

SUMMARY REPORT

Ten Principles for Policymaking in the Energy Transition

Round table with keynote and panel
discussion hosted by LIEPP's
environmental policies research group

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Introduction:

This round table brought together four experts to outline and discuss findings from the most recent EEIST¹ (Economics of Energy Innovation and System Transition) project report on *Ten Principles for Policymaking in the Energy Transition*. The narrative of the event drew on one of the story lines of this report: that the most successful decarbonisation processes so far, in China, India, Brazil and Europe, have happened not because of traditional economic policy advice, but despite it.

The report, available on the [EEIST's website](#), was launched in the autumn of 2022, outlining ten principles for successful policymaking on low-carbon transitions. Based on detailed empirical evidence, these principles overturn conventional wisdom and suggest a new way forward to help countries accelerate innovation, job creation, and cost reduction in the shift from fossil fuels to clean technologies. It highlights the need for governments to proactively use the three policy levers: investment, tax, and regulation, to accelerate innovation and cost reduction in clean technologies and to target 'tipping points', where clean technologies gain an advantage over fossil fuels, to achieve our climate goals.

[Pr. Cristina Peñasco](#), one of the leading authors of the report, presented the report and its main findings, followed by a round table discussion with leading experts in the field: [Nicolas Berghmans](#) (IDDRI), [Aurore Colin](#) (I4CE) and [Romain Svartzman](#) (Banque de France, Climate Change Centre). The workshop was chaired by Dr. Charlotte Halpern (Sciences Po, CEE & LIEPP).

Keynote: Ten Principles for Policymaking in the Energy Transition – Pr. Cristina Peñasco

To introduce both the EEIST project and her keynote, Pr. Cristina Peñasco started off by emphasising the report's main objectives. Firstly, she highlighted the question of how ex ante modelling and policy appraisal work in the context of decision-making regarding environmental policy. Secondly, she emphasized that the principles and cases in the report came from evidence on the ground and that understanding the effects of policies after implementation in certain technologies can help inform ex-ante modelling exercises, their assumptions, and therefore boost an improvement in the forecast costs of clean technologies. Lastly, she mentioned how those clean technologies are needed to reach climate goals set both on national levels and in the Paris Agreement. The report and its recommendations are based on a variety of from-the-ground evidence that is assessed ex post – once policies have already been implemented.

The current energy crisis underlines the urgency of a rapid and just transition. In the past, using economic advice and modelling to guide public policy has worked well in contexts of marginal or incremental change. Yet, the structural change needed to radically change the current energy system is different and consequently, so must be the policy advice in those circumstances. The ten principles proposed take into consideration the radical nature of the changes needed to succeed in the low carbon transition and are based on evidence from different policies that have been implemented in Brazil, China, India, the UK, and the EU.

¹ The EEIST is a University of Exeter led project, funded by the Department of Business, Energy and Industrial Strategy of the UK Government and by the CIFF foundation.

Pr. Peñasco then went on to give an overview of the ten principles.

1. Instead of being ‘technology neutral’, policies need to make technology choices.

Technology neutrality is very challenging to implement and sometimes even impossible. In a context of structural change, policies will always advantage some technologies over others, thus policy makers may need to choose deliberately and prioritise some technologies over others to avoid favouring incumbents, technology lock-ins and to foster faster innovation.

In the United Kingdom for instance, after the introduction of renewable obligation mechanisms, the government linked them to subsidies in the form of contract for differences (CfDs) to accelerate the build-out of renewable capacity and to meet the UK’s renewable targets. The introduction of these CfDs particularly targeted offshore wind which managed to boost this particular technology. This policy was so widely successful that the most recent offshore wind CfDs for plants starting to operate in 2026 are substantially ‘subsidy *negative*’ given current prices.

2. Instead of assuming that government interventions necessarily raise costs, it should be assumed that investment and regulation can bring down costs.

A traditional economic assumption is that markets are the most efficient allocators of resources. Yet, it is known that this is not always the case: well-established markets do not always deliver public goods and there are many additional externalities that go beyond environmental factors and are for instance related to asymmetrical information that cannot be resolved by the market allocation. In this context government investment and regulations can create markets and a demand-pull for certain technologies that will consequently deliver cost reductions.

In Brazil most electricity is produced through hydropower which could not deliver during drought periods. After a major drought suffered by the country in the early 2000s, the government successfully put into place a scheme to support new energy infrastructure in the form of wind turbines. As a consequence, installed capacity increased enormously and prices for wind energy dropped by two thirds between 2004 and 2013.

3. Instead of assuming that markets optimally manage risks, policies should actively manage risks to crowd-in investments.

Actively fighting climate change necessitates a very significant amount of investment capital. Yet, tackling climate change is likely to rely on disruptive technologies which might be viewed as being linked to high risks for investors. Thus, as markets cannot internalise all risks, governments should take on parts of these risks through public interventions to foster the investment in particular technologies and contexts. Governments are very well positioned to take on certain risks, especially in the early stages of the commercialisation phases of new technologies, while they are moving towards the last phases of the innovation scale.

This is illustrated by the example of investing targeted towards small hydropower plants in Uganda. A coordinated scheme of generous feed-in tariffs between the Ugandan Government, the Ugandan Electricity regulatory body and the German Development Bank managed to reduce the associated risks for investors. The return on investment for that technology in Uganda considerably increased and thus created a market in this context.

4. Pricing carbon at a level that internalises the damages of climate change is not enough by itself, tipping points should be targeted.

As carbon prices cannot be set at a level that would reflect and internalise all the actual externalities associated to environmental damages, targeting tipping points through investment in particular technologies, in combination with a carbon price, can increase the speed of the transition.

An example for the successful implementation of this principle also comes from the UK where the coal phase out was considerably accelerated by a strategically effective carbon price combined with a form of Contracts for Difference i.e., a feed-in tariff. This almost entirely drifted out coal between 2012 and 2020.

5. Instead of targeting individual ‘market failures’ with individual policies, combined policies can produce better outcomes.

Typically, policy is designed to individually tackle targeted externalities, but usually governments identify numerous externalities that need to be addressed. Addressing them through combined packages of measures can help creating policies mixes and/or packages that are mutually reinforcing.

An illustration of this principle comes from China where the government successfully boosted the share of electric vehicles through a mix of subsidies, strategic investments, and new regulation that was implemented simultaneously.

6. Instead of aiming for optimal policy, policy should be adaptive.

In a context of dynamic and structural change as well as uncertainty, drafting optimal policy is (almost) impossible. Being aware of that and creating adaptive policy is thus a means of delivering faster changes in the long run.

A good example for this approach is the expansion of solar PV in Brazil that was accelerated by multiple changes in policy from 2011 onwards. For example, the Brazilian Government adapted the regulation to the challenges in the transformation process allowing and facilitating the access and connection of small producers. This change in the regulation increased the installed capacity as well as accelerated a reduction in the costs.

7. Instead of acting if benefits outweigh the cost, policies should put distributional issues at their centre.

Traditional models are based on cost-benefit analysis and the assumption that the markets will then allocate the benefits fairly. Putting distributional issues at the centre can help identifying policies that might be perceived as unfair. This idea must be incorporated and policies correcting trade-offs are necessary to not slow the fast transformation needed in the energy sector.

This was illustrated by the *gilets jaunes* movement in France.

8. Instead of only linking carbon markets to minimise current costs, policies should be coordinated internationally to grow clean technology markets.

Coordinate internationally to grow clean technology markets can lead to faster innovation and larger economies of scale, accelerating the cost reduction of clean technologies, with benefits for all countries. On top of linking carbon markets to minimise current costs, international coordination will help creating markets and delivering technologies faster to where they are mostly needed.

9. Instead of assessing costs and benefits, opportunities and risks should be assessed.

Where the aim is transformational change, appraisal should consider the effects of policies on processes of change in the economy, alongside their expected outcomes. Therefore, it is important to assess every single risk and opportunity because not every outcome of a policy can be measured ex post.

The energy efficiency transformation of lighting in India is an example for this as it managed to coordinate markets whilst taking into account both the need to reduce consumption and the need to improve the provision of lighting in the residential building sector in the country.

10. Instead of assuming policy models and assessments are neutral, biases should be considered.

This concerns the modelling i.e., appraisal, of potential policy outcomes. As the main basis for modelling are assumptions and parameters that are decided by the modellers, modelled forecasts are already based on political decisions that are used, sometimes, to confirm a course of action. One must thus be aware that models are not neutral.

Discussion

Nicolas Berghmans emphasised four points:

1. He emphasised the importance of the ‘on the ground’ approach taken by the report. The main take out from these principles is that governments must be more active in orienting public choices and governments must have and develop the skills to understand technological and socio-economic changes that are part of the energy transition. This is a big challenge for governments both in the developed and the developing parts of the world. Within the governments these competences and skills must be structured to be efficiently implemented and deployed which is challenging but, at the same time, crucial for efficient environmental planning and the setting of policy priorities.
2. The second important point he highlighted was the changes in the political landscape in certain sectors that policies can contribute to shape. It is as much about changing the politics as about changing the economics and favouring technological uptake to achieve the desired result, in this case decarbonisation of our economies. Opening doors to new actors through new regulation changes the sector’s dynamics and can considerably accelerate the transition. This is illustrated by the changes in the electricity sector which has become increasingly dynamic with a push to reform and where new players, for example renewable energy producers, weigh on political discussions.
3. Thirdly, Nicolas Berghmans mentioned the importance to take into account geopolitics along these technological processes since eventually, the economic transition must become intra- and international. An example for this is the United States’ Reduction Inflation Act (IRA) and the vivid reactions in the European Union to the large-scale economic incentives introduced in the US to attract green industries. It is important that markets are not closed up as a result. Rather there should be a maximisation the benefits reaped from this development and the transition should be streamlined globally.
4. The role of Europe has been put into question: should the EU continue focussing on driving innovation or should the member states together try to increase the level of ambition entering a phase of more radical transformation? Given the scale of transformation needed, financial support amongst member states is needed. This is one of the strong points of the US IRA regarding especially renewable energy and should serve as an example to the European renewables built out. This emphasises a need for financial solidarity between member states to ensure a fair transition across the European Union.

Romain Svartzman brought up three main points:

1. Many of the insights of the report are not only relevant to think about energy economics but also about structural problems in economic assessments and modelling of other public policies in general. In particular, the authors of the report explain very clearly why the economy is a dynamic and complex adaptive system, and why climate change is not a simple market failure (which could be addressed ‘all other things being equal’ with measures such as carbon prices) but a structural problem, which requires structural solutions. For instance, public strategic investments may generate much more impacts than carbon pricing to overcome the inertia generated by the current (fossil-based) economic structure.

2. While there is no doubt that the strategic investments needed can be fostered and procured by active government interventions, it is important to assess under which conditions they can take place and what consequences they can have. For instance, the fiscal consequences of such investments are not the same if interest rates are high (especially as low-carbon projects often require high upfront capital) or if the investments generate crowding in effects or not (they may in some cases but not always, as the transition also requires to get rid of many “stranded assets”). Hence, while the report makes it very clear that it focuses on energy policy and not on macroeconomic policy, it is important to acknowledge that the two will become increasingly entangled in the low-carbon transition. In other words, a successful energy policy requires a careful analysis of macroeconomic coordination, including among fiscal, monetary, and prudential policies.
3. Demand-side measures: the report focusses importantly on technological solutions, yet there is space for demand-side measures above all associated to energy access, energy costs and energy efficiency in the residential/industrial sector and in the way the citizens interact with the technologies that will be used in the transition to low carbon economies, such as electric vehicles. The latest report of the WGIII of the IPCC dedicates important resources to such demand-side (and sufficiency) policies, making it clear that energy policy should also be thought of through its interactions with the transformation of existing socio-ecological systems.

Aurore Colin put the focus on an aspect that we should not forget, which is the role of other jurisdictions different than the nation states and/or the international sphere:

1. One of the main points brought to the table was the importance of the territorial dimension and the local level relevance in delivering faster transitions to low carbon economies. Local governments play a key role for implementing public policies. European and national governments operate through them when implementing climate transition.
2. To play their role, local and regional jurisdictions need to count with the means to implement particular policies, above all associated to transport and housing, competences in the hands of, in many cases, those lower jurisdictions. In France, I4CE estimates that local and regional jurisdictions must double their investments in the next decade to contribute to carbon neutrality. On that front, to see effective environmental and energy policy implementation, national governments need to facilitate the investment means to smaller territories.
3. Local and regional governments also need tools and skills to mainstream climate in the local public policies. They require staffing means to steer their climate strategy, to manage their investments and to raise awareness and involve local stakeholders in the low-carbon transition. European, national and local governments must collectively ensure that local governments have the staffing means to achieve their climate ambitions.

Questions and conclusion

The audience then got engaged in a series of questions showing their interest regarding the following topics:

1. How to design policies that are adaptive and at the same time do not generate instability, uncertainty, and lack of predictability to potential investors.
2. How to build better competences between policy makers to foster investment in climate related issues.
3. What is the role of decentralised climate action and how can efforts at different jurisdictions and from different agents being coordinated?
4. What are the tensions with the paradigm of economic growth?
5. How can we reconcile different interests within the European Union and promote solidarity between member states in the transition to a decarbonise EU.
6. How can we educate the general public, so they accept more easily the policies needed to transition to low carbon economies

Prof. Halpern concluded inviting people to download the report on the EEIST project's website.