

## Learning from the past: How energy and climate policies can foster the broader sustainable development agenda?

Meeting the objectives of the 2015 Paris Agreement and the United Nation's Sustainable Development Goals (SDGs) requires dramatic policy change and calls for a fundamental shift in how policies are designed, monitored and governed. While research to date has focused on mapping and analysing potential synergies and trade-offs between competing or complimentary goals, what this implies for how to design and implement policies in ways that can balance various objectives and manage their interactions is less appreciated so far.

Increasing evidence from multiple-objective energy policy experiments worldwide, e.g. on overlaying renewable and energy access policies with socioeconomic objectives, can help shed light on this question and draw lessons for the future (Pahle et al. 2016; Bezerra et al. 2017). This brief draws specifically on a synthesis of a comprehensive coordinated case study activity of 17 national energy policies covering both developed and developing nations undertaken as part of an EU Horizon 2020 funded project - Linking Climate and Development Policies – Leveraging International Networks and Knowledge Sharing - (CD-LINKS). It draws insights on current policy practices in this area, including lessons from successes and failures and based on these, spotlights emerging principles for multiple-objective policy design. These principles provide a framework that can guide the future design and execution of policies to consider multiple objectives more coherently and make interactions among these more transparent and ultimately manageable.

### Where are we?

Multiple objectives often implicitly drive policies, but this is rarely made explicit in target setting, policy design and evaluation. In all the policy cases included in this study, policies were found to be driven by both climate and development concerns, but typically only some, if any, were adopted as official policy objectives and rigorously pursued or monitored. In most cases, a single objective typically dominated, often a core goal of the agency tasked with its execution. Other objectives were typically only reflected at the level of particular design features, if at all. An important implication of this lack of deliberate weighting of objectives, so that a single primary goal dominates all others, is that early in a policy's lifecycle, trade-offs between different goals are rarely considered. This also implies that policy targets are typically defined using direct performance indicators rather than indicators related to all objectives, and often capture only short-term impacts. The present organizing principal of most governments also acts as a barrier to coordination, with ministries often working in silos with few bridges, if any, of collaboration between actors in different sectors, levels or institutions. As different ministries typically prioritize objectives specific mostly to their own sector, opportunities for effective ways to promote progress towards additional goals, which may involve interventions in more than one sector, are often missed.

### Where do we want to go?

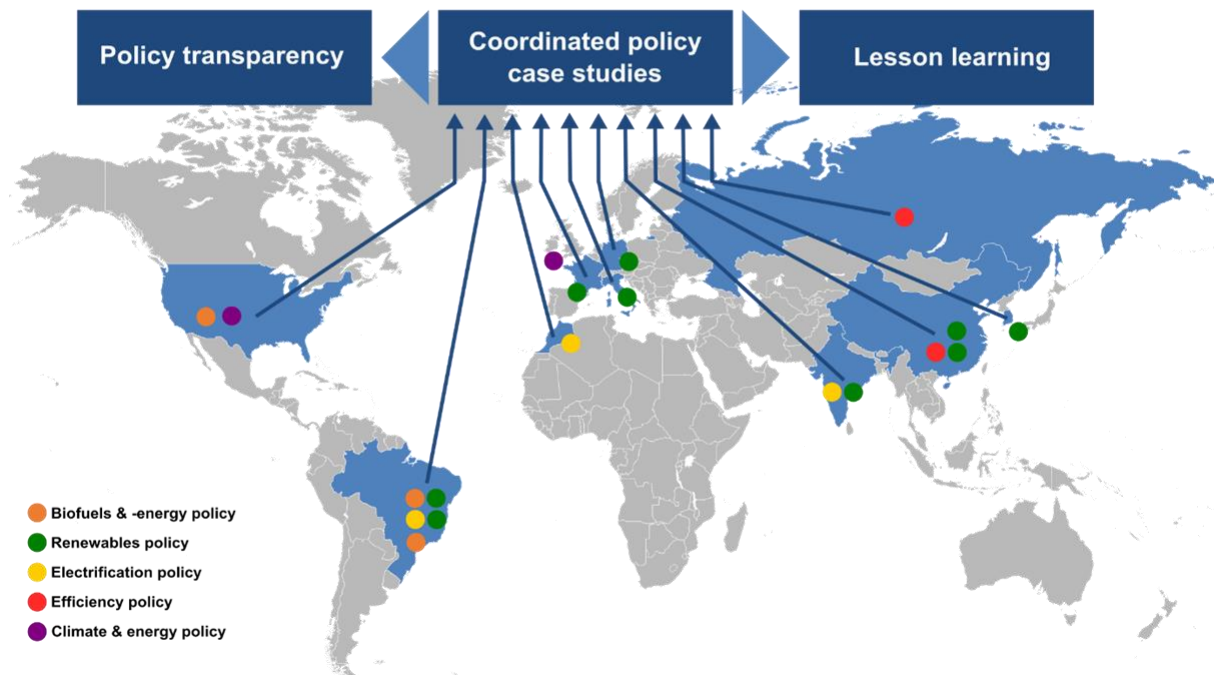
Coordinated and comprehensive policies are the only means of achieving the transformative changes required to meet the integrative and indivisible SDG targets and the Paris Agreement's aim to keep global temperature rise this century well below 2 degrees Celsius above pre-industrial levels and strengthen the ability of countries to deal with the impacts of climate change. This requires new policy processes that explicitly account for and target multiple objectives in design, implementation and evaluation.



United Nations  
Framework Convention on  
Climate Change



SUSTAINABLE  
DEVELOPMENT GOALS



*Overview of selected case studies and overall research strategy. Seventeen in-depth coordinated case studies of climate and energy policies (many of them national flagship programs) were conducted to draw lessons and increase transparency. The aim was to build the evidence base to inform policymaking under the UNFCCC and the UN SDGs, with a specific focus on achieving multiple objectives.*

## How do we get there?

What can we learn from the experiences with existing policies that address multiple objectives? The synthesis of case studies carried out within the CD-LINKS project found that adhering to specific design principles can be important to meeting multiple goals simultaneously. Three policy principles, in particular, stand out as being important to achieving multiple objectives, which are discussed below.

### Complementarity: Balancing impacts on multiple objectives

Complementarity is a first design principle that emerges from the synthesis of case studies conducted. It addresses the prevailing misconception in policy design that a single instrument is sufficient to achieve multiple objectives at once. A key aspect of this is weaving complementary policies and dedicated policy features, which clearly link to specific additional objectives, into conventional policy designs in order to balance impacts and achieve objectives other than a primary one. Examples of how this has been neglected or worked in the case of specific policies can be highlighted. In Korea, for instance, the government's renewable energy policy also aimed to develop renewable technologies into competitive industries. However, the policy neglected to include industrial policy elements, which eventually resulted in limited growth of the domestic renewable industrial base. By contrast, the Chinese green lights program provides an example, where a close symbiosis of the energy efficiency policy with industrial development objectives resulted in building an essential technological foundation for the domestic efficient lighting industry (Guo & Pachauri 2017). This helped the program achieve its primary objective of electricity savings, and in addition establish a globally competitive efficient lighting industry that could meet growing domestic demand and exports.

### **Adaptability: Making policies capable of adapting to changing objectives and circumstances**

A second design principle emerging from the synthesis is that of adaptability, which requires thinking about policies as a sequence of measures and contingency plans that can be readily deployed or adjusted as objectives change. It necessitates designing policies that are durable over long periods of time, yet able to adapt to changing interactions with other policies, new government priorities, evolving energy systems and new technologies. A case study that illustrates how objectives change over time, and how adapting a policy to an evolving socio-political environment is necessary to make it durable is that of Germany's *Energiewende*. At the inception of this policy, its primary motivation was to promote renewables as an alternative to nuclear power, which the government wanted to phase out (Schweizerhof & Pahle 2016). Once achieving this goal became foreseeable, the focus increasingly shifted to climate mitigation, which was only a secondary objective when the policy was originally conceived. The policy is currently undergoing further reform and expansion to consider additional cost-effective options to reducing greenhouse gas emissions. This continual evolution of the policy to changing circumstances and government priorities has contributed to its durability over time.

### **Transparency: Thoroughly and persistently tracking impacts across all objectives**

A third and final design principle that emerges from this synthesis is that of transparency, which is crucial to uncover if synergies and trade-offs change over time and respond to changes through adequate policy reform. Transparency requires that policy choices be evaluated both individually and in their interactions to prevent lock-ins into inefficient policy pathways. In addition, interactions may change over time, for example when market conditions change due to external factors. This raises the question about suitable indicators and assessment approaches that are capable of comprehensively monitoring and tracking interactions over the entire policy life cycle. Inadequate monitoring can also hinder the opportunity to learn and harness complementary benefits. This is illustrated clearly in the case of Brazil's biodiesel policy, which also aimed at social inclusion through a specific focus on smallholders. However, the policy failed to achieve its social inclusion goals. This was despite the government reporting on the job and income creation impacts of the policy. However, because the data underlying the assessment of these impacts was unreliable, independent evaluations subsequently concluded that the governmental reports overestimated the outcomes of the project. In contrast, the comprehensive monitoring and evaluation of Germany's *Energiewende*, prompted subsequent reforms of the policy. This feature of the policy also helps illustrate the importance of institutionalizing a periodic and inclusive evaluation process that can facilitate an assessment of it in all its dimensions.

## **Conclusions**

The CD-LINKS case study exercise reveals that most current policy practices are by and large still light-years away from the ideal of deliberately formulating and weighing different objectives of a policy, and designing it in a way that fully accounts for interactions between goals. Yet insights from these studies also suggest ways forward for improving on the current situation, which can be subsumed in three design principles: complementarity, adaptability, and transparency. These principles have all been previously alluded to for single-objective policies, but they take on new meaning and higher significance for multiple-objective policies. Complementarity stipulates giving up the idea that a single instrument is sufficient to achieve all objectives of a policy. Rather policy portfolios and dedicated design features are needed to properly consider and balance multiple objectives. Adaptability stipulates that policies be designed from their very inception to have the capacity to reform in response to changes. Finally, transparency stipulates that all objectives be continuously monitored and evaluated to assess the effectiveness of a policy under changing interactions and policy goals. These three principles are also interrelated and connect to different stages of the policy process. They thus constitute a framework that can be helpful to design new, and assess existing, multiple objective policies in the future. Putting this framework into action can also be facilitated by new scientific research currently underway that supports multiple criteria decision making, such as work on modelling pathways to achieving multiple SDGs, also undertaken in the CD-

LINKS project. The refinement of decision making frameworks towards a “balance scorecard” approach, as already widely established in the business community, can also provide lessons for the design, implementation and evaluation of multi-objective policies of the future.

**Publication on which this policy brief is based:**

*Pahle M, Schaeffer R, Verdolini E, Borges B, et al. (2018) Report on case studies assessing the effectiveness of existing policies. Deliverable 1.1 of the CD-LINKS project.*

**Other references:**

Pahle, M., Pachauri, S. & Steinbacher, K. (2016) Can the Green Economy deliver it all? Experiences of renewable energy policies with socio-economic objectives. *Applied Energy* **179**, 1331-1341.

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Guo, F. & Pachauri, S. (2017) China's Green Lights Program: A review and assessment. *Energy Policy* **110**, 31-39.

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The overall objective of the Energy Program (ENE) is to understand the nature of alternative future energy transitions, their implications for human well-being and the environment, and how they might be shaped and directed by current and future decision makers.

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About CD-Links:

An important question for policymakers is how individual countries meet the climate targets they agreed to under the Paris Agreement and how they can tie this in with the broader sustainable development agenda.

Linking Climate & Development Policies: Leveraging International Networks & Knowledge Sharing (CD-LINKS) is a 4-year research project funded by the European Union with 19 partners and collaborators from Brazil, China, Europe, India, Japan, Korea, Russia, and the USA. The project explores national and global transformation strategies for climate change and their linkages to a range of sustainable development objectives.

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Horizon 2020 Societal challenge 5:  
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