WORKSHOP REPORTS

I.IV LITOMĚŘICE

WORKSHOP DATES AND LOCATIONS

The first workshop on vision building was organized in Litoměřice on 4th November 2014 and the second workshop on back casting on 2nd December 2014. The methodology and results of the initial assessment were not presented at either of the workshops. Initial assessment is part of a separate meeting only with city representatives.

PARTICIPANTS

Together with the city representatives, relevant stakeholders were identified and contacted. We were able to identify about thirty stakeholders – ten city representatives, further four from city subsidized organizations and the remaining parties from non-governmental organizations, the major heating supplier, and some middle sized employers.

Altogether, ten stakeholders were present at the 1st workshop and eight stakeholders were present at the 2nd workshop. The interest of the two missing participants to attend the second workshop was expressed; however external conditions hindered their attendance. All ten stakeholders took part in the feedback discussions on both workshops. Unfortunately, we did not manage to get the representatives of private sphere to participate at either of the two workshops.

The table below summarizes the representation of the stakeholder groups.

Table 13: Stakeholders representation in workshops

	VISION BUILDING WORKSHOP	BACK CASTING WORKSHOP
Head of Environment department, city office	1	1
Head of Urban development department, city office	1	1
Head of Projects and strategies department, city office	1	1
Energy manager of the city, city office	1	1
Healthy city coordinator, city office	1	1
Director of the Center of tourism, contributory organization of Litoměřice	1	1
Marketing manager of the Center of tourism, contributory organization of Litoměřice	1	1
Coordinator of urban planning NGO platform “Litoměřice|||Leitmeritz”	1	0
Initiator of Urban planning NGO platform “Litoměřice|||Leitmeritz”	1	1
NGO “Kino klub Ostrov” - social and cultural events	1	0
Total	10	8

I.IV.I METHODOLOGY AND RESULTS FOR VISION BUILDING

The visioning workshop was half day long and consisted of two blocks. After the introduction of POCACITO project and participants, the methodology and general framework of the visioning process was described. Then the visioning process followed.

We had ten stakeholders and three project team members present. We thus divided the people into three groups of four and one member of the project team moderated the workshop and led the participants through the individual steps of the process.

First, each participant drew his or her individual vision of "how would you like your city to look like and to function in 2050?" on a paper in front of him. The participants were seated by tables of four and after the first step, the tables twice switched to complement the pictures of the other groups. Although divided into groups, the drawing phase was individual work.

We allowed the participant to complement their drawing with describing text or keywords. This was important to simplify and facilitate the process also to those not so familiar and comfort with graphical representation of their ideas.

Figure 11: Vision building workshop – individual drawing phase

Based on our experience, we derive following suggestions:

1. Make sure that the number of people in the groups is the same. This is important when rotating to ensure that all participants will be included in the process.
2. Think carefully of the wording of the instruction to start the visioning process. It is important to explicitly stress that the picture should represent how the participant want the future to look like.
3. Allow participants and instruct them explicitly that it is possible to ad and incorporate text into their drawings. You prevent this way potential drawing blocks.

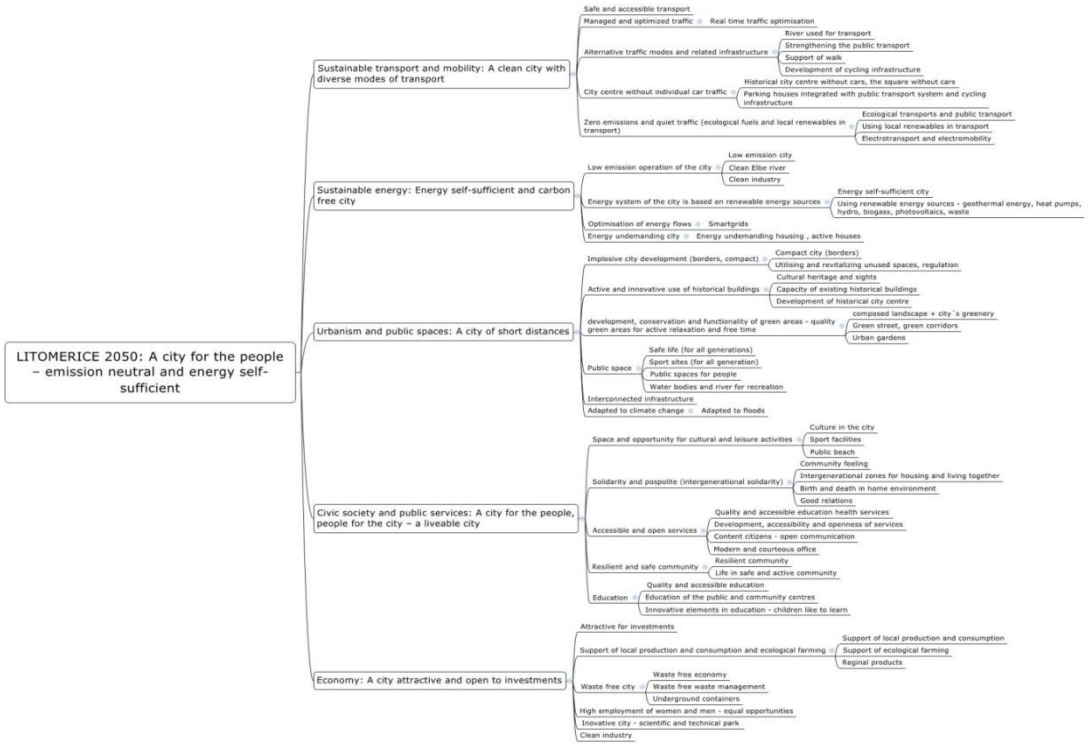
As a second step, the groups returned to their original tables and were asked to summarize what the drawings represent to keywords and phrases and to write these down on cards. The final step of the group work was then to categorize and place the keywords and phrases in a mind map scheme on flipcharts. Each of the group thus created their own structure and wording of the city vision.

Figure 12: Vision building workshop – work in groups and mutual presentations

The groups then presented their results to the other groups and discussed were their visions meet and in what aspects they differ. The overlapping areas were synthetized and written down. Not all topics were compiled during the workshop. The remaining ideas were summarized and compiled after the workshop by the POCACITO project partner responsible for the case study and the results were sent for feedback to the workshop participants.

We structured the keywords and phrases using the XMind software and ended up with five main areas that were subsequently described in a narrative representing the city vision.

Figure 13: Synthesis of groups' vision building process using the XMind software



MAIN SECTORS IDENTIFIED IN VISIONING A FUTURE FOR THE CITY

Following sectors and areas were covered by the final vision for 2050:

1. Transport and mobility
2. Energy
3. Urbanism and public spaces
4. Civic society and public services
5. Economy

Whereas all three groups specifically named transport and energy, the other categories had to be compiled together. Especially the final categories of civic society, urbanism and public services were difficult to distinguish. The contents of these categories were significantly overlapping and permeating.

Interlinkages between the sectors and topics were obvious, however not further discussed during the vision building workshop and were left to be analyzed during subsequent work.

None of the sector was given special attention during the vision building process. However, as mentioned above, transport and energy seemed to be included on first positions by all groups, whether this was caused by the stakeholders background or by the obvious link of energy and transport to CO_2 emissions and climate change and the concept of post-carbon city.

THE 2050 POST-CARBON VISION FOR LITOMĚŘICE

The narrative of the vision of Litoměřice in 2050 is following:

LITOMERICE 2050: A city for the people – emission neutral and energy self-sufficient

Sustainable transport and mobility: A clean city with diverse modes of transport

- Safe and accessible transport: Transport in Litoměřice city in 2050 will be first of all safe and accessible – financially, spatially and without barriers.
- City center without individual car traffic: Individual car traffic will be limited in the city center, where other modes of transport will be used primarily. Traffic at rest will be dealt with mainly outside the city center.
- Alternative traffic modes and related infrastructure: Walking, cycling and public transport will be encouraged. The transport infrastructure will be tailored to enable flexibility of choice of diverse transport modes. Motorized transport will be minimized, while ensuring sufficient level of mobility.
- Ecological fuels and local renewables: Vehicles will use primarily ecological fuels and energy from local renewables. Traffic noise will be minimized.
- Optimized traffic: Traffic will be automated and real time optimized.

Sustainable energy: Energy self-sufficient and carbon free city

- Energy self-sufficient: The city Litoměřice will be in 2050 energy self-sufficient. It will use local renewable energy sources. The most of its energy demand will be covered by a geothermal power plant in city´s ownership. The potential of decentralized energy production will be fully utilized.
- Energy undemanding: The demand for energy will be systematically lowered and the effectiveness of energy use will be increased. Especially the energy performance of buildings will be improved and the energy flows will be optimized.
- Maximum use of local renewable energy sources: The energy system of Litoměřice city will be based on local and renewable energy sources.
- Optimization of energy flows: Energy flows in the city (production as well as consumption) will be optimized and the energy surpluses will be sold.

Urbanism and public spaces: A city of short distances

- Compact city with clear borders: The city of Litoměřice will be a compact city in 2050; its development will be implosive.
- Spatially interconnected and intergenerational: The city will be spatially interconnected, creating opportunities and spaces for encounters and intergenerational cognition.
- A living historic city center: Litoměřice is a city with valuable historic city center. In 2050, the city center will not be conserved, but will be actively utilized with respect to current needs of citizens as well as the historical value of the architecture.
- Green city with enough functional green areas and corridors: Litoměřice will be a green city stressing the development, conservation and functionality of green areas and corridors with low energy intensity.
- Adapted to climate change: The city will be prepared to react on impacts of climate change, especially floods.

Civic society and public services: A city for the people, people for the city – a livable city

- Active, safe and resilient community: To live in Litoměřice in 2050 will mean to live in an active, safe and resilient community.
- Cultural and active: The city will provide sufficient space, facilities and background for cultural and leisure activities.
- Educated city: It will provide quality, accessible and innovative training and education.
- Solidary community: It will ensure a dignified life to all generations.
- Accessible and open public services: The public services provided by the city will be accessible to all. The city´s functioning will be transparent.

Economy: A city attractive and open to investments

- Attractive and open to investments: The city of Litoměřice will be open and attractive to investments.
- Local production and consumption, ecological agriculture: Local production and consumption will create the basis of the city´s economy: ecological agriculture will be supported.
- Waste-free city: Waste management will be handled in a closed cycle and the city will be "waste-free".
- Industry with minimized environmental impacts: Negative impacts on environment from industrial operations in the city will be minimized.
- Equal access to employment: There will be equal conditions in access to employment for women and men.
- Attractive for tourism: Tourism will constitute significant contribution to the local economy.
- Innovative city

REFLECTIONS

The representatives of the city were engaged and interested in the process. They perceive the work done as a contribution to their current strategic planning document. It prolongs their currently approved development plan from 2030 to 2050 and enriches the ideas specified in the document, which was elaborated mainly as deskwork. It also engages new stakeholder groups to the process. The subsequent back casting workshop should bring new elements to the existing city documents in elaborating and specifying concrete actions and measures to reach the visions.

The final vision encompasses five thematic areas of city´s life. There are sector specific topics – energy, transport and economy, but also crosscutting and horizontal areas like urban planning, civic society and public services. There are many interlinkages between the vision topics, which should be addressed and analyzed in the subsequent steps.

I.IV.II METHODOLOGY AND RESULTS FOR BACK CASTING SCENARIOS

The goal of Workshop 2 was to create a qualitative scenario describing how the city can transition to reach the vision developed in Workshop 1. The qualitative scenario includes intermediate phases of future development, measures and strategies for urban management.

METHODOLOGY FOR BACK CASTING WORKSHOP

The back casting workshop partially followed the methodology presented in the joint training workshop conducted for the case study leaders. First the vision formulated in the first workshop was presented, discussed and final wording was agreed on. Then the methodology of the back casting consisting of the five steps (i) define normative endpoints, ii) identification of obstacles and opportunities from context scenarios, iii) identify milestones and interim objectives, iv) define actions, measures and instruments and v) validate the robustness of actions) was introduced.

The five thematic areas of the vision formulated at the previous workshop were considered to be the normative desired endpoints for the back casting exercise.

The SSP middle of the road background scenario and the impacts of its selected drivers on the city´s future development were presented.

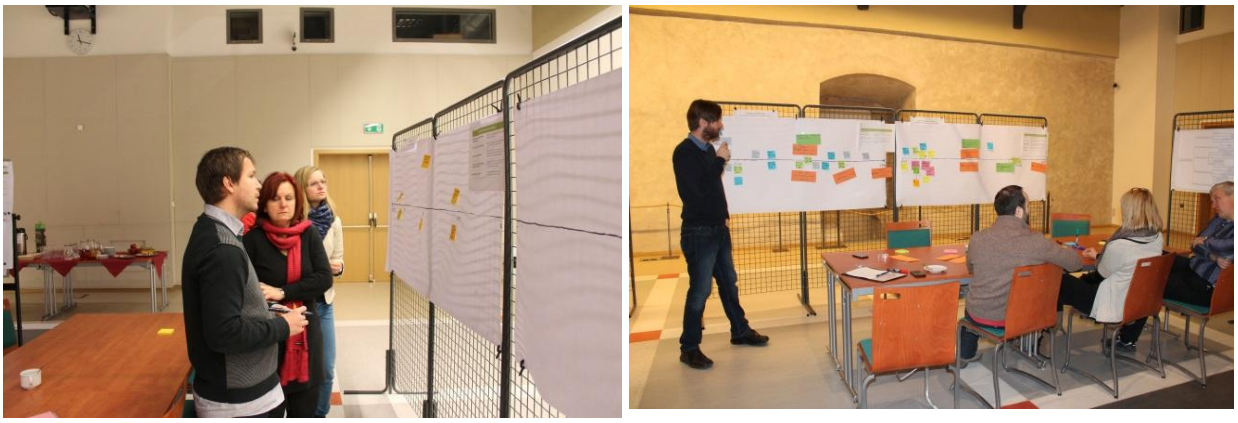
The participants were then asked to identify potential obstacles and opportunities that the presented global development may induce for the city. We first tried to identify these for each of the five vision topics – energy, transport etc., but this process turned out to be inapplicable. Most of the selected impacts of the scenario did not intersect with the city´s level decision making or authority, some did not show clearly positive or negative impact. More importantly, the exercise to identify potential impacts evolved during just one hypothetical future development turned out to be limiting.

We thus abandoned the approach of identifying obstacles and opportunities given by the presented contextual scenario and instead participants identified in a joint brainstorming only potential external drivers, that may rise in the future for each of the vision topics, but did not further discuss their effect under specific SSP scenario.

As the next step, participants moved to another sector of the room, where five time axes were prepared – one for each of the vision topics with the vision wordings as endpoints. Post-its, paper blocks and markers were prepared on the tables. Participants were asked to first think about milestones and interim objectives and to mark these on the axes, then to think of actions and measures to reach the interim objectives and milestones. As we had eight participants and five axes and we did not want to select arbitrary which topics to omit, participants were asked to individually select the topics they want to elaborate and to add the measures. Each of the participants thus collaborated on more than one of the topics. At the end, each of the time axes was presented by one of the participants to the whole group and the group discussed together, whether the actions and milestones suggested as well as their timing can be agreed on.

There was no time left to discuss the robustness of the scenarios within different contextual development during the workshop.

Figure 14: Participant discussing back casting scenarios



KEY POINTS OF THE SCENARIO

First, external drivers of the city´s future development were identified. We discussed subsequently the individual vision topics and named the drivers specifically for each of them. Thus some of the drivers – i.e. national policies or laws may relate to more of the topics. Most of the identified drivers are related with policy measures, which may be given by the strong representation of municipality office among the workshop participants.

Following external drivers were identified:

Sustainable transport and mobility: A clean city with diverse modes of transport

- Fuel prices
- National conception or policy for transport
- Wealth of the society
- Technology accessibility - competition for resources
- Urban population dynamics
- Related aspects of construction law - urban planning, parking spaces
- Intercity transport infrastructure
- Tax policy of the state and EU - introduction of carbon tax
- Social norms, status perceptions, attitudes towards car ownership
- Subsidy policies - non-individual car transport modes

Sustainable energy: Energy self-sufficient and carbon free city

- Energy prices
- National and EU concept and policy of electricity distribution networks - support of insular grids
- Tax policy of the state and EU - introduction of carbon tax
- National energy policy - centralized vs. decentralized energy sources
- Energy and climate policy - national and EU
- Technology accessibility - competition for resources

Urbanism and public spaces: A city of short distances

- Availability and accessibility of land - price and scarcity
- Population dynamics and demographic changes
- Social norms and status perception - not having a big house becoming trendy
- Evolving social trends - i.e. sharing
- Law related to urban planning
- International cooperation of architects, improvements of architectural competitions
- Education of the public in formation and creation of the surrounding environment
- State climate adaptation strategy and measures related to floods in the region

Civic society and public services: A city for the people, people for the city – a livable city

- Blackouts caused by external factors (i.e. geomagnetic storm)
- City´s obligations given by the state - i.e. immigration

Economy: A city attractive and open to investments

- National budget allocation of taxes
- Economy crisis
- Global economic trends

Then the back casting scenarios were developed for each of the vision topics as described in the previous chapter. The actions and measures suggested vary from very concrete suggestion valid only in the city context to more general instruments applicable in other context as well. All the variables were subsequently attributed to the subtopics they mostly relate to.

All of the scenarios show similar tendency. Whereas the interim milestones and goals are distributed across the whole timespan, but mainly from 2030 and further off, most of the actions are

concentrated in the first decade and up to 2030. After 2030 only few measures are indicated. The last decade from 2040 to 2050 consists only of targets.

BACK CASTING SCENARIOS BY VISION SECTORS

The tables below present the scenarios. Interim milestones and goals are in green boxes. At the end of the chapter, we thus list all the variables also chronologically in time periods.

Figure 15: Examples of the outcome of back casting exercise during the workshop

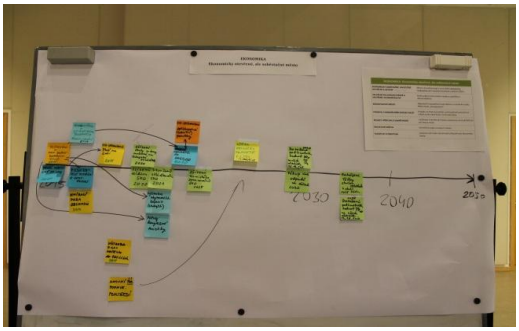


Table 14: Back casting scenario of vision topic Sustainable transport and mobility: a clean city with diverse modes of transport

VISION TARGET IN 2050	2015	2016	2017	2018	2020	2022	2025	2030	2035	2040	2050
		Sustainable Urban Mobility Plan									
Safe and accessible transport			Barrier free access to all street communications					30% of inhabitants use non-motorized transport for daily commuting to work and school			
								40% of inhabitants use city´s public transport			
City center without individual car traffic and parking					Restricted parking on the main square	Eastern bypass road is built					
					New parking house in the city center						
					Western bypass road is built						
Alternative traffic modes and related infrastructure	Cycling passageway throughout the city			New train stop by the hospital	Public charging stations network is finished (5 stations)			City´s public transport system covers 100% of the city			50% of households do not own a car
								Public transport is free of charge			
								Public transport emits zero emissions			
								Integration of railway into the public transport system			
								New train stations are built			
Ecological fuels and local renewables			City hall vehicles use alternative fuels (electricity or hydrogen)	The major drives an electric car - example to the public	New parking house Prokratice			30% of cars use ecological fuels (electric or hydrogen)	Construction of hydrogen filling car station	50% of cars uses ecological fuels (electric or hydrogen)	100% of individual motorized transport is emissions free
								Construction of hydrogen production station			
Optimized traffic							Central integrated traffic control and management system				

Table 15: Back casting scenario of vision topic Sustainable energy: energy self-sufficient and carbon free city

VISION TARGET IN 2050	2020	2022	2025	2030	2035	2040	2045	2050
	The city leaders are enlightened and share the post-carbon vision of the city							
	The energy conception of the city is updated							
Energy self-sufficient			The city buys the current central heating system - the network and the source	Water supply and sewerage are in the city´s ownership	80% of the overall city´s accessible consumers is connected to the central heating system	The whole city is 80% energy self-sufficient		90%-100% of the whole city is self-sufficient
				Independent local distribution system (off-grid operation) - fully in operation	The revitalisation of the central heating system is completed with losses below 3%			
Energy undemanding	All new constructions are done in passive to zero building standards			90%-100% of the city´s facilities are energy self-sufficient			80% of flats are in passive standard	
	Public lighting is renovated and system operated			100% of public buildings are in passive standard				
Maximum use of local renewable energy sources		The geothermal power plant project is finished (20 MWh)	Photovoltaics are on all public buildings		The urban forests cover 10% of central heating supply energy sources	Photovoltaics are installed on every roof		
			Small hydro power plant supplies the public lighting (low pressure sodium lamps)	Thermal accumulator installed in railway tunnel	Dwellings not connected to the central heating supply use 100% of renewables for heating			
Optimization of energy flows	Centralized system of energy distribution and operation			50% of the whole city is energy self-sufficient				
	Remote energy consumption metering is possible on all public (city managed) buildings							

Table 16: Back casting scenario of vision topic Urbanism and public spaces: a city of short distances

VISION TARGET IN 2050	2015	2016	2019	2020	2022	2023	2025	2026	2027	2030	2035	2037
Compact city with clear borders	Starting with complex revitalization of historical sights	Complete revision of urban spatial plan						Exploitation of unused buildings and spaces in the city			100% of brownfields is used for entrepreneurship, public services, housing etc.	Defining the city boundaries
Spatially interconnected and intergenerational			Revitalization of brewery on community center of encounter	Community gardens by block of flats housing estates (good practices examples)	Old army facilities "Radobýl" is revitalized to living center for housing and entrepreneurship		Revitalization of Jiřikova army facility		Revitalization of swimming pool	City parts are self-sufficient in services provision		
			Revitalization of Tyršovo square				Main square - place of encounters (events, performances, a living square)					
A living historic city center	Castle as the center of encounter		Entrance to sacred monuments is enabled	New restaurant with background facilities on the island		Building parking houses (possibly underground parking)	Cars are out of the city center					
Green city with enough functional green areas and corridors			Opening local ZOO in the Garden of Bohemia				Botanical garden in the Garden of Bohemia is connected to geothermal power plant	Exhibition of tropical plants connected to Garden of Bohemia				Greening the roofs
							Forest park on Mostná hill is interconnected with suburban landscape					
Adapted to climate change										Rainwater tanks on 50% of family houses		

Table 17: Back casting scenario of vision topic Civic society and public services: a city for the people, people for the city – a livable city

VISION TARGET IN 2050	2016	2017	2018	2020	2021	2022	2023	2025	2030
Active, safe and resilient community	Preventive programmed and measures of the city	Introduction of bonuses if health insurance services are not used	More intensive involvement of citizens to the development and city planning - education, presentations, prints, media	Central security system (cameras)	Service of neighbor security				Inhabitant's responsibility for own health - be yourself a doctor: first prevention, then health system services
	Engagement of citizens to cleaning, maintenance and local policies	Clean and transparent city - streets and green areas							Responsibility for one's life in general (education, services...)
Cultural and active		The garden of Bohemia - quality center for sports and leisure activities	Identifying appropriate location and financial resources to build and exhibition center of international importance	Planning cycling infrastructure	Infrastructure for parking bicycles is built			Complex network of cycling infrastructure	
Educated city	Utilization of people´s potential in the community		Equipment and multimedia centers to schools			Education center and technical park	Geothermal and geological research center	Branch of technical university in the city	
Solidary community	Centre of active senior citizens								
Accessible and open public services									

Table 18: Back casting scenario of vision topic Economy: a city attractive and open to investments

VISION TARGET IN 2050	2015	2016	2018	2020	2021	2025	2028	2030	2035
Attractive and open to investments		Analysis and strategy to support entrepreneurship	Active pro-business environment						
Attractive for tourism	Monitoring and maximum usage of the grant schemes	Entrepreneurs are welcoming the tourism	Building a new ****star hotel with capacity of up to 100 beds	Nomination of the city to UNESCO					
	Small tourist ship on Elbe river		City beach on the Elbe river side	Building appropriate accommodation capacities	Development of congress tourism				
Waste-free city				Establishing municipal waste sorting facility	Terminating municipal waste landfill	Establishing thermal municipal waste treatment		Buyout of all waste from citizens	Start with mining of old landfills in the vicinity
Clean air - industry with minimized environmental impacts								Below threshold values of NOx, CO, O3 are met in all periods 1day, 1hour, 1year	Below threshold values of PM10 are met in all periods 1day, 1hour, 1year
Local production and consumption, ecological agriculture				Establishing school and farm focusing on biological agriculture (agricultural school Lovosice)					
Equal access to employment							Most inhabitants work in Litoměřice		
Innovative city									

SCENARIOS MILESTONES AND ACTIONS IN CHRONOLOGICAL ORDER

Milestones 2015-2020

2015

- Castle as the center of encounter

2016

- Entrepreneurs are welcoming the tourism

2017

- Clean and transparent city - streets and green areas
- The garden of Bohemia - quality center for sports and leisure activities

2018

- Active pro-business environment
- More intensive involvement of citizens to the development and city planning - educating, presentations, prints, media

2020

- Nomination of the city to UNESCO
- The city leaders are enlightened and share the post-carbon vision of the city

Actions 2015-2020

2015

- Cycling passageway throughout the city
- Monitoring and maximum usage of the grant schemes (related to tourism)
- Small tourist ship on Elbe river
- Starting with complex revitalization of historical sights (ongoing since 2015)

2016

- Sustainable Urban Mobility Plan
- Analysis and strategy to support entrepreneurship
- Complete revision of urban spatial plan
- Preventive programmed and measures of the city
- Engagement of citizens to cleaning, maintenance and local policies
- Utilization of people's potential in the community (related to education)
- Centre of active senior citizens

2017

- Barrier free access to all street communications
- City hall vehicles use alternative fuels (electricity or hydrogen)
- Introduction of bonuses if health insurance services are not used

2018

- New train stop by the hospital
- The major drives an electric car - example to the public
- Identifying appropriate location and financial resources to build and exhibition center of international importance
- Equipment and multimedia centers to schools
- Building a new ****star hotel with capacity of up to 100 beds
- Opening city beach on the Elbe river side

2019

- Revitalization of brewery on community center of encounter
- Revitalization of Tyršovo square
- Entrance to sacred monuments is enabled
- Opening local ZOO in the Garden of Bohemia

2020

- Restricted parking on the main square
- New parking house in the city center
- Western bypass road is built
- Public charging stations network is finished (5 stations)
- New parking house Prokratice
- The energy conception of the city is updated
- All new constructions are done in passive to zero building standards
- Public lighting is renovated and system operated
- Centralized system of energy distribution and operation
- Remote energy consumption metering is possible on all public (city managed) buildings
- Community gardens by block of flats housing estates (good practices examples)
- New restaurant with background facilities on the island
- Central security system (cameras)
- Planning cycling infrastructure
- Building appropriate accommodation capacities
- Establishing a municipal waste sorting facility
- Establishing school and farm focusing on biological agriculture (agricultural school Lovosice)

Milestones 2021-2025

2021

- Development of congress tourism
- Terminating municipal waste landfill

2025

- Main Square - place of encounters (events, performances, a living square)
- Complex network of cycling infrastructure
- Cars are out of the city center

- Branch of technical university is in the city

Actions 2021-2025

2021

- Service of neighbor security
- Infrastructure for parking bicycles is built

2022

- Eastern bypass road is built
- The geothermal power plant project is finished (20 MWh)
- Old army facilities "Radobýl" is revitalized to a living center for housing and entrepreneurship
- Education center and technical park

2023

- Building parking houses (possibly underground parking)
- Geothermal and geological research center

2025

- Central integrated traffic control and management system
- The city buys the current central heating system - the network and the source
- Photovoltaics are on all public buildings
- Small hydro power plant supplies the public lighting (low pressure sodium lamps)
- Revitalization of Jiříkova army facility
- Botanical garden in the Garden of Bohemia is connected to geothermal power plant
- Forest park on Mostná hill is interconnected with suburban landscape
- Establishing a thermal municipal waste treatment program

Milestones 2026-2030

2028

- Most inhabitants work in Litoměřice

2030

- 30% of inhabitants use non-motorized transport for daily commuting to work and school
- 40% of inhabitants use city´s public transport
- City´s public transport system covers 100% of the city
- Public transport is free of charge
- Public transport emits zero emissions
- 30% of cars use ecological fuels (electric or hydrogen)
- 90%-100% of the city´s facilities are energy self-sufficient
- 100% of public buildings are in passive standard
- 50% of the whole city is energy self-sufficient
- City parts are self-sufficient in services provision

- Rainwater tanks are on 50% of family houses
- Inhabitant's responsibility for own health - be yourself a doctor: first prevention, then health system services
- Responsibility for one's life in general (education, services...)
- Below threshold values of NOx, CO, O3 are met in all periods 1day, 1hour, 1year

Actions 2026-2030

2026

- Exploitation of unused buildings and spaces in the city
- Exhibition of tropical plants connected to Garden of Bohemia

2027

- Revitalization of swimming pool

2030

- Integration of railway into the public transport system
- New train stations are built
- Construction of hydrogen production station
- Water supply and sewerage are in the city´s ownership
- Independent local distribution system (off-grid operation) - fully in operation
- Thermal accumulator installed in railway tunnel
- Buyout of all waste from citizens

Milestones 2031-2040

2035

- 80% of the overall city´s accessible consumers are connected to the central heating system
- The urban forests cover 10% of central heating supply energy sources
- Dwellings not connected to the central heating supply use 100% of renewables for heating
- 100% of brownfields is used for entrepreneurship, public services, housing etc.
- Below threshold values of PM10 are met in all periods 1day, 1hour, 1year

2040

- 50% of cars use ecological fuels (electric or hydrogen)
- The whole city is 80% energy self-sufficient

Actions 2031-2040

2035

- Construction of hydrogen filling station for hydrogen cars
- The revitalization of the central heating system is completed with losses below 3%
- Start with mining of old landfills in the vicinity

2037

- Defining the city boundaries

- Greening the roofs

2040

- Photovoltaics are installed on every roof

Milestones 2041-2050

2045

- 80% of flats are in passive standard

2050

- 50% of households do not own a car
- 100% of individual motorized transport is emissions free
- 90%-100% of the whole city is energy self-sufficient

BACKGROUND SCENARIOS

The middle of the road background scenario was introduced to participants at the beginning of the back casting workshop. Selected elements of the background scenario were presented in more detail, namely i) European context of governance, ii) social values, iii) technology development, iv) European climate goals, v) economic development and vi) demographic trends.

ROBUSTNESS OF ACTIONS

The robustness of suggested scenarios was not tested against the selected background scenario or any other contextual scenario. This was partially due to time constraint, but mainly because the scenarios as obtained during the stakeholder workshop are not comprehensive enough to cover all the vision topics coherently and in full. Furthermore, we believe that some level of preparation is needed to test or discuss the effect of the variables identified first during the same workshop.

The scenarios will be sent to the stakeholders and will be discussed with them further in email communication.

FEASIBILITY

It is not possible to cover all the topics in full in one workshop. A subsequent work is necessary to receive feedback from workshop participants and to fill in the gaps. However, majority of the actions and measures suggested during the workshop is in the competencies and powers of the municipality. Some of the suggested actions require additional external financial resources above the city budget.

The main assumption of the suggested scenarios lies in the sector of energy and is dependent on the success of the geothermal power plan project that is already under development, however strongly dependent on the availability of external financial resources.

Furthermore, the vision is not officially approved; neither was made any attempt for public acceptance and approval of the suggested topics and targets. The workshop stakeholders

representing the city office thus want to discuss the vision as well as the scenarios in a public city forum.

I.IV.III GENERAL REMARKS

The overall impression of the workshops is satisfactory; however it is obvious that it is not possible to fully complete the back casting just in one workshop. Either subsequent workshops would be necessary or another form of cooperation with the stakeholders would be needed to get a feedback on the scenarios, to identify interlinkages or contradictions between the suggested scenario instruments and to add missing items.

The level of target specificity differs among the vision themes. Whereas the participants were able to set and specify the interim targets pretty well in the case of transport or energy, the milestones and goals are very generally described and specified for the areas related to urbanism, civic society and public services. This may present a challenge when transferring the results into quantitative terms.