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Supporting Country Transitions

A World Bank approach

Global actions taken so far to reduce greenhouse gas (GHG) emissions and enhance resilience have been insufficient to constrain climate change and cope with its effects. Global net GHG emissions were approximately 54 Gt CO2e in 2023, the highest level ever. Projections of future global GHG emissions indicate that under current policies, warming will exceed 2°C and could be as high as 3.4°C by 2100.[1] Additionally, adaptation efforts are fragmented, sector-specific, and unequally distributed across regions.[2]
To avert this crisis, countries need to rapidly transition to low-emission, climate resilient economies and develop along low-emission pathways to achieve net zero emissions by mid-century, as envisaged by the 2015 Paris Agreement.

An LTS is a country strategy led by the government that describes opportunities for and a pathway to a low-emission, climate-resilient economy by or around mid-century,[3] consistent with a country's development goals, needs, and constraints, via a whole-of-society transformation. LTSs enable countries' just development by identifying, with robust evidence and analysis, short- and medium- term implementable actions and investment needs to achieve a long-term, economy-wide development vision.

As of November 2024, 74 countries plus the European Union (EU) have communicated an LTS to the United Nations Framework Convention on Climate Change (UNFCCC). Of this total, only 38 are from developing countries, and within that group, only 11 are from the lowest-income countries that are part of the International Development Association (IDA). During COP28, in context of the Global Stocktake, UNFCCC leaders recognized that not enough progress was being made toward the Paris Agreement goals and called for governments "to support systems transformations that mainstream climate resilience and low GHG emissions development [...] building on progress made in every cycle of NDCs." And at COP29, in Azerbaijan, discussions emphasized the need to align countries' NDC targets with long-term pathways consistent with limiting warming to 1.5°C, and that more support is needed for countries to articulate and achieve these plans.

The World Bank and other development partners can play an important role in supporting countries to formulate effective LTSs in a costly, timely and equitable manner. Formulation of an LTS requires expertise in a variety of areas, including stakeholder engagement, policy design, technoeconomic and macroeconomic modeling, and knowledge of different economic sectors, and financial and human resources. Developing countries often lack these capacities and resources, and the World Bank is well-positioned to provide this through in-country presence, policy support, technical assistance, and capacity building.

This document describes the LTS formulation and implementation process developed for use by the World Bank. As existing LTS engagements continue and new engagements are initiated, understanding the key steps of support can help.

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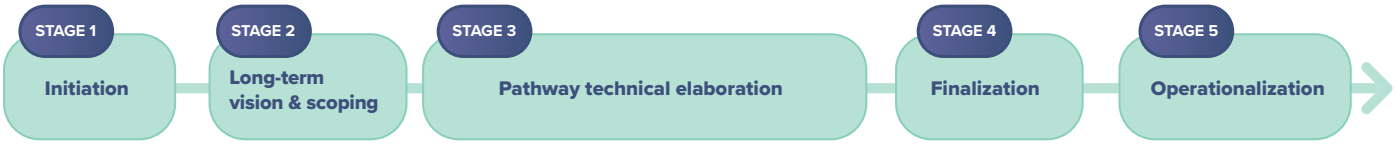
1 UNFCCC. 2023. Technical dialogue of the first global stock take. Synthesis report by the co-facilitators on the technical dialogue. https://unfccc.int/documents/631600?gclid=Cj0KCQiAr8eqBhD3ARIsAIe-buMK5phu0jWUeTUx5QvpGefY1x0n7Spe1eyPnwKvPT7QuxBrAA990h8aAhOgEALw_wcB
2 Ibid.
3 Outcome of the first Global Stocktake https://unfccc.int/documents/637073

LTS Formulation and Implementation Process

There is currently no standard methodology for developing LTSs, and different organizations and academic groups have used various approaches to support the LTSs developed to date. Some notable global institutions supporting LTS development include the MDBs, national development agencies and banks, such as Agence Française de Développement (AFD) and Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), United Nations Development Programme (UNDP), World Resources Institute (WRI), 2050 Pathways Platform, Institute for Sustainable Development and International Relations (IDDRI), Climate Analytics, and other consultancies.

Drawing on well-known principles, World Bank's experience supporting LTS engagements, other sources, and best practice as demonstrated through LTS submissions to date, the document presents a 5-stage LTS formulation process to guide the support to countries in developing LTSs.



- The process begins with an Initiation stage, in which the scope of the LTS support is defined, the LTS leadership and governance structure are established, and an initial stocktaking of existing related plans, policies, and assessments is conducted.

- This is followed by **Long-term Visioning and Scoping**, which can range from a single set of stakeholder engagements to discuss net zero targets, key drivers of emissions, key mitigation options, and potential co-benefits, to a much longer and discrete visioning process that includes multiple rounds of engagement and the development of a detailed long-term vision (LTV) report.

- The **Pathway Technical Elaboration** stage that follows represents the bulk of the quantitative analytics. It includes sector-level pathways development and analysis, macroeconomic assessments, and potential iterations. It also supports stakeholder dialogue to evaluate and consider different pathways to net zero, ultimately selecting one or a few to guide near-term actions.

- During the **Finalization** stage, the results of the Pathway Technical Elaboration are translated into a final technical report and then a policy document prepared and officially approved by the government for submission to the UNFCCC as a formal LTS document.

- The last step, **Operationalization**, continues for many decades. In this stage, near-term actions identified are codified in a country's NDCs, National Development Plans, National Adaptation Plans, etc., and then implemented and periodically updated.

Ideally, climate adaptation, resilience and low-emission planning would be integrated across all the stages of the LTS formulation and implementation. This would ensure consistency in decision-making, increased opportunities to access finance, and leverage synergies such as local capacities.[4]

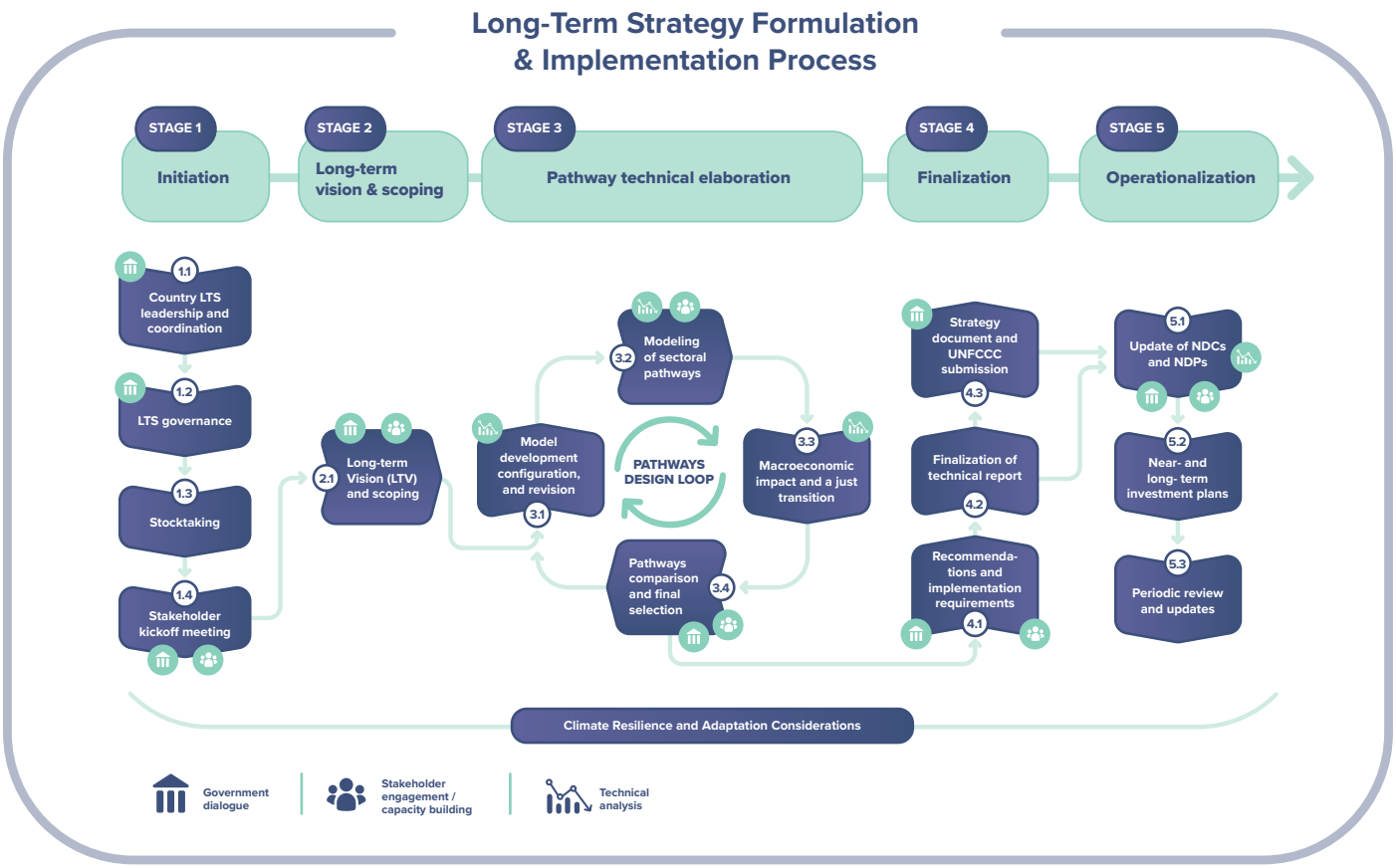
There is no standard methodology, however, on how to address adaptation and resilience in the LTS formulation process. Furthermore the LTSs submitted as of today have approached it in different ways from both a procedural and substantial perspective. Some LTSs follow a joint mitigation-adaptation approach in which development pathways are formulated that address both climate adaptation and resilience needs and a transition to a low emission economy. Other LTSs are not based on analyses that directly link mitigation and adaptation and instead include adaptation as a separate component that reproduces the countries' National Adaptation Plans (NAPs) or other related plans and assessments in the LTS. This is an area where additional work is needed. **Each stage of the process includes a series of activities as illustrated in the figure below and described in more detail in the following sections.** Icons in the figure indicate activities where governmental institutions and/or other stakeholders are engaged, as well as where technical analysis and capacity building can occur. Countries may be at different stages of this LTS formulation and implementation process when receiving new support, and thus the World Bank and other development partners' scope and level of support can vary based on each country's readiness and needs. Note that MDBs and other partners often provide different types of support simultaneously (e.g., technical analysis and capacity building for the "Pathway technical

4 2050 Pathways Platform (2022). Enhancing Long-term Low-Emission Development Strategies: Adaptation and Resilience. https://2050pathways.org/resource-hub/enhancing-long-term-low-emission-development-strategies-adaptation-and-resilience/

elaboration" step) or sequentially (e.g., technical analysis for "Pathway technical elaboration" step followed by technical analysis for the LTS investment plan development during the Operationalization stage).

The time required from initiation of the LTS process to its operationalization can vary substantially. The initiation, long-term vision, and pathway technical elaboration stages can range from 15 to 24 months, depending on a country's readiness (e.g., has governance already been established), availability of data and already calibrated models, and external circumstances (such as changes in government). The stages of finalization and operationalization are highly dependent upon the government's approval process and can take many more months. A suggested timeline for each stage to be used as a reference is indicated below, however, it should be noted that many activities can take place in parallel:

- **Initiation**: 3-5 months
- **Long-term visioning and scoping**: 1-3 months, when taking place as part of the LTS formulation process, although in some cases this effort can be a much longer preparatory stage lasting a year or longer.
- **Pathway technical elaboration**: 10-16 months
- **Finalization**: 3+ months
- **Operationalization**: 12+ months



STAGE 1: INITIATION

Step 1.1: Country LTS Leadership and Coordination

Country leadership and coordination should be established at the onset of the LTS process to secure the country's governmental buy-in and subsequent mainstreaming of the LTS and to establish the basic elements of the LTS development activity. This step includes the following:

- **Securing an official governmental mandate** that gives authorisation to develop (or update) an LTS. Mandates could be a presidential decree, a law, or any other official governmental decision.
- **Identifying a convening leading agency** that helps set up the policy agenda and build the linkage with other countries' priorities.

Establishing a core LTS-delivery team consisting of members from the World Bank country, regional, and global practices, World Bank LTS Global Program team members, and key country officials. Together this team agrees on key project decisions and oversees the day-to-day project tasks.

- **Agreeing on project timeframe.**
- **Procuring technical consultants**, to support stakeholder engagements and perform the needed technical analysis. In many cases, this can be provided directly by the World Bank or other development partners' team.
- **Developing an initial LTS workplan and schedule**

Expected Outcomes:

- Leading agency identified.
- Core LTS Delivery Team established.
- Technical consultants procured as needed.
- Agreement reached on initial work plan and schedule.

Step 1.2: LTS governance

The core LTS delivery team should be supported by a cross-cutting governance structure inclusive of different institutions and levels of government, with clearly defined mandates, roles and responsibilities. A **Steering Committee/Advisory Committee** must be established as an existing cross-sector body or a newly established one to support high-level decisions and provide strategic guidance during the development of the LTS, such as the determination of the priority pathway. **Sectoral task force** or **working groups** can support the process from governmental agencies, academia and NGOs to support data collection, modelling, and assessment of impacts.

Expected Outcomes:

- Steering Committee/Advisory Committee established by the leading governmental agency.
- Sectoral working groups formed by the leading governmental agency.

Step 1.3: Stocktaking

Before initiating the technical elaboration of an LTS, a stocktaking exercise helps to establish a common understanding of the LTS context. This exercise can include the review of existing and planned policies, strategies, and initiatives related to the LTS. These include, for instance, climate change laws or strategies, NDCs, green growth strategies, NDPs, sectoral development plans, adaptation plans, and the World Bank's Country Climate and Development Reports (CCDRs). This stage also includes **stocktaking of stakeholders** that should be informed and consulted during the LTS formulation and implementation process so that the LTS reflects their priorities and concerns.

Expected Outcomes:

- Report summarizing country's context.
- Knowledge sharing events.
- Stakeholders identified and initial stakeholder engagement plan developed.

Step 1.4: Stakeholder Kick-off Meeting

The LTS kick-off meeting serves as the first opportunity in the process to engage the broad group of stakeholders identified in Step 1.3, together with the LTS leadership and governance. The kick-off meeting lays out the objectives, activities, deliverables and timeline of the process and represent an important opportunity to educate stakeholders.

Expected Outcomes:

- Kick-off meeting with stakeholders held and related supporting material developed.

STAGE 2:
LONG-TERM VISION AND SCOPING

Next, the government leaders, with the support of the LTS core delivery team and in consultation with stakeholders, establish a long-term vision (LTV) for its low-emission and resilient transition, and develop the scope for the technical pathway elaboration to follow. The nature of LTV exercises varies, depending on a country's level of readiness and needs and the LTS development timeline. Some countries engage in stepwise, stakeholder-based planning processes that are separate from the LTS formulation process; these can last several months or years. In other cases, the LTV is one stage of the larger LTS engagement structured around a series of sectoral discussions. There are also cases where countries do not engage in a formal LTV exercise but rather consolidate existing and agreed-upon visions, targets, and objectives to guide their LTS.

Expected Outcomes:

- LTV document or report that includes a net zero target, possibly, sectoral visions, indicators, and initial pathways to be explored.

STAGE 3:
PATHWAY TECHNICAL ELABORATION

Once the LTS leadership and governance structure are established and an LTV is defined, the pathways design loop begins, which defines and models possible pathways for the country to achieve net zero emissions.

Step 3.1: Model development, configuration, and revision

Numerical models are used to quantify different pathways to achieve the net zero target or targets established in the LTV. A variety of models exist to estimate changes in GHG emissions, the costs and direct benefits of the required transformations, and additional spillover effects on economic growth, employment, trade flows, other economic parameters accounting for changes in technology evolutions (e.g., cost of technologies) and socio-economic conditions (e.g., price of oil); and other non-direct benefits such as public health, air quality, biodiversity, food or energy security. **Once defined, the model must be configured to represent the specific country's condition and pathways to evaluate.** This includes *calibration* to reflect the best available data; *configuration* to represent at least two pathways (a "Baseline or Reference scenario" that reflects business-as-usual (BAU) conditions and a "Mitigation or Net Zero Pathway or Pathways" that portray possible low emission economic transformations in the sectors to shift the reference emission trajectory and achieve net zero); specification of different future assumptions representing uncertainties of future inherent to a long-term planning effort such as the LTS.

Expected Outcomes:

- Sectoral and macroeconomic models configured to represent country context, low emission transformations and key uncertainties.

Photo: © Joshua Duneebon / Unsplash

Step 3.2: Modeling of sectoral pathways and whole-economy integration

Next the sectoral models are used to evaluate how GHG emissions could evolve under the different pathway assumptions, at what cost, and with what benefits. This is an iterative, analytical, and deliberative process where inputs and review from country's LTS leadership and LTS governance entities are required to ensure that the multitude of factors and uncertainties that can impact different pathways are considered. The sectoral modeling quantifies the following metrics:

- GHG emissions over time by sector and gas.
- Upfront investment costs required in new technologies, infrastructures, practices, skills, and capacities to drive transformations in the mitigation pathway(s).
- Operations & Maintenance (O&M) costs.
- Other benefits from the low-emission pathway(s) (e.g., improved public health, air quality, biodiversity and/or food security, reduced traffic congestion, etc.)

As a result of the sectoral modeling, combinations of sectoral economic transformations under different socio-economic, technology and policy assumptions are explored. More comprehensive sectoral modeling can explore the effects of different assumptions about the future to answer "what-if" questions driven by uncertainties in long term planning.

Lastly, results are integrated to show the whole-economy impacts of the pathways toward the decarbonization target.

Expected Outcomes:

- Sectoral low-emission pathways developed.
- Whole-economy integration of sectoral pathways showing economy-wide shifts of GHG emissions from BAU scenario and associated costs and savings.

Step 3.3: Macroeconomic impacts and a just transition

Macroeconomic models are used next to evaluate the effects of the whole-economy pathways on the broader macroeconomic conditions. They are calibrated based on results of the sectoral modeling and consider the investment costs and benefits triggered by policies or interventions quantified in the sectoral modeling. Low-emission pathways can have positive impacts on the economy by creating new markets and jobs to support the transitions. The macroeconomic modelling can be complemented by more granular analyses of the labor market and should also consider the distributional impacts of the low-emission pathways.

Expected Outcomes:

- Macroeconomic assessment showing impacts of the low-emission pathways on GDP growth, employment, investments, and other indicators.
- Assessment of distributional impacts of low-emission pathway showing population subgroups most affected.

Step 3.4: Pathway Comparison and Final Selection

Once the modeling exercise is completed, the impacts of the modeled pathways are holistically evaluated. A side-by-side comparison of GHG emission impacts, costs, benefits and macroeconomic effects should be conducted, factoring also other considerations such as implementation barriers already identified and synergies with other country priorities. **One preferred low-emission pathway is then selected in consultation with the LTS leadership and stakeholders.**

Expected Outcomes:

- Comparison of overall costs, benefits, constraints and other considerations of different pathways.
- Final pathway selected and formulated with detailed interventions and narrative/storyline.

STAGE 4: FINALIZATION

In the finalization stage, additional steps are taken to develop a final strategy from the identified and modeled pathway from Stage 3.

Step 4.1: Recommendations and Implementation Requirements

A set of recommendations are defined by the project team in consultation with the LTS leadership and stakeholders. They should include policy instruments that the Government should adopt to support implementation, such as laws, regulations, codes, and tax breaks, as well as the investments that the Government should make such as transmission and distribution grid upgrades, electric vehicle charging infrastructure. They include also a series of requirements that add important details necessary for its implementation such as i capacity needs, technical interventions needed and initial MRV system.

Expected Outcomes:

- Recommendations developed and implementation requirements identified.
- Initial capacity assessment conducted.
- Initial MRV framework laid out.

Step 4.2: Finalization of the technical report

The selected low-emission pathway, modeling results, policy recommendations, and implementation requirements are presented in a final technical report. The report should lay out the process followed to develop the low-emission pathway, including a description of the LTS leadership and governance, the engagement with stakeholders, the modeling systems, and key data sources and assumptions. The storyline of key economic transformations to achieve net zero should be presented.

Expected Outcomes:

- Final technical report developed and submitted to the country's leadership.

Step 4.3: Strategy document and submission to the UNFCCC

The technical report should then be translated into a policy strategy document by the government, officially approved, and then possibly submitted to the UNFCCC. The UNFCCC does not provide guidance on the contents of the LTSs and they usually vary significantly in terms of style and length (e.g., a text-only or illustrated with tables, graphs, and visuals; concise and deferring details to external material or elaborate and self-contained) or level of detail (e.g., high-level or detailed with quantified goals and policies; single or multiple pathways to reach net-zero).

Expected Outcomes:

- Strategy document developed by the country and approved.
- LTS document submitted to the UNFCCC.

STAGE 5: OPERATIONALIZATION

Once finalized and submitted to the UNFCCC, the LTS is operationalized by the country.

Step 5.1: Update of NDCs and NDPs

A key mechanism for operationalizing the identified long-term sectoral transformations is through shorter-term NDCs and NDPs. Guided by the long-term development pathway from the LTS, the short-term targets and actions in the NDCs and NDP can be adjusted to align with the LTS's long-term vision and targets. Short-term investment decisions made under the NDCs and NDPs should facilitate the long-term interventions and investments required under the LTS. **LTSs can also serve as framework and guidance for national and sectoral development plans**. If NDPs are aligned with the LTSs, they can provide a strong political signal for the LTS implementation by ensuring consistency with the country's broader investment decisions in related areas such as health and education.

Expected Outcomes:

- NDC and NDP revised and aligned with the LTS.
- NDC and NDP processes aligned with the LTS process.

Step 5.2: Near- and long-term investment plans

Developing both near- and long-term investment plans are a necessary to implement an LTS and support financing mobilization. Investment plans outline specific projects to implement LTS actions, including timelines, sequencing, and activities. They detail technical assistance and capacity building needed for implementation, ensuring related financial resources are considered in subsequent financial analysis. The plans provide a financial analysis of investment needs, return rates, and risks for projects, and identify barriers and policies to overcome them. Additionally, they include a resource mobilization strategy. **Importantly, the development of the LTS investment plan should be led by the governmental body empowered to oversee the implementation of the LTS.**

Expected Outcomes:

- Near- and long-term Investment plans developed.

Step 5.3: Periodic Review and Updates

Regular reviews and updates of the LTS are crucial due to its long-term nature and inherent uncertainties. They enable LTSs to reflect improved data or modeling capabilities, technology breakthroughs, changes in the socio-economic context, local capacities and/or climate impacts, as well as geopolitical events and other countries' specific needs and priorities. The review and update of the LTS should be conducted periodically and should be aligned with other governmental monitoring, reporting and verification processes, including the NDC 5-year revision cycle to leverage data, resources and capacities and ensure consistency of results and updates.

Developing an LTS provides countries with important opportunities to consider different ways to transition along a resilient, net-zero development and then to select a pathway appropriate for a countries' context. However, countries often lack capacities and resources needed to develop and then implement an LTS. The World Bank and other MDBs are well-positioned to provide the technical expertise and capacities needed.

This document provided concrete guidance on the process for LTS formulation and implementation to support World Bank and other development partners. It presents a flexible, 5-stage process that includes methods, activities and expected outcomes, recognizing that countries might be at different stages of the process and have different levels of readiness.

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