



THE CITY OF FUTURE **from Covenant of Mayors to** **Torino Smart City**

October 2013



THE CONTEXT: the City of Torino



POPULATION:

Torino: **902.000**
Foreign residents: **115.800**
University students: **91.316**
Metropolitan region: **1.790.000**



ECONOMIC INDICATORS:

GDP of the Province: **58.950 million Euros** (4,3% of nat.)
Firms (city): **114.500**
Unemployment: **6,5%**

CULTURE AND LEISURE FACILITIES:

Playgrounds: **262**
Sport facilities: **200**
Museums: **44**
Public libraries: **17**

MUNICIPALITY:

Budget: **1332 million Euros**
Employees: **12.243**



CITY SURFACE:

City area: **130 km²**
Green areas extension: **18,4 km²**
Trees: **160.000**
Cycle tracks: **160 km**



THE CONTEXT: the City of Torino

HISTORICAL INFORMATION

Torino was founded by the Romans in 28 b.C.

Torino became in 1563 Capital of the Savoy Kingdom.



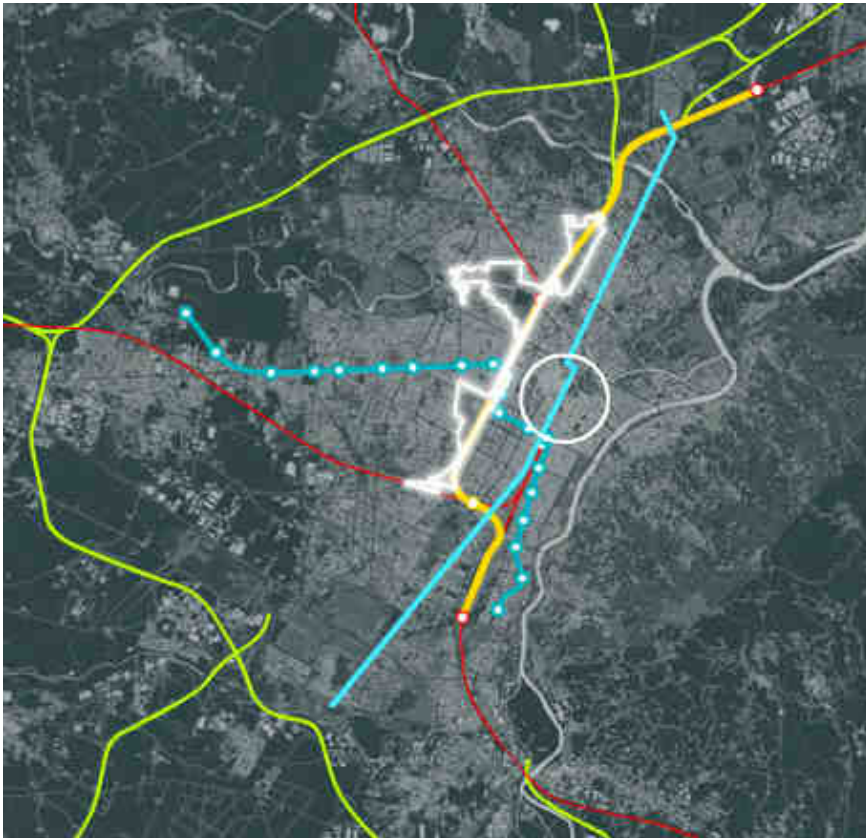
In **1861** Torino was the **First Capital of Unified Italy**.

In the **XX century** the city was the **industrial engine of Italy** experiencing a strong economic and demographic development.



THE CONTEXT: the City of Torino

THE 90'S: A NEW POSITIVE DEAL



After a period of **industrial decline**, it started a process of **deep change**:

- urban **transformation** and **regeneration**, new **infrastructures**,
- transition from one **company town** to a **pole of innovation**, design, information technology, high education, culture, quality of life.

THE MILESTONES:

- 1995 Town Master Plan
- 2000 First Strategic Plan
- 2006 Winter Olympics
- 2006 Second Strategic Plan

INVESTMENTS OF 8 BILLION €



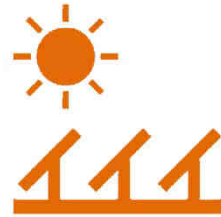
THE CONTEXT: European Union

2009 **CLIMATE ENERGY PACKAGE**, remembered with the slogan **20/20/20**: outlined the **strategy in the field of energy and environment** to achieve ambitious targets related to sustainability **by 2020**.



-20%
gas emissions

Reduction in EU greenhouse
gas emissions from 1990
levels



+20%
renewable resources

Raising the share of EU energy
consumption produced from
renewable resources



+20%
energy efficiency

Improvement in the EU's
energy efficiency



THE CONTEXT: Italy

END-USES OF ENERGY (Energy and Environment Report of ENEA _2012):



23%
industry



30%
transport



30% →
civil sector

30% of electricity
45% thermal energy
(especially for local air-conditioning systems)



200-250 kwh/mq per year
the average energy consumption
of buildings

Consumption 10 buildings
with proper planning and
appropriate materials and technologies



ENVIRONMENTAL POLICY OF THE CITY OF TORINO

ENVIRONMENTAL SUSTAINABILITY and **RENEWABLE ENERGIES**,
in collaboration with other Italian and European cities.

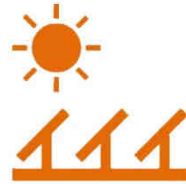
PRIORITY AREAS FOR IMPLEMENTATION:



**public and private
building**



**energy
efficiency**



**renewable
energies**



**mobility and
transport**



**good
practices**

Involvement of many **OPERATORS** across the city and
support of the **CITIZENS OF TORINO**.



COVENANT OF MAYORS



TAPE Turin Action Plan for Energy



Piano d'Azione per
l'Energia Sostenibile



January 10, **2009** _ Subscription by City Council
September 13, **2010** _ Approved by City Council



TAPE Turin Action Plan for Energy

THE TAPE WILL MEAN FOR TORINO

-41.90% OF CO2 BY 2020



LOWER COSTS

ACTING ON:



**energy
efficiency**



**energy
efficiency**



**communication
and promotion**



TAPE Turin Action Plan for Energy

THE TORINO-SYSTEM SPENDS FOR ENERGY:

	Euro	€ per year*
YEAR 1991	2.410.703.763	
YEAR 2005	1.975.491.843	- 435.211.920
YEAR 2020	1.623.760.811	- 351.731.032
		- 786.942.952

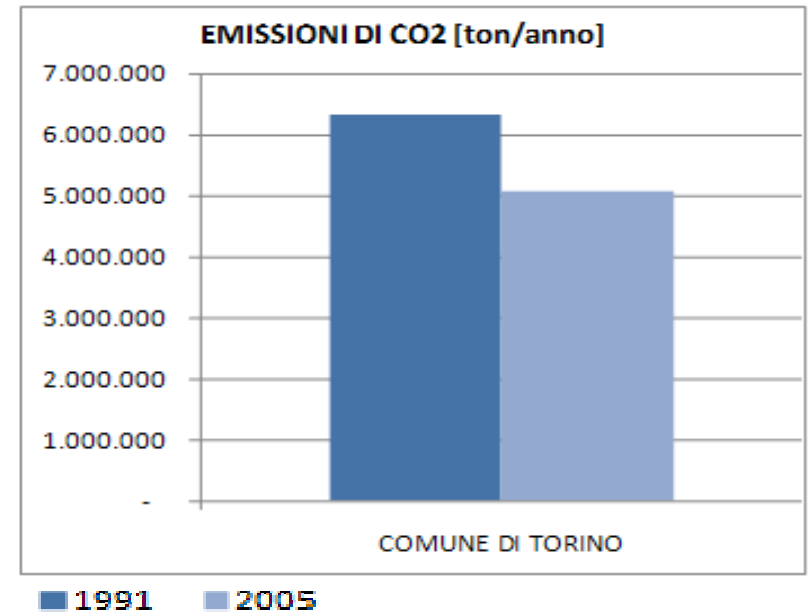
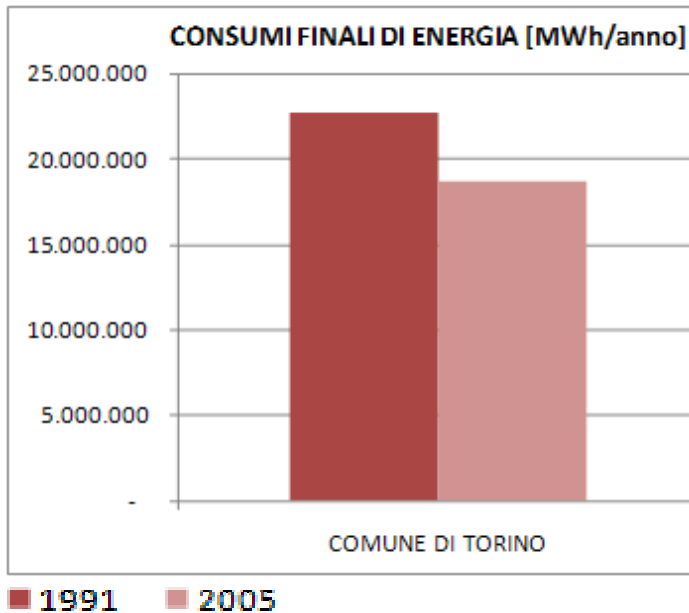
- 787millions € per year

*Based on the 2010 rates for electrical, thermal and derived from fossil fuels energy



TAPE Turin Action Plan for Energy

ENERGY BALANCE 1991-2005 - PRELIMINARY RESULTS



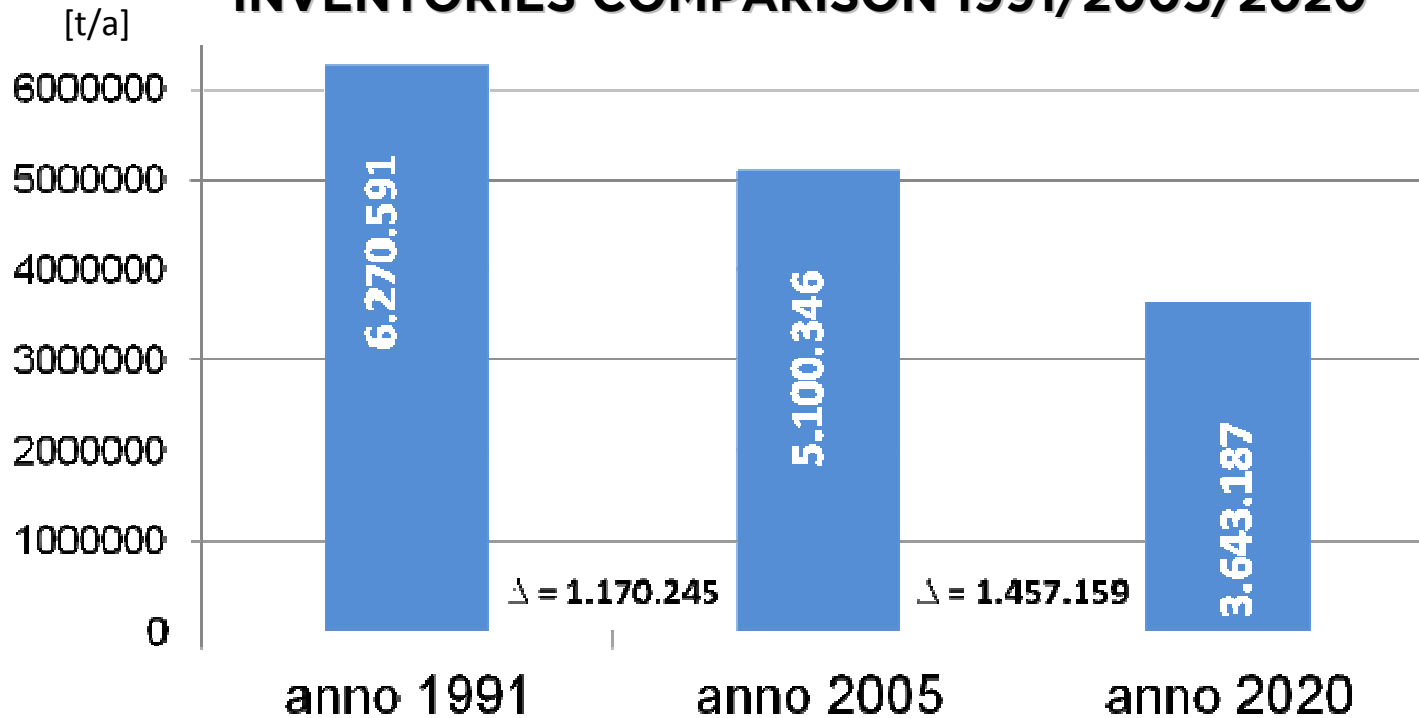
- 17,7%

- 18,7%



TAPE Turin Action Plan for Energy

INVENTORIES COMPARISON 1991/2005/2020

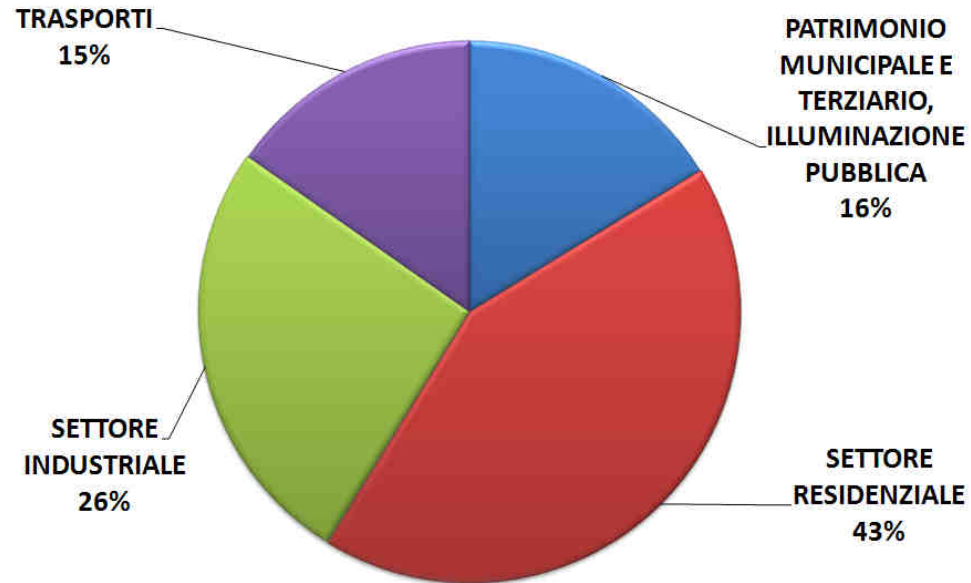


1991/2020 REDUCTION GOAL : 41,90%



TAPE Turin Action Plan for Energy

ENERGY BALANCE 1991-2005



2005 Energy consumption per Sector



TAPE Turin Action Plan for Energy

ACTION PLAN COMPOSED OF 51 SHARES

THE MOST SIGNIFICANT ACTIONS:

DISTRICT HEATING

CO2 REDUCTION ESTIMATES AT 2020: 567.679 t/year

URBAN SUSTAINABLE MOBILITY PLAN (PUMS)

CO2 REDUCTION ESTIMATES AT 2020: 261.679 t/year

ENERGY RENOVATION OF BUILDINGS

CO2 REDUCTION ESTIMATES AT 2020: 259.476 t/year



DISTRICT HEATING

The strategic plan of the district heating is started in 1982 .

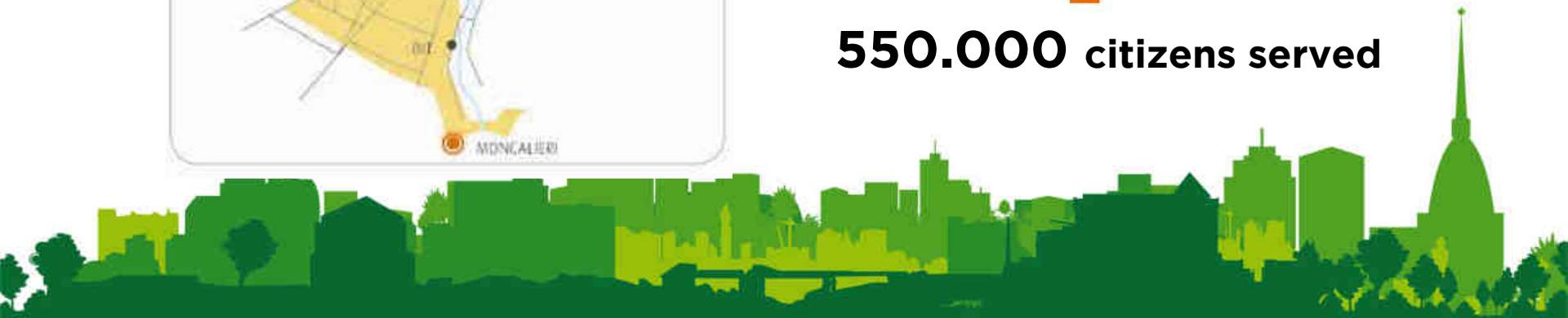
THE TURIN DISTRICT HEATING IS THE MOST EXTENDED IN ITALY.



54millions m³



550.000 citizens served



DISTRICT HEATING

INTEGRATED SYSTEM with HIGH EFFICIENCY COGENERATION and
through a network of **10,000 miles of pipes**



- 300.000 Tep*
Primary energy



- 890.000 CO2
ton/year



+ 3billions €
turnover/year
120.000 €
profit

=

11.000 oil tankers

*Tep = Tonnes Equivalent Oil



ENERGY OFFICE

INFORMATION OFFICE AND TRAINING COURSES

ADDRESSED TO

- » citizens,
- » companies,
- » professional in the field of buildings

THEMES:

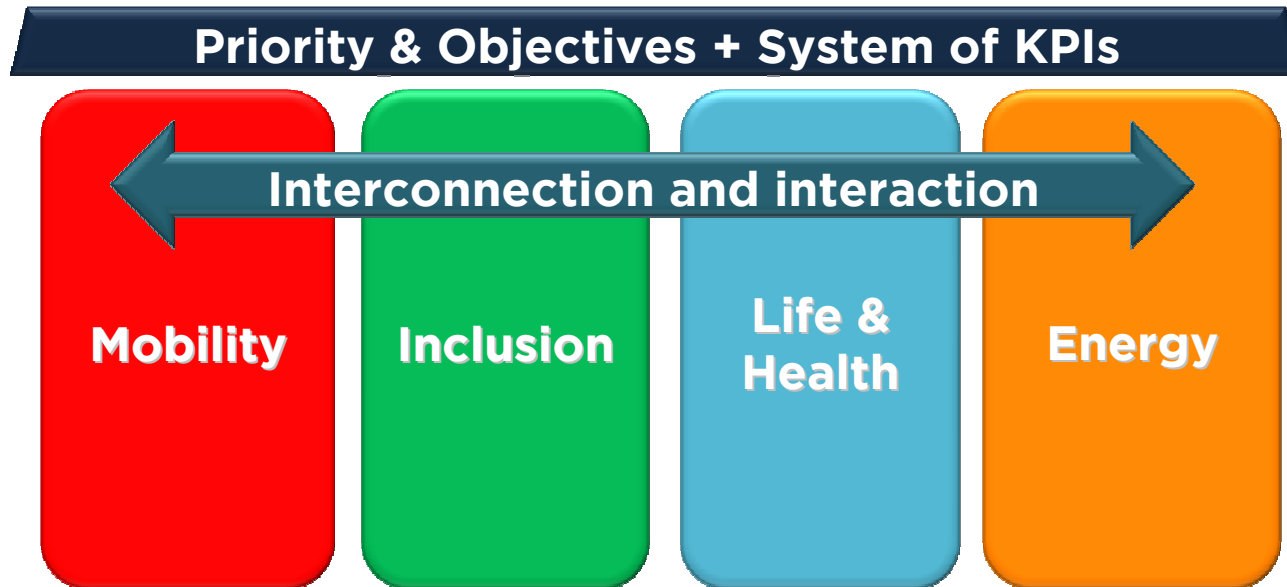
- » energy/environmental legislation,
- » technologies for energy efficiency and use of renewable energy.



SMILE Smart **M**obility **I**nclusion **L**ife & Health & **E**nergy

THE KEY COMPONENTS

4 VERTICAL DOMAINS where the city expresses a clear value



1 CONNECTIVE TISSUE of transparent and minimally invasive technologies



SMILE Smart Mobility Inclusion Life & Health & Energy

WHO WAS INVOLVED

■ 66 Subjects

- » 28 Companies
- » 5 Centre of Research
- » 23 Institutions
- » 10 Associations No Profit

■ More than 350 participants

■ City of Torino

- » 77 persons
- » 55 persons directly involved in the workgroups



SMILE Smart **M**obility **I**nclusion **L**ife & Health & **E**nergy

WHAT HAS EMERGED

45 ACTIONS PROPOSED:

- » **7 Transverse** (data, KPI, infrastructures, communication)
- » **7 Mobility** (infomobility, sustainable mobility, last mile/freight logistic)
- » **9 Inclusion** (digitalization, emergency housing, social innovation, social participation)
- » **12 Life&Health** (security, waste management, urban regeneration, tourism and culture, food,....)
- » **10 Energy** (zero energy buildings, smart grid, public lightning)



SMILE Smart **M**obility **I**nclusion **L**ife & Health & **E**nergy

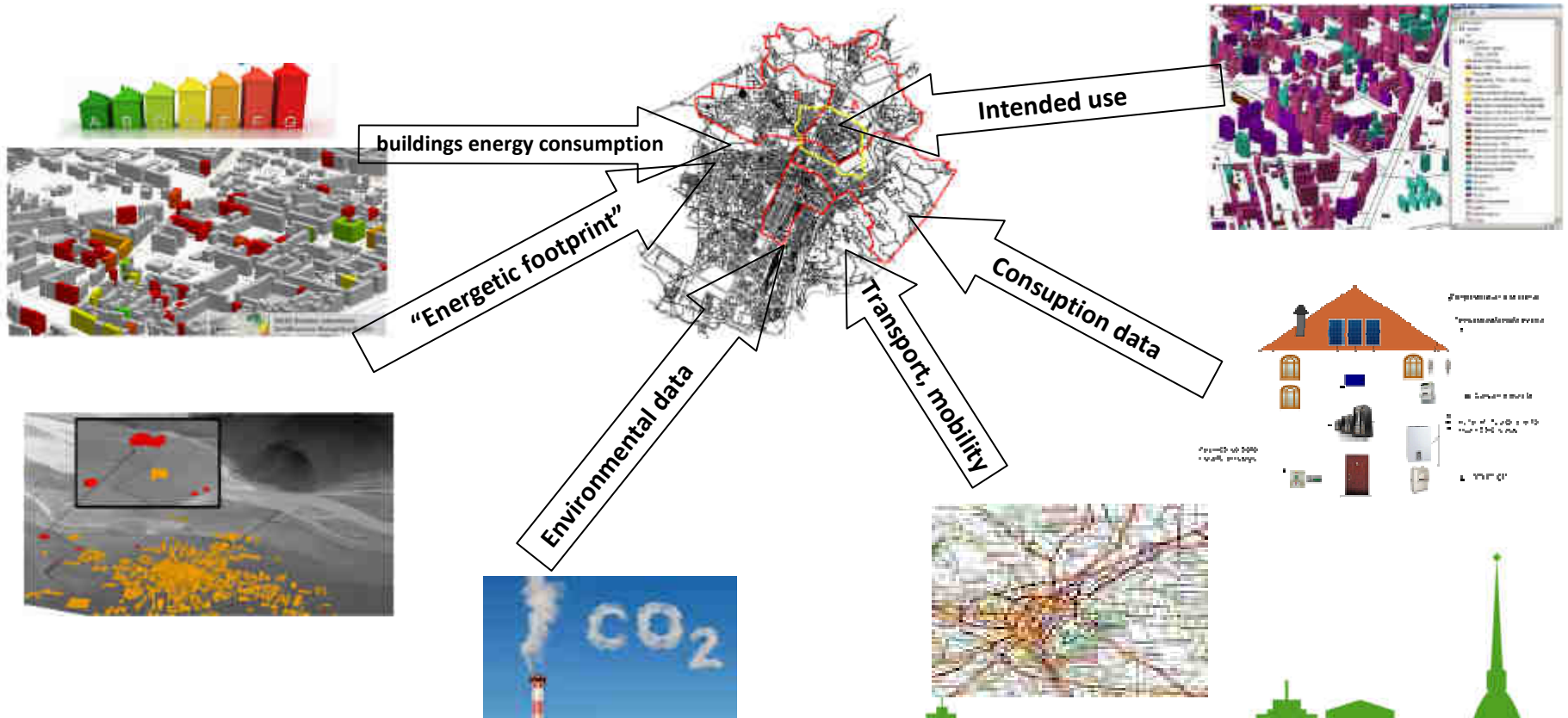
ENERGY ACTIONS

1. Tools for energy saving in buildings and sustainable urban planning
2. Rules, obligations and benefits for energy efficiency in private buildings
3. Enhancement of solar thermal energy in public and private buildings
4. Production of energy from the organic fraction of solid urban waste
5. Enhancement of geothermal energy in public and private buildings
6. Smart Grid in the urban context
7. Micro-cogeneration in public and private buildings
8. Development of district heating and cooling
9. Development of smart lighting
10. Tools for awareness to energy saving

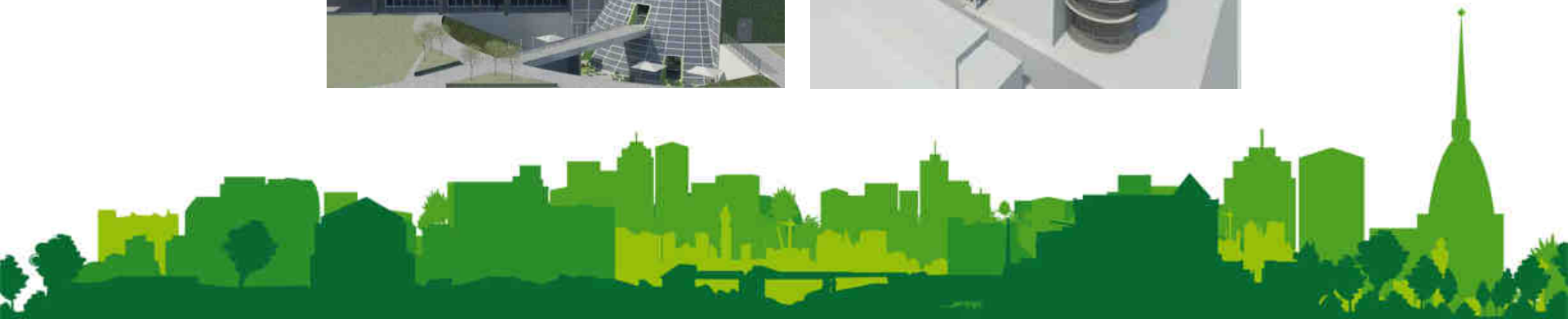


THE URBAN DASHBOARD

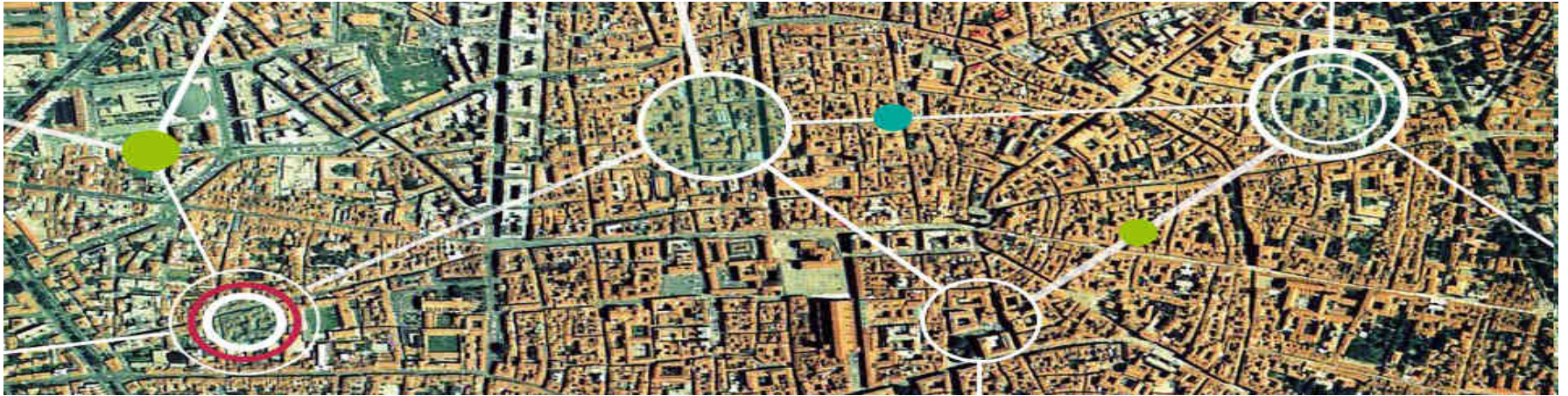
INFORMATIONAL SUPPORT, KNOWLEDGE AND ANALYSES, THE DECISION-MAKING PROCESSES



ENERGY



MOBILITY



TECNOLOGIE



TOWN REGENERATION



City plan - FALCHERA



Thanks for your attention!

Enzo Lavolta

City of Torino – Councillor

Policies for Innovation and Development, Public Works, Environment,
Urban Green and Sanitation

President of Torino Smart City Foundation

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