



THE ROLE OF UNIVERSITIES IN THE PROCESS OF DECARBONIZATION OF URBAN AREAS



Mario Ravera
Politecnico di Torino

December 8th 2023 | Dubai | Italy Pavilion

POLITECNICO DI TORINO

ABOUT US

- Politecnico di Torino was the **first Italian Engineering School** founded in the wave of the technical and scientific innovation that gave rise to the most prestigious European polytechnic schools in the mid-19th century
- **Engineers, architects, designers and urban planners** have been trained at Politecnico di Torino for over 160 years with rigor, integrity and high-level standards
- This long history has rated Politecnico among the **top European technical Universities for education and research**, with 38,700 students and a teaching staff of more than 1,000

Campuses in Torino

ENGINEERING



Corso Duca degli Abruzzi



Cittadella Politecnica

ARCHITECTURE AND URBAN PLANNING



Castello del Valentino
Via Morgari

DESIGN AND SUSTAINABLE MOBILITY



Mirafiori

MASTER AND LIFELONG LEARNING



Lingotto



2023
20th in the world

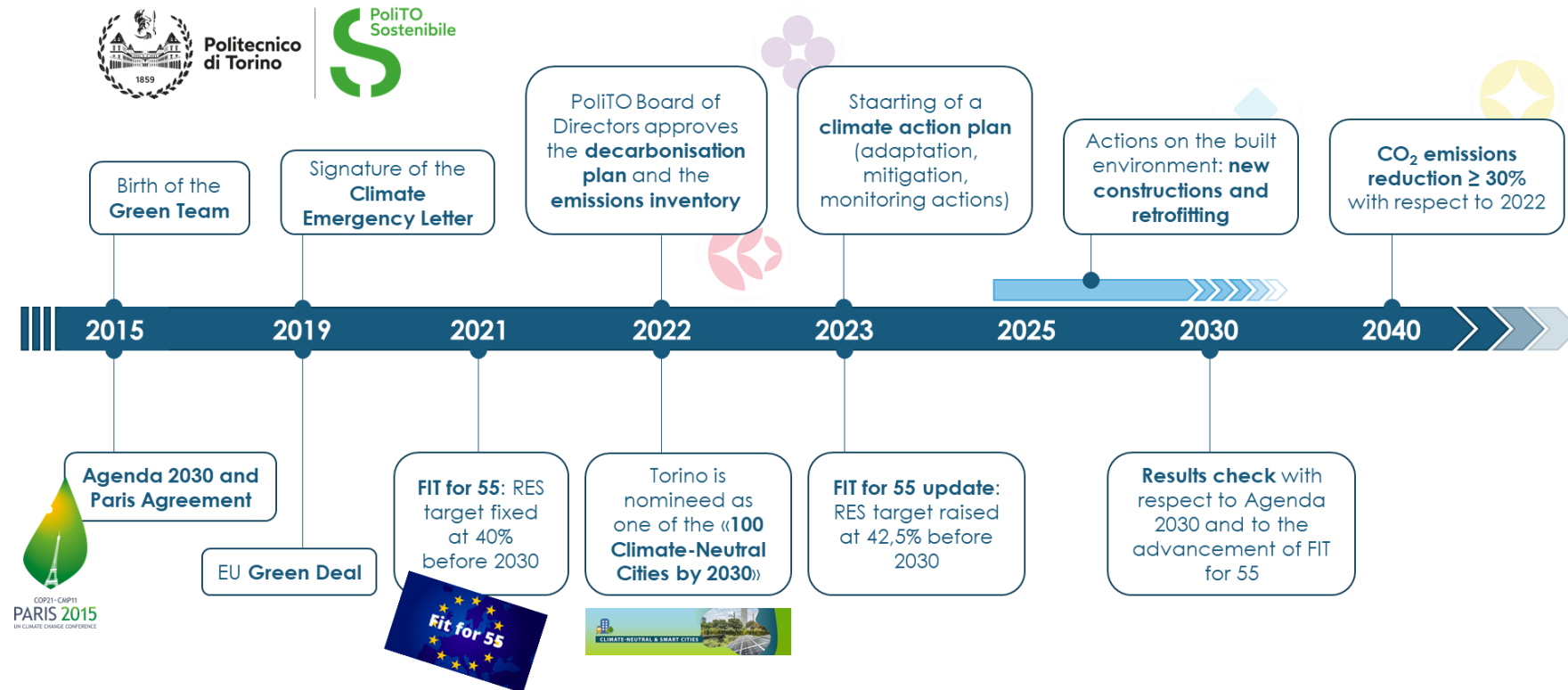


2022
88th in the world (SDG9)
96th in the world (SDG11)

POLITECNICO DI TORINO

A LONG JOURNEY TOWARDS SUSTAINABILITY

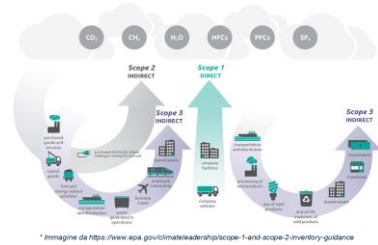
From the creation of the **Green Team**, dedicated to build a path towards sustainability, to the approval of a **decarbonisation program**, always phased with the regulatory context.



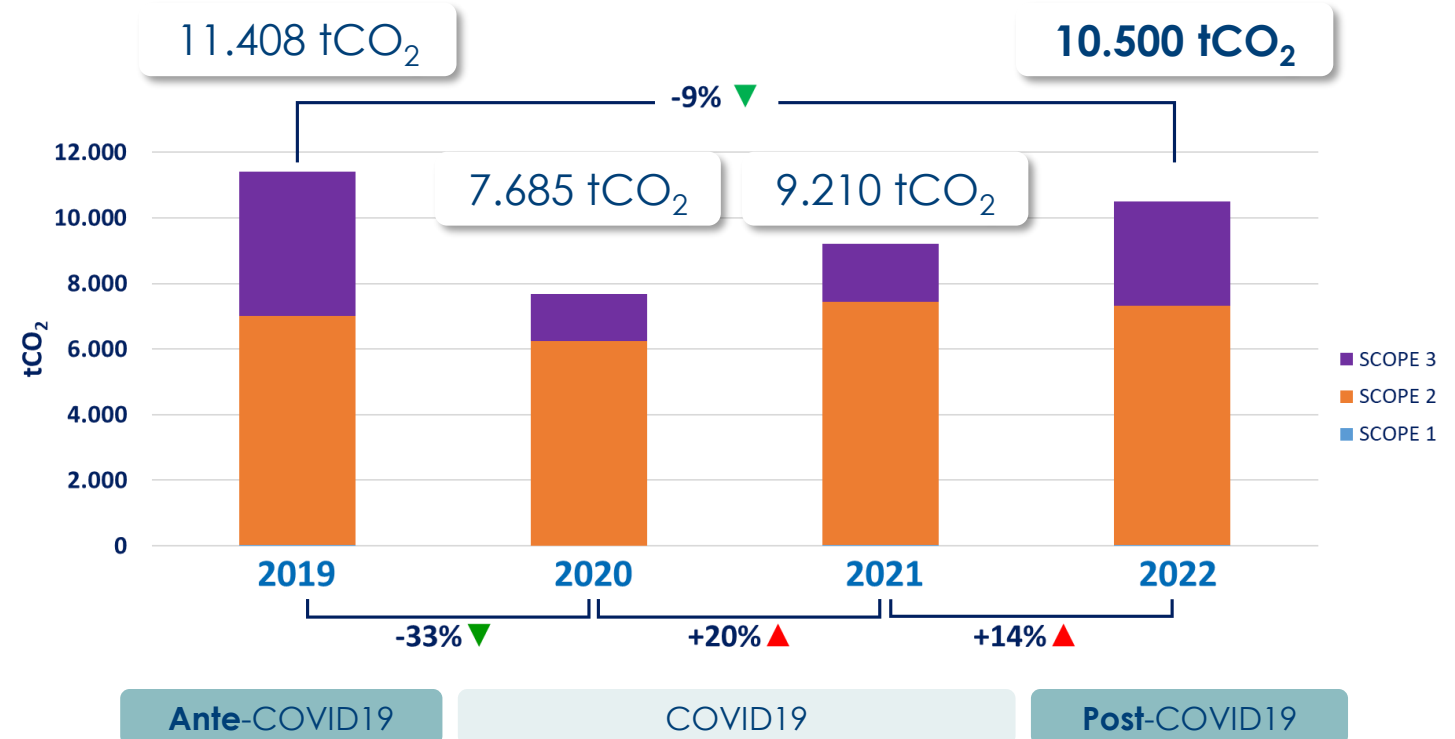
POLITECNICO DI TORINO

CALCULATION OF GHG EMISSIONS (2019-2022)

GHG Protocol Corporate Accounting and Reporting Standard



- **Scope 1**, all direct emissions from company-owned and controlled resources
- **Scope 2**, indirect emissions from the generation of purchased energy from a utility provider
- **Scope 3**, all indirect emissions that occur in the value chain of the company



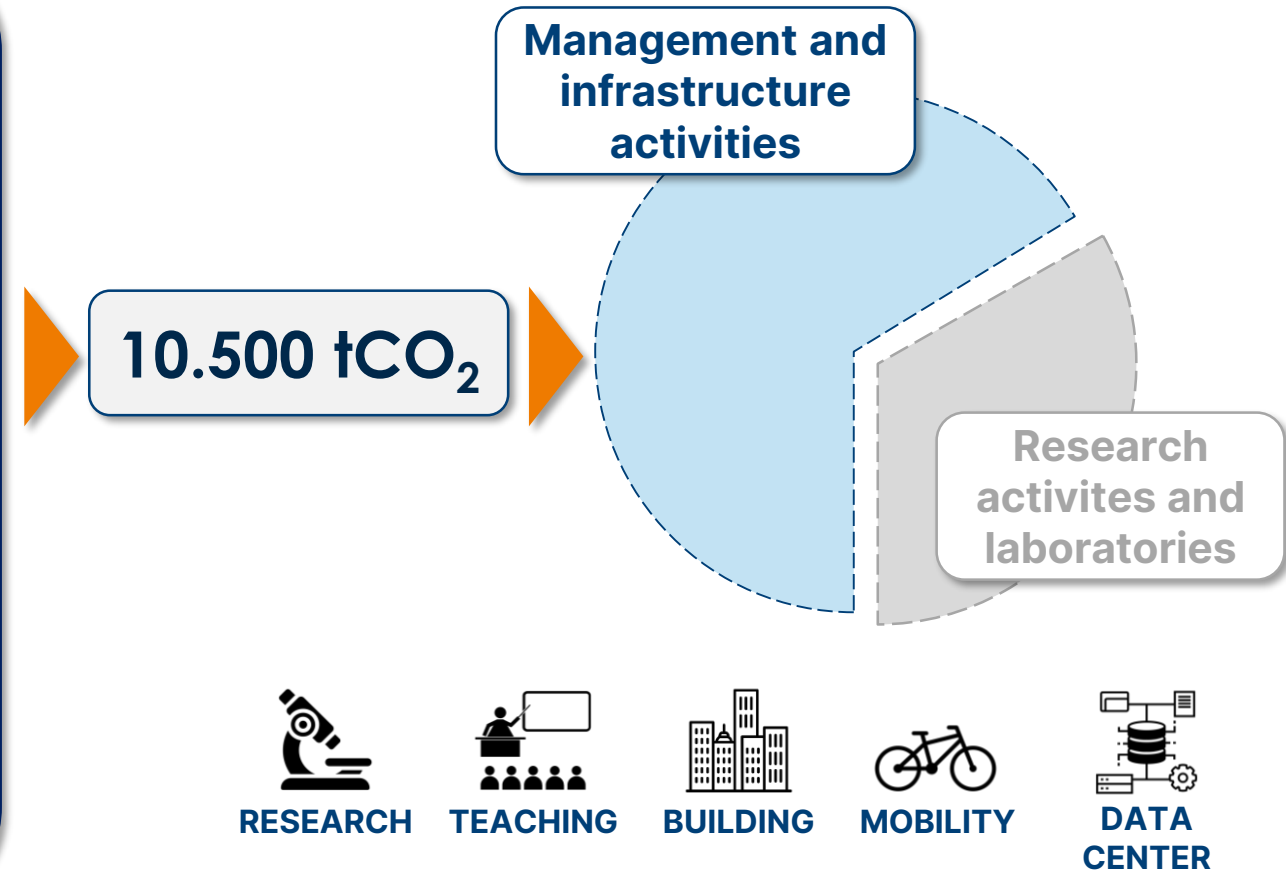
POLITECNICO DI TORINO

SOURCES OF GHG EMISSIONS (2022)

Overall GHG emissions at Politecnico di Torino in 2022 are equal to 10.500 tCO₂

In the definition of the **Decarbonisation Plan of Politecnico di Torino** it is important to consider separately:

- The **management activities**
Polito administration has direct levers to activate saving strategies related to campuses and facilities.
- The **research activities**
Polito administration has to support research activities and new needs that sometimes are apparently not in line with decarbonisation plan.



POLITECNICO DI TORINO

WHICH STRATEGY TO REDUCE CO₂ EMISSIONS AT POLITECNICO?

Areas of intervention on which Politecnico has «direct levers»



Energy efficiency

Sustainable mobility

Education and community engagement

Resources and circular economy



Effects of urban or wider areas decisions

Energy mix / District heating

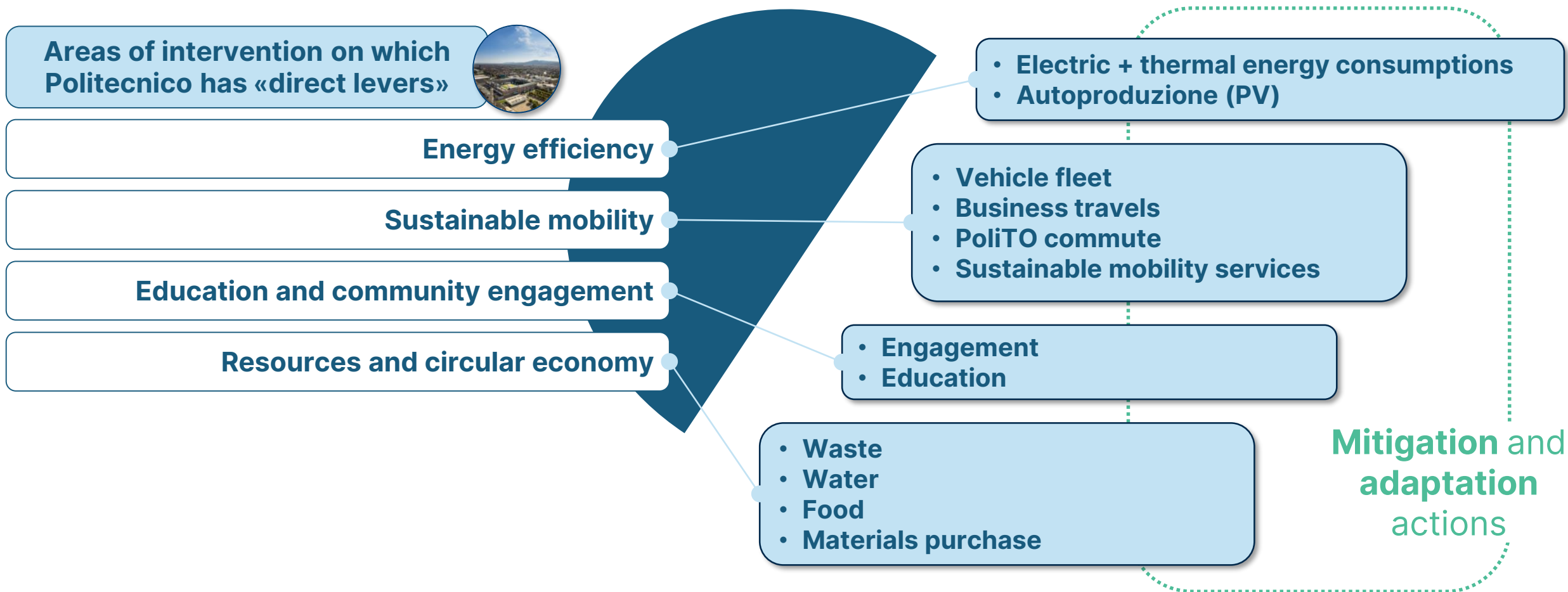
EU Strategy → FIT for 55

Mobility plan 2035

City / Region Strategy for Sustainable Development

POLITECNICO DI TORINO

WHICH STRATEGY TO REDUCE CO₂ EMISSIONS AT POLITECNICO?



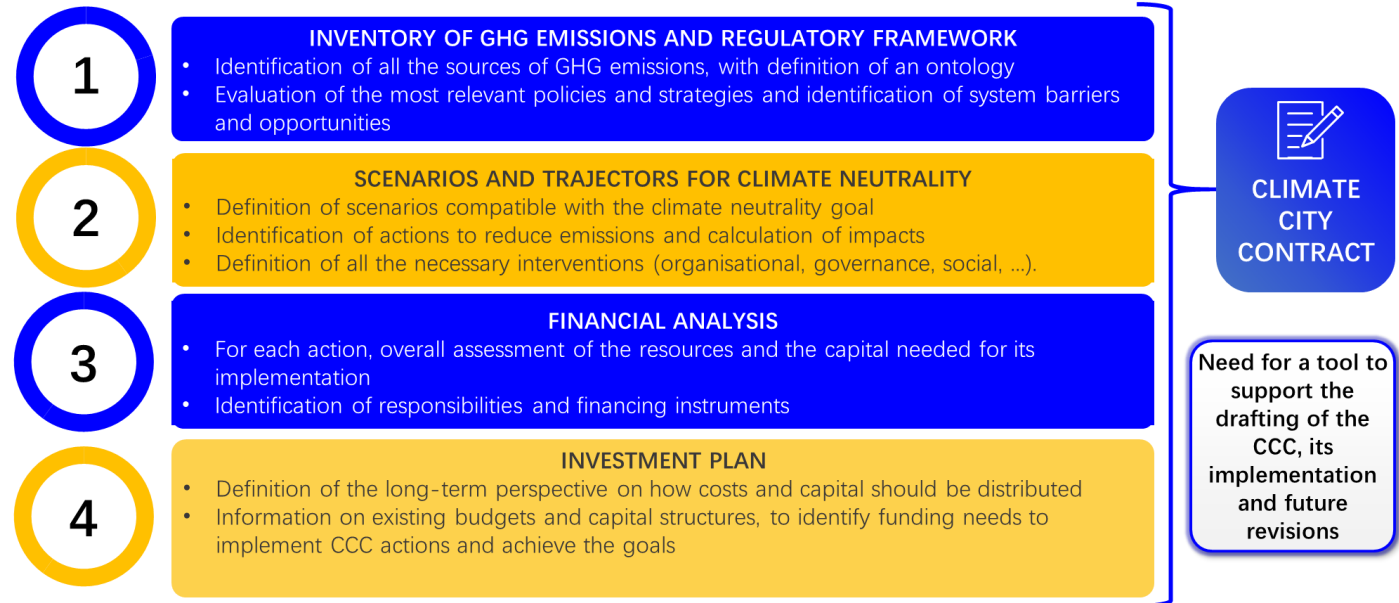
CITY OF TORINO AND POLITECNICO DI TORINO INTERDISCIPLINARY APPROACH FOR A “CLIMATE CITY CONTRACT”

Torino is among the
100 «Climate Neutral» cities



Torino is developing a strategic program to achieve this ambitious goal through the Climate City Contracts with its main stakeholders.

Politecnico di Torino is actively contributing to the strategy implementation.



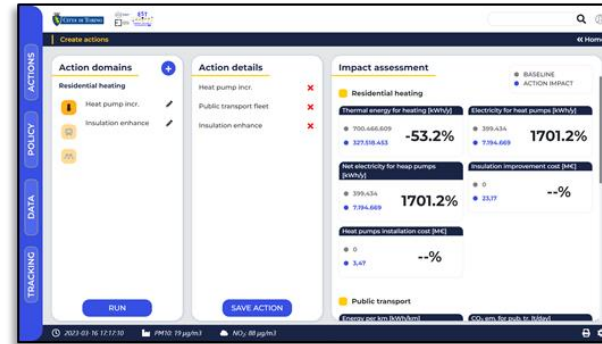
CITY OF TORINO AND POLITECNICO DI TORINO

«PRODUCTS» IN PROGRESS: CITTA - CITY TRANSITION TRACKING AND ANALYSIS

Multidimensional Assessment



Quantify the impacts of actions



What for: create and compare alternative policies for the transition of the city



Create a catalogue of actions related to different energy-inherent domains, and assess their impacts



Quantify the impacts with ad-hoc KPIs: energy efficiency, carbon intensity, energy consumption, ...

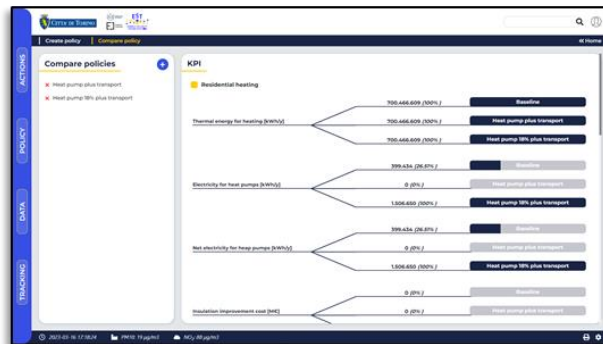


Create Policies and compare their expected impacts

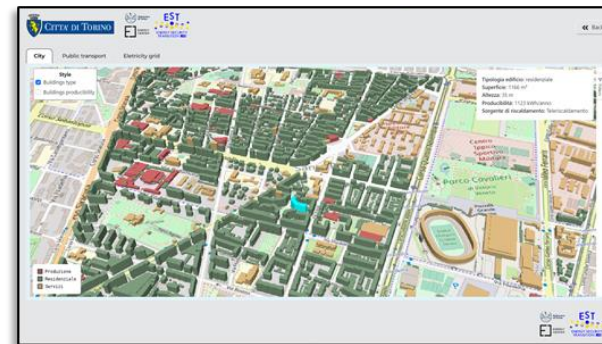


Interactively explore characteristic data on the City energy system, linked to the spatial dimension

Compare alternative policies



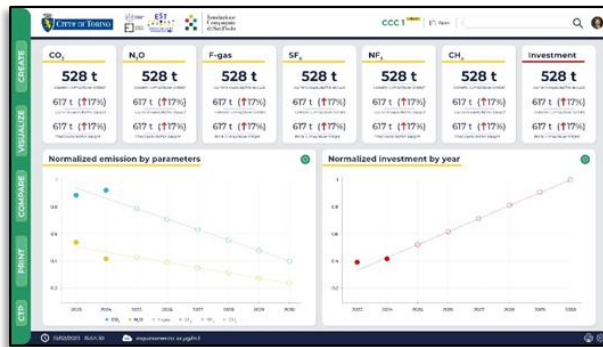
Interactively Explore



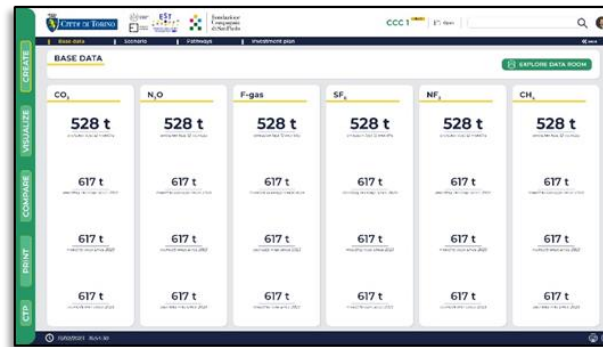
CITY OF TORINO AND POLITECNICO DI TORINO

«PRODUCTS» IN PROGRESS: CLICC - CLIMATE CITY CONTRACT

Monitor the Action Plan



Inventory of emissions



What for: support municipalities in designing, tracking and editing their CCCs



Commitment

Inventory of *emissions* and of the *actions* planned to achieve the carbon-neutrality



Action Plan

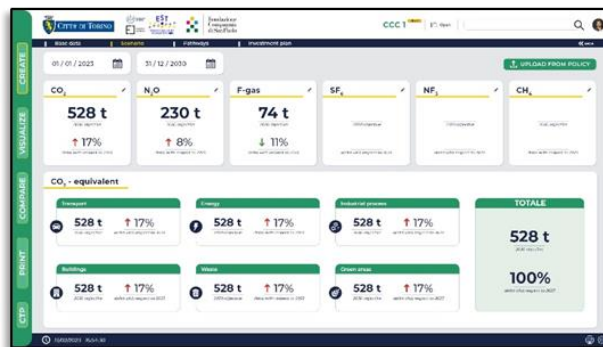
Design actions and combine them into *ad-hoc pathways*



Investment Plan

Identify investors and link them to the actions to assess the financial feasibility of *pathways*

Build customized scenarios



Design actions and pathways

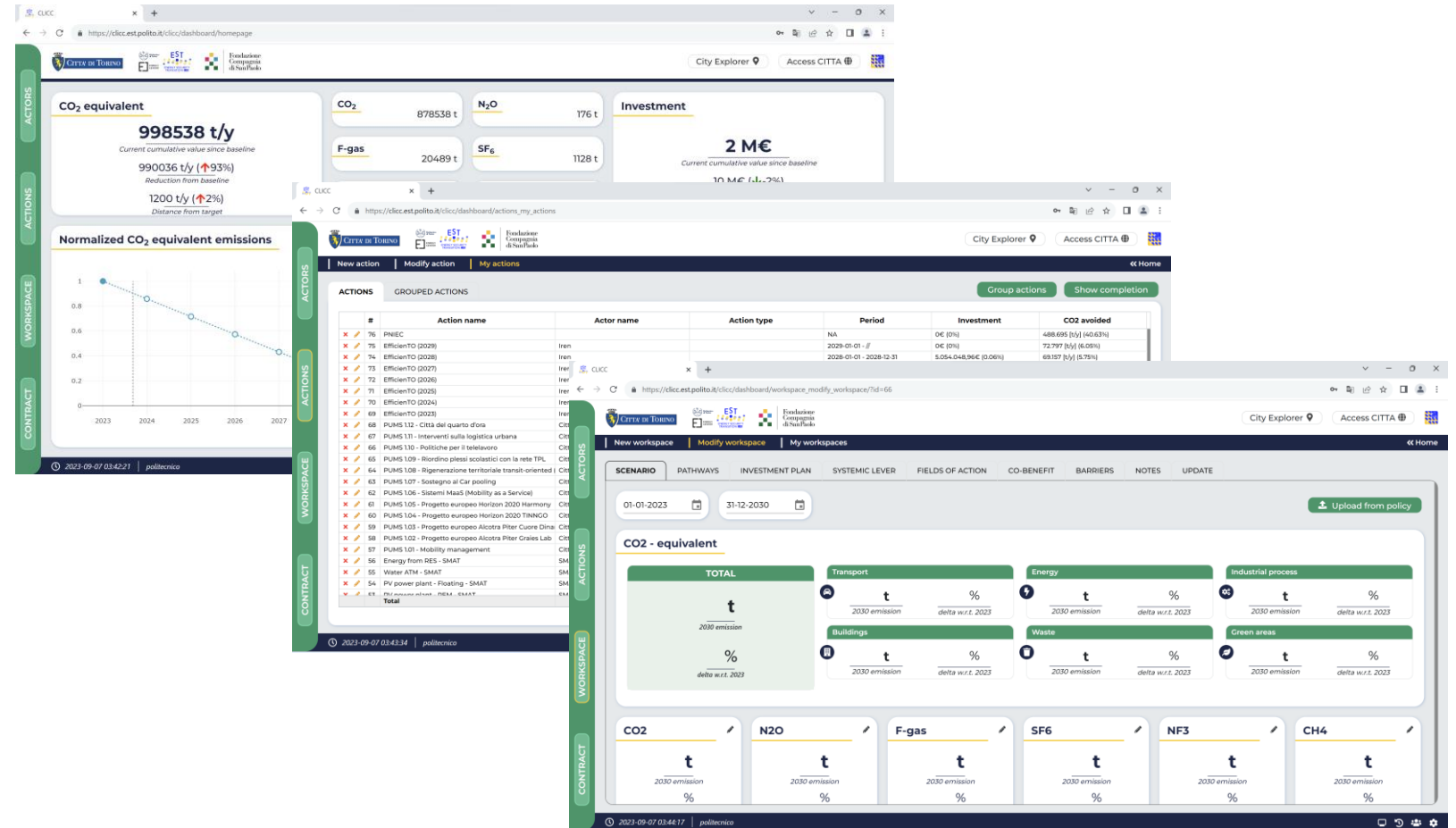


CITY OF TORINO AND POLITECNICO DI TORINO

«PRODUCTS» IN PROGRESS: CLICC - CLIMATE CITY CONTRACT

The signature of the CCCs with the main stakeholders helps the city to plan its CO₂ reduction forecast.

The verification of the results achieved within the single CCCs will give full awareness of the CO₂ reduction progress.





THANK YOU FOR THE KIND ATTENTION



Politecnico
di Torino

