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How countries can enable 15 transformations to achieve carbon-free prosperity

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More than 70 countries globally have set targets to reach net-zero emissions around mid-century and many others are working on similar goals. Achieving these targets come with the potential to create jobs, improving the economy and the quality of lives—and it is essential to limit global warming to 1.5 to 2 °C, the goal of the Paris Climate Agreement. We know what technologies and behavioural changes can get us there, but many barriers prevent their uptake. A [report just published by IDB and IDDRI](#) analyses 15 key transformations covering electricity, transport, agriculture, land-use, buildings, industry, and waste-management. The report discusses their benefits and obstacles that prevent their implementation. Governments should focus on removing these obstacles and enable the transition towards carbon-free prosperity.

The transition to a net-zero economy comes with the promise of boosting prosperity in developing countries. Benefits of a carbon-free economy include lower energy costs thanks to record-cheap renewable energy, operating savings due to electromobility, the health benefits of avoided air pollution, reduced time wasted in traffic congestion, better health outcomes linked to physical exercise, reduced accidents, and healthier diets, better industrial and agricultural productivity, and ecosystem services including biodiversity preservation, provision of fresh water, and attraction of tourism. These transformations can bring net macroeconomic gains worth several percentage points of GDP, and millions of jobs can be created during the transition if governments align sector strategies, labour regulations, and education policies with climate change goals.

However, decarbonizing is far from easy. Many obstacles prevent the uptake of net-zero solutions. For instance:

- the absence of sidewalks and dedicated lanes and traffic lights can make walking and biking less convenient and more dangerous than driving a car.
- Market design and tariff schemes can disincentivize the use of renewable energy or electric buses despite lower lifetime costs.
- Energy subsidies can incentivize the use of fossil fuels instead of renewables, and the upfront costs of insulating buildings and switching to electric stoves, electric water heaters, and efficient heat pumps pose a significant barrier for most households.
- Farmers can have limited capacity to monitor or improve their use of synthetic fertilizers.
- Most households only have partial information on the relative carbon content and health benefits of different diets.
- The phasing-out of coal, oil, and gas power plants can be made difficult by the negative impacts it has on affected workers and communities, despite the net-positive socioeconomic impacts for society overall.

These examples show what the barriers to a transition to a net-zero economy are: key infrastructure may be missing, regulations may prevent the transition to happen, financing can be difficult, information or the capacity to act may be lacking, and the transition may create winners and losers, which may oppose change. And all these barriers interact in what is called a systemic lock-in.

Governments can remove these barriers and enable the transition to a net-zero economy. For instance, governments can:

- build the sidewalks and bike paths that support safe walking and biking.
- redesign public transport and electricity markets to enable profitable business models for electric bus drivers and renewable energy operators.

- mandate a fraction of new buildings to be well insulated or ready for distributed solar energy, leveraging lower costs at the construction phase, or they can subsidize heat pumps or electric cookstoves.
- refocus their agriculture programs on GHG-conscious practices and inform citizens about healthy diets based on low-emission footprint products.
- ensure workers and communities affected by the downsizing of coal power plants participate in the design of just transition policies and receive compensation and support to adapt.
- use public procurement processes to create markets for green materials and lead the way with electric fleets, energy-efficient public buildings, or environmentally conscious meals in public schools and offices

There is no one-size-fits all. The transition to net-zero emissions economies is a complex and difficult process that cannot be solved by a handful of government agencies or using only one or two policy instruments. It will happen only if countries are able to engage in a 'whole-of-government' approach, where every ministry and all levels of governments, including states and cities, play a role. To decarbonize, countries will need to do so in their own terms, starting from a diagnostic of the challenges they face, their development priorities, and what fiscal space, capacity, and political capital they can use to impulse change. Each country should thus design its own tailor-made action plan to ensure a just and orderly transition to a decarbonized economy that brings net benefits to its firms, households, and communities. To support this agenda, the IADB-IDDRI report compiles evidence from the academic and grey literature on what works to enable [15 key transformations towards a carbon-free economy](#).

The international Deep Decarbonization Pathways network, coordinated by IDDRI and made up of in-country experts from more than 20 countries, notably in the Global South, has supported efforts along these lines in the past decade. Our work has allowed to develop methods to explore techno-economic development pathways, backcasting from mid-century emission and socio-economic objectives to inform short-term investment decisions. It has supported the production of country-driven long-term low emission development strategies, including in-depth investigations of the levers, opportunities and challenges associated with decarbonising complex sectors, such as transport, industry, or agriculture and land-use, that tend to be poorly represented in existing emission reduction plans.

One of the most important lessons we learned concerns the importance of stakeholder engagement. Co-constructing decarbonization scenarios and policy packages to enable them is an essential means for scientific assessments to serve an action agenda. Only an in-depth political debate at national and subnational levels can ensure that national transformation pathways are a robust source of inspiration for all players.

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