

Workshop Report: Assessing Low Carbon Transitions

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Expert workshop on assessing low carbon transitions

Background

REINVENT is an EU-funded research project analysing decarbonisation in four industrial sectors: meat/dairy, paper, plastic and steel. The project is transdisciplinary and studies the entire value chains of these sectors in order to understand the opportunities for a low carbon transition. One part of the project has the aim to explore approaches to how transitions and transition policy can be assessed and evaluated. This provides a complementary understanding to conventional climate policy evaluations, which often have focus on direct emission reductions and short-term cost effectiveness. For assessing long-term low carbon transitions there is a need for new approaches and indicators to monitor progress, capacity and readiness for sustaining system wide transformation.

Objective

The objective of the workshop is to present a novel model for transition evaluation and assessment to other researchers and professionals working in the field to explore possibilities, limitations and co-create knowledge about the difficulties of working with long-term assessments under great uncertainty. The workshop took place online on 19 May 2020. This workshop report summarises key messages from the presentations and the discussions.

Participants

Last Name	First Name	Institution
Alterå	Ola	Swedish Climate Policy Council
Andersson	Fredrik NG	Lund University, Economics
Bauer	Fredric	Lund University, Environmental and Energy Systems Studies
Flack	Martin	Swedish Climate Policy Council
Fridholm	Tobias	Jönköping International Business School
Johansson	Bengt	Lund University, Environmental and Energy Systems Studies
Karltorp	Kersti	Jönköping International Business School & RISE – Research Institute of Sweden
Mickwitz	Per	Lund University, International Institute for Industrial Environmental Economics
Nilsson	Lars J	Lund University, Environmental and Energy Systems Studies
Stripple	Johannes	Lund University, Political Science

Agenda

13.00 – 13.15	Welcome and introduction <i>Objective: informing participants on REINVENT objectives and setting the frame for the workshop</i> Speakers: Lars J Nilsson, Lund University
13.15 – 13.45	Presentation of the proposed model <i>Objective: Present the thoughts and ideas behind the model for assessments</i> Speaker: Bengt Johansson, Lund University
13.45 – 14.15	Roundtable discussion <i>Objective: Initial response and comments on the model</i>
14.15 – 14.30	Coffee break
14.30 – 15.10	Thematic discussion 1: Roles and responsibilities <i>Objective: Reflections on the roles of different types of actors and their responsibilities for low-carbon assessments</i>
15.10 – 15.50	Thematic discussion 2: Assessments in theory and practice <i>Objective: Reflections on how to make use of theoretical insights and difficulties when moving towards practical implementation</i>
15.50 – 16.00	Wrapping up Speakers: Bengt Johansson and Lars J Nilsson, Lund University

A conceptual model for assessment of low carbon transitions

At the workshop a conceptual model was presented that illustrates different types of low carbon transition assessments and how the different assessment types interrelate to each other.¹ The model takes its starting point in a perspective that recognises an important role for policies for realising a low carbon transition. It does not, however, restrict itself to policy evaluation per se but includes other knowledge building processes as well. Three different assessment types are identified and presented in Figure 1:

- Monitoring
- Policy evaluation
- Building domain knowledge

The two first types could be seen as activities driven by policy cycles, whereas (domain) knowledge building (including research) would typically be expected to be more freely related to ongoing policy processes, even though research priorities are often affected by values and priorities existing in society.

Low carbon transition assessment – a conceptual figure

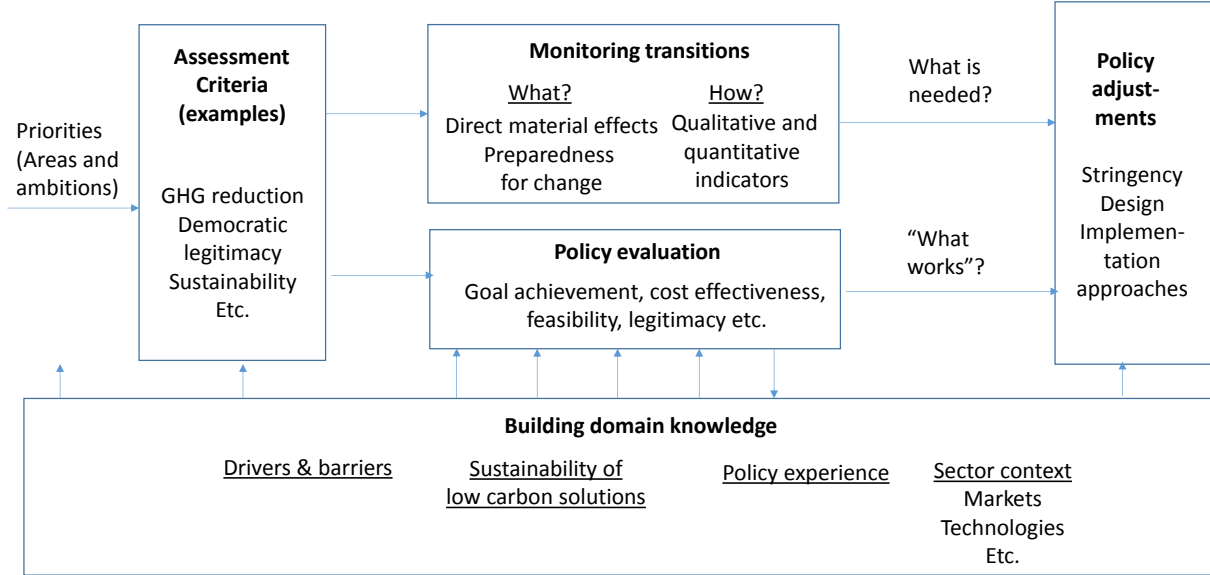


Figure 1. Conceptual figure illustrating how the different types of knowledge production fits a policy context and how the different types relate to each other. The arrows illustrate interactions between different fields but do not illustrate a specific policy process.

The conceptual understanding starts from an assumption that the assessments are expected to be of policy relevance for low carbon transitions. It means that overarching assessment

¹ Although the focus here is on low carbon transitions, the model can be used as a heuristic tool also when analysing sustainable transitions in a broader sense.

criteria are affected (but not necessarily determined) by political priorities and targets and policies.

Monitoring is understood as a process that is intended to inform whether society is on track on meeting the political priorities that are set up. Policy evaluation concentrates on the effects of specific low carbon transition policies or policy instruments. General knowledge building through research and other processes is important both for identifying assessment criteria, and designing relevant monitoring systems (including relevant indicators as well as policy evaluations).

In the conceptual assessment model, policy adjustments are expected to be informed by the monitoring process regarding *what is needed* and by policy evaluation with regard to *what works*. Together these processes could inform on how both the *stringency* and the *design* of policies could be altered.

The assessment fields and criteria could in addition to climate change include, depending on priorities, factors such as industrial competitiveness, cost efficiency, distributional aspects, political participation and various legal aspects. The ground for prioritising these factors could both be because of some intrinsic values (e.g. democracy or equity) or due to their instrumentality in reaching the main aim of low carbon transitions.

The domain knowledge base could include knowledge of i) drivers and barriers for a low carbon transition, ii) the sustainability of various technologies, policies and practices, iii) previous policy experiences, and iv) contextual knowledge of the market, actors, mitigation technologies etc. in different sectors and new sectoral couplings. All this information would help inform how policies can be redesigned for overcoming the barriers and enabling change in various contexts while safeguarding that the changes do not stand in conflict with other sustainability aspects.

The domain knowledge base will also be important input to the monitoring process helping decide what is important to monitor. Monitoring could cover *direct outcomes* such as GHG emissions or diffusion of low carbon technologies. But with a long-term transitions perspective it is as important to look into the *preparedness for change* with regard to existence of factors such as visions and expectations, knowledge, feasible policies and policy instruments (taking into account stringency as well as coverage and policy coherence), innovation networks, technological readiness of key technologies.²

Evaluation of policies can in turn cover several aspects beyond policy relevance and effectiveness³ in line with the assessment criteria previously mentioned. It could evaluate the consistency of targets with overarching objectives as well as specific strategies, policy instruments or policy packages. Policy evaluation could be both *ex post*, learning from how existing policies and policy instruments work, and *ex ante*, where future effects are estimated. To determine the role of policy instruments in both the *ex post* and *ex ante* cases,

² Bergek A., Jacobsson S., Carlsson B., Lindmark S., Rickne A., 2008. Analyzing the functional dynamics of technological innovation systems: A scheme of analysis, *Research Policy*, 407-429.

³ Mickwitz P. 2006. *Environmental Policy Evaluation: Concepts and Practice*. Commentationes Scientiarum Socialium 66. The Finnish Society of Science and Letters. Helsinki.

it is necessary to relate to a reference scenario. A specific challenge is to determine future developments as there are many potential developments in various sectors as well throughout society more generally. Different types of scenarios can play a role, both internal scenarios, focusing on changes within the studied system limits, and external scenarios directed at developments outside the system limits.⁴ The effects of policies could be analysed under different external scenarios and the robustness of different policy approaches could then be analysed.

⁴ See eg. Börjesson L., Höjer M., Dreborg K-H., Ekvall T., Finnveden G. 2006. Scenario types and techniques: Towards a user's guide. *Futures*, 38, 723-739.

Reactions and discussions

Roundtable discussion

Participants pointed out that the proposed model bears similarities to other policy assessment models that are currently being developed and tried out by other organisations and institutions. It provides a macro-level view of the aspects that must be considered in an assessment that aims to understand a long and winding transition path – which crucially is different to short-term changes that are commonly analysed (e.g. year on year GHG emission changes). The evaluation and assessment community has aimed to move away from the easily accessible but incremental indicators but still struggle to capture the transition perspective, e.g. by acknowledging the potential of different long term developments contingent on a multitude of choices along the way, and the effects that non-climate labelled policies have on the climate impact of sectors and economies.

A real difficulty in practice today is monitoring – we do not know how to follow the transition, which tends to lead to a focus on reductionist and simplified measures that are easily identified and most can agree on. The proposed model can be used to raise new questions regarding assessments and point to the need to move away from an overreliance on simplistic cost effectiveness estimates of complex developments, e.g. €/kg CO₂-eq saved. A few issues were pointed out to be underdeveloped in the current version of the model:

- How can the potentials of technologies/practices/solutions that do not exist in contemporary systems of production and consumption be made present in assessments?
- Where and how do roadmaps fit in – are they part of the execution or evaluation? Roadmaps and backcasting are tools that can provide milestones against progression and development can be measured, but they are also performative and constructive as they shape the way actors think about the possibility space for developments.

Roles and responsibilities

The workshop participants agreed that the proposed model presents an encompassing and useful macro-level understanding of how different types of analyses, evaluations and other activities should complement and support each other. However, for most working with real world evaluations and assessments this macro-level view is not always the most pressing issue. The focus there is usually more on the choice of specific indicators when evaluating individual instruments or initiatives. The model **can in this case be used as a coordination and structuration tool**, and this should be further clarified. The model could be useful for relating the work of an actor working on the macro level, such as the climate policy council with the more focused analysis made at lower levels by other actors.

Another related key point was that the level of analysis is not clear – it is often assumed that these types of assessments are done – and most suitable to do – at the national level, but research has pointed out that governance is highly non-central. Although central

governmental agencies are important, transition governance takes place on multiple scales and is enacted by county and municipal administrations, private firms and their networks, NGOs, and other types of non-state initiatives. This may involve experimental and voluntary initiatives that later inform or shape public policy. These forms of governance have to some degree been omitted or neglected in the research on and tradition of evaluations and assessments. ***The question remains open as to how they can use or are included in the proposed model.***

It was pointed out that although academic research is critical for building and expanding domain knowledge, it must be appreciated that scholars are by no means the only ones doing that. Being more sensitive to different types of actors, their activities and interests is important – e.g. firms and trade associations have much knowledge and information to contribute with, but will do this to reflect their interests, and the same is valid also for other actors such as NGOs and not least different interests in the government and its administration. Ministries and agencies have widely different powers to wield in negotiations about policy prioritisations and more often than many times appreciated also diverging interests.

Theory and practice

In theory, more information provides better analyses and support for decision making. This is not always the case in real-life, and in many attempts to conduct proper assessments and evaluations information overflow is a more precarious problem than lack of information. But in other cases information is not available nor structured in a way that allows it to be used in assessments. Public organisations often have a low organisational/institutional memory, e.g. do not keep proper registries of all analyses that have been ordered relating to specific domains or themes, and are dependent on individuals with personal knowledge about the history and development within the organisation. This makes assessments very sensitive to being able to identify key individuals, and if these leave the organisations it may be very difficult to gather the needed information. A successful way of mitigating this risk is to initiate and maintain a dialogue with all key actors in the field – but this method requires time and resources.

Radical uncertainty is a key characteristic of what this type of assessments are dealing with – as we do not know where precisely we are heading nor whether the path we are on leads there. However, this is a problem that cannot be overcome, but rather it must be managed. Ways of managing this uncertainty is to not only evaluate against a fixed end-goal but also to set up milestones along the way that represents progression along different paths, and regularly revisit the assumptions underlying the milestones and paths. Establishing an opportunity for acknowledging this uncertainty and (re-)learning requires a long-term perspective on the necessity. Previous field research has shown that a key for successful long-term governance is to establish a policy field and organisational structures with responsibility for the domain. This is similar to what some countries have done, e.g. the UK Climate Change Committee and the Swedish Climate Policy Council, but perhaps without this motivation. It thus remains to be seen to what degree these institutions become effective for critical assessments.

Concluding points

- We recognise that there are different types of low carbon assessments that can be used for providing policy relevant knowledge. They can be carried out on different levels and the proposed model can function as a structuring point for connecting these levels. Different actors conducting the assessments can have different perspectives and their roles.
- There is a broad number of aspects that can be integrated in the assessments to increase the quality of the results. Different procedural aspects such as stakeholder involvement can in addition increase the legitimacy of the results.
- The type of assessment and its scope depend on the purpose and the resources available for the assessments. There is no single recommendation to give what aspects should be included. However, it is worth informing of the value of different approaches for broadening the perspective from narrow goal achievement and cost efficiency approaches often used in assessing low carbon transitions.
- Different actors conducting assessments can have different perspectives, focus and evaluation criteria. This does not have to be a problem as long as their roles and responsibilities are made clear.
- When designing assessments, the geographic delimitations should be recognised. Carbon leakage or technology spill-overs are examples of negative or positive feedbacks between internal and external geographical arenas that have to be taken into account.
- The long-term perspective of the low carbon transitions motivates not only looking into current outcomes but also into the prerequisites for future change, the preparedness for change. The latter will reflect how well current policies and measures prepare society for implementing low carbon technologies and practices when they become available.
- The proposed model is not only useful for understanding low carbon assessments but could be used as a heuristic tool for assessing sustainable transitions in a broader sense as well.