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Deep decarbonization in Latin America and the Caribbean: cross-cutting policy lessons

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Deep decarbonization to achieve net-zero CO₂ emissions is technically feasible in Latin America and the Caribbean, and could have large social welfare, economic, air quality, and biodiversity benefits. However, there are significant challenges that must be planned for and overcome. The Long-Term Strategies (LTS) asked for in the Paris Climate Agreement can help inform the policy packages required to meet these

challenges and simultaneously deliver climate goals and development priorities. The Deep Decarbonization Pathways in Latin America and the Caribbean (DDPLAC) project, supported by the Inter-American Development Bank (IDB), the Agence Française de Développement (AFD) and the 2050 Pathways Platform, and managed by IDDRI, was designed to help build local capacity to research LTS design based on strong science and to inform the national policy dialogue. It brought together country teams from Argentina, Colombia, Costa Rica, Ecuador, Mexico, and Peru to: develop energy and land-use modelling capacity; build a modelling community; flesh out existing nationally determined contribution (NDC) scenarios; and develop scientifically robust, country-driven deep decarbonization pathways consistent with the Paris Agreement objective and domestic socio-economic priorities. The project has played a major role in the process of policymakers and other stakeholder engagement towards the elaboration of LTS and in accompanying policies consistent with the Paris Agreement. [A new report from the DDPLAC project published today](#) lays out key policy lessons from this project.

Reaching net-zero CO₂ emissions and large reductions in other greenhouse gases (GHGs) around mid-century are critical to achieve the central Paris Agreement goal of limiting global temperature increase to +1.5-2°C above pre-industrial levels.

The key physical transformations necessary to reach these goals are:

1. Electrification with low-GHG electricity of all feasible sectors, including all buildings, light industry, and urban and intercity personal transport;
2. Mode shifting to non-motorised transport and high use electric vehicles supported by urban planning; curtailment of most new and existing fossil fuel extraction;
3. Low-Carbon agricultural intensification combined with reduced deforestation and afforestation, enabled by reduced meat diets.

Most of the required technologies, especially in transport, buildings and electricity production, already exist, are proven, and are rapidly getting cheaper thanks to global economies of scale and innovation. Alternative zero-carbon fuels such as hydrogen and sustainable biofuels will be required for freight, aviation and parts of heavy industry. All the above will require economy-wide and sectoral policies including: reductions in fossil fuel subsidies and a pricing of energy that reflects carbon intensity; measures to drive electricity generation towards zero-GHG solutions; standards to encourage the electrification of end uses and investment in charging infrastructure; and end-use GHG performance standards—accompanied by appropriate complementary policies.

This is all technically feasible in Latin America and would have very significant benefits, [including the creation of 15 million net new jobs by 2030](#). The case of Costa Rica, where [getting to net-zero emissions would add USD41bn in wealth](#) by 2050, shows that decarbonization can also come with net economic benefits.

There are very real challenges, however. The COVID-19 pandemic has been very hard on the region; there are fast growing transport and energy needs; land-use governance conditions are challenging; many governments are fiscally dependent on oil and gas revenues; and finance can be difficult to mobilise. The Paris Agreement, by design, puts countries firmly in charge of how to define and accomplish their contribution to the global emissions reduction effort, and most of the power to achieve this ambition lies with them.

The majority of countries' current short-term emission pledges under the Paris Agreement lack ambition, either in absolute emission goals to 2025-2030 or in clear articulation of the sectoral, technological and structural transformations that underpin them. LTS, and the process for creating them, can help align short- and long-term emissions goals and map out immediate actions governments should take to get on the path to net-zero emissions.

As a result, NDC updates can be aligned with these long-term goals, and domestic policy package can be formed to deliver the Paris climate goals while meeting other development priorities. With domestic priorities clear, countries can then also see where capacity gaps exist and other areas where international cooperation is needed.

Evaluating near-term emissions targets through the lens of the long-term net-zero goal can also help guide investment decisions for governments and avoid carbon lock-in. For most sectors, driving low emissions technologies with higher upfront capital cost but lower lifecycle cost into the marketplace requires careful policy design and regulation. To meet the financial needs for new transport and energy infrastructure generation capacity, the key challenge will be redirecting existing flows to clean investments and away from high GHG intensity energy infrastructure (natural gas, oil or coal).

Given the role of clean electrification for private transport, light industry, residences and commerce, electricity generation output and GHG intensity must be aligned with the target of net-zero emissions as soon as possible at the national level. Given the life span of power generation plants, this translates into requiring, by policy means appropriate for each country, all new electricity generation to be very low or zero emissions. Planning for this necessary decarbonisation of the electricity sector must take into account the specifics of new power sources (variable wind and solar), the availability of low-carbon generation sources and storage, and accompanying policies that will encourage fossil-fuel phaseout while minimising the early stranding of assets and its socio-economic consequences.

Another crucial aspect of reaching net-zero emissions is reducing deforestation and increasing afforestation. For some countries, this is a matter of domestic political will, requiring the enforcement of existing rules and establishment of new land use rights, especially for indigenous peoples. International support in this area can also help.

The needed transformation will have significant positive and negative impacts on government revenues: volatile revenues from fossil fuel production will fall, but so should fossil fuel subsidies. Developing an LTS can help identify tax reform, investment and policy priorities which can facilitate a more effective balance of net government revenues and reduce balance of payment pressures by enhancing energy independence in some cases. Moreover, the high levels of social inequalities in Latin America and the Caribbean, and the exposure of the most vulnerable population to transition and physical climate risks implies designing specific strategies to ensure a just transition.

In order to initiate these major transformations, it is key to build consensus amongst all stakeholders including those who will either carry out or be strongly affected by the sectoral changes, and to review existing policy frameworks and regulations for consistency with achieving net-zero emissions. Policy for physical investment in general electrification and clean transport must begin as soon as possible; done right, the transition can bring 15 million net jobs in the region by 2030 and generate benefits worth several percentage points of GDP just through avoiding the current loss of productivity in congestion and health impacts from pollution, all hopefully speeding the recovery from the COVID-19 crisis.

You can read more about the policy lessons from DDP-LAC [here](#) and the synthetic results and the individual country papers [here](#).