Visioning the energy transition in CEE countries

Practical Guide for preparing Local Energy Visions

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Visioning the change

Mapping the stakeholders & networking	Collecting data	Mapping the possibilities (scenario building)	Proposing the Vision	Consensus	Roadmap

Creating a Vision is the first formals step towards energy transition. Vision helps to describe the desired outcome and spell out the desire to change. Visioning process, if done right, will help to build acceptance and support among the community for a change to happen. Vision will help to mobilize the people and investments to push the community to the right direction. Local Energy Vision will be the first milestone of Roadmapping process in PANEL 2050 project.

The visioning process requires time, effort (among the other resources like money) and must be well prepared and well coordinated. In framework of PANEL 2050 project, the Project Partners will take the role of the leader of local visioning teams. In other context the leader can be nominated or elected by local organizations. The leaders will recruit the Local Rodmaps Teams, involve the experts, collect the data, propose a Vision and work for creating a consensus. Everyday administration and communication with external entities (State Administration, other municipalities) will also be the role of the leader. To balance out different challenges is the role of the leader of the visioning team.

Visioning is a collective process

Creating a vision for the community is a collective effort and should not happen behind the close doors and in the silence of anemic office environment. It should be made in cooperation with the members of the community and should favor active participation of the local institutions. There should be a wider awareness among the members of the community about the vision building and the voices of local people must included. For maintaining the trust also follow-up session for every stakeholder group is required to reflect how much was implemented of their suggestions. The suggestions of the community members should be collected to a dedicated document and analyzed by the expert team.

Energy Transition in CEE countries

Eastern European countries have been in constant transition process for the last three decades. We have experienced a rapid development in most aspects of our lives. This process has been influenced by the global economic forces and our own expectations for what we understand as 'a good life'. Only recently have we learned that many elements of that desired future can have profound negative effect to our quality of life. Main challenge for CEE countries in 21st century is to learn to live this good life without jeopardizing the richness of our natural environment and the wellbeing of our communities.

Throughout the Soviet Era and the following transition period, the economic opportunities have been limited for the citizens of CEE countries. Today the 'right to consume' feels for many people in Eastern Europe (but also in Asia and other developing regions) as a fundamental basis of liberal democracy.

During the roadmapping process, this desire to endlessly increase the consumption must be balanced out with the realistic perception of the impact of this consumption. Consumerism in its modern form in this region is a new phenomenon and the collective conciseness still has strong memory of the 'survival skills' of the past, when people were happily preparing their own food, building their own houses and repairing broken items, instead of disposing them. These latent skills and the supporting mindset can be used for suggesting more sustainable ways of living in the future.

Another challenge is the conflict between the public and private interest. This problem is common for sustainable development everywhere (why should I be the one to reduce my consumption to save the world?), but in developing countries, the roles of the individuals are less fixed and more open for negotiations. The opportunistic nature of the prevalent economic climate favors the bold individualistic behavior and decreases the platform for common agreement. Readiness for compromises should be considered to be one of the main requirements for participating in roadmap team for all the stakeholders. These compromises should favor collective achievement over the individual ones but should not hinder the personal initiative of the forerunners.

Working with the stakeholders

In energy transition, working with the stakeholders is a continues process. In PANEL 2050 project, the stakeholders are already identified, and their role has been evaluated during the previous work. These people have been participating also in capacity building program and developing international contacts with like minded individuals. This process has been facilitated by the formed network of dedicated experts of the engagement that have established and maintained direct contact with the stakeholders. One-to-one work with the stakeholders is essential for integrating them into the process of roadmapping.

Not all the stakeholders are equally accessible. In fact, stakeholders can prefer not to spend their valuable time in the meetings and discussions of the roadmap. The challenge for the team leader is to identify the relevant stakeholders early on and commit themselves to involve these to the process, sometimes also tailoring the procedures to suit the needs of the stakeholders.

Supporting the niches of sustainability

Ideas of the sustainability are not always part of the mainstream discussion in CEE countries. Quite contrary, often these ideas are marginalized and overrun by the materialistic ideals of consumer society. Because of this, ideas of sustainability are sometimes developed out of the sight of the media and main interest of the community. One of the roles of the roadmapping team is to find the more hidden ideas of sustainability, evaluate their potential and include them into the process of energy transition. These less prominent ideas are called 'niches' and with the proper support it may be possible for these to realize their true potential up to the point where they can be the key factors of energy transition. The most promising innovators can be considered to be the forerunners of sustainable energy transition.

Forerunners of transition

Transition to low-carbon economy will take some time and effort. It is seen to be a gradual process that is geared by the progress on several fields like renewable energy technologies, smart grids/metering, circular economy. The forerunners of these fields are the ones who are helping the community to shift their economy and are in the focus of every energy transition project. Role of the roadmapping team is identify the local forerunners and include them into the roadmapping process. All the local actors are usually aware of the forerunners so they are relatively easy to identify but (because of limited time available) not always easy to involve to the roadmapping process. Forerunners tend to select carefully the processes they decide to support and set high expectations for the work

they are participating. They usually expect to share the same values with the people they are cooperating. Emphasizing the possible impact of their work and demonstrating shared values helps to find a common ground with the forerunners and integrate them into the roadmapping process.

Role of experts

Involving experts and professionals of energy/transport field is vital because of the extended knowledge and understanding they represent. Experts can help to identify the important stakeholders, access/analyze data, show the specter and magnitude of potential technologies, evaluate the scenarios, build the consensus and support the implementation of the Vision. At the same time the experts can not be the sole initiators of the Vision. Setting up the Vision for Energy Transition is a political process, not technical task. Preparing a Vision is a collective process that requires wider acceptance in the community.

Sometimes the local administrations feel the urge to delegate the preparation of the energy plan entirely to one team of experts. This cannot be suggested. There are specific challenges on working on experts and professionals. The members of the 'industry' can sometimes favor the future that is supporting the role of their company/university over the long-term interest of the community. Working professionals (especially in smaller communities) can sometimes favor the existing hierarchies and by this can prefer to maintain *status quo,* instead of transition. Experts who have profound understand about their discipline can sometimes underestimate the importance of the field of science distant to theirs. These biases should be foreseen and reduced by the team leader by balancing the expert team with the experts with diverse interest, expertise and field of working.

One of the challenges for team leader will be the nurturing of the cooperation of experts of different fields. It is highly suggested to include not only experts of energy and transportation but also the experts of social and political sciences, communication, environmental experts, arts, humanities etc. Local expert groups will be developed according to the local needs and resources, but it would be highly beneficial to aim for diversity and openness when inviting the experts. It is also suggested to put extra effort into creating an environment of mutual acceptance and understanding between the representatives of different fields and disciplines.

Experts, like forerunners, can be sensitive when it comes to time and effort they are expected to invest into the roadmapping process. For maintaining their interest, a direct and proper feedback is required with well developed arguments for including or rejecting their input.

Learning during the roadmapping

Roadmapping gives a possibility for mutual learning for the whole roadmapping team. This learning originates from the need of exchanging the ideas, introducing the new concepts, collecting/analyzing the data, building scenarios, introducing technologies etc. At the end of the roadmapping, the knowledge pool inside the community will be increased and more equally shared. The benefits of this learning can be even higher if the provided information will be collected, categorized and shared with the community. Online tools like *Wikimedia* can be used for granting better access to well categorized information. Learning should be supported by the Team Leader by sharing the information and allocating time and space for learning to take place. In the contexts of PANEL 2050 project, the learning will be part of the wider capacity building program, available for local stakeholders.

Energy Vision Ideal Types

Methodology energy visions is based on the work of prof. Christoph W. Frei (World Economic Forum, World Energy Council) described in policy paper “What if...? Utility vision 2020” (Energy Policy 2008). The overall purpose of the paper was to describe investment models that would correlate the

innovation driven energy sector. One of the ideas offered in the paper was the concept of the Energy Vision Ideal Types – four main categories that will form the framework for future energy developments. Author tries also to evaluate and map the involvement of different interest groups in the community. Following figure (from the paper) describes the development framework on the dimensions of most energy intense sectors (transport and electricity), ideal types, involvement of social groups and possible conflicts in that process.

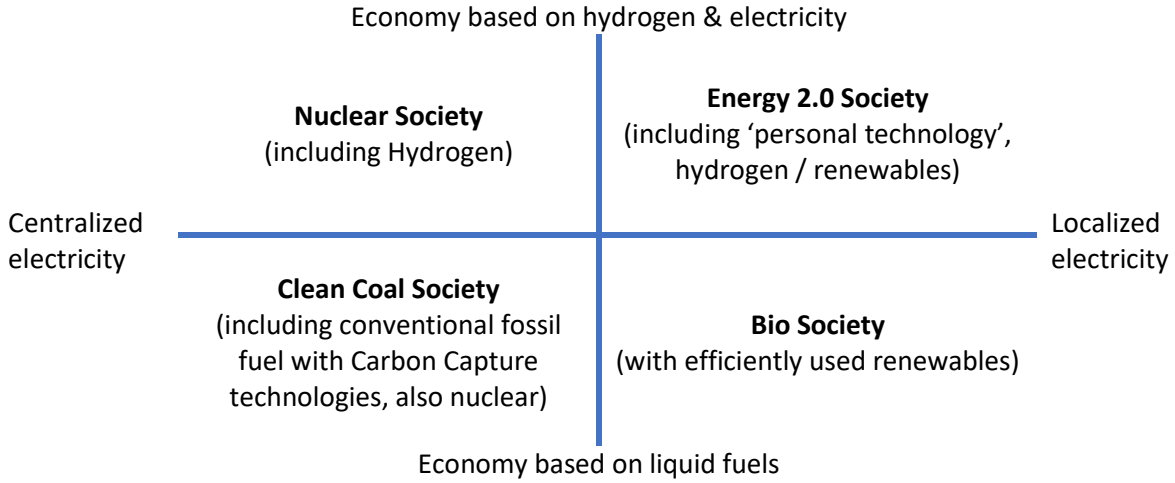

Figure 1. Energy Vision Ideal Types based on the work of C. W. Frei .

Type	Nuclear/Hydrogen	Energy 2.0	Bio	Clean Coal
NGOs	Object	Support	Support	Neutral
Cities	Object	Support	Neutral	Support
Big Business	Support	Object	Neutral	Support
Countries	Support	Neutral	Object	Support
etc...				

Methodology is based on the notion that we would align our investments accordingly if we would have the clear understanding about what will energy and transport sector look like after 50 years. Unfortunately, nobody has that knowledge today. We can only make predictions, and the most useful way is to define our energy future in the overlap of electricity and mobility technologies dividing these based on the energy production on the scale from centralized to localized (for electricity) and from liquid to hydrogen (for mobility). From this framework four complementary and contrasting Energy Vision Ideal Types will emerge that will have different impacts and implications to the local community. All these have their specific challenges and supporters and none of them comes for free. Community can draw out the main parameters of its energy vision with the help of this tool.

This method is the fastest and most effective way for the community to envision their energy and transport sector in the future. Energy Vision doesn't have to strictly follow one of the Ideal Types (most cases it won't) but it must be agreed by all the stakeholders who will support the development in the future. Financial support or behavioral change – without the active support of the local stakeholders and forerunners, the vision won't be anything more than piece of paper. It is useful to also identify the stakeholders that do require more effort to involve into the roadmapping process. The challenge of the Team Leader will be to convince to opposing stakeholders to open up the discussion for possible compromise.

Designing the Vision

PANEL partners working with their regional roadmap teams will work towards developing long term energy visions based upon the methodology described in this document. Key to the visioning process is obtaining feedback and input from as wide a range of primary, secondary and tertiary stakeholders as possible. Thus, a range of different methods will be used to solicit input:

- Regional Roadmap Meetings, made up of stakeholders who have been identified as forerunners and provided the full range of training will be convened to discuss the relevant themes from task 3.4 such as Government and the role of state, the presence and possibility of skills shortages, the levels of consumer/citizen acceptance, etc.
- Focus groups will be held with specific stakeholder groups to discuss issues relevant to them. For example, a focus group of citizens would discuss the topic from the point of view of non-affiliated consumers.
- Expert Interviews for certain stakeholders, such as government officials, individual interviews would probably be more appropriate than focus groups. These will be used especially for reaching stakeholders who have not participated in other project activities (i.e. training from WP2 or participation in the knowledge network described in WP 5) especially stakeholders from outside of the region who still can have an impact, such as representatives of state ministries.

After obtaining input from these consultations, short vision documents will be prepared by each partner in their native language. This vision document can be used as an additional tool for conducting advocacy. The country vision reports will be translated to EN and compiled into a broad vision statement for the CEE region.

Studio Model

Team leader will be responsible for setting up the workflow of roadmapping team. For achieving outstanding results, formal office meetings should be avoided as main working method. There are number of innovative approaches used in contemporary strategy design (notably the living labs concept) but one of the most suitable one for creating a vision for the region is the idea of Studio Design Model (or simply Studio Model) as developed by Finnish national development agency Sitra. Studio Model is a way to organize the strategic development as a series of well-focused and carefully prepared collective brainstorming sessions (called 'studios') with a clear goal, selected participants and suggested duration of one full week (or longer). The 'studios' should be organized in a spacious environment that relates to the problem in hand and should provide adequate infrastructure to work, interact and rest. The concept of Studio Model can be implemented depending on the resources and possibilities of the organizing team, but the focus has to be on its core relationships – people, process, problem and place. According to Sitra, a successful application of the Studio Model requires the right people, a flexible process, a carefully defined problem and a place that is conductive to collaboration – all applied with an open-minded sprit. Detailed guidelines for the Studio Model are made publicity available under Creative Commons license. Essential guideline for Studio Model is available in PANEL library and the comprehensive guide Boyer, B. et al Recipes for Systematic Change is available through Sitra as a free download or print-on-demand.

Maintaining the vision

After the successful preparation of the Vision the next step will be preparing a full roadmap for the community. Preparing a vision and roadmap are part of the same process but have a different focus. By its nature, a Vision is a social agreement proposed by the forerunners and accepted by community. Roadmap will be a guideline for achieving the Vision, consisting a series of technical steps towards the

desired outcome. Compared with the Vision, roadmap is more of an expert document exploring the possibilities and realities of energy transition. Roadmaps will be complimented with even more focused Regional Action Plans.

The challenge is to find the organizations that would commit themselves to vision, especially after the funding for coordination will end. In the ideal world the vision should be supported by its imitators until it will be fully realized. This is not always the case. There are several reasons for forerunners to lose their interest for following the Vision. In the constant stream of new information and ideas, Vision may lose its relevancy, especially if it is not promoted and updated. New projects may bring new activities and may emphasize different areas of sustainability. Lack of motivation can be a key factor, especially for the small organizations with only limited funding.

Sustainability of the Vision is important task for the Team Leader from early on. It is crucial to set up a Roadmapping team so that it will consist also organizations who won't have to face the challenges of financial sustainability and individuals who will personally care for carrying the vision (not all the people are motivated solely by money). Good balance between the formal support (by local administration etc) and non-formal (citizens, forerunners etc) can help to support the Vision in the future as non-formal alliances tend to be more independent on their decisions.

Team Leader can support the sustainability of the Vision by initiating new projects that will carry the Vision and the Roadmap further. These projects can utilize the local and national funding sources but also can apply for regional (INTERREG) and EU funding (H2020), growing out of the international cooperation in CEE Sustainable Energy Network CEESEN. These contacts can be facilitated by Regional Partners of PANEL 2050 project or alternatively can by made directly on the virtual platform ceesen.org.

ANNEX 1. Example of preparing Energy Vision for Region N

About 75 % of the electricity is produced by coal in the Region N. Last years have shown the severe increase of the electricity prices that is correlating with new EU regulations on additional taxation of large scale boilers. Previous studies have shown that the region has a potential for producing energy from wood residues, but this resource won't be enough to cover the existing energy demand. Another study has identified the potential for more efficient usage of energy. Local development team has involved the Forerunners:

- Municipal Waste Water Plant,
- University of Applied Sciences,
- Photovoltaics service provider,
- ESCO for renovations of apartment buildings,
- National Green Movement,
- National Association for Energy Efficient Buildings,
- National Renovation Council,
- National Forest Association,
- Coal Chemistry Company.

Based on the National Energy Profile, the Forerunners have defined the vision for energy transition of the whole region for 2050 as a mix of Energy 2.0 and Bio Society Ideal Types, focusing on increasing the efficiency of energy consumption and increasing the usage of bioenergy (using municipal waste and wood waste). The Forerunners and experts involved have identified these areas having the biggest positive impact to whole region: less pollution, new and smarter jobs, better prospects for young people and best usage of local resources. The future of the coal mining will be related with usage of coal as a resource of chemical industry (Smart Coal). Need for dedicated social program for the mining industry has been indicated in the vision. Based on the vision a reach for new Forerunners was carried out to cover the areas of bioenergy production and energy supply.

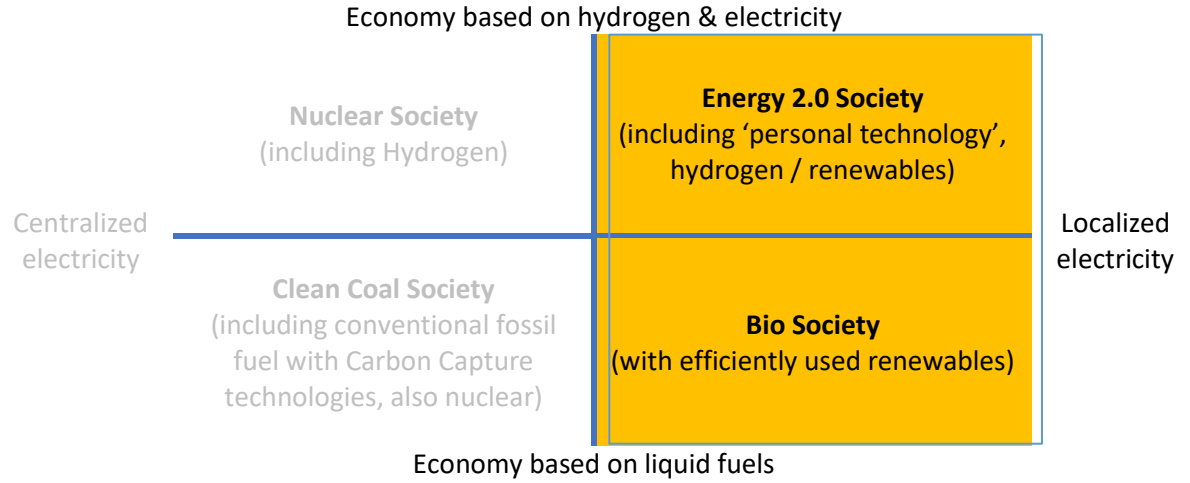

Figure A1. Energy Vision Ideal Types and Vision of example Region N.

Table A1. Support of the stakeholders for Energy Vision Ideal Types in example Region N.

Type	Nuclear/Hydrogen	Energy 2.0	Bio	Clean Coal
Municipal Waste Water Plant	Neutral	Support	Support	Neutral
University of Applied Sciences	Neutral	Support	Support	Neutral
Photovoltaics service provider	Object	Support	Support	Object
ESCO for renovations of apartment buildings	Neutral	Support	Support	Neutral
National Green Movement	Object	Support	Support	Neutral
National Association for Energy Efficient Buildings	Neutral	Support	Support	Neutral
National Renovation Council	Object	Support	Support	Neutral
National Forest Association,	Object	Support	Support	Object
Coal Chemistry Company	Object	Neutral	Support	Support
Coal Power Service Provider	Object	Neutral	Object	Support
Cheap Electricity Party	Neutral	Object	Neutral	Support
Transport Association	Neutral	Neutral	Object	Support

During the preparation of the Vision, a local Roadmapping Team was set up by the Regional Partner acting as a Team Leader. All the partners were previously contacted and many of them were also participating in the training Program. For more efficient data management and opening up the roadmapping process a dedicated online platform was created, acting also as a platform for wider engagement of the community. Online platform is used for collecting and publishing all the previously collected data and studies about the energy, transport and environment of the Region N. During the Visioning process, the platform is acting as a forum and discussion board between the experts, interest groups and citizens.

During the Visioning process, several expert groups are created with a regular meeting schedule. The work of the expert groups is finished with a week-long workshop to formulize the sectoral visions and finally with one collective workshop to compile the final Vision. Sectoral visions are tested out during the public workshops, acting as the Living Lab for energy transition scenarios. The feedback of the Living Labs is used as an input for the final collective workshop. All the outcomes and feedback are documented and made public using the online platform.

Workshops and forums are supported by the series of open lectures for the public by the Forerunners focusing on various aspects of the energy transition. Lectures are recorded and published on the platform. Final Vision is published on the platform and printed out as a travelling exhibition for disseminating the ideas in several locations of Region N and also in neighboring regions. Visioning process is opened and finalized with the big public event for discussing innovative ideas, networking and having a great time.

Brief overview of sectoral visions

Energy

Coal based electricity will be replaced by high-efficient diverse production model with emphasis on renewable energy sources like sun, wind, urban waste, bio-waste etc. Consumption is driven by the Smart Grid with local consumers selling back their abundance of local electricity production. Occasional overproduction of electricity will be geared towards hydrogen production to be used during the peak consumption. Electricity consumption will be also balanced by large scale wood pellet production that is providing the fuel for the central and local heating systems. Energy balance of the whole region N will be positive.

Transport

Transport system will be fueled by electricity and hydrogen. The efficiency of transport system will be improved by introducing more flexible mass transit (including on-demand models for the 'last mile') solutions and reduction of the private car usage. Active transport modes (cycling, walking) will be encouraged by urban design, the design of regional transport roads and mass transit hubs. Multimodality will be supported by unified ticketing/registration system and the emphasis of the convenience and the speed of the journey.

Cities

Solar City, Walkable City and Livable City will be used as layout for the urban design. Taking advantage of solar radiation will be a priority for designing and planning the urban space with integrated passive heating and cooling solutions. Urban design will also encourage the active lifestyle of the citizens. Private cars will see increasing restrictions in cities with only exception of emergency services and mobility services for elderly/disabled. Accessibility and equality of urban services will be increased for all the society to support the active community. Cities will improve their resilience by producing most of the energy, water and big share of food used in urban environment.

Buildings

Energy performance of the buildings will be improved and all the buildings in the region will be renovated to be Near Zero Energy Buildings. Building skills of the community will be improved by the continues training programs with the emphasis on the prevailing Build-It-Yourself culture. Buildings will favor locally produced materials, mainly timber. Energy and water consumption of the buildings will be monitored and provided for the (potential) home owners.

Industry

Consumption will be based on transparency and informed decisions. Consumers will be provided a clear information about the origin, impact and trade of the food products they are purchasing. Local production will be clearly identified, and its resource usage and the impact will be regularly evaluated. Focus of the production will be on highly advanced production models in a lesion with the research and development institutions. All the producers will be directly responsible for reuse, recycling, repairing or dismantling of their products.

Agriculture and Food Industry

The emphasize of the sector will be on improving the quality of the products, reducing the energy/water cost and minimizing the waste. Food Industry will publish the whole product chain of their products as well as the usage of chemical components used in the production. The resource usage and the impact of the agricultural sector will be regularly evaluated. All the main food groups will be produced locally in the region or in the neighboring regions with the minimal waste in the production chain. Resellers will take full responsibility for food waste in the distribution network.

Community

Social life will be organized around large amount of micro-communities that are strongly linked to the local resources and local economic and cultural activities. The citizens are highly mobile, well connected, well-educated and aware of the local problems/challenges. Equal access to information, education, wellbeing and security are considered to be a human right and granted for everybody. Diverse cultural activities will carry the mindset of open society and help to exchange the ideas between different communities and cultures.

Environment

Consumption, resource usage and the impact will be personalized with the help real-time monitoring. The responsibility of the consumption will be shared between the users and the producers in the way that both parties will be motivated to reduce its negative impacts. Environmental situation of the region will be closely monitored and improved. Environmental science will focus on the main challenges of the region: mitigating the existing damage from the coal production and preventing the potential damage of increasing forest usage. Close cooperation with the scientist, industry, regional administration and environmental NGOs will help to improve the richness of environmental heritage in the region N.

Economy

Smart Economy will create new opportunities for the region focusing on high-tech chemical industry, cleantech material production, environmental sciences, food and energy production from renewable sources. New, knowledge-based economies will give more equal opportunities for the new generation of entrepreneurs, especially women. Local economy will be considered to be essential element of the vital community and clearly identified as such. All the consumer items will have clear identification about their origin, impact and trade.