POCACITO

european post-carbon cities of tomorrow

POCACITO Policy Brief No. 2, November 2016

VISIONS FOR POST-CARBON URBAN FUTURES: WHY THEY ARE USEFUL AND HOW TO CREATE THEM

Author:

Margaretha Breil, FEEM

This project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration under grant agreement no. 613286.

TABLE OF CONTENTS

LIST OF BOXES, FIGURES AND TABLES

LIST OF ABBREVIATIONS

NGOs	Non Governmental Organisations
INDCs	Intended Nationally Determined Contributions

SUMMARY

Utilising urban policies to facilitate transition towards a post-carbon future requires a drastic change of direction in current policies. Yet the uncertainty associated with change can often stifle action. Creating visions of a post-carbon urban future can help generate a positive image of the transformed city in which urban life quality, economic and social vibrancy improve for citizens, while carbon emissions decrease. Creating a roadmap based on such visions and scenarios translates the envisaged and necessary transformations into feasible small-scale actions. Developing a policy programme based on post-carbon visions and roadmaps can transform the ambitious goal of achieving a post-carbon society into manageable and measureable steps of change, without losing sight of the long-term goal. Visions are thus a useful instrument to foster the necessary foresight and consensus to support post-carbon policy changes. The types of policy changes and the sectors to be addressed depend on the specific situation of the city, including the necessity and feasibility of actions.

1 WHY CHANGE IS NEEDED

Cities and urban areas are major emitters of greenhouse gases. Scientists estimate that between 70-80% of global emissions come from urban areas (Duren and Miller 2012; Satterthwaite 2008). While past urban growth has led to high levels of anthropogenic greenhouse gases, future urban development must lead to new types of cities that are low-carbon and environmentally, socially and economically sustainable. Cities have the potential to meet these development challenges, thanks to the opportunities offered by the concentration of economic and social interaction and by the advantages of high densities, for instance for the organisation of transport systems that do not rely on individually motorised vehicles: see, for instance, the analysis carried out in the recent trend report issued by the German Environment Agency (Langsdorf and Hirschnitz-Garbers 2014). The term 'post-carbon city' emphasises the transformation connected to this paradigm shift, or radical change, which is necessary to respond to the multiple challenges of climate change, ecosystem degradation, social equity and economic pressures (Ridgway et al. 2014).

2 SCENARIOS AND VISIONS ARE USEFUL

Such radical transformations in urban areas unfold over long time horizons, and therefore changes need to be imagined and anticipated in long terms and ideas about the future, for instance in the form of foresights. The term 'foresight' itself is normally defined as a

> "systematic, participatory, future-intelligence-gathering and medium-to-long-term vision-building process aimed at enabling present-day decisions and mobilising joint actions" (Gavigan et al. 2001; Van Cutsem 2010, 5).

In this sense, foresight exercises can facilitate the conception of important changes and bridge the timeframes that these changes entail. Foresight exercises can be described as systematic vision-building processes, and offer the necessary framework for reflecting on how to enable action leading to such fundamental changes, and whom to involve (Bishop, Hines, and Collins 2007).

3 HOW SCENARIOS AND VISIONS WORK

Scenarios and visions present a specific and interesting approach that allows uncertainties (which are implicit to long timeframes) to be addressed. The approach is flexible and can be implemented in a participatory manner. While forecasting relies on often complex simulations and models for describing how existing systems will continue evolving, scenarios are more flexible, as they can take into account new developments and unexpected changes in present trends, as well as changes and new trends to come.

> "In this sense, scenarios are not predictions of what the future will be. Rather they are a description of how the future might unfold if certain present trends continue, are enforced or innovations are introduced. Scenarios explore the possible, not just the probable, and challenge users to think beyond conventional wisdom" (United Nations Environment Programme 2008).

Compared to forecasting, scenario approaches are more capable of capturing important changes and transformations.

Scenario approaches, however, are able to take into account novel impacts and changes in trends. Rather than providing concrete predictions of the future, scenarios support the learning process about factors and trends that may condition future developments (Schoemaker 2004). Being based on formal descriptions of assumptions and views of future developments, they help take into account uncertainty, complexity and discontinuity in contexts where both uncertainty and complexity are high. They are credible for providing policy support, and can at the same time be ambitious enough to represent the radical policy changes needed for a post-carbon transition. Scenarios are thus recognised as valid sources of information for decision-making that will change the urban environment, urban carbon performance, and ultimately urban lifestyles. For these reasons, scenarios, as well as other forms of foresight, represent structured and systematic forms of constructing 'possible futures' that are useful inputs into policy processes.

Visions represent a very specific form of scenarios that describe how a certain future can be realised rather than explore how things might evolve. Normative scenarios are used where problem-solving is needed because, for instance, paradigm shifts seem to be particularly relevant, for instance in relation to de-carbonisation policies. An important element of the visions is represented by the 'backcasting' approach: backcasting scenarios design the way "… desirable futures can be attained" (Robinson 1990) and is explored by working backwards from the description of the vision to the present, in order to identify the types of policy action required to reach that point.

4 WHO DESIGNS SCENARIOS?

Within scenario building, the participatory element plays a prominent role. Participative intelligence gathering is an elementary part of the foresight activity that benefits from the inclusion of very different viewpoints and opinions. Thus, stakeholder involvement is crucial not only for the sake of discussing results, but also for the relevance of the analysis delivered and for the capacity to provide tailored inputs into local contexts. The challenge in scenario development lies in the capacity of providing relevant and detailed scenarios that integrate both scientific and local knowledge (Reed et al. 2013), generating a balance between credibly anchoring scenarios in the local situation, and providing results that are not trivial, but offer novel inputs into the local context.

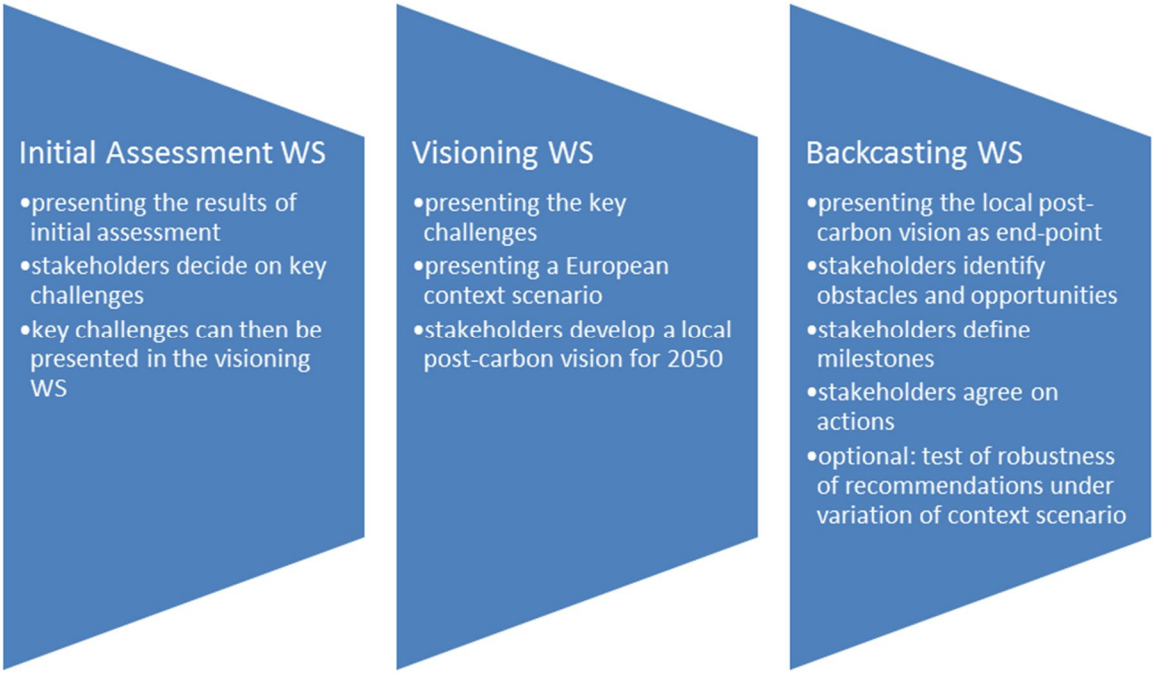

Figure 1: Workshop workflow

5 DESIGNING SCENARIOS

The POCACITO project has developed a methodology to design post-carbon visions and roadmaps for their implementation, which is based on the organisation of a series of workshops with policy-makers and stakeholders in nine European cities (Barcelona, Malmö, Istanbul, Lisbon, Litoměřice in Czech Republic, Milan, Turin, Rostock in Germany, and Zagreb) selected for case studies.

Within the POCACITO project, participatory stakeholder workshops have been organised in each of the case study cities following the common three-step approach which consists of an initial diagnosis, the creation of the vision and, subsequently, the building of the backcasting scenario.

The starting point used in the POCACITO approach consists of the creation of a common view on the baseline to be established among participants. The initial assessment of the local situation provides the opportunity to discuss the main challenges a city is facing in terms of common social, economic, and environmental indicators and to discuss the needs for action derived from the analysis. The issues addressed in the discussions within the POCACITO workshops can be grouped in key areas chosen for the design of a set of key performance indicators (KPIs): transport and mobility, energy, land use policies, social policies, economics, biodiversity, technology and innovation, education, tourism, governance, food production and consumption connected to waste generation. Here, stakeholders can offer local knowledge that is not always captured by data sources used for quantitative assessments, and discuss current strengths and weaknesses, helping to clarify what municipal competencies are and where progress can be made and is needed most. Discussions on the initial assessment furthermore serve as the starting points for the vision. The starting point of the initial assessment was used in this approach as a means to create a common view on the baseline and objectives to be established among participants (Silva et al. 2014). The discussion of the indicator data set with stakeholders represented the starting point for the following step: creating a local vision.

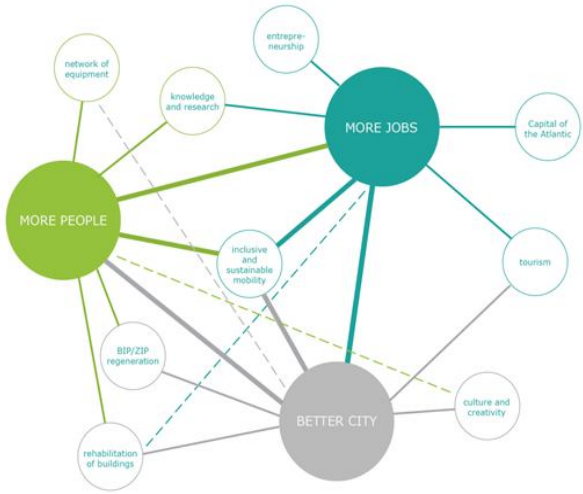

Figure 2: Goals orienting the visions for Lisbon (source: Breil et. al. 2015)

VISION BUILDING

The following step consists of the design of a post-carbon vision that describes a future situation different from the one that would be realised without specific dedicated policy action for de-carbonisation. It describes the city as stakeholders imagine it to be as a post-carbon city. The participative design of visions can largely benefit from working approaches facilitating a (temporary) disconnection from daily policy discourses and encouraging less formal interaction among stakeholders. Subsequently, in order to provide structured and credible results, the products of these creative activities need to be reorganised and distilled into messages for main policy areas. Multiple background scenarios describing different global future developments are proposed to allow for a first form of sensitivity analysis, which aims at verifying the consistency of the strategy, and checking whether the external development factors described in these scenarios would have compromised the achievement of the goals defined in the city vision.

BACKCASTING SCENARIOS

In the subsequent step, the vision produced in the previous phase is integrated with a backcasting

scenario that develops the pathway from the post-carbon vision towards the current situation (see Figure 5). Specifically, the backcasting scenario aims to define the intermediate steps of future actions, measures and strategies for urban management in achieving the vision. While defining these steps, potential obstacles and opportunities for reaching the vision need to be considered, and single actions and policy measures defined. Identifying, for instance, a barrier in the area of financing, would require additional policy measures to enhance the possibilities of providing the necessary resources for the planned measures.

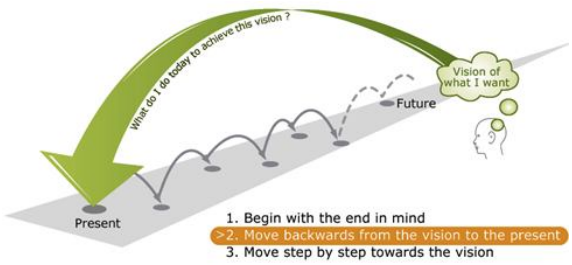

Figure 3: Logic of Backcasting Scenarios (Source: http://thenaturalstep.org)

Grouping the actions into interim projects and defining milestones, the long timeframe the vision entails is split up into more feasible and policy relevant timeframes. Finally, the robustness of the strategy designed in this way should be tested by assuming scenarios describing different background conditions, for instance in terms of population and economic growth (Kok et al. 2011).

PARTICIPANTS

One challenge of post-carbon policies and their implementation lies in the generation of public consent and the willingness of citizens to change their lifestyles and consumption decisions, as civil society plays a very significant role by "creating spaces for champions of policy reform and providing platforms where these champions can advance these ideas" (Sathaye et al., 2007). This requires, in a deliberative process, the involvement of civil society at large in order to tailor policy decisions in a participative manner and to gain commitment for the necessary actions. Linking post-carbon vision building to other ongoing discussions, for example regarding energy or transport, can attract additional interest in the topic. An extensive definition of the groups that are assumed to have a stake in the definition of the vision is thus crucial for a truly participative process, and should in any case extend to the civil society, for instance by including NGOs among the stakeholders.

The type and number of stakeholders involved in the POCACITO participatory workshops varied between cities. In general, they included representatives from urban administrations and agencies, NGOs, research, and private business. However, there were limitations in terms of the availability of stakeholders to participate in the exercises.

Figure 4: Vision Workshop in Litoměřice (Czech Republic) (source: CUNI in Breil et al. 2015)

POST-CARBON VISIONS

According to the experiences made with the POCACITO post-carbon visions, changes were envisaged in many different policy sectors, mainly those where urban administrations are responsible or have some autonomy for decision-making. The sectors considered in the visions encompass, in addition to energy policies, many aspects of the urban policies that contribute to shaping future patterns of urban energy consumption, mainly transport, but also consumption and aspects of urban design that influence the transport system (bicycle lanes as well as re-compacting cities to make public transport more attractive). In some cases, also the issue of consumption was

addressed, reflecting the fact that urban citizens consume many resources from more or less distant regions, causing carbon emissions in these areas rather than inside the city. Further to decisions that can be addressed at the municipal level, a wide range of actions will require policy action at national level as well as changes of behaviour among private citizens.

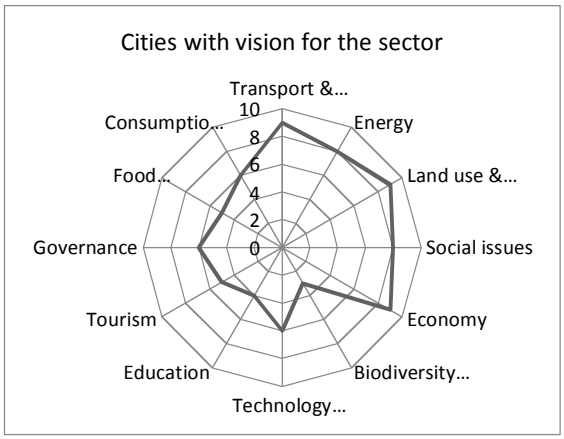

Figure 5: Sectors addressed in cities' visions (source: Breil, et al., 2015)

Current policies and policy-making processes often do not capture or address many of the longer-term aspects affecting carbon emissions, due at least in part to the fact that a greater focus is placed on issues that can be effectively changed during short-term election cycles and political terms. Using scenarios, vision building, and backcasting techniques with stakeholder participation can help overcome these short-term horizons to develop and achieve longer-term post-carbon goals. These visions can be anchored in the long-term commitments many cities are making in the context of urban decarbonisation pledges, for instance in the context of European or global city networks like the Covenant of Mayors initiative or the global C40 cities network. Moreover, visions are very useful for rallying citizens and stakeholders behind a particular policy, provided that it is clearly linked to the achievement of the vision.

While complementary actions will be required on other policy levels, cities are an ideal place to begin with such a strategy, as they can independently design actions, and articulate and address needs for policy and behavioural change existing even beyond the municipal level. From the experience gained in the local workshops organised by the POCACITO project between November 2014 and January 2015, there are several key areas for potentially successful intervention.

Using participative approaches to building visions can furthermore stimulate broad discussions on long-term policy goals and create consensus for long- and short-term actions, as they provide "a shared mental model of the vision" for the city, as a participant in the POCACITO workshop in Rostock put it. The same participant highlighted the added value of such vision building exercises as "reality starts from dreams" (Breil, et al. 2015).

For local policy-makers, the definition of urban visions can represent an efficient tool for raising a policy profile, as the example of Copenhagen shows, where the pledge of becoming one of the world's first carbon-neutral cities by 2025 is used as a factor in urban marketing.

6 POLICY RECOMMENDATIONS

Utilising scenarios and foresight exercises involving stakeholders and citizens, and in turn capturing the policy priorities and local knowledge of urban populations, can help transform the ambitious goal of a post-carbon society into manageable and measureable steps, with the long-term objective in focus. The success of city networks like the Covenant of Mayors and carbon reduction pledges (INDCs) made by the European Union shows the potential of ambitious visions that can provide strong policy signals, beyond merely inciting cities to follow them.

FURTHER READING

Bishop, Peter, Andy Hines, and Terry Collins. 2007. "The Current State of Scenario Development: An Overview of Techniques." *Foresight* 9 (1): 5–25. doi:10.1108/14636680710727516.

Breil, Margaretha, Katie Johnson, Anne Jensen, Patrizia Lombardi, Luca Staricco, Doris Knoblauch, Stefanie Albrecht, et al. 2015. "Report on Stakeholder Workshops: Post-Carbon Visions and Qualitative Scenarios for the Case Study Cities." Pocacito Deliverable 4.2. Berlin, Germany: Ecologic Institute.

Duren, Riley M., and Charles E. Miller. 2012. "Measuring the Carbon Emissions of Megacities." *Nature Climate Change* 2 (8): 560–562.

Gavigan, J. P., F. Scapolo, M. Keenan, I. Miles, F. Farhi, D. Lecoq, M. Capriati, and T. Di Bartolomeo. 2001. "FOREN Guide-Foresight for Regional Development Network-A Practical Guide to Regional Foresight." *European Commission, December*.

Kok, Kasper, Mathijs van Vliet, Ilona Bärlund, Anna Dubel, and Jan Sendzimir. 2011. "Combining Participative Backcasting and Exploratory Scenario Development: Experiences from the SCENES Project." *Technological Forecasting and Social Change* 78 (5): 835–51. doi:10.1016/j.techfore.2011.01.004.

Langsdorf, Susanne, and Martin Hirschnitz-Garbers. 2014. "Looking to the Future: Trend Report for a Forward-Looking Resource Policy." Dessau-Roßlau, Germany: Umweltbundesamt. https://www.umweltbundesamt.de/sites/default/files/medien/378/publikationen/trendbericht_eng_final.pdf.

Reed, M.S., J. Kenter, A. Bonn, K. Broad, T.P. Burt, I.R. Fazey, E.D.G. Fraser, et al. 2013. "Participatory Scenario Development for Environmental Management: A Methodological Framework Illustrated with Experience from the UK Uplands." *Journal of Environmental Management* 128 (October): 345–62. doi:10.1016/j.jenvman.2013.05.016.

Ridgway, Monica, Doris Knoblauch, Elin Eriksson, Hanna Ljungkvist, Steve Harris, Margaretha Breil, Sydney Baloue, and Katherine Weingartner. 2014. "Common Approach Framework Document." Deliverable for the POCACITO project. http://pocacito.eu/sites/default/files/D1_2_Common_Approach_Framework_Document_0.pdf.

Robinson, John B. 1990. "Futures under Glass: A Recipe for People Who Hate to Predict." *Futures* 22 (8): 820–842.

Satterthwaite, David. 2008. "Cities' Contribution to Global Warming: Notes on the Allocation of Greenhouse Gas Emissions." *Environment and Urbanization* 20 (2): 539–549.

Schoemaker, P. J. H. 2004. "Forecasting and Scenario Planning: The Challenges of Uncertainty and Complexity." In *Blackwell Handbook of Judgment and Decision Making*, by Derek J. Koehler and Nigel Harvey, 3:274–96. Malden, USA: Blackwell Publishing Ltd. http://58.192.114.227/humanities/sociology/htmledit/uploadfile/system/20100501/20100501223054244.pdf#page=288.

Silva, Carla, Catarina Selada, Gisela Mendes, and Isabel Marques. 2014. "Report on Key Performance Indicators." PROJECT REPORT D1.2. Berlin, Germany: Ecologic Institute. http://pocacito.eu/sites/default/files/D1_2_Report%20on%20Key%20Performance%20Indicators_FINAL.pdf.

United Nations Environment Programme. 2008. "What Is a Scenario?" *IEA Training Manual - Module 6*. http://www.unep.org/ieacp/iea/training/manual/.

Van Cutsem, Michaël. 2010. "Cities of Tomorrow - Challenges, Visions, Dys-Visions as Seen by Cities." Bruxelles: Institut Destree and European Commission (DG Regio). http://ec.europa.eu/regional_policy/sources/docgener/studies/pdf/citiesoftomorrow/citiesoftomorrow_foresight.pdf.

PROJECT

This Policy Brief was written as part of the POCACITO project (Post-Carbon Cities of Tomorrow – foresight for sustainable pathways towards liveable, affordable and prospering cities in a world context), coordinated by Ecologic Institute.

More info:
http://www.pocacito.eu
Twitter: @EUCities

ACKNOWLEDGEMENT & DISCLAIMER

PHOTO CREDITS:
Cover: © Shutterstock-Rawpixel.com