

MOLOC project
2nd Interregional Meeting Report

Organised by the City of Hamburg

Participants :

- **Hamburg**

Michael Pollman, Ministry of Environment and Energy

Thomas Jacob, Senate Chancellery

Merle Herrmann, Senate Chancellery

Sara Jötten, Senate Chancellery

Jan Salzwedel, Ministry of Finance

Luise Schulz, Ministry for School and Education

- **Hamburg's stakeholders**

Jan Gerbitz, ZEBAU/IBA Hamburg

Barbara Makowka, Wälderhaus

Michael Richter, HafenCity University

André Wolf, Hamburg Institute of International Economics (HWWI)

Jennifer Wesche, Ministry of Economics, Transport and Innovation, ERDF Office

- **City of Lille**

Damien Baleux, Energy Management Office

Claudia Capeocchi, Projects Department

Francis Lambert, Sustainable Housing and Development Offices

Aurélien Parsy, Urban Planning Department

Charlotte Rosier, Urban Planning Department

- **City of Suceava**

Dan Dura

Simona Strimbeanu

- **City of Torino**

Erica Albarello, Urban Center Metropolitano/ City of Torino

Liliana Mazza, Urban Planning Department

- **Katowice**

Katarzyna Korszun-Klak, Marshal Office of the Silesian Voivodship in Katowice

Aline Rejman-Burzyńska, Central Mining Institute

Beata Urych, Central Mining Institute

Daniel Wolny, City of Katowice, Energy Management Office

- **Energy Cities**

Stéphane Dupas

Excused :

Antonio d'Arpa, City of Torino, Energy Management Office

1. Context and aims of the meeting

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 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.

Last September 2017, the MOLOC partners met for the second time in Suceava. During this meeting, a best practice together with Suceava's stakeholders took place, as well as site visits and project management update session. During a workshop led by Energy Cities, the partners selected a set of 20 most important they face against the making of a low carbon city. Each partners selected 10 major obstacles it faces locally to be studied in depth later on.

In Hamburg, the aims were:

- Meet Hamburg's project team and stakeholders
- Visit sites related to low carbon themes
- Review the study template of brakes to the low carbon city
- Project management update

2. Best practice session – 27/11/17

Venue: Hamburg City Hall

✓ **Welcome note by Michael Pollman, State Secretary for Environment and Energy, City of Hamburg**

Hamburg is a very “green” city. Around 16 % of the municipal area is made up of parks, recreation areas and woodlands. Bodies of water account for a further 8 %. All these elements contribute significantly to the city's recreational value. Around 68 square kilometers, that is 9 %, are declared national parks, an additional 166 square kilometers (22 %) are nature reserves.

The city faces the challenge of an increasing urban population, thus creating pressure on ecological resources.

Many actions have already been implemented to decrease GHG emissions:

- The first **climate plan** was signed in 1997 and recently revised in 2016. The strong political ambitions target 50% reduction of GHG emissions by 2030.
- **Environmental partnerships** have been signed with companies as part of a program called Environmental Partnership. It was developed in 2003 to promote voluntary environmental protection measures in private companies. The Environmental Partnership functions as one major incentive for innovation and the employment of eco-friendly technology. The Partnership's agenda aims to promote environmentally relevant measures in the economy such as renewable energies, resource efficiency, low-emission transport and recycling. Furthermore, the initiative helps to foster the political debate on environmental concerns between the private sector and Hamburg's public authorities. Currently, almost 1.000 companies have become “Environmental Partners”. And more than 4.000 companies have benefitted from consultation, consulting and funding so far.
- Hamburg's **green roof strategy** is another initiative. Basically, the green roof strategy combines the sustainable development of city space with the target to reduce carbon emissions and to adapt

to climate change. Green roofs provide significant environmental advantages to an urban ecosystem. They filter pollutants and carbon dioxide from the air which helps to lower the risk for diseases such as asthma. Further, they serve as habitat for animals, improve the local climate and help to insulate buildings against sound. Also, they can serve as recreational areas for local residents. To develop this environmental potential, our strategy also includes financial incentives for all citizens of Hamburg and their individual green roof projects. The Senate of Hamburg, that is the government of the city, is providing 3 Million Euros to green 70 % of all suitable buildings of the city until 2020. The Ministry for Environment and Energy implements and evaluates the green roof strategy in close cooperation with the HafenCity University.

Mr Pollman insisted on the necessity to learn from each other into a network and the need to remain humble when talking about measures against climate change as the climate situation is not improving fast enough.

✓ Lille Public Lighting Plans

by Francis Lambert, Sustainable Development Department and Damien Baleux, Energy Management Department, City of Lille

In 2004, the average consumption rate of public lighting in Lille was 96 kWh per inhabitant, while in Germany the same year it was 45 kWh per inhabitant. Investments were necessary to improve public lighting performance. The city contracted a private company with performance goals. With the same public lighting budget since 2005, **investments** grew from 30% of the total budget towards more than 50%. Between 2005 and 2019, **18.5 million euros of savings on running costs** have been made possible by 47 million euros of investments.

In October 2017, **annual electricity consumption of the public lighting equipment represented 47.4% compared to the consumption in 2004**, despite an increase from 22500 to 24000 lighting points (mainly due to urban projects and creation of new public spaces). The average consumption rate of public lighting in Lille is now 50 kWh per inhabitant and per year.

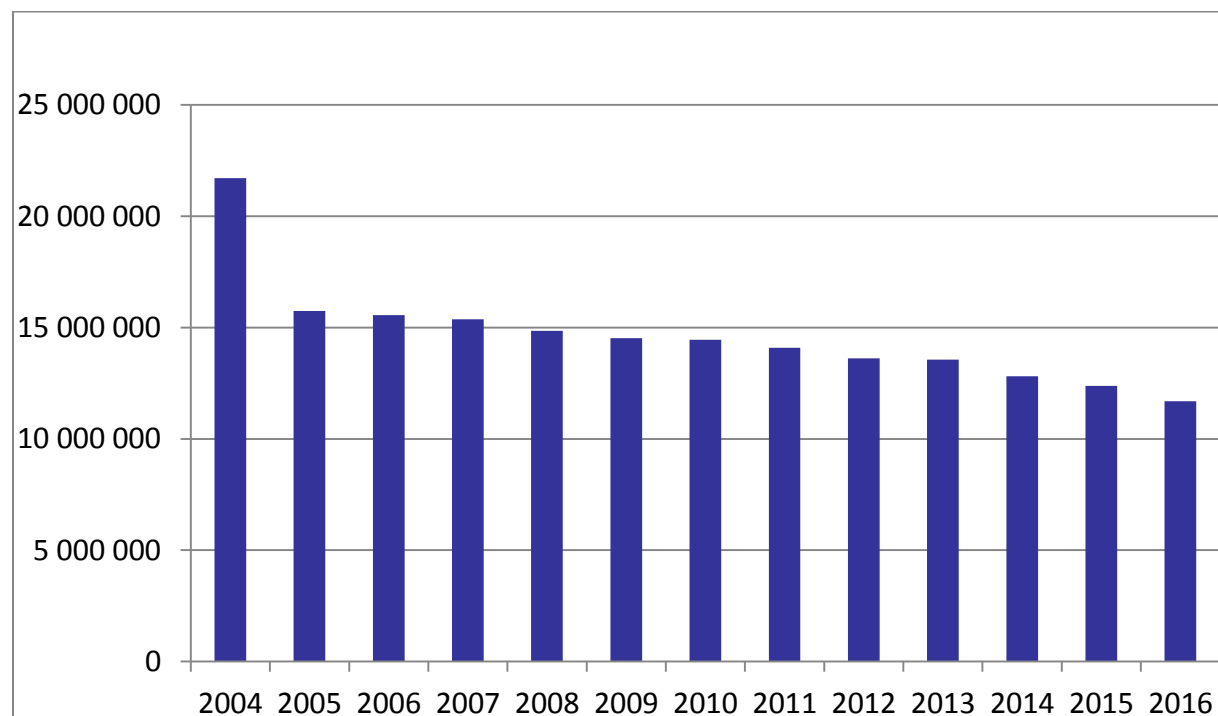


Figure 1 Electricity consumption for public lighting in Lille: -47% between 2004 and 2016 despite the increase of luminous points (energy consumption in kWh)

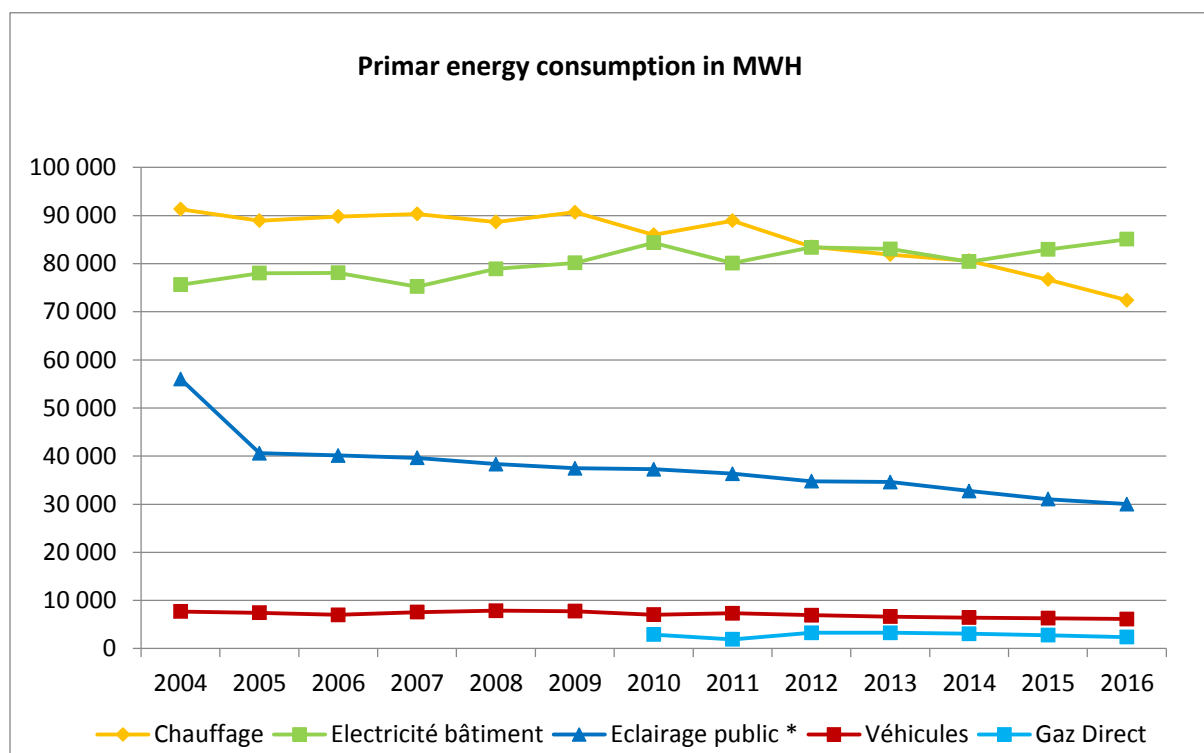


Figure 2 Energy consumption of the municipal stock: yellow for heating, green for electricity, purple for public lighting, red for vehicles and blue for district heating

The city implemented the European legislation on outside lighting, which allowed the city to stop over-lighting and to ensure efficient and quality lighting.

Energy input for public lighting is **100% renewable** since 2013 (guaranteed by certificates).

It is essential to **ensure viability of the installations on the long run** thanks to renewal programmes. It is estimated that at least 3% of the equipment needs to be replaced every year.

The public lighting department also works with citizens to answer their demands. The next steps will be the artistic lighting of main squares in the city.

In 2017 the **project LUCIOLE**, co-financed by ERDF has been launched in the Citadelle park. It focuses on **better adapt public lighting to the well-being of biodiversity** (mostly bats and night butterflies here). Moving sensors will be tested, as well as adaptation to colour temperatures. Evaluation measures will be undertaken.

More information on LUCIOLE [here](#)

✓ Practices related to improve the air quality in the Silesian Region

by Katarzyna Korszun-Kłak, Marshal Office of the Silesian Region

• The problem of low air quality

The three main heating sources of the 547 000 SFBs (single family buildings) in Silesia are: coal 56%, district heating network 22%, gas 15%.

86% of the SFBs have a coal boiler, a biomass boiler or a stove
63,7% of the SFBs lack access to the gas network.

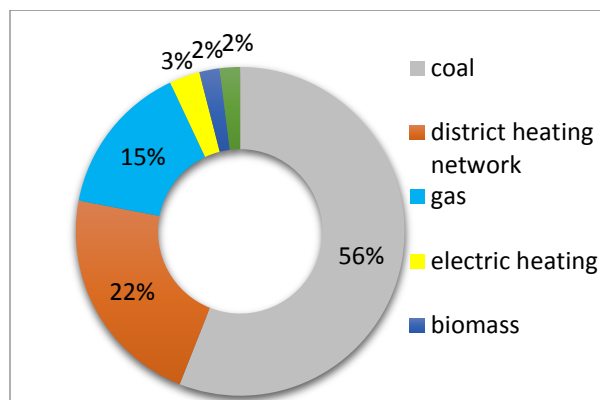


Figure 3 Heating sources in the Silesian region

Key characteristics:

- SFBs prefer dual fuel boilers which can burn alternative solid fuels and lower operational costs
- Poor quality solid fuels are widely used in inefficient and polluting boilers
- SFBs are poorly insulated, but it costs a lot of money to retrofit
- Replacement of boilers sensitive to oil and gas prices
- The available data does not readily support stratification of analysis by household income and other building characteristics

=> Residential heating represents 55% of total emissions of PM10. 33 of the 50 most polluted cities in the European Union are located in Poland, of which 10 are located in the Silesian Voivodship (World Health Organisation)

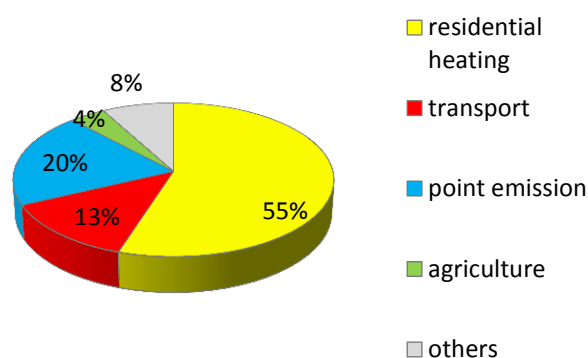


Figure 4 the contribution of individual emission sources of PM10 in Silesian Voivodeship

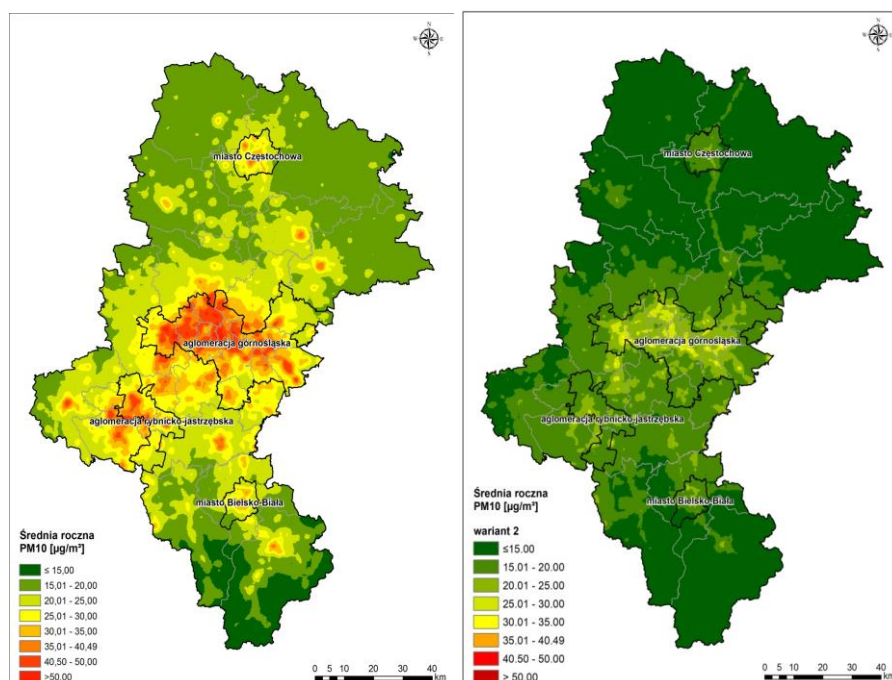


Figure 5 Annual concentration of PM 10 in 2015 and 2027

• Anti-smog actions

A resolution was adopted for the Silesian region. Its main points are:

- Prohibition of the use of bad quality fuels
- if the user choose a boiler on solid fuel, he can use a boiler class 5 according to European standards or an ecodesign boiler
- Introduction of deadlines for the replacement of individual installations depending on the date of production

• Funding opportunities

Programs to Support thermal retrofit and boiler replacements face challenges:

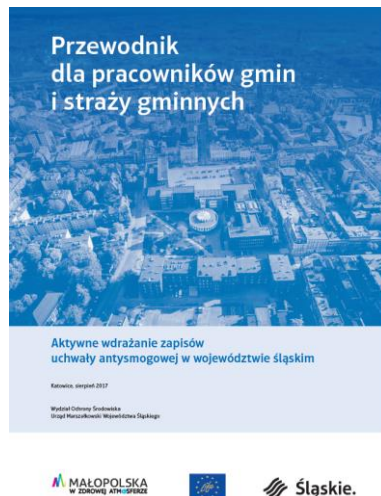
- No scheme to explicitly finance thermal retrofit of SFBs
- No scheme to finance poor households
- Lack of coordination between schemes has led to confusion
- Lack of simple applications procedures is a deterrent
- Limited funds

17 million inhabitants, representing 40%

World Bank programme “Plan: Catching-up region” focus on strategic decision making at the regulatory policy level and designing policy instruments that target the poorer part of the society (especially the “energy poor”).

• Education actions

- Guides for the employees of municipalities
- Conference and workshop for municipal employees and city guards-formal
- Website
- Project “Implementation of Air Quality Plan for Małopolska Region – Małopolska in a healthy atmosphere” financed by the LIFE programme”



✓ Energy Management of public buildings in Torino

By Antonio d'Arpa, Energy Management office and Erica Albarello, International Relations

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.

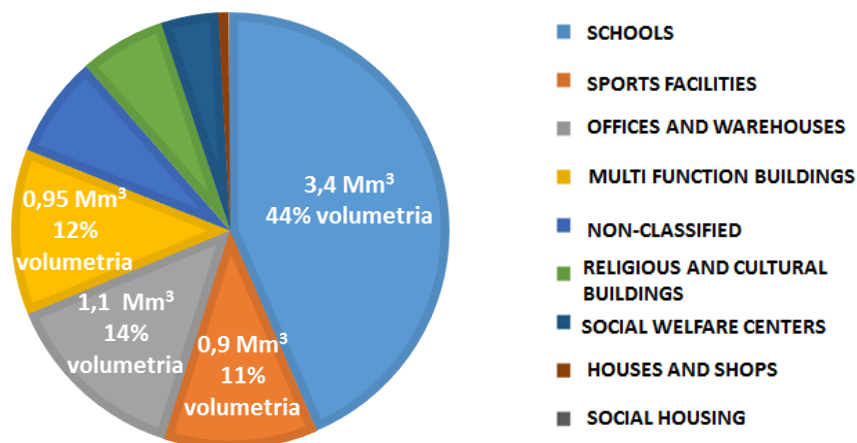


Figure 6 Use of public buildings in Torino

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)
-

✓ **Green roof strategy of the City of Hamburg**

By Michael Richter, HafenCity University Hamburg, Environmentally Sound Urban and Infrastructure Planning



The strategy was developed in 2013 to focus on storm water management and transferability.

The aim of the strategy is **100 hectares of new green roof space until 2020 and 70% of the new buildings that should be greened.**

In 2013, green roofs represented 80 hectares. Today, green roofs in the city represent **135 hectares, which is approx. 2% of the total roof surface.**

Elements of the strategy:

- Promotion: incentives, reduced rain water tax, green roofs on public buildings
- Dialogue: public relations, communication, green roof competition
- Regulation: land use planning, nature protection, green roof regulation
- Scientific support: measurement and evaluation programmes

[for the focus on the storm management research programme at the HafenCity University, please see details under]

✓ **Elements on energy policy in Suceava**

By Dan Florentin Dura, City of Suceava

21.000 buildings are connected to the central heating system of the City of Suceava. 40% of the network has already been rehabilitated. Applications were made to ERDF to renovate the rest of the network.

In 2017 an energy plan has been approved. Today, the debate is ongoing for the local urban plan. The first energy audit ever done in Suceava has been initiated in 2017 thanks to MOLOC and will be ready by 2020.

80% of public lighting will be replaced to LED. The savings will be used to replace lighting inside schools and high schools by 2020 (anticipated savings of approx. 50%).

Electric transport:

- 11 electric municipal vehicles will come in 2018
 - 6 electric mini buses
 - 40 e-buses will be tendered in 2019
- => all public transport is planned to be electric by 2020

Energy efficiency is now used as tendering criteria.

3. Energy Cities workshop – 28/11/17

- Feedback round on the local analysis draft with the list of obstacles

Generally, all partners agreed on the template. It was asked to remove the governance section from the draft. It was underlined that the section on national policies should not take too much space per obstacle.

Need to add a section “own example” with success and failure points

- Organisation of the partners for the local analysis

- Suceava: tender released at the end of 2017 including the local analysis criteria. A regional group will be created to share the template with
- Torino: the discussion with the stakeholders didn't focus on obstacles but a questionnaire was sent to them. The local analysis will be tendered.
- Hamburg: half of the study will be done internally and half externally

- Katowice: discussion on obstacles is integrated into the meeting but not necessarily structured; it goes along with improvement of the low carbon economy plan.
- Lille: the local analysis will be externalised

- Next steps

Early 2018: Energy Cities send a revised template

Deadline for the local analysis: mid-September 2018

4. Site visit : former international building exhibition area (IBA) in Wilhelmsburg

- The site

Beside industrial installations, the island was not densely occupied. In 1962, a major flood affected the island, causing about 100 deaths. Many people left the island while many migrants occupied the leftover buildings. 50.000 persons lived on the island before the flood, which is more or less the same number today. It is expected that this number will reach 72.000 inhabitants by 2022-2023.



- IBA

The IBA covered 3 main themes:

- urban development
- cosmopolitanism
- adaptation to climate change

In total, 70 projects were presented. 8.20m dikes have been built. The pollution inherited from the large industrial areas has been treated. In the coming future, the city highway will be transferred to the east, so that it will be possible to build 4000 apartments in 10-15 years.

=> the main challenge is to improve the connection between the city centre and Wilhelmsburg

- Visit of the WÄLDERHAUS

The WÄLDERHAUS forms part of the IBA. Mrs. Makowka gave us a tour through the building. She presented the sciences exhibition, which is open to the public. Art is also exhibited. The WÄLDERHAUS is home of a hotel which is sustainable managed. The building is (except for the bottom part and the staircase) made out of wood. It has a passive building standard and uses geothermic heating. It does not have air conditioning.

- Visit of showcase buildings

Michael Richter gave a guided tour to some parts of the IBA. He was part of the IBA team and could therefore give a firsthand impression. He presented passive building (50-60% of the heating demand by itself); some of them had a wooden structure. Some buildings were low cost buildings (own owners investments) with pre-fabricated elements for the construction of a building in 5 weeks. We also saw bioclimatic architecture and a building with a seaweed biomass production. All apartments were sold at market price and are now being inhabited.



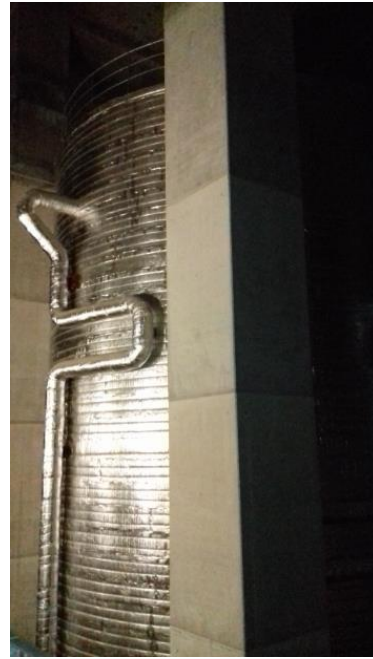
- Visit of social housing renovation

600 apartments from a 1930's building have been retrofitted, either redeveloped (too small before) or having their energy performance improved. The increase of rent should be covered by the decrease of energy costs.

The district suffers from under-developed public transport offers.

- Energy bunker

The bunker was built in 1943 as airway shelter and anti-aircraft defence. The original idea (started in 2006) was to use the bunker to improve the district heating. Hamburg Energy realised the installation. The complete renovation of the bunker and the energy installations amounted 10 to 11 million euros and was also funded by ERDF.



The tank can contains up to 2 million liters. The energy sources are:

- industrial waste

- CHP

- solar heating (approx.. 15%)

=> the sources vary according to the weather

Temperature leaving: 90°C, temperature coming back: 60°C

3500 households are now connected. The district has a capacity of 5000 households. It suffers from relatively high prices.

Next steps: development of deep geothermic



5. Update on project management

1) Update on stakeholder group meetings

- **Torino 21/11/17**

All details here: <https://drive.google.com/open?id=1ACEn5sWWj9qtJ38PNEv5AWZplQmzfoYK>

The City of Torino, with the support of Urban Center Metropolitano, after the 1st stakeholders meeting submitted a **questionnaire** to collect projects and datasets on low carbon initiatives and projects implemented by the stakeholders group members. The stakeholders observed that the questionnaire was too long and detailed. A new and simplified version of the questionnaire was discussed with the stakeholders and modified accordingly.

The stakeholders suggested the possibility to collect not only actual projects, but also project ideas still to be implemented.

It was highlighted that the section of the questionnaire on the obstacles and barriers on the projects implementation is a first step to start, at local level, the discussion contributing to the drafting of the Joint Territorial Analysis Framework by Energy Cities.

The links between the revision of the General Master Plan and MOLOC were clearly presented.

The stakeholders received the revised version of the questionnaire the day after the 2nd stakeholders meeting. UCM and the City of Torino will collect the questionnaires and systematize them before the 4th stakeholders meeting to be held on 2018.

- **Hamburg 23/11/17**

Jan used this opportunity to present himself, as new project manager for Hamburg, replacing Luise. Welcome Jan!

The Chamber of Crafts particularly showed strong commitment. They presented the “Energy Book”, which is related to an offer from the Chamber of Crafts that companies can voluntarily subscribe to. In the process, energy managers are sent to participating companies. The former then analyse the energy consumption of the company and help to save energy. This is not only a contribution to reducing costs but also to climate protection.

Environmental partnerships by the ministry were also discussed.

- **Katowice 18/10/17**

The last meeting took place in the offices of the Silesian Association of Communes. 12 partners attended as well as 9 representatives of the Silesian cities.

Daniel Wolny presented the current state of implementation of the Low Carbon Economy Plan.

Beata Urych moderated a workshop on the 10 obstacles selected in Suceava.

Best practices in cities focussing on participatory approach were presented: replacement of boilers, smog alert, festival of energy.

Next meeting was held on 12/12/17 focussing on energy management in buildings and financing issues.

- **Suceava**

A traffic study for the introduction of electric buses was presented. The participatory budget for districts was presented.

[more info soon with the stakeholder group meeting report]

- **Lille 20/11/17**

The second stakeholder meeting focused on sharing good practices for inspiration. The following topics were presented:

- Green facades strategy in Metropolis of Lille, by the European Metropolis of Lille
- Lille Public Lighting Plan: results by the City of Lille
- Application to the European contest of architecture focused on solar energy SOLAR DECATHLON by the association Living in 2030
- Presentation of a bioclimatic architecture project in Lille by the North Council for Architecture and Urbanism

We also exchanged on the next study visits opportunities and exchange of ideas for the tender to be launched for the local analysis.

2) Study visits in 2018

Decisions on organisation:

- Common agreement to have them on 2 days + 0.5 days only for MOLOC partners if needed
- Send draft programme 6 weeks before the study visit

Torino: week April 9th – 13th doodle still to be filled by a few partners

One study visit to move to 2019: joint decision to come between Hamburg, Suceava and Lille

Study visits are meant to focus on precise projects to analyse the factors of success and failures, to identify the social and cultural brakes and to understand local policy decision making. How have decision makers and citizens been convinced? Have new participatory and legal tools been developed?

3) Regional workshops

Freedom is left for partners to find suitable dates.

The focus is on raising awareness and involving stakeholders and citizens, inviting experts and professionals, link with European developments

Energy Cities remain available to help finding experts for your workshops.

4) Progress reports

See powerpoint attached

6. Visit of the green roof of the HafenCity University

Michal Richter and Galya Vladova from the HafenCity University presented the green roof project over the university.



The green roof on the Hafen City originates from a stormwater management research at project at the University.

The total surface of the green roof is 2232m². A specific area of 600m² has been designated as runoff measurement area. On this surface has been installed precipitation sensors and discharge from 3 drainage elements.

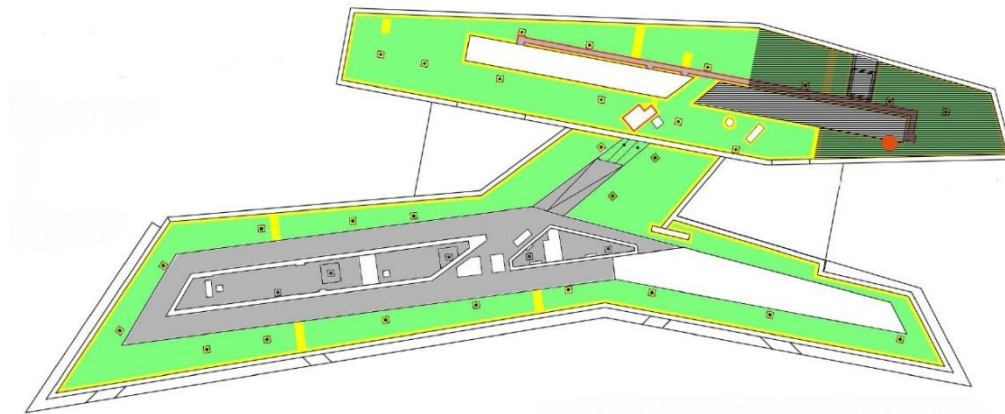


Figure 7 Green roof on the HafenCity University: in dark green the precipitation measurement area

The following measurement instruments have been installed:

- „Hellmann“ rain collector with tipping counter
- Box with weir and tipping counter

Monthly precipitation have been studied during 32 months between 03/2015 and 10/2017. Precipitation amounted 2270 mm during this period. The discharge amounted 1090 mm, so **the retention from the green roof was 52%**.

7. Optional meeting with the Hamburg School Building Department on the energetic renovation plans of schools in the city

Jan Schneck and Stefan Nowicki from SBH, the School Buildings Department of Hamburg were so kind to welcome participants of the Hamburg meeting in one school that was recently renovated to exchange on the school buildings management in Hamburg.

Mr Jan Schneck is responsible for the “Region Nord”.

In total in Hamburg there are:

- 225.000 students
- 20.300 teachers
- 369 schools
- 3.313 buildings
- rental area of 3 million m²
- land area 7 million m²

• **Diagnosis**

In 2012, a large diagnosis was made. It was estimated that 2,6 billion euros were needed to eliminate renovation backlog. Because of full day schooling and other complementary activities, 300.000 m² of new building spaces were needed.

A master plan was made.

Some key principles of the master plan:

- customer focus: one manager for three schools
- asset management: make sure to maintain the value of the building
- cost transparency
- efficient use of resources for buildings
- reliable, predictable and constant costs : estimation around 15 million € for 5000 m2
- supporting SMEs

=> all savings made by the schools can be kept by the school for other projects or other saving measures

- **School building organisation**

The school building organisation faced important changes since 2012. Before 2007, the system was fragmented and decentralised (ownership of buildings by districts and ministries for schools, urban development and building). A single model started in 2007. In 2010, a special fund was created. Finally in 2012 the School Building Department was created (SBH).

Since 2012, all school building activities are combined in a landlord-tenant model. A facility management strategy guides the activities of the department. Some of its key elements are:

- ✓ **introduction of a landlord-tenant model**
- ✓ **development of building categories based on their needs for renovation (from 1 to 6)**
- ✓ **standard performance specification for construction and management**
- ✓ **fixed rates for construction and facility management**
- ✓ **fixed rents including heating for building categories**
- ✓ **regional organisation of customer support**
- ✓ **central purchasing**
- ✓ **establishment of control processes, reporting and risk management**

In 2016, 166 renovation projects have been completed. In 2016, the investment budget was 300 million € for the city.

Mr Shneck insisted on the fact that the School Building Department doesn't favour heavy renovations. The major savings are realised thanks to improvements on governance and uses.

For example, SBH has a trained janitor in each school, which allows regular consumption checks. Customer surveys on service quality are sent every two years.