WORKSHOP REPORTS

I.III LISBON

WORKSHOP DATES AND LOCATION

The vision building and back casting scenarios workshop was held during May (1-15) through the collection of information and direct interviews with the stakeholders. A final meeting was organized to share ideas and summarize the results.

The outputs of the assessment exercise and the analysis of strategic documents produced by the City Council were very important as inputs for the workshop.

PARTICIPANTS

Several stakeholders were contacted for direct interviews and/or for filling in a specific questionnaire, namely:

Table 12 Stakeholders involved

Stakeholder	Names
Lisbon City Council	Paulo Carvalho
Lisbon City Council	Teresa Almeida
CCDR-LVT – Regional Agency	Eduardo Henriques
Invest Lisboa	Diogo Ivo Cruz
APA – Portuguese Environment Agency	Nuno Lacasta
DGEG – General Direction of Energy and Geology	Carlos Almeida
LNEG - Portuguese National Laboratory for Energy and Geology	Helder Gonçalves
IMT – Institute for Transports and Mobility I.P.	João Carvalho
IN+ Centre for Innovation, Technology and Policy Research	Paulo Ferrão
AMB3E - Portuguese Association for Waste Management	Pedro Nazareth
ADENE - National Energy Agency	Luís Silva
APREN - Portuguese Association for Renewable Energies	Sá da Costa
Energy IN (cluster)	José Paulo Oliveira
Lisboa E-Nova (Municipal Energy Agency)	Miguel Águas
Start-up Lisboa (incubator)	João Vasconcelos

Fivepeople attended the meeting. It is worth noticing that the energy sector was highly represented, due to the importance of this area for the Lisbon case study. The transports sector was under represented, which was surpassed by the knowledge of INTELI staff in this area.

I.III.I   METHODOLOGY AND RESULTS FOR VISION BUILDING

METHODOLOGY

The methodology presented in the deliverable "Case Study Workshop Guidelines" was used in the vision building workshop but there was a need of its adaptation to the context of Lisbon, due to the following factors: economic and financial crisis; uncertain period associated to the change of the City Mayor; difficulty in motivating and mobilizing key stakeholders; parallel organization of similar meetings, workshops and seminars in the scope of Portugal2020 (framework program 2014-2020 under negotiation with the EC).

Thus, INTELI focused the process on making direct interviews with key stakeholders, in which important information on the vision was extracted. A final workshop was also organized to summarize results.

The main steps followed were:

- Presentation of the objective of the meeting;
- Overview of the POCACITO project;
- Brief presentation of the results of the initial assessment;
- Discussion of key challenges for the city;
- Presentation of the context scenario and some urban trends;
- Visioning exercise – Imagine the future of Lisbon in 2050 – Identification and discussion of key messages;
- Selection of one narrative of the vision 2050.

One interesting input for the discussion was the presentation of urban trends associated to mega trends at global level. Some initiatives and projects under developed or planned to Lisbon were associated to the presented urban trends.
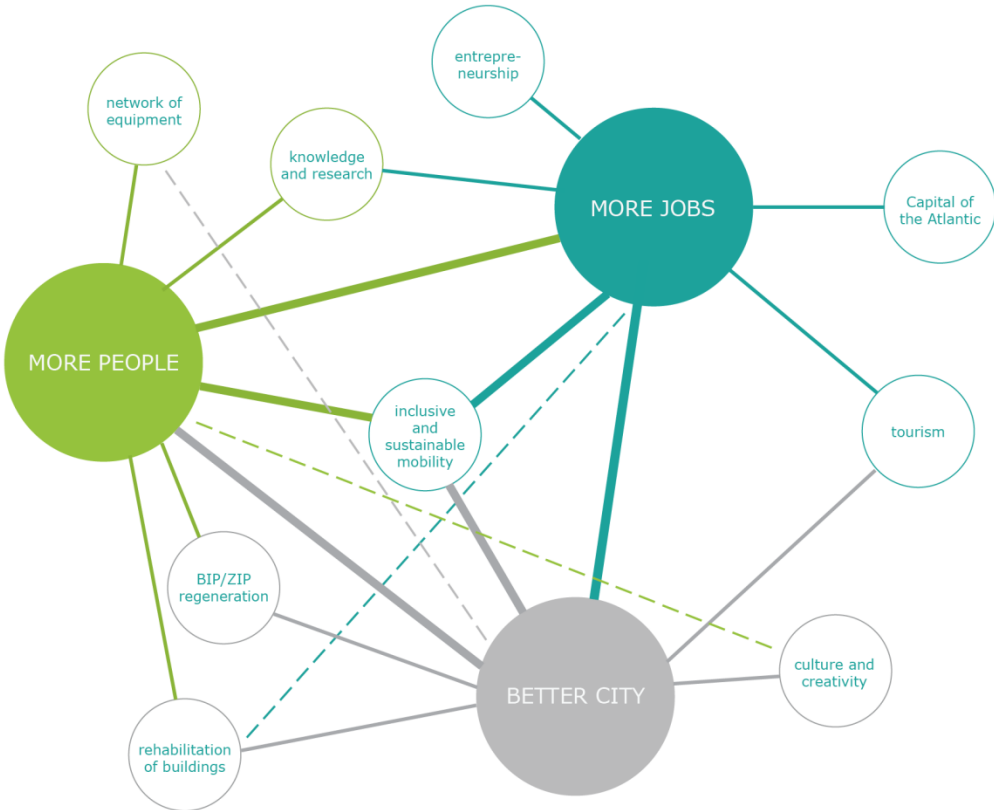
Figure 9: urban trends

3-D PRINTER + PERSONAL MANUFACTURING (Fab Lab)	ACTIVIST CITIZEN (Participatory Budget; Wi Fi; ...)	NATURE OF WORK (Coworking; Incubation; Acceleration -ITC/Web/...)	BOTTOM-UP URBAN ENGAGEMENT (Mouraria; ...)
CITY APPS/URBAN DATA (Open Data; Lisbon Big Apps; SDK) ...	COLLABORATIVE URBAN MAPPING (New startups exploring this)	CROWDSOURCING CROWDFUNDING (Lisbon Crowdfunding Platform)	CUSTOMIZATION + ON DEMAND SERVICES
DATA VISUALIZATION (Using Big Data -» Trends/Insights)	DEPARTMENT OF LISTENING (Participatory Budget)	DESIGN BARRIERS	FOOD DISTRIBUTION
GENTRIFICATION	HACKING THE CITY (Fab Lab; Alt Lab)	HAPPY CITY	HYBRIDITY
STARTUPS ECOSYSTEMS IN A FAST CHANGING PACE (Lisbon Startup Ecosystem)	SUSTAINABILITY (Mobility; Buildings; SOLAR CITY...)	NEW USES FOR BUILDINGS (LX Factory; Village Underground; Desterro; Fab Lab Forn Tijolo; Mercado Ribeira; Central Station; Startup Lisboa; ...)	BIG DATA CLOUD COMPUTING

URBAN TRENDS

AGEING + INTERGENERATIONAL INTERACTION	INTUITION	MAKER MOVEMENT (Fab Lab; Printoo; City as the "Place" of the Internet of Things)	NEW MOBIITY SOLUTIONS (EVs; soft ...)
NON-ICONIC ARCHITECTURE (Urban/Street Art; LX Factory; Desterro; Trienal no Palácio; ...)	OPEN-SOURCE (Open Data; OP)	PARTICIPATORY URBANISM (OP -» Startup Lisboa)	WEARABLES
RAPID PROTOTYPING (Fab Lab)	RESPONSIVE INFRASTRUCTURE	RETROFITTING INFRASTRUCTURE	SMART CITY / SENSORS/ (Smart City Projects)
SHARE CULTURE / SHARE ECONOMY	TEMPORARY ARCHITECTURE (Containers; Parks; ...)	ENERGY STORAGE + SMART GRIDS (SOLAR CITY)	AUGMENTED REALITY (AR) APPS

MAIN SECTORS IDENTIFIED IN VISIONING A FUTURE FOR LISBON

As stipulated in the document "Lx_UEuropa 2020", the vision for Lisbon 2020 is: more people, more jobs and better city. The objective is to build a beautiful, diverse, cosmopolitan, attractive, healthy, creative, friendly and ambitious city.

Within this context but having 2050 as time horizon, the main sectors identified in visioning a future for Lisbon were: **mobility, energy, climate change, urban regeneration, inclusion and attractiveness**.

MOBILITY

It is necessary to enhance sustainable mobility in Lisbon. Private car is still the main transport mode used by the population. The results of the assessment exercises are quite disappointing since the share of sustainable modes, i.e. walk, bus, company or school collective transportation, metro/ underground, train, bicycle and ship, have decreased from 59% in 2001 to 51% in 2011. Notice that in 2001, the car was responsible for 32% of the model share and in 2012 it was 34%. Moreover, the lack of synergies between transport modes is also a reality.

Several initiatives have been launched by the Lisbon City Council in the area of sustainable mobility (such as electric mobility, car-sharing, bicycle lanes, improvement of public transport, etc.), but without substantial impact in the urban life.

ENERGY

There is a need to increase energy efficiency and the use of renewables in Lisbon. The consumption of energy (electricity, fuel and natural gas) in 2008 in Lisbon was 828.751 toe and in 2012 was 927.389

toe, experiencing an increase of 12% during this period. The sector that contributes the most for the overall consumption is the transportation sector.

Moreover, Lisbon has a high solar potential that should be explored. It was one of the results of the "Lisbon Solar Potential Map" project, which has evaluated the potential solar installation of solar systems in the built heritage of Lisbon.

CLIMATE CHANGE

Lisbon is a coastal city suffering from some natural disasters, namely floods. It is also located in an earthquake zone, which is a danger to citizens and infrastructures.

The development of preventive and alert systems oriented to anticipate these events and make correct decisions is a priority. There are some technology-based emergency management systems that could be used in these situations.

It is worth of notice that Lisbon subscribed the Mayors Adapt initiative in 2013. Adaptation to climate change is the main objective of this platform with a view to adapting infrastructure and policies to climate impacts.

Air quality is also a problem in the city center. For this reason, Reduced Emissions Areas were launched, which are zones in which the circulation of more pollutant vehicles is forbidden, due to health reasons and compliance with national and European legislation.

URBAN REGENERATION

There are several buildings in Lisbon that need renovation, especially in terms of energy efficiency. Currently there are nearly 7,000 buildings in Lisbon holding an energy certification, of which about 1,000 are A or A+ energy efficient buildings. Although the number of energy efficient buildings is likely to grow, the number of buildings is a matter of concern, because 80% of world's energy is consumed by cities and buildings are responsible for 40% of energy use and 23% of GHG emissions. In this context, it makes more sense to intervene in the existing stock or in building renovation.

One interesting example is the project Eco-Neighborhood – Boavista Ambiente + which aimed the reconversion and qualification of public space, implementation of measures to improve the energy performance of buildings and remodeling of some equipment in the social neighborhood.

ATRACTIVENESS

Over a span of 30 years, the Lisbon has lost more than 200,000 of its residents, shrinking from 800,000 in 1980 to 550,000 today. Most of these people now live in the metropolitan region, reaching 2.8 million residents. Attracting people (students, talents, entrepreneurs, etc.) to live in the city center is a challenge for the city. Positioning Lisbon in global networks is also an imperative, with a view to attract investment and business.

Lisbon has also a privileged position in the Atlantic Area that should be explored, namely the relations with Portuguese speaking countries. The city easily allows access to 750 million consumers.

Both poverty level and unemployment are rising up in Lisbon. These problems affect essentially young people, elderly people and other disadvantageous segments of the population. Regarding the level of poverty, the figures are very worrying because between 1989 and 2009 this indicator jumped by 80% in the region of Lisboa and Vale do Tejo (NUT II).

Ageing society is a challenge that Lisbon is also facing, in line with European trends.

THE 2050 POST-CARBON VISION FOR LISBON

The 2050 post-carbon vision for Lisbon is:

LISBON. A SMART CITY with more people, more jobs and better quality of life.

Concerning the identified key areas for intervention:

MOBILITY – PROMOTING SMART MOBILITY

- Historic city center without car traffic: In 2050 entering in the historic city center by car will be forbidden, in line with international trends. Actually, there are some limits imposed by the Reduced Emissions Areas policy, being the circulation of more pollutant vehicles not allowed.

- Predominance of soft modes (walking, cycling, etc.): The City Council will encourage walking, cycling and public transports as the privileged transport modes. Pedestrian areas and shared public spaces will be provided.

- City of shared mobility: In the scope of the trend towards sharing economy, car-sharing, car-pooling and bike-sharing systems will be increasingly used in comparison with other transport modes. Actually, Lisbon is the only European capital without a bike-sharing system, but plans have been already defined towards this objective.

- Use of eco-efficient vehicles: Electric mobility will be privileged, in order to maximize the potential of the 500 charging points installed in the city. Public incentives will be given to families, companies and municipalities. It is estimated that in 2020 40 million electric vehicles will be sold annually at global level (Frost & Sullivan).

- Integrated mobility systems: The creation of synergies between transport modes is essential. Therefore, a holist overview of urban development, including the metropolitan area should be addressed, taking into account the main residential and work areas.

- Operations Centre on Mobility: A Operations Centre on Mobility will be fully operational in 2030, providing real-time information on traffic to the city authority, services' operators and citizens. This system will involve the installation of several sensors around the city and will be also associated to civil protection.

- Use of mobility apps: Mobility apps will be used by citizens and tourists to support their travel

and parking decisions, based on open data.

- Virtual mobility: Use of virtual technologies to avoid traveling (artificial intelligence, etc.).

URBAN REGENERATION – PROMOTING INTEGRATED URBAN PLANNING

- Energy efficient buildings: Lisbon is committed to the ambitious target of NZEB – Nearly net zero energy buildings, a flagship area of the EC. A huge urban renewal program will be implemented in Lisbon with a specific focus on energy efficiency. Public buildings will be privileged in a first phase – "leading by the example".

- Smart buildings: Energy management systems will be installed in buildings, as well as other smart technologies and solutions (integration with electric vehicles, intelligent water and waste management, remote control of basic functions, etc.).

- Smart Neighborhoods: Several Lisbon neighborhoods will be transformed in smart and green neighborhoods, specifically the ones located in historic zones. The adaptation of smart technologies to these restricted areas is a challenge for the local authority and companies. Green roofs and facades will be implemented in some buildings.

- Compact city: Promoting mixed-use spaces (housing, commercial areas, learning spaces, leisure, etc.) and short distances, in order to avoid urban sprawl.

- 3D printing in urban planning: 3D printing will be increasingly used in architecture and urban planning. The 3D printing global market will increase from 1.1 million dollars to 7.1 million dollars till 2020.

- Tactical urbanism: Citizens will be increasingly involved in the life of the city, through the participation in urbanism actions (participatory urbanism). Small scale actions to transform public spaces will be developed with citizens' involvement. Temporary architecture and public art are relevant examples.

ENERGY – PROMOTING SUSTAINABLE ENERGY

- Solar city: Solar energy as well as other renewables will be intensively used. The number of PV panels will increase exponentially. In fact, sunshine hours are about 2,800 per year in Lisbon.

- Smart grids: EDP (national electric company) has plans to implement smart grids in all Portuguese municipalities. A pilot project was developed in the city of Évora in 2010. Lisbon will be included in the process, probably starting with an experimental zone, such as the historic center.

- Intelligent public lighting: Intelligent public lighting systems will be implemented in the city. Bulbs are already being replaced by more efficient devices such as LEDs. Remote control systems will be applied in order to reduce energy consumption and improve public safety.

- Urban agriculture: Urban gardens are increasingly popular in Lisbon and this trend will be intensified. In 2013-2014, urban gardens rose by 29.9 ha in the city.

- Lisbon, European Green Capital: The city will apply for the European Green Capital Award and will be the winner in 2025.

CLIMATE CHANGE – PROMOTING RESILIENCE

- Resilient city: A climate change adaptation plan is being produced and will be implemented. Green solutions to reduce the risk of flooding will be privileged. A drainage master plan will be designed and implemented.

- Safe city: Lisbon will be a city with reduced levels of crime. Public safety will be assured, for example through the use of video surveillance and drones.

INCLUSION – PROMOTING QUALITY OF LIFE FOR ALL

- Solidary city: Sharing economy will be a reality in different areas, such as working, housing and transports. Information and communication technologies and social networks will support this movement. Street food and other unregulated activities will also be present in urban life.

- Social economy: The contribution of social economy to GDP and employment will increase, and social and civic entrepreneurship will be supported.

- Healthy and ageing friendly city: The city will provide adequate facilities for elderly people, such as home care, telemedicine, etc. Public safety is also a challenge.

- Creative city: Lisbon would like to be one of the most creative cities of Europe. Making Lisbon a space open to the exploitation of new experiences, concepts and innovations is also an ambition.

ATTRACTIVENESS – PROMOTING INTERNATIONALISATION

- Lisbon as a European Capital City: Lisbon should be considered one of the most important capitals in Europe as an Atlantic Business Hub. It is a privileged platform to 500 million European consumers, having also a deep economic and cultural relation with Portuguese speaking emergent economies, like Angola and Mozambique.

- Global networks: Positioning Lisbon in global networks of production and value chains, and inserting the city in international projects and networks of cities. For example, the approbation of the lighthouse project submitted by London, Milan and Lisbon to Horizon 2020 (ACTIVE) would be a good opportunity.

- Attractive (and start-up) city: Lisbon will easily attract students, talents, entrepreneurs and business. Moreover, it can attract Competence and Research Centers of multinational companies and shared services centers (high value). In fact, Lisbon can guarantee human resources with availability, qualifications, flexibility, creativity and multilingual skills.

- Key clusters: ICT, web and mobile, creative industries, maritime economy, tourism and health and wellbeing will be the anchor clusters in Lisbon. Support for entrepreneurship is being provided in these sectors, for example incubators, co-working spaces and fab labs. Probably, till 2050 a fab lab will be created in each city neighborhood.

REFLECTIONS

. The vision is general but we were able to identify some specific ideas about the future of Lisbon.

We feel that the visioning exercise is still very influenced by the current situation. We should think out-of-the-box about the evolution of technologies, behaviors, lifestyles and institutions.

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

METHODOLOGY FOR BACK CASTING WORKSHOPS

The methodology presented in the deliverable "Case Study Workshop Guidelines" was used in the back casting workshop but there was a need of its adaptation to the context of Lisbon, due to the following factors: economic and financial crisis; uncertain period associated to the change of the City Mayor; difficulty in motivating and mobilizing key stakeholders; parallel organization of similar meetings, workshops and seminars in the scope of Portugal2020 (framework program 2014-2020 under negotiation with the EC).

Thus, INTELI focused the process on making direct interviews with key stakeholders, in which important information was extracted. A final workshop was also organized to summarize results.

The goal of this work was to create a qualitative scenario describing how the city can transition to reach the vision developed previously. The main steps were:

- Presentation of the objective of the meeting;
- Brief presentation and discussion of the vision (desirable "end point");
- Brief introduction to the "middle of the road" background scenario;
- Discussion on obstacles and opportunities in reaching the end point;
- Definition of interim objectives and milestones;
- Definition of concrete actions that must be taken to get to the end point.

KEY POINTS OF THE SCENARIO

After the presentation and discussion of the pre-defined vision, a final narrative was achieved:

LISBON. A CARBON NEUTRAL SMART CITY with more people, more jobs and better quality of life.

Considering the vision as the desirable normative endpoint, the six thematic areas identified in the visioning process were seen as the sectorial endpoints for the back casting exercise: **mobility, energy, climate change, urban regeneration, inclusion and attractiveness**. The timeline included the following interim points: **2020, 2030 and 2050** because the majority of the European strategic documents are focused on these years.

Then, the following obstacles (difficult the achievement of the vision) and opportunities (facilitate the achievement of the vision) were identified in generic terms:

OBSTACLES

- Financial and economic crisis;

- Austerity measures imposed by EC and IMF;

- Changes in the geopolitical position of Lisbon;

- Variation in fuel prices;

- Fuel companies lobbying;

- Low investments in urban regeneration;

- Resistance to change and risk aversion (local authorities and citizens);

- Lack of coordination among urban stakeholders;

- Lack of interaction among City Council departments (silos);

- Lack of coherent policies among the cities integrated in the Lisbon Metropolitan Area (Oeiras, Cascais, Almada, etc.) (for example in the area of mobility);

- Potential natural disasters (earthquake, floods, etc.);

- Reduced cyber security and personal privacy.

OPORTUNITIES

- Technology change towards clean energy technologies (for example, in the autonomy of electric vehicles batteries);

- Emergence and development of smart technologies: cloud computing, big data, 3D printing, robotics, etc.

- Public policies and incentives towards sustainable mobility (electric vehicles: fiscal incentives, parking advantages, exemption of some traffic restrictions, etc.);

- Public policies and incentives towards energy-efficient urban rehabilitation;

- European and national strict targets related to energy efficiency and the use of renewables;

- Reinforcement of sharing economy trend;

- Reinforcement of digital fabrication trend;

- Growing awareness of consumers towards more environmentally responsible consumption;

- Integration of mobility (and other) policies in the Lisbon Metropolitan Area (some experts postulate the need of a Metropolitan Mayor instead of several City Mayors);

- European funding programs 2014-2020.

BACKGROUND SCENARIOS

With the obstacles and opportunities in mind, some milestones and actions were defined. However, lack of time hampered the deep development of concrete measures.

MOBILITY – PROMOTING SMART MOBILITY

YEARS	ACTIONS & MILESTONES
2020	Increase of the bicycle lanes extension
	Creation of more pedestrian areas and shared public spaces
	Awareness campaigns towards the benefits of walking and cycling (soft modes)
	Launching of public incentives to the acquisition of electric vehicles and electric bicycles
	Modernization of the electric vehicles charging points according to European standards
	Launching a bike-sharing system with electric and non-electric modes
	Integration of electric cars in the car-sharing system (Mobcarsharing)
	Acquisition of electric vehicles to the municipal fleet (notice that in 2015 Lisbon City Council fleet has 106 electric vehicles)
2030	Tolls for entering in the city center
	Creation of the Operations Centre on Mobility
	50% of the population using mobility apps
2050	Use of virtual technologies to avoid travel
	Use of autonomous cars (6 million autonomous cars in Europe in 2030)

URBAN REGENERATION – PROMOTING INTEGRATED URBAN PLANNING

YEARS	ACTIONS & MILESTONES
2020	Launching of a huge urban renewal program centered on energy efficiency
	Launching of a program for co-creation of urban furniture with strong citizens' involvement (with the help of 3D printing)
	Launching of participatory urbanism actions (ex. parklets)
2030	30% of buildings with green roofs/facades
	The historic center as a smart neighborhood
2050	100% of NZEB – Nearly net zero energy buildings

ENERGY – PROMOTING SUSTAINABLE ENERGY

YEARS	ACTIONS & MILESTONES
2020	20% reduction of GHG emissions
	20% improvement in energy efficiency
	Raising the share of energy consumption produced from renewable resources
	100% intelligent public lighting (LED, remote control)
	30% increase in urban gardens
	Presentation of the application bid to European Green Capital
2030	Adoption of smart grids in the city through the intervention of EDP and City Council
2050	Solar panels in 90% of the buildings stock

CLIMATE CHANGE – PROMOTING RESILIENCE

YEARS	ACTIONS & MILESTONES
2020	Implementation of the Climate Change Adaptation Plan
	Implementation of the drainage master plan
	Launching preventive and alert systems oriented to anticipate natural disasters (technology-based emergency management systems)
2030	50% of the city with video surveillance
2050	Use of drones to ensure public safety

INCLUSION – PROMOTING QUALITY OF LIFE FOR ALL

YEARS	ACTIONS & MILESTONES
2020	Launching a support program for civic entrepreneurship
	Creation of interactive panels with cultural (and other relevant) information for citizens
2030	Expansion of telemedicine
	Launching of co-housing initiatives
2050	-

ATTRACTIVENESS – PROMOTING INTERNATIONALISATION

YEARS	ACTIONS & MILESTONES
2020	Expansion of the Lisbon Network of Incubators and Co-working Spaces
	Creation of a fab lab in each neighborhood
	Emergence of creative hubs in the city
	Approbation and implementation of the Lighthouse project ACTIVE (Horizon 2020)
2030	Attraction of two important international Research Centers to Lisbon
	Integration of Lisbon in relevant international networks (ex. C40)
	20% increase in tourism
2050	-

ROBUSTNESS OF ACTIONS AND FEASIBILITY

The "middle of the road" background scenario was introduced to participants at the beginning of the back casting workshop. Only this scenario was tested.

I.III.III GENERAL REMARKS

Case study leaders feel that the back casting exercise is still very influenced by the current situation.

It was more difficult to define concrete actions and milestones then to identify the vision, especially in the 2050 time horizon.

Stakeholders demonstrated some difficulties in thinking out-of-the-box and in a long-term time horizon (2050).