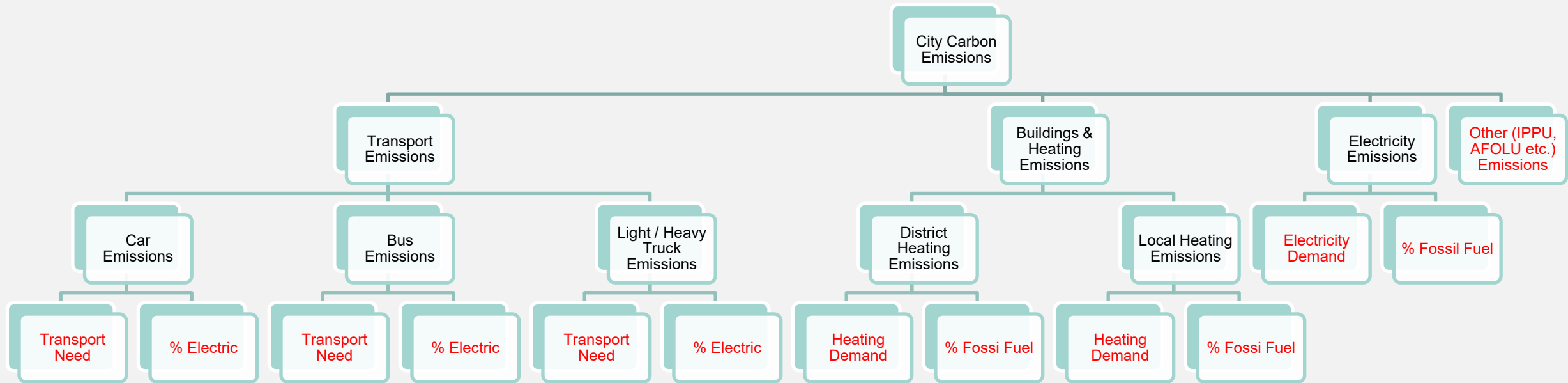
A-2.1: Emissions Gap (kt CO2e)									
	Baseline Emissions (BAU 2030)	Emissions Reduction Resulting from CNAP		Remaining Emissions		Residual Emissions Offsetting		Emissions Gap (amount necessary to achieve net-zero)	
	(Absolute value)	(Absolute value)	(% of BAU 2030)	(Absolute value)	(% of BAU 2030)	(Absolute value)	(% of BAU 2030)	(Absolute value)	(% of BAU 2030)
Transport	380	276	73%	104	27%	104	27%	0	0%
Buildings & Heating	319	297	93%	22	7%	22	7%	0	0%
Electricity	459	390	85%	69	15%	69	15%	0	0%
Waste	71	61	86%	10	14%	10	14%	0	0%
Other (incl. IPPU & AFOU)	239	199	83%	40	17%	40	17%	0	0%
Total	1469	1224	83%	245	17%	245	17%	0	0%



**Progress Tracker
allows cities to
report actual results
against their original
plan by sector to
learn and adjust
based on what is
working and what is
not**



Original economic case analysis required 133 data inputs. By gathering 20 key inputs* for 2022 and 2023, we can calculate and analyze actual results versus plan.



* Chart sums to less than 20 as some key inputs are rolled together

Additional Historical Data tab accumulates 20 data inputs for reporting purposes. Any data inputs not available will default to plan values.



 **NetZeroPlanner**
Powered by Kausal Open Source

Support ⓘ Mandy Smith ⓘ

Overview Baseline Essentials Baseline Data (Full) **Additional Historical Data** Future Goals

Luumäki CAP 2030 ▾

Additional Historical Data (Optional)

Plan baseline: 2019 ⓘ

💡 **Estimate emissions for past years and track your progress**

To understand trends and monitor year-over-year changes, you can enter historical data for previous years. We've streamlined this section to focus on 18 key drivers of emissions, making it easy to gather and review past data. This data will provide yearly estimates of your city's emissions and support tracking progress against your climate goals.

Dismiss this tip

🚗 Passenger transportation ^

	2019 Baseline	Unit	2020	2021	2022	2023
What was the total distance travelled by passenger cars and motorcycles?	10,000	km	<input type="text" value="9,995"/>	<input type="text" value="9,827"/>	<input type="text" value="9,985"/>	<input type="text" value="9,980"/>
What was the total distance travelled by buses?	10,000	km	<input type="text" value="10,010"/>	<input type="text" value="11,312"/>	<input type="text" value="10,030"/>	<input type="text" value="10,040"/>
What percentage of passenger cars and motorcycles were fully electric (excluding hybrids)?	8	%	<input type="text" value="12"/>	<input type="text" value="18"/>	<input type="text" value="20"/>	<input type="text" value="24"/>
What percentage of buses were fully electric (excluding hybrids)?	45	%	<input type="text" value="50"/>	<input type="text" value="55"/>	<input type="text" value="60"/>	<input type="text" value="65"/>

🚚 Freight transportation ▾

🏠 Buildings & heating ▾

⚡ Electricity ▾

🌡️ Greenhouse gases ▾

Scheduled to be available by December 2024

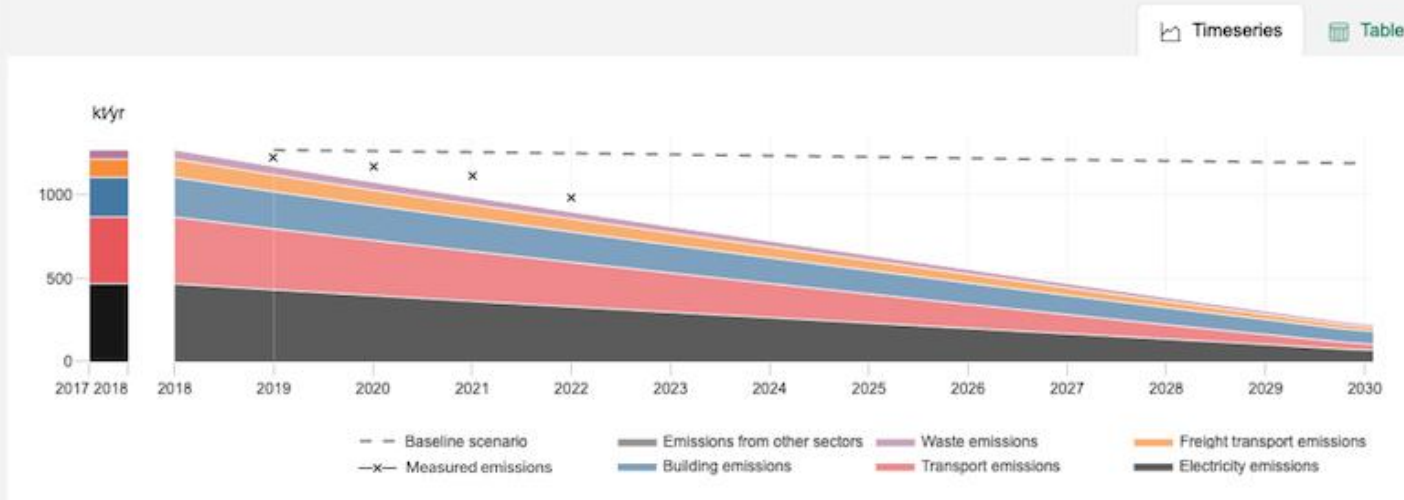


By reviewing variances to plan, cities can learn what is working and adjust their Climate Action Plan going forward

Net emissions

2019 - 2030: Scenario forecast (Decarbonisation scenario)

Scenario forecast 2030
229 kt/year
Change 2018-2030
-82 %



Subsectors



Climate target progress

2022 v

Total forecast emissions
(2022)
990 ktCO₂e

Total measured emissions
(2022)
1,420 ktCO₂e

Emissions by sector (2022)



Scheduled to be available by December 2024

Process for progress management and CCC iteration through monitoring, learning, and adjustment



- **Getting the most accurate inputs for the NZP data input sheet is critical to getting the most accurate progress report of carbon results:**
 - Accumulate city data for 20 main levers for years 2022 and 2023 (data input sheet similar to original model - some data provided by city and some provided by NZC).
 - Use economic model to calculate 2022 and 2023 actuals by sector. Compare to original Climate Action Plan by sector.
 - Calculate volume and rate variances to plan by sector. Analyze positive and negative variances to highlight which sectors and levers are ahead or behind plan.
 - Align key actions in Climate Action Plan with sectors to learn what actions are having the largest effect on decarbonization and which actions need to be replanned.
 - Adjust implementation or replan as necessary to stay on path to carbon neutrality by 2030.

