

**MOLOC project
INTERREG Europe
1st study visit report in Torino**



MOLOC partners and local stakeholders, Urban Center Metropolitano Torino - 23/05/2018

**23-24 of May 2018, City of Torino
EU Green Week**



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• **ENERGY CITIES**

Stéphane Dupas

➤ Context and summary

MOLOC is a European cooperation project co-financed by the Interreg Europe programme. It gathers the cities of Lille (coordinator), Hamburg, Torino, Suceava, the Central Mining Institute together with the City of Katowice and the European Network Energy Cities.

MOLOC aims to develop a new city building approach, associating quality of life and energy efficiency. MOLOC stands for MORphologies Low Carbon: the project will explore the brakes that limit the impact of local policies and actions in their ambitions to change current urban morphologies in the light of sustainable urban development. All partners cities have until 2019 to co-develop an action plan with their local stakeholders, before implementing it in 2020-2021.

In 2017, the MOLOC project has been launched. The partners gathered for the 1st time in Lille for the kick-off. After that, two interregional meetings have been organised in Suceava and Hamburg, to exchange best practices. During the interregional meetings, Energy Cities organised two workshops to write a joint territorial analysis framework for the identification of breaks to a low-carbon city.

In 2018, five study visits will be organised in the five partner cities to exchange with local partners on the implementation of initiatives for a low-carbon city. The first study visit in Torino was an opportunity to present the main urban projects developed in the General Master Plan of the City of Torino.

During the first day, representatives from the City of Torino presented the General Master Plan and the policies in favour of a low-carbon city. We had the opportunity to go on-site in the afternoon, illustrating the morning discussions. Parco Peccei and Parco Dora were presented, showing the strategy of the City, focusing on the transformation of former industrial sites into urban parks.

The following day, we were welcomed at the Energy Center of the Politecnico of Torino. Professor and researchers took the opportunity to present the activities undertaken at the Energy Centre Lab. We also discussed with IISbe Italia on the CESBA MED project on sustainable neighbourhoods. In the afternoon, site visits were carried out in the City of Torino especially in the Lingotto and Mirafiori area.

MOLOC study visit in Torino has been selected by the EU Green Week as partner event and largely highlighted on different EU and local media (<https://www.eugreenweek.eu/daily-report/daily-report-day-three>)



MOLOC study visit in Torino selected by the EU Green week official programme (City of Lille)

Quick overview of the urban development in Torino:

The Urban Master Plan prepared in 1995 focused on the improvement of transport access and private-led investment on brownfield sites (the closing of steel and car factory led to 300 hectares of brownfield). The organizing principle of the plan was the Spina Centrale, a North-South avenue along the railway line, which had fractured the city into two parts. The railway line was buried, enabling the physical reconnection of the city and a new urban centrality and image along the central backbone. Along the Spina Centrale, different projects have been developed on brownfield sites. Spina Centrale is composed of 4 main areas: Spina 1, 2, 3 and 4.

The creation of a new boulevard along the Spina Central was an opportunity to create a project, in favour of environmental quality and the life of its residents

Mixed-use developments, including libraries, theatre, banks and regional government offices were developed on brownfield sites. A programme to improve the quality of neighbourhoods, public spaces was implemented.



*Main projects along the Spina Centrale
in Torino*

<https://rottasutorino.blogspot.com/2014/11/il-progetto-della-spina-centrale-a-torino.html>

*Spina 1 and Spina 2 with the railway station of Porta Susa, the vast OGR (Officine Grandi Riparazioni) industrial complex and the Politecnico di Torino
Spina 3 and Spina 4 with Parco Dora and the Environment Park*

➤ Wednesday 23/05/2018

Morning: Presentation of the General Master Plan and low-carbon strategies

Venue: Urban Centre Metropolitano

✓ **Revision of the General Master Plan of the City of Torino**

by Rosa Gilardi, Head of the Urban Planning and Quality of Urban Spaces Department

The first General Master Plan in Torino has been presented in 1995. It highlighted different topics such as the recoverage of the city centre, reuse of former industrial areas, reorganisation of the urban structure and public transport systems.

Since then, the issues faced by the cities changed. In 2017, the City of Torino engaged the revision of the General Master Plan. Seven priorities have been selected in the Master Plan:

1. **Environment as a resource:** in the last 20 years, Torino faced a high consumption of land which led to many waterproofed surfaces. With the revision of its General Master Plan, the City of Torino aims a zero soil consumption to enhance the green areas and link them to ecological corridors.
2. **Identity and beauty:** the territory as an entity with its own identity
3. **Well-being and quality of life:** this priority is related to many topics (sustainable mobility, social housing, etc). It is about building a city for everyone: children, young people, the elderly or disable people.
4. **Youth and the city:** the objective is to build a city linking culture and research attracting talents.
5. **Work, production and business:**
6. **Simplifying rules:** the Master Plan will allow flexible and efficient management in the making of the city.
7. **Beyond borders:** The revision of the current Master Plan must be part of a broader vision that goes beyond the border of the city.

✓ **Policy to contrast climate change**

by Mirella Iacono, Adaptation and Climate Change task force of the City of Torino

The City of Torino is committed against climate change through different ways:

- Mitigation: measures to reduce greenhouse gas emission through energy saving and efficiency actions and the energy production from renewable sources. In 2009, the City signed the Covenant of Mayors and in 2010, the Action Plan for Renewable Energy has been approved (reduction by 30% of CO₂ in 2020 compared to 1991). **Between 1991 and 2014, CO₂ emissions have already been decreased by 22%.**
- Adaptation: identify a set of actions and guidelines to reduce the impact of climate change and protect the health, well-being and material assets of the population and to preserve the natural heritage. In April 2015, the City signed the Covenant of Mayors Initiative on Adaptation to Climate Change. In October 2015, the City of Torino initiated the Derris project, showing its commitment against climate change.

What is Derris?

In Italy, SMEs do not have adequate risk assessment and management tools against extreme climate events. Derris project provides concrete solutions thanks to a public-private partnership. The project aims at providing useful tools for prevention and management of climate risks to SMEs. Torino was the pilot city and involved 30 SMEs. After the experimental phase, 10 cities replicate the experience and 200 SMEs adopt the action plans for climate change adaptation. The total budget for the project represents 1,3 millions €, of which 60% financed by the EU.

DERRIS - Stakeholder engagement and mapping of good practices



Stakeholder engagement was key in the project and good practices have been mapped
(<http://www.derris.eu/en/>)

Within the project, the City of Torino developed a simple and immediate tool, the CRAM tool that gives SMEs the opportunity to understand what risks are exposed in case of extreme weather events and which could be the solutions to be applied in their companies to prevent damage.

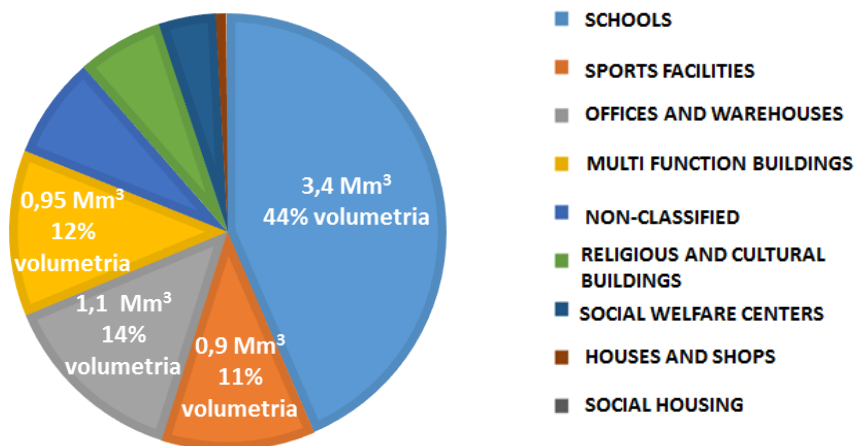
To address the climate change, the City of Torino started a process for the definition of the resilience strategy and the preparation of the Adaptation Plan = **Torino Resilient** !

To start the process, Derris results and commitments have been shared with all stakeholders. Different working group have been set up to support the preparation of the city's climate change adaptation. The Derris project was an opportunity to gather different stakeholders working together for a resilient Torino. The City replicates the project for an efficient strategy, integrating the existing tools. The Climate Change Adaptation Plan of Torino is still in process. The involvement of all stakeholders is crucial and an effective communication and awareness campaigns are essential to bring citizens in the project.

✓ **Energy Management of public buildings in Torino**

By Antonio d'Arpa, Energy Manager of the City of Torino

The public building stock owned by the Municipality of Turin consists of **800 buildings** with different uses (offices, schools, sport facilities, social assistance buildings, and cultural buildings) on municipal area, corresponding at a total volume of 7.553.369 m3 that is about 8% of the total urban building stock. Around 44% of the buildings are schools.



Use of public buildings in Torino (City of Torino)

Total annual energy costs amount:

- Heating: 35.5 million euros for methane gas and 11.1 million euros for district heating
- Electricity: 16.8 million euros

Since 2014, the Municipality of Turin is implementing an Energy Management System (EMS) for the whole building stock, supported by ICT and Building Management System (BMS) technologies, for the detection, management, control and monitoring of energy consumption.

The following steps were necessary to build the energy management system:

- 1) Use of the computer platform "Archibus" to pour and manage all data related to buildings
- 2) Setting up of a structure aiming to study the behavior of the buildings under the thermic and the energy consumption profiles
- 3) Special energy monitoring plan regarding the most energivorous buildings of the City's heritage
- 4) The design of a lighter and cheaper monitoring system for a large number of buildings is in the experimentation phase
- 5) A technical and financial project for an energy efficiency plan regarding the same buildings is scheduled for the next future

Some first conclusions could be drawn from the monitoring system:

- In most of the buildings the electric consumption has resulted out of normal parameters during the not working time slots (late in the evening, nights, holidays): in many cases the consumption during the not working hours was greater than in working hours, up to 30% higher.
- In some buildings the heating system keeps on running during the nights and the holidays
- In other buildings the temperature in many lobbies and rooms is over 25 °C for several days in winter.
- In many cases, the circulation pumps continue to operate even when the boilers are off

=> The monitoring phase is the most important in the energy management. The heavy part of the work comes when the problems need to be fixed.

The City created the **Energy Center** and purposes to establish there a single physical location, to concentrate both the City's and the Regional administration's offices for energy management.

The Administration aims to get a **more sustainable development** of the urban territory.

In this context:

- the City is going to renew the Urban Planning Plan

- rewriting in parallel the **energy policy document** which must be applied to all buildings in the city, to be constructed or refurbished, according to the limits imposed by the Mayors Covenant (- 40% of CO2 emission by 2030)

✓ **Smart City Innovation**

By Elena Deambrogio, Smart City, Innovation and EU funds Department of the City of Torino

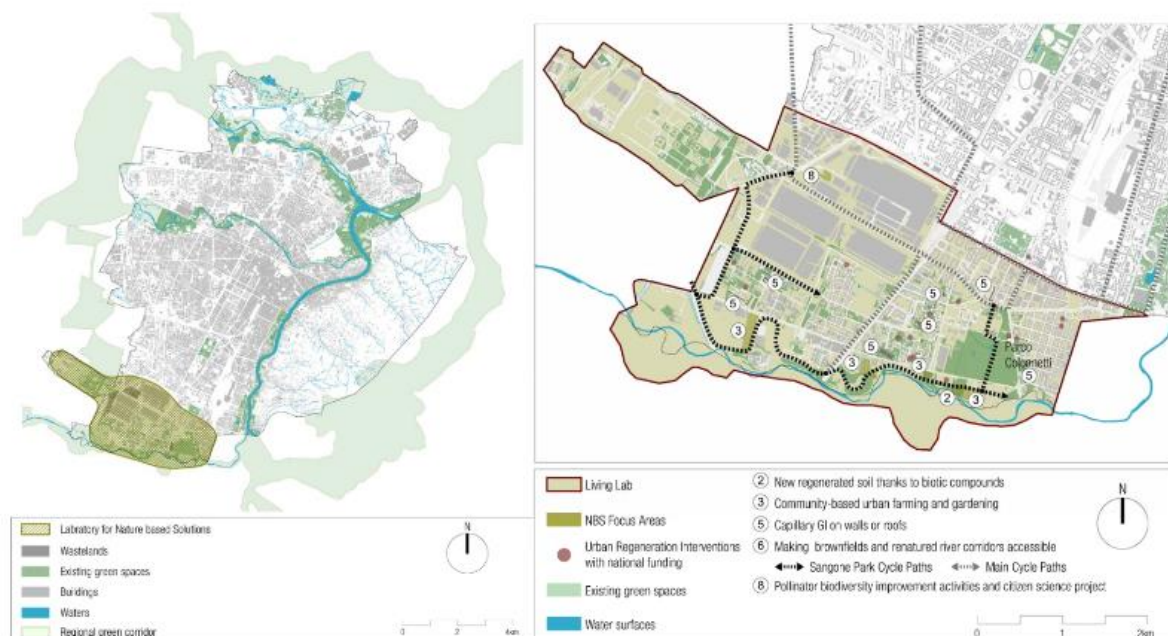
The Smart City, Innovation and EU funds Department is divided into 4 units:

- Structural funds management
- Social innovation and EU funds
- Smart City and EU funds
- Administrative innovation and EU funds

The objective of the Smart City and EU funds unit is to deliver innovation through cooperative projects and stimulate economic development. This unit focuses on transversal innovation policies through EU funds. Three main areas are concerned:

- Nature-based solutions: circular and sharing economy
- Enabling technologies
- Public procurement of innovation

Different projects are developed to respond to the main areas. For example, the project “proGReg – productive Green Infrastructure for post-industrial urban regeneration” has been approved in 2017. 34 partners are working together to establish Living Labs in urban areas which face the challenge of post-industrial regeneration. The future Living Labs will develop nature-based solutions, including regenerating industrial soils biotic compounds, creating community-based urban agriculture and aquaponics and making renatured river corridors accessible for local residents.



Area of the Torino proGReg – South part of the city where several brownfield are located next to green areas (City of Torino)

✓ Management of green areas in Torino

By Paolo Miglietta, Environment Department of the City of Torino

The first green areas are linked to royal palaces, which became urban green spaces. In the 80's and 90's, even if green spaces and cycle paths were increasing, the main focus was on economic development. Later on, the City of Torino realised that it was important to link green spaces with the climate change. The City of Torino used as well worker gardens to create a green system in the city. The green system has been developed with the creation of parks along the river. All the green spaces have been linked for a continuous system.

From 1995, climate change has been integrated into the General Master Plan, and the main issue was to provide a good quality of the existing green areas. In addition, Turin has many trees but the challenge is to protect them in the urban environment.

In 2013, according to Boston University, Torino was the 13th cities in the world for the perception of green spaces in cities.

Today, Turin has 22 million m² for 900 000 inhabitants, above the national average. The focus on climate change shift to resilience. The challenge for the city is the capacity to attract people and develop the economy while maintaining a good quality of life and green spaces. Brownfields in the city give the opportunity either to develop green spaces or use them for urban development. In both cases, it limits the urban sprawl or water infiltration, leading to a **resilient city**.

✓ The role of Urban Center Metropolitano

By Giulietta Fassino, Urban Centre Metropolitano

Urban Center Metropolitano is an independent association (funded in 2005) set up to help and guide the transformation of Torino and its surrounding metropolitan area. It is a tool of communication, research and promotion, as well as a place for debate and information for local residents, experts in the field and local businesses.

In the context of the General Master Plan revision, Urban Centre Metropolitano organises in May and June 2018 the "Wednesday Plan" (I Mercoledì del Piano), to explain and co-design the General Master Plan.



I Mercoledì del Piano

(<http://www.urbancenter.to.it/i-mercoledì-del-piano/>)

✓ Integrating sustainable development into the spatial planning strategy of the Lille European Metropolis: ambitions and challenges

By Romain Bultez, Project Manager, Revision of Spatial Planning, City of Lille ; Sébastien Fournier, Vice Head of Service, Spatial Planning Department, Lille European Metropolis ; Brigitte Groenewald, Head of Strategic Planning, Lille Metropolis Agency for Development and Urbanism

The Territorial Coherence Scheme/Master Plan (Schéma de Cohérence Territoriale –SCOT) sets strategic orientations in a long term, and identifies general land use. It is a strategic document that includes social and economic aims, as well as all the environmental angles. The SCOT of Lille Metropolis has four main objectives:

- Urban and economic development (artificialisation of land : a maximum of 135 ha/year for the next 20 years)
- Accessibility (reduce traffic congestion without building new roads, connect different modes of transport)
- Urban and environmental quality (protect biodiversity – a network of green corridors, strategy for a fragmented greenbelt around the central metropolitan area // protect the natural resources, adapt urban morphologies to climate change)
- Social and territorial solidarity

The document is divided into 3 main parts: the territorial diagnosis (diagnostic territorial), the political guidelines (Projet d'Aménagement et de Développement Durable – PADD) and the binding guidelines (Document d'Orientation et d'Objectifs – DOO, prescriptive part). The document has been adopted in February 2017.

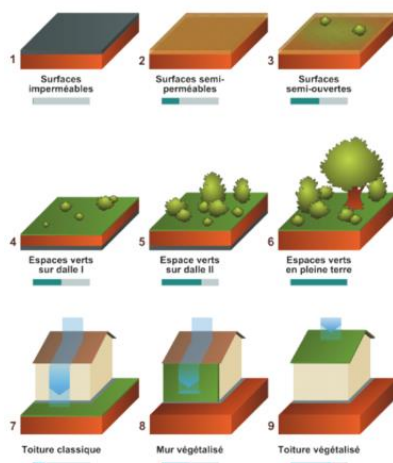
The principles of the SCOT are translated into the Local Land Use Plan (Plan Local d'Urbanisme – PLU) defining the urban planning regulatory rules. The PLU aims to a balance development.

The spatial planning rule and guidance is implemented through the building permit (permis de construire) released by the city. The spatial planning objectives are about:

- Promoting the urban renewal and limiting urban extension
- Increase the density of the city and improve quality of life

To do so, different measures have been created such as:

- **The Biotope Coefficient** allows the evaluation of the environmental quality of a plot, neighbourhood, etc. It defines the share of areas in favour of biodiversity compared to the total area of a plot. (see below)



- waterproof surface: **0**
- non-vegetated permeable surface: **0,25**
- vegetated permeable surface: **0,5**
- green facades: **0,4**
- planted spaces on slab / green roof: **0,5 to 0,7**
- planted spaces in open ground: **1**

The Biotope Coefficient: a regulatory tool included into the local land use plan (ADEME)

- Reduce the use of cars in the city (limit the number of parking spaces for office buildings: 1 parking space for 60m²)
- Promote the production of renewable energy in urban projects

Afternoon: Study visits – Parco Peccei and Parco Dora

✓ Parco Peccei

Parco Peccei is a 4.3 hectares park. It is situated in the Spina 4 of Torino, in a former industrial site, owned by FIAT. A major work of depollution was carried out on site for the excavation of the soil. 72% of the soil was polluted due to the industrial past of the site.

The park is an example of environmental sustainability. The construction site for the realisation of the park had zero impact thanks to the planting of new trees. Moreover, an industrial infrastructure has been kept in order to receive photovoltaic panels ensuring energy independence of the park. The participation of schools in the design of the park was essential. Local artists and schools did a great work in the park to represent the industrial memory of the site. Walls are covered by texts and images referring to industrial past. The floor material used in the park allows the reduction of air pollution by 60-70%. The floor has to be treated every 3 years in order to keep its action of depollution.

The total budget for the park was around 10 million €.



Parco Peccei (City of Lille)

✓ Parco Dora

Parco Dora has a size of 100 hectares. 50% of the area is devoted to a park. The other half of the area is made up of residential, tertiary, industrial and commercial development.

Big industries such as FIAT or Michelin were established in this area, due to the proximity of the river and the railway. In the 80's, industries fell down, and the site was abandoned. The City launched the Urban Requalification Program for the regulation of the area in 1998, with private and public funds. In 2004, an international contest for the park was opened. Peter Latz, a German architect, won the contest. The park, which represents half of the entire area, has been divided into 5 parcels with functional differences. The park took advantage of existing structures such as the huge hall of the FIAT factory.

The park succeeds in maintaining a close relation with the post-industrial landscape and using the river as an essential structure of the park. The total budget for the rehabilitation of the park was around 65 million €.



Parco Dora and the hall, former industrial plant (City of Lille)

➤ **Thursday 24/05/2018**

The Deputy Mayor of the City of Torino, Alberto Unia, welcomed us in Torino. He emphasized the necessity for cities to fight against climate change and to be part of a real change. According to him, an overall strategy is essential at city level, to take into account all aspects of climate change. Torino is a leading example of sustainability, with the revision of the General Master Plan.

Morning: Visit to the Energy Centre of the Politecnico of Torino

✓ **General introduction of Politecnico di Torino – Polito Sustainable Campus**

By Gianvincenzo Fracastoro, Professor at the Energy Department

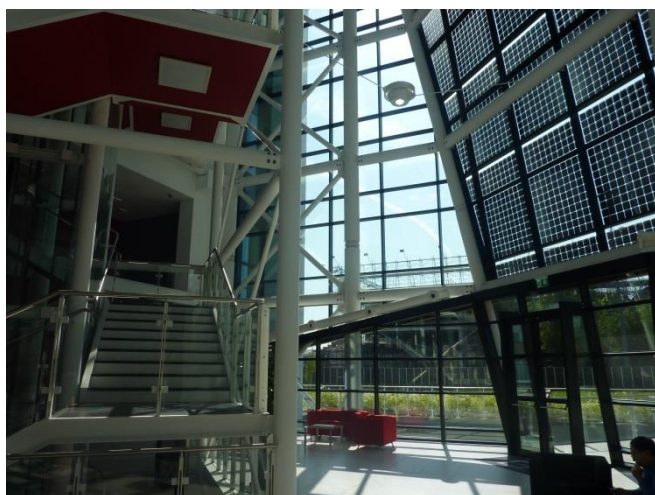
Politecnico di Torino launched a project called “Polito Sustainable Campus”. It aims at developing and disseminating a sustainable strategy. The challenge is to drive the change towards a more sustainable future and to address global challenges via solutions that are in harmony with nature, technology and human beings.

Different actions are being implemented:

- Energy and buildings : less energy consumptions and more sustainable energy by reducing the consumptions of the buildings and producing or buying energy from renewable sources (100% electricity from renewable sources)
- Mobility and transport : facilitate public transport, bike and car sharing services
- Food, water and waste : disseminate awareness, installation of internal drinking water points
- Green procurement: use of recycled paper, Eco-label, rationalization of the number of printers
- Communication and events: promotion, build a strong sustainable identity (waste mob, bike to work, etc).

✓ **Energy Centre Initiative**

By Andrea Lanzini, Assistant Professor at the Energy Department



Energy Centre (City of Lille)

The Energy Centre has been built by the city and transferred to Politecnico di Torino. The Energy Centre is composed of the Energy Centre House (EC-H) and the Energy Centre Lab (EC-L).

The Energy Centre House hosts companies, start-ups and public administration active in the field of energy technology, management and policy. Three main topics identified are:

- Energy saving and process optimization in the industrial environment
- Energy storage in industrial, mobility and residential applications
- Energy networks and smart cities

The Energy Centre Lab gathers a multi-disciplinary group of faculty members of Politecnico di Torino which is devoted to discovering the best techno-economic, social and environmental solutions for a transition toward a more sustainable society (smart grid, sustainable mobility, etc.).

✓ **Research Results on Spatial Decision Support System for Urban Energy Planning**

By Sara Torabi, Researcher at the Interuniversity Department of Regional and Urban Studies and Planning

Sara Torabi conducted a research to model energy consumption and to facilitate the decisional process for stakeholders. The objective is to evaluate the current status of energy consumption and different energy saving scenarios to promote sustainable urban planning. The main outcome of the research is the development of a new **Multi-Criteria Spatial Decision Support System (MC-SDSS)**, which is an interactive energetic plug-in in GIS environment.

✓ **CESBA MED Sustainable Cities: focus on neighbourhood scale**

By Andrea Moro

CESBA MED project focuses on energy efficiency as a key strategy to reduce the environmental impact of public buildings. Instead of focusing on energy efficiency at building scale, the project addresses the issue at neighbourhood level. The idea of the project is to propose different methodologies, tools and indicators to select the most affordable and operational solutions. To support the development of energy efficiency plans for public buildings in the context of their surrounding neighbourhoods, a common sustainability assessment framework will be defined in cooperation of all partners of the project. The project aims to reach more certification in energy efficiency buildings.

Transnational multi-criteria assessment system at the scale of neighbourhood

↓
Contextualisation of the transnational
framework (criteria selection
corresponding to the local context)

A set of 8 city assessment tools (specific assessment system for every city)

The CESBA MED tools will allow producing the MED passport to compare the performances of buildings and neighbourhoods. The need for common metrics is important to have comparable results between the partners. It is the first European project testing energy efficiency at neighbourhood level.

Afternoon: Study visits

✓ Officine Grandi Riparazioni

Officine Grandi Riparazioni was a former railway maintenance factory. The factory closed in 1992 and became a huge brownfield of 27 hectares in the middle of the city of Torino. The City was willing to demolish the buildings, but architects, urban authorities and associations protested against it. In 2007, the first agreement came out for the rehabilitation of the site. It was planned that the building would host an exposition on the urban transformations of the city. However, nothing happened due to political and economic reasons. Later on, in 2011, it was decided that the site will be the main point for the celebration of the unification of Italy. The appropriation of the heritage took place with the organisation of 3 exhibitions.

The former owner, the railway company gave the site to the city in 2013. Then, the city sold the site through a long-term lease (99 years) to an investment foundation. The foundation invested 100 million € for the rehabilitation of the site. Today, it hosts an art centre, event venues, a food hub and an innovation hub in 2019. It is therefore a private site hosting public functions.

A great focus was made on the energy efficiency of the buildings. 10 000 m² of windows have been replaced for better insulation. A cooling and heating floor system has been set up: 14 geothermal wells are heating and cooling the buildings. The monitoring of the light is centralised to avoid loss of energy.



Officine Grandi Riparazioni (City of Lille)

The two-days study visit in Torino has been selected by the EU Green Week and highlighted on different local and EU media. We are very proud to have hit the headlines, which contributes to raising awareness among Torino citizens.

A selection of the different articles and reportages published:

- EU Green Week daily report website: <https://www.eugreenweek.eu/daily-report/daily-report-day-three>
- Interview to Valentina Campana, Director of Urban Center Metropolitano, on the Sky channel Reteconomy: <http://www.reteconomy.it/programmi/economia-diretta-news/2018/maggio/24/la-telefonata.aspx>
- Press release of the City of Torino: http://www.comune.torino.it/ucstampa/comunicati/article_427.shtml
- Press article on Torinoclick (the online magazine of the City of Torino): <http://www.torinoclick.it/?p=76430>
- Online newspaper Torinoggi.it: <http://www.torinoggi.it/2018/05/22/leggi-notizia/argomenti/eventi-11/articolo/european-green-week-esperti-a-torino-per-approfondire-la-revisione-del-piano-regolatore.html>
- Online newspaper Torinotoday.it: <http://www.torinotoday.it/green/european-green-week-torino.html>

Mid-June, MOLOC partners will head to Katowice, for the second study visit. A focus will be made on energy efficiency actions and the switch from an economy based on coal to a clean and efficient energy. Representatives from Katowice will present the Low-Carbon Economy Plan of the City, supporting the city in the implementation of a low-carbon strategy.

06/06/2018 – City of Lille

