

The background of the cover page is a photograph of a forest. The top half shows a dense canopy of green leaves with sunlight filtering through. The bottom half shows a dirt path winding through a forest of tall, thin trees with reddish-brown bark. A solid red horizontal bar is positioned between the top and bottom images.

# ALIGNING NDCS AND LT-LEDs: A STEP-BY-STEP GUIDE FOR PRACTITIONERS



## IMPRINT

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### Registered offices:

Bonn and Eschborn, Germany

Friedrich-Ebert-Allee 40  
53113 Bonn, Germany  
T +49 228 44 60-0  
F +49 228 44 60-17 66

Dag-Hammarskjöld-Weg 1 – 5  
65760 Eschborn, Deutschland  
T +49 6196 79 – 0  
F +49 6196 79 – 11 15

E [info@giz.de](mailto:info@giz.de)  
I [www.giz.de](http://www.giz.de)

### Author:

Julia Gross (adelphi consult GmbH), Daniel  
Forster, Dominic Sheldon (Ricardo E&E)

### Contributors:

Roziya Wloch, Oscar Zarzo Fuertes (GIZ), Stelios  
Grafakos, Shivenes Shammugam, Basil Oberhol-  
zer, Diana Quezada (GGGI)

### Responsible:

Anna Schreyoegg, Head of the IKI Support Project  
for the Implementation of the Paris Agreement  
(SPA)

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## Summary

This guide provides a practical framework for the alignment of Nationally Determined Contributions (NDCs) with Long-Term Low Emission Development Strategies (LT-LEDS) to ensure a coherent and effective pathway towards low-emission and climate-resilient development. It outlines key stages and steps of alignment, including creating aligned governance and stakeholder engagement mechanisms, shaping a clear mid-century vision that would inform short-term targets and policies that avoid carbon lock-in, ensuring consistency between near-term actions and long-term objectives, and aligning financial planning and monitoring systems for both policy documents. The alignment process can be flexible, allowing the order of the steps to be tailored to a country's specific needs, policy processes, and circumstances. The guide is designed to support not only countries that already have LT-LEDS in place but also those that are in the process of developing them or have not yet started. The guide provides a number of good practice examples from different countries on various aspects of NDCs and LT-LEDS alignment.



# Definitions

## Definitions of long-term low-emission and climate resilience objectives:

- **Carbon neutrality/net-zero CO<sub>2</sub> emissions:** A condition in which anthropogenic CO<sub>2</sub> emissions are less than or equal to anthropogenic CO<sub>2</sub> removals over a specific period (IPCC 2018a, 2023).
- **Climate neutrality:** An even broader concept which considers the impact of anthropogenic activities on the entire climate system. This considers not only Greenhouse gas (GHG) emissions, but also biophysical effects of human activities that have an impact on the climate system, such as changes in surface albedo (IPCC 2018a). While this concept was used in previous reports by Intergovernmental Panel on Climate Change (IPCC), it does not appear in the latest one published in 2023.
- **GHG emissions neutrality/net-zero GHG emissions:** A condition in which anthropogenic GHG emissions are less than or equal to anthropogenic removals over a specific period. This is a broader concept than carbon neutrality as it considers not only CO<sub>2</sub>, but also other GHG gases such as methane (CH<sub>4</sub>) and nitrous oxide (N<sub>2</sub>O). This concept depends on a specific metric of equivalency to compare the emissions of different gases (i.e.: CO<sub>2</sub> equivalent, global warming potential) (IPCC 2018a, 2023).
- **GHG emissions neutrality vs. net-zero GHG emissions:** At the global scale, GHG emissions neutrality and net-zero GHG emissions are equivalent. At the sub-global scale (regional, national, sub-national), net-zero can refer to territorial emissions, that is emissions and removals under the direct control of the territory. On the other hand, neutrality usually includes both imported/indirect emissions and territorial emissions (IPCC 2023). While the latest IPCC synthesis report distinguishes between GHG emissions neutrality and net-zero GHG emissions, the two concepts are often used interchangeably.

- **Note:** The concepts of climate/GHG/carbon neutrality or net-zero are not concepts that are precisely defined, and different IPCC reports show that the definition of the concepts may shift slightly over the years. One country's net-zero might not be equivalent to another country's net-zero if it is not calculated in the same way. To be transparent, it is important for every country to communicate the type of emissions considered, which metric of equivalency was used (if any), the geographical area and time frame considered, and whether territorial or imported emissions were considered.

**Alignment:** Process of identifying synergies among policy processes with common objectives to increase coherence, efficiency and effectiveness for improved outcomes. Alignment can increase: coherence, by facilitating analysis of shared objectives, co-benefits and tradeoffs between differing objectives, leading to more strategic investments and ensuring that efforts in one area do not undermine progress in another; efficiency, by avoiding duplication of efforts and enabling smart use of resources, including finance and human resources; effectiveness, by approaching [low-emission and] climate-resilient development in an integrated way, leading to improved quality of planning, implementation, and measurement and evaluation processes for better results (Dazé 2018).

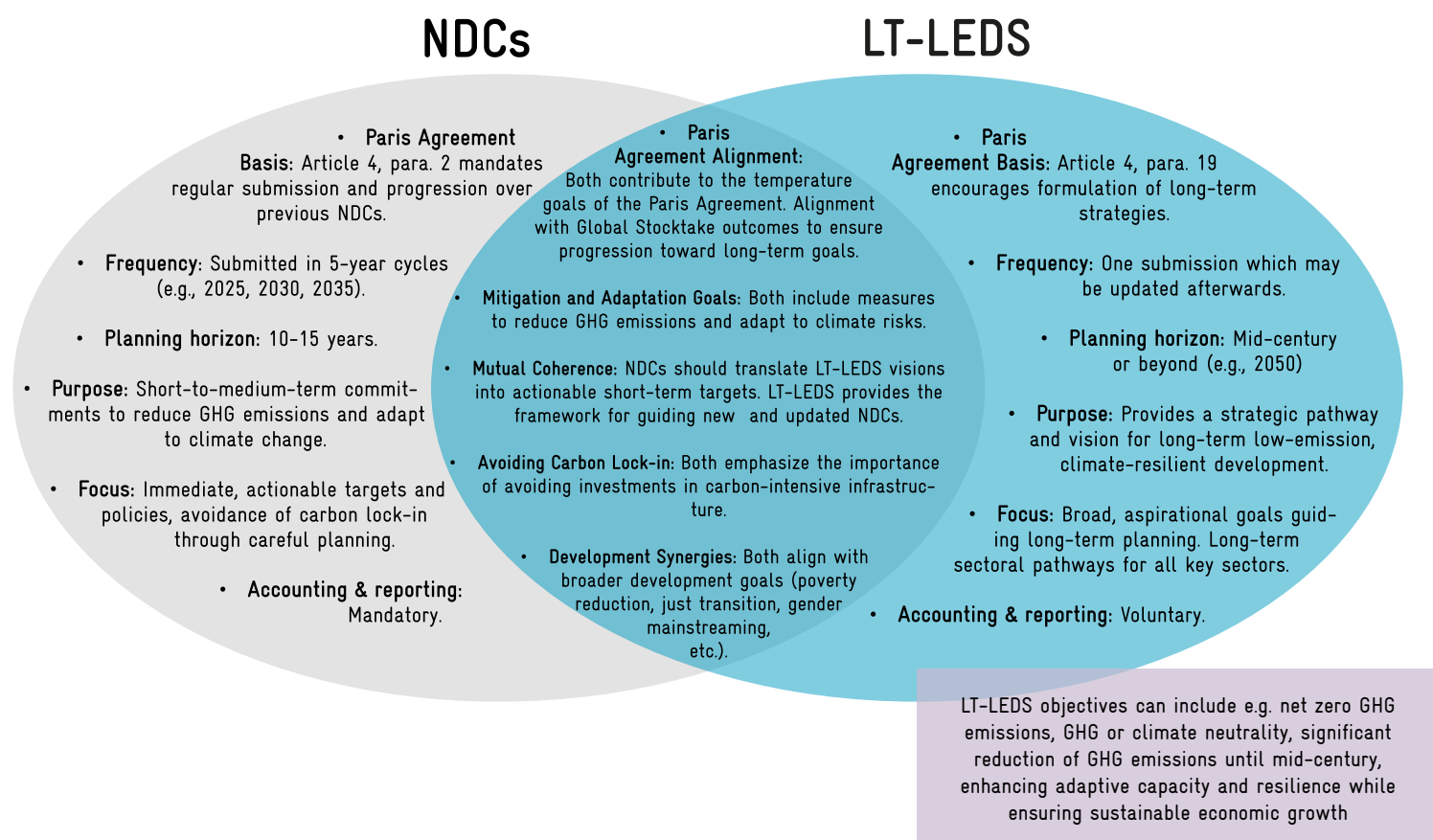
**Just Transition:** A set of principles, processes and practices that aim to ensure that no people, workers, places, sectors, countries or regions are left behind in the transition from a high carbon to a low carbon economy. Just Transition is a political concept for structural change towards a climate-neutral, resilient and socially just economy. Ecological, economic and social challenges are given equal consideration in the transition process, with a special focus on vulnerable population groups. The aim is to leave no one behind in the structural change required for this, neither individuals nor states nor future generations (Federal Ministry for Economic Cooperation and Development of Germany - BMZ, 2025).

# 1 Introduction and Rationale for Alignment

The Paris Agreement (Article 4, para. 2) requires each Party to prepare, communicate and maintain successive **Nationally Determined Contributions (NDCs)** that are submitted to the UNFCCC Secretariat every five years (e.g. by 2025, 2030, 2035). Successive NDCs need to represent a progression compared to the previous NDCs and reflect the highest possible ambition of a country.<sup>1</sup> At the same time, according to Article 4, para. 19, of the Paris Agreement, all Parties should strive to formulate and communicate **Long-term Low Greenhouse Gas Emission Development Strategies (LT-LEDS)** towards just transitions to net zero emissions by or around mid-

century, taking into account different national circumstances.<sup>2</sup> Whereas NDCs represent countries' short-to-medium-term commitments to reducing emissions and adapting to climate change, LT-LEDS outline the strategic pathway and vision toward low-emission and climate-resilient development by mid-century. The Conference of the Parties serving as the meeting of the Parties to the Paris Agreement (CMA) by its decision 1/CMA5, para. 40, encourages Parties to align their next NDCs with LT-LEDS. Aligning them is crucial as the NDCs need to translate the long-term vision outlined in LT-LEDS into actionable short- and medium-term goals.

Figure 1: NDC vs. LT-LEDS: Commonalities and Differences



Source: adelphi consult GmbH/Ricardo

<sup>1</sup> [Nationally Determined Contributions \(NDCs\) | UNFCCC](#)

<sup>2</sup> [Long-term strategies portal | UNFCCC](#)



Strategies and actions for short-term emissions reductions are not necessarily the same as those needed for long-term low-emission and climate-resilient development. In fact, it is possible that short-term action hinders long-term action through what is known as carbon lock-in. In the short-term, measures might focus on easily achievable, cost-effective actions that deliver quick emission cuts. However, these solutions are often transitional and require shifting to another solution later to keep reducing emissions. By making significant investments in short-term solutions without considering the long-term perspective, countries risk locking themselves into carbon-intensive systems that are difficult and expensive to replace or retrofit later. If near-term policy packages are designed without a clear link to mid-century objectives, they may achieve temporary reductions without triggering the deep structural changes needed for long-term emissions reduction. In such cases, improvements seen in the short-term could be offset later by the inertia of existing high-emission infrastructure and practices that were not phased out.

### Examples of carbon lock-in

Countries may invest in natural gas-fired power plants, pipelines, and liquefied natural gas (LNG) terminals as a „bridge“ to a low-carbon future. These projects are seen as a way to reduce emissions quickly by replacing coal-fired power plants. These facilities typically have lifespans of 30–50 years. Once built, the infrastructure creates an economic and political lock-in, as countries and companies seek to recover their investments. This slows down the adoption of renewable energy sources and storage technologies. The result is a dependency on natural gas, which continues to emit greenhouse gases, making it harder for countries to meet net-zero targets by mid-century.

Another example of carbon lock-in can occur in afforestation projects that prioritise fast-growing monoculture plantations (e.g., eucalyptus or pine) over diverse, native forests. Monoculture plantations are often chosen because they grow quickly and sequester carbon in the short-term. They are also economically attractive for timber and paper industries. However, these plantations can degrade soil health, reduce biodiversity, and be more vulnerable to pests, diseases, and climate change impacts like droughts or fires (Jana 2024; Hutchison 2018). Additionally, they may release stored carbon if harvested or

destroyed. By focusing on short-term carbon sequestration without considering ecosystem resilience, countries risk creating unsustainable forestry systems that fail to deliver long-term climate benefits.

Along with low-emission development, another key element of both NDCs and LT-LEDS is adaptation to climate change, including reducing vulnerability and exposure, and, where possible, mitigating hazards. Prioritizing adaptation is particularly important for highly vulnerable countries. The vision and goals of both NDCs and LT-LEDS should also be aligned with **wider development objectives** such as economic growth, poverty reduction, a healthy environment, improved education, food security, human health, etc. NDCs and LT-LEDS should be aligned in the way they leverage climate action as a vehicle for achieving social development goals such as decent employment creation and human capital development through skills, and in how they mainstream gender aspects.

Aligning the NDCs and LT-LEDS may increase the credibility of the country's climate ambition and provide the stability and reassurance needed for **leveraging climate finance and increasing investment** by the private sector. From a **technology** point of view, considering long-term mitigation options when designing short-term goals can highlight areas where short-term action is necessary to unlock later, long-term mitigation options (for example, research and development for carbon capture, utilisation and storage (CCUS) technology).

Ideally, the development and revision of LT-LEDS and NDCs should be conceptualized as **a single process**, rather than two distinct and disconnected processes. In addition to ensuring alignment, this has the advantage of making the processes more efficient and streamlined, which can reduce costs and decrease the duplication of work. This implies that the same institution or even the same team of experts should be responsible for developing both documents.

The short- and medium-term actions outlined in the NDC should, ideally, be derived directly from the long-term vision outlined in the LT-LEDS. **However, in practice, it is not always possible to develop or revise the NDCs and LT-LEDS simultaneously or develop the long-term strategy prior to the NDC**, be it due to limited time, resources, staff or other reasons (Levin and Fransen 2019).

75 countries and the EU have long-term strategies.<sup>3</sup> 23 NDCs 3.0 have been submitted as of June 17, 2025. Deadline for NDC submissions is September 2025.<sup>4</sup>

This guide provides assistance for all three potential cases: **1) for countries that already have LT-LEDS and are developing their new NDC submissions; 2) for countries that are developing their NDCs and LT-LEDS in parallel; and 3) for countries that prioritize the NDC but want to develop an LT-LEDS at a later stage.** The first case is the least challenging because it enables a back-casting approach, in which a clear, long-term vision serves to inform the medium- and short-term targets set in the NDC. This approach ensures that lock-in is avoided and considers path-dependency – that actions in the short-term fundamentally shape longer-term policies. However, even in case of separately running NDC and LT-LEDS processes, there are numerous options for alignment including governance, target setting, data collection, modeling, stakeholder engagement and other processes that can be conducted in a manner that benefits both NDC enhancement and the development of an LT-LEDS (Levin and Fransen 2019).

In addition to aligning the process to the extent possible under political circumstances, **aligning the content** of the LT-LEDS and the NDCs is crucial to avoid any potential contradictions in vision elements, targets, data, assumptions or scenarios. This guide, therefore, focuses on **both content and process alignment**, combining both aspects. The alignment of content has an objective to ensure that climate action in both documents is mutually coherent, based on common data, common or comparable modeling and can be achieved with the same development pathway. Even if the NDC is updated prior to the LT-LEDS development, the lead institution needs to ensure that short-term actions are not locking in a trajectory that makes long-term goals challenging or impossible to achieve. On the contrary, the NDC needs to facilitate the achievement of long-term development, emissions reduction and resilience goals (Levin and Fransen 2019) compatible with the outcomes of the Global Stocktake and the long-term goals of the Paris Agreement.

While this guide is leading the reader through the general stages of the NDC and LT-LEDS development processes, its **key focus is on concrete steps that need to be undertaken to align the two documents and related processes** at each of those stages. It is worth mentioning that the **sequence of the steps might vary** depending on specific country priorities, needs and established procedures.

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<sup>3</sup> [Long-term strategies portal | UNFCCC](#)

<sup>4</sup> [Nationally Determined Contributions \(NDCs\) | UNFCCC](#)

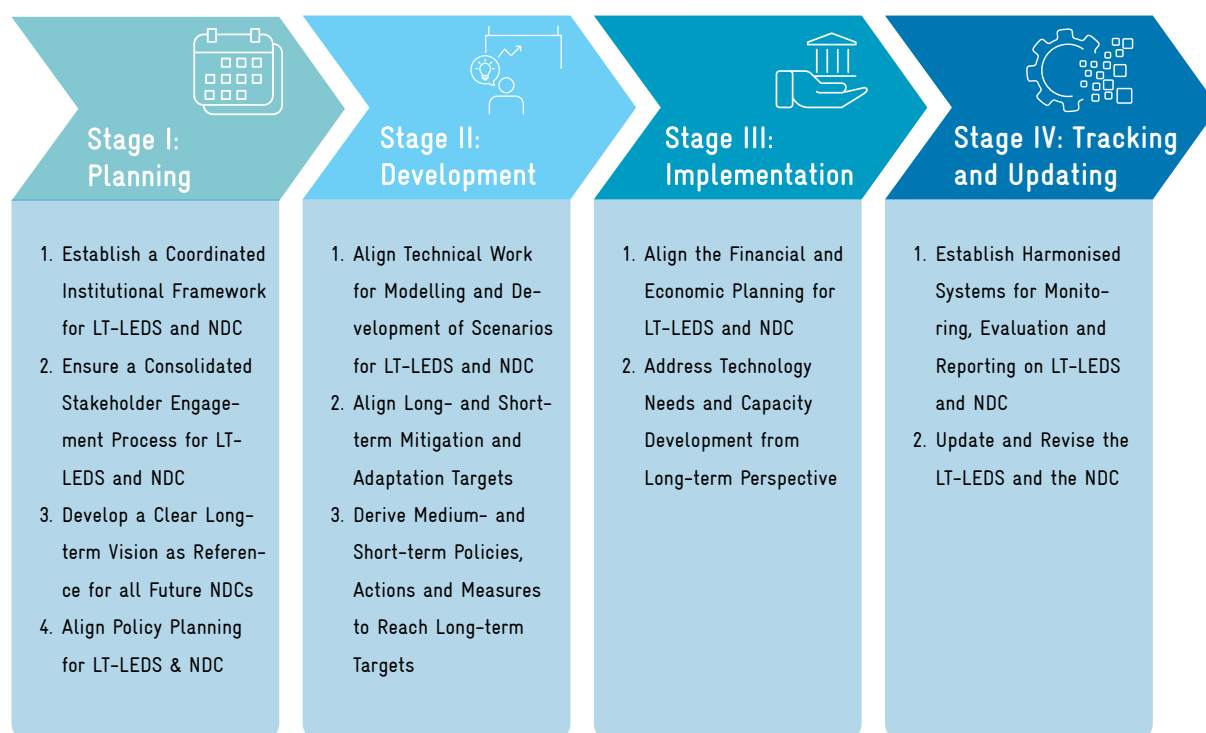


## 2 Steps to Align LT-LEDS and NDCs

Alignment of LT-LEDS and NDCs is important at all stages in the life cycle of these documents and their associated development processes. The key steps for alignment are described below for each of the following

stages: planning (Stage I), development (Stage II), implementation (Stage III) and tracking and updating (Stage IV). In practice, countries will be at different stages (e.g. some may already have developed an LT-LEDS, but for others an LT-LEDS may still be at the planning stage) so the steps have been designed to provide practical actions that can be tailored to each country's own circumstances.

Figure 2: Stages of Alignment



Source: adelphi consult GmbH/Ricardo

### Stage I: Planning

1. Establish a Coordinated Institutional Framework for LT-LEDS and NDC
2. Ensure a Consolidated Stakeholder Engagement Process for LT-LEDS and NDC
3. Develop a Clear Long-term Vision as Reference for all Future NDCs
4. Align Policy Planning for LT-LEDS & NDC



#### Step 1: Establish a Coordinated Institutional Framework for LT-LEDS & NDC

- Designate (or, if needed, create) a **dedicated body** (e.g., Department of Climate Change within the Ministry of Environment) responsible for the **coordination of both the LT-LEDS and NDC**. This body will need to: 1) ensure that the NDC process and the process of drafting (or, if already drafted, updating) the LT-LEDS are aligned to the extent possible, and 2) ensure that the technical content of both documents is aligned. An important part of this coordination role is the facilitation of cross-mi-

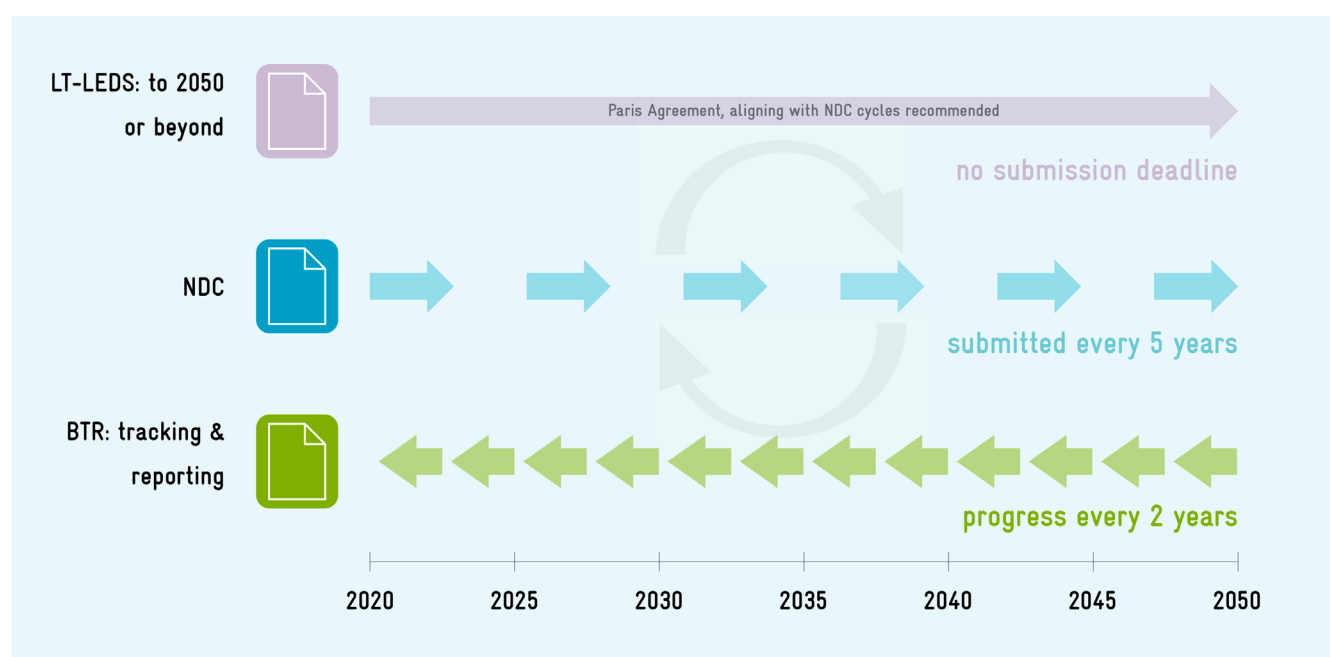
nisterial inputs to the development of both documents. If the two processes are not developed in parallel and a dedicated coordination body already exists for the NDC process, the LT-LEDs development process should utilise the same body. The same applies vice versa. If an LT-LEDs coordination body already exists, the NDC process should utilise it to ensure maximum alignment between the two processes and documents.

- Make sure that there are **cross-sectoral or interministerial coordination mechanisms** in place (or establish them, if not yet the case) to obtain timely inputs from and inform sectoral focal points from all relevant ministries (energy, agriculture, forestry, transport, industry, health, buildings, etc.), as well as local government representatives, private sector stakeholders, civil society and other relevant stakeholders. This coordination will be key to align the NDC and LT-LEDs with sectoral policies and avoid conflicting measures in different sectors. The coordination needs to take place regularly (e.g. meeting every month) and allowing for ad-hoc meetings when necessary. If the two processes are not developed in parallel and coordination mechanisms already exist for the NDC process, the LT-LEDs development process should utilise the same mechanisms. The same applies vice versa. If cross-sectoral coordination mechanisms already exist for LT-LEDs, the NDC revision process should utilise them to ensure maximum alignment between the two processes and documents.
- To the extent possible, **synchronize timelines and future review cycles** of the NDC process and drafting/updating the LT-LEDs to facilitate consistency. If possible, develop the LT-LEDs before the next NDC (or in parallel with the NDC update). When developing a timeline for regular NDC and LT-LEDs updates, make sure that it also aligns with the Global Stocktake (GST) under the Paris Agreement so that the NDC can reflect and respond to the outcomes of the GST.
- To the extent possible, secure **political leadership at the highest levels** to ensure long-term policy continuity.
- To the extent possible, **align the NDC/LT-LEDs processes with other national policy processes** (e.g. national climate adaptation, biodiversity or other sectoral planning documents) and ensure that Biennial Transparency Reports (BTRs) effectively track NDC implementation and provide the in-

formation basis for updating and enhancing NDC targets. While the NDC/LT-LEDs processes do not need to be fully aligned with the BTR process, it is important that BTR indicators reflect NDC targets to enable effective tracking and reporting, thereby informing subsequent updates to both NDCs and LT-LEDs.



Figure 3: Interrelation between LT-LEDs, NDCs and BTRs



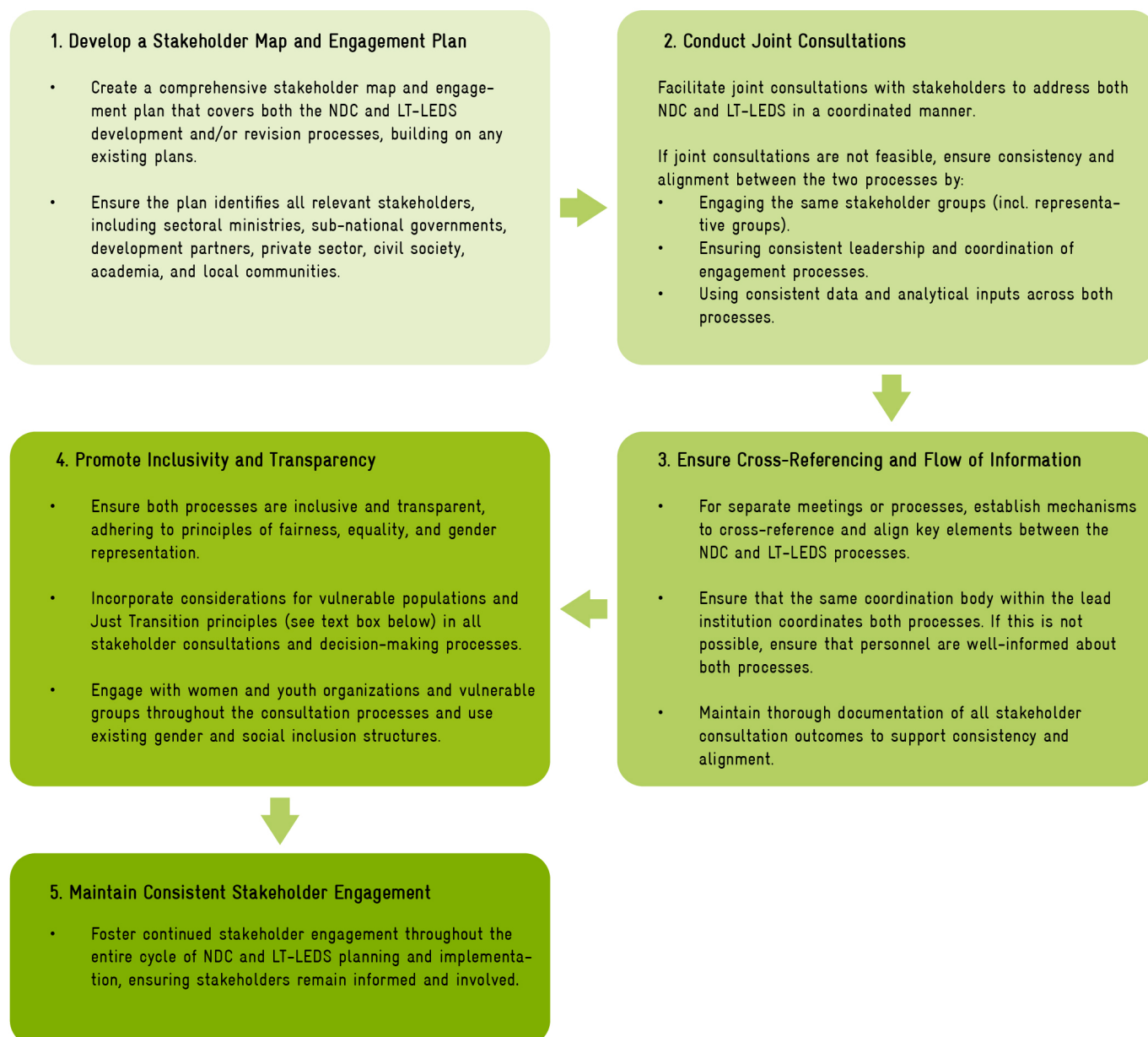
The graphic illustrates the frequency of submissions and their perspective (forward-looking target-setting, such as the NDCs and the LT-LEDs, and backward-looking reporting and progress tracking, such as the BTRs).

Source: adelphi consult GmbH/Ricardo

In **Thailand**, the Department of Climate Change and the Environment (DCCE) is the central coordinating body for both LT-LEDs and NDC. It ensures that all ministries align their sectoral plans with the national climate targets. Each ministry has dedicated teams for climate issues, who meet regularly with the DCCE for efficient coordination and communication. Regular stakeholder consultations, involving inter-ministerial working groups, the Subcommittee on Climate Change Policy and Planning, the National Committee on Climate Change Policy and broader public, are integral to the policy development process. The DCCE plays a crucial role in compiling and synchronising various sectoral plans to develop the NDC Action Plan aligned with the LT-LEDs. It is also responsible for formulating targets, implementation plans and tracking progress for the LT-LEDs, NDC and the National Adaptation Plan (NAP). Thailand's case demonstrates a robust institutional structure and fixed coordination procedures for the development and approval of all climate strategies (Gross and Ivleva 2024).

## Step 2: Ensure a Consolidated Stakeholder Engagement Process for LT-LEDS & NDC

Figure 4: Ensure a Consolidated Stakeholder Engagement Process for LT-LEDS



Source: adelphi consult GmbH/Ricardo



**Chile's** NDC 2.0 includes a social pillar that contemplates the synergy of each commitment with Sustainable Development Goals (SDGs). It also incorporates specific criteria and commitments regarding equity and gender equality, fair transition, active participation, ancestral knowledge and water security. This social pillar is also reflected and reinforced in the Long-Term Climate Strategy. Both the NDC 2.0 and the LT-LEDS refer to the Fair Transition Strategy that aims to ensure that Chile's energy transition towards carbon neutrality incorporates fair and equitable social and environmental development, promotes the creation of jobs that improve people's quality of life, and improves environmental conditions in the territories where energy infrastructure is located. (Chile's Long-term Climate Strategy: The Path to Climate Neutrality and Resilience by 2050, 2021).

In **Burkina Faso**, gender focal points from relevant ministries (e.g., energy, transport, agriculture) who had previously been established in the NDC revision process of Burkina Faso, formed a gender technical group and played an important role of integrating available sectoral data, facilitated participation of local-level actors, and reviewed all the sectoral climate interventions from a gender and social inclusion perspective. Strategic entry points were identified for integration of gender into the LT-LEDS, particularly by focusing on the green jobs assessments associated with the Net Zero and climate resilient targets. Pathways for ensuring readiness of the workforce were identified, particularly for women and youth in accessing future green jobs (Grafakos, et al. 2023).

### Step 3: Develop a Clear Long-term Vision as Reference for all Future NDCs

If the country already has developed a long-term vision and objectives, they can inform the choice of NDC targets and sectoral actions, which will bring alignment between short-, medium- and long-term planning. If a country has not yet started the LT-LEDS development, the NDC will need to be updated without being guided by an agreed long-term vision and strategy. In this case, it can be worthwhile to conduct analysis and discuss with stakeholders how the NDC can be aligned with the necessary transitions to achieve the country's development goals and the goals of the Paris Agreement. Short-term policies and investments outlined in the NDC should not lock in carbon-intensive technologies,

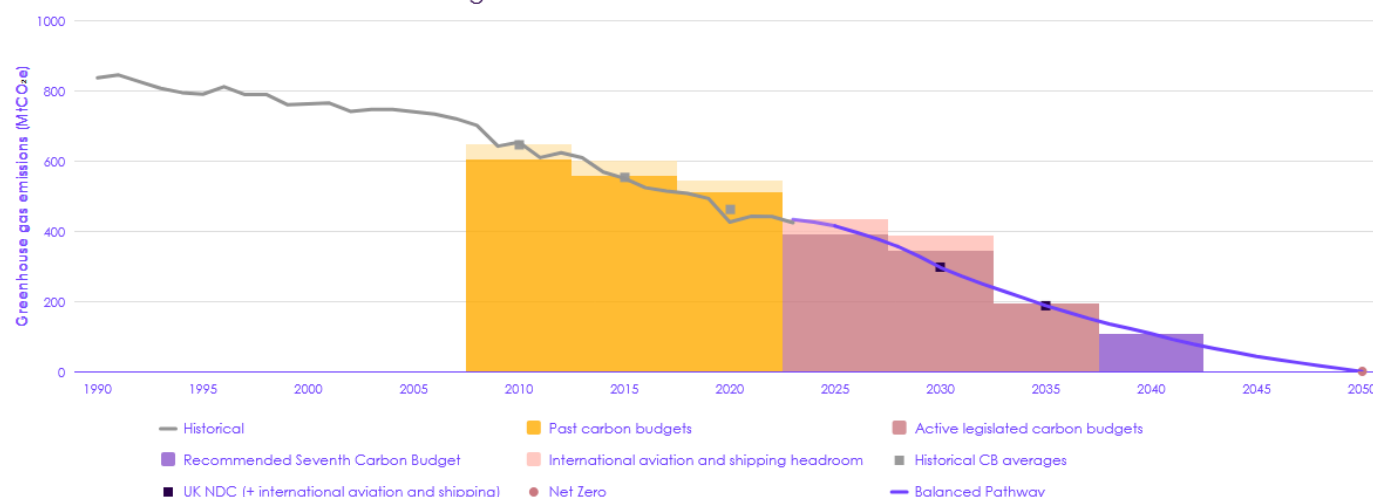
infrastructure and action, which would make any future long-term goals challenging or impossible to achieve (Levin and Fransen 2019).

- **Define the national economy-wide long-term-low-emission and climate resilient pathway/vision** (e.g. until 2050 or 2060) aligned with the Paris Agreement's overarching temperature goals:
  - As part of the LT-LEDS development process, agree a long-term climate vision for a country, and any associated targets or goals, which recognise the need to both limit GHG emissions and enhance climate resilience.
  - Once agreed, use the long-term climate vision, goals and any pathways developed as part of the process to inform the NDC process. Use LT-LEDS as a reference framework for defining NDC priorities.
- In case there is no LT-LEDS in place yet, **conduct an analysis and discuss with stakeholders** how the NDC can be aligned with the necessary transitions to achieve the country's development goals and the long-term goals of the Paris Agreement and avoid carbon lock-ins and unsustainable practices.
- **Identify key sectoral milestones** to determine what is needed in the short-term for achieving the long-term vision (e.g. net-zero emissions).
- **Integrate Just Transition principles** in the long- and short-term vision to ensure economic and social stability and inclusiveness.

The **United Kingdom's** (UK) Climate Change Act (2008) sets the framework for domestic action to address climate change mitigation and adaptation. The Act requires the Government to propose regular, legally binding milestones on the way to achieving Net Zero GHG emissions, known as carbon budgets. The UK has committed to reach Net Zero GHG emissions by 2050, with any residual emissions balanced by removals. The "Balanced Pathway" has been developed to determine an emissions reduction pathway from 2025 to Net Zero by 2050. It is in line with all of the UK's already legislated carbon budgets and NDCs (Climate Change Committee 2025).

Figure 5: United Kingdom's Seventh Carbon Budget

#### The recommended Seventh Carbon Budget



Description: The Balanced Pathway meets the UK's existing future emissions targets and sets the recommended level for the UK's next target: the Seventh Carbon Budget.

Source: Department for Energy Security and Net Zero (DESNZ) (2024) Provisional UK greenhouse gas emissions national statistics 2023; DESNZ (2024) Final UK greenhouse gas emissions national statistics: 1990 to 2022; Climate Change Committee (CCC) analysis.

Notes: See Chapter 3. "CB" refers to the UK's carbon budget. "CB1" refers to the First Carbon Budget; subsequent numbers refer to subsequent carbon budgets. "UK NDC" refers to the UK's Nationally Determined Contributions.

Source: <https://www.theccc.org.uk/publication/the-seventh-carbon-budget/#the-seventh-carbon-budget>

#### Step 4: Align Policy Planning for LT-LEDS & NDC

- While planning the NDC/LT-LEDS, **take into account existing national policies** such as development plans, climate strategies, sectoral policies (e.g. in developing mitigation scenarios/adaptation pathways) to achieve consistency in policy planning (e.g. for business-as-usual (BAU) scenarios to be consistent). Ensure that the long- and short-term vision developed is fully aligned with the country's development policies and other national priorities and socio-economic contexts.
- Ensure the **inclusion of human capital skills development and capacity development** components throughout different climate change mitigation and adaptation actions. Secure the allocation of climate finance to ensure that the workforce is prepared to carry out necessary climate actions.
- Mainstream climate into relevant sectoral plans and strategies**, by ensuring that the mitigation and adaptation goals of the NDCs and LT-LEDS (if a country has it) are reflected in relevant plans.

It is highly important to avoid discrepancies between national targets such as climate policy objectives and targets at the sectoral level. For example, this can be the case if a country includes an ambitious renewable energy goal in its NDC (e.g. 70% share of renewables by 2035) but the

energy strategy foresees a significant share of fossil fuels for the same period. Or vice versa, the energy strategy goal is to achieve 100% renewables in the energy mix by 2050 while the NDC considers a large share of fossil fuels by 2035.

**Morocco's** LT-LEDS is aligned with both the international objectives of the Paris Agreement and the results of the GST, as well as with the goals set by the national sustainable development strategy, the orientations of the New Development Model Morocco 2035, the National Strategic Adaptation Plan, Morocco's new green hydrogen initiative and new sectoral policies (Pérez Català et al. 2024).

**Nigeria's** Long-term Vision (LTV) 2050 was the visioning approach which represented the preparatory phase for the development of the full long-term strategy (LT-LEDS). After the adoption of the Climate Change Act (2021), the NDC update (2021) and the Energy Transition Plan (2022), the LTV was replaced with the LT-LEDS 2060 in 2023. This change marked an upgrade from a rather aspirational vision to a comprehensive framework, which is better aligned with other policies and includes a specific target, setting the new net zero goal for 2060. The Climate Change Act legalized the net zero commitment of the country (Gross and Ivleva 2024).

## Stage II: Development

1. Align Technical Work for Modelling and Development of Scenarios for LT-LEDS and NDC
2. Align Long- and Short-term Mitigation and Adaptation Targets
3. Derive Medium- and Short-term Policies, Actions and Measures to Reach Long-term Targets



Steps 1, 2 and 3 at development stage do not necessarily represent a linear process. For example, some countries may choose to define the actions first and conduct studies to estimate the mitigation potential afterwards. Technical work and analysis may be done, depending on the needs, throughout the whole NDC and LT-LEDS development and revision processes.

### Step 1: Align Technical Work for Modelling and Development of Scenarios

Aligning the technical work, including any modelling, that is used to inform the LT-LEDS and NDCs can help to ensure the consistency of the documents and processes. It can also reduce preparation costs, as the analysis only needs to be carried out once. The key areas of alignment of the technical work are listed below.

- Utilise **common data inputs and assumptions** (e.g. economic growth and population growth assumptions) for both the NDCs and LT-LEDS. Also ensure consistency of data and assumptions with those used for GHG inventories and BTRs.
- Use the **same models and tools** when developing the emissions projections that underpin the NDC/LT-LEDS. Where feasible, prepare the long-term projections required for the LT-LEDS and the short-term projections required for the NDC, as part of the same modelling exercise. Apply consistent assumptions to the relevant scenarios (e.g. which policies are included) to ensure compatibility.
- Use the **same evidence base and assumptions, including climate scenarios**, when assessing the climate vulnerabilities and risks relevant to the NDC/LT-LEDS. A comprehensive vulnerability and risk assessment can inform both the immediate-term adaptation actions most relevant to the NDC, as well

as longer-term adaptation priorities relevant to the LT-LEDS.

- Designate the **same pool of technical experts** to support the analysis for both the LT-LEDS and NDC (ideally, in a joint effort and not separately – this will save time, resources and ensure consistent outcomes).
- If the two processes do not run in parallel, the **review and improvement** of existing modelling approaches, data sources, and data collection and analysis systems should occur in every NDC revision cycle or LT-LEDS update. Countries that have already conducted modelling for the LT-LEDS can use the same studies to inform their NDCs. Countries updating the NDC and developing an LT-LEDS in parallel can develop a single study or set of studies to inform both processes. Countries that update their NDC prior to developing an LT-LEDS should consider extending any modelling underlying the NDC to mid-century, so that it can inform a subsequent long-term strategy (Levin and Fransen 2019). They also need to consider the sectoral transformations necessary to align their NDCs with the long-term goals of the Paris Agreement and the outcomes of the first Global Stocktake, which encourages countries to align their next NDCs with limiting global warming to 1,5°C.
- Where sectoral working groups are used to coordinate NDC/LT-LEDS, the **same stakeholders** should be invited to participate in each process.

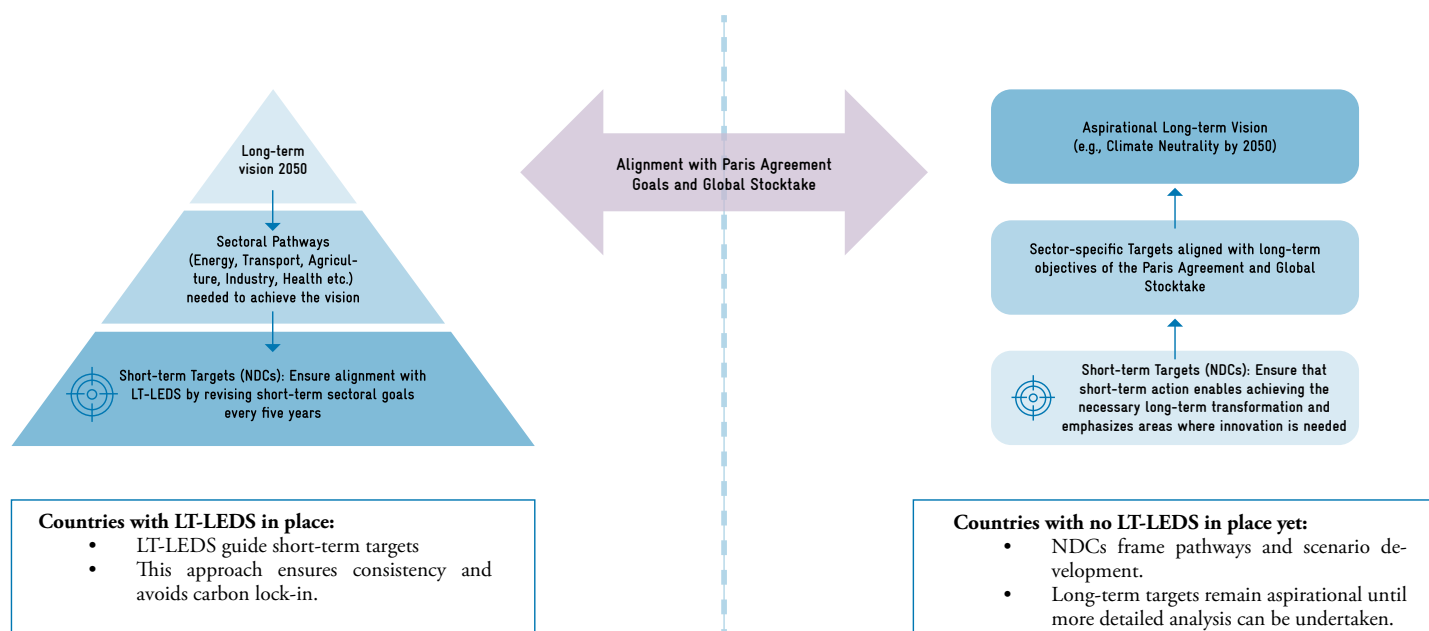
In **Ethiopia**, the Ministry of Planning and Development led the 10-year Development Plan, the NDC 2.0 and the LT-LEDS processes. The LT-LEDS and the net-zero emission scenarios developed during that process were largely based on the same models, tools, data sources, and datasets used for the NDC 2.0 and the country's 10-year Development Plan. In cases where more updated information and data were available, those were taken into consideration for the development of the LT-LEDS sectoral scenarios e.g. a new Forestry inventory was published after the NDC2.0, which was used for the LT-LEDS scenarios in the forestry sector. Lastly, the selected economy-wide LT-LEDS net-zero scenario to 2050 was the NDC-aligned scenario with the highest benefit-to-cost ratio, which was consistent with the 2030 NDC emission reduction target (Grafakos et al. 2023).

## Step 2: Align Long- and Short-term Mitigation and Adaptation Targets

Long-term targets or goals are often agreed as part of the process of defining the overall vision of a LT-LEDs (see Step 3 above). In other cases, targets and goals are

set later in the process once the analytical work to assess the emissions pathways and/or climate impacts has been completed. Targets set as part of the visioning approach can be described as top-down, whereas those based on more detailed analytical work are bottom up.

Figure 6: Align Long- and Short-term Mitigation Targets



Source: adelphi consult GmbH/Ricardo

### Two approaches to target setting: bottom-up and top-down

Many countries set the long-term goal (especially if it is a goal to achieve climate neutrality) in an aspirational manner. In such cases, the primary objective of scenario modelling is not to set the target but rather to determine sectoral pathways needed to achieve the overall target. At the same time, target setting in such cases is supported by scientific evidence accumulated through international and national climate-related reporting, emissions trends and projections, as well as sectoral feasibility checks. This approach was applied, for example, by the European Union and Germany. However, there are also examples where the LT-LEDs target is set in a bottom-up way as a result of modelling without political corrections. The goal is in this case a combined projection for all covered

sectors. Several scenarios are developed, and the emissions reductions achieved by 2050 through the most ambitious scenario can be marked as an overarching long-term goal. This was, for example, the approach taken by Ukraine in its LT-LEDs development (ASEAN 2021).

- **Compile existing targets and goals**, including those developed as part of previous LT-LEDs and NDCs where they are available. Sectoral goals and targets should also be compiled. This includes targets for reducing emissions (both economy-wide and sector-specific), as well as targets associated with specific mitigation actions, e.g. the percentage of renewable energy in electricity generation or the number of hectares of land that have been reforested.



- For countries that have both LT-LEDs and NDC, compare the targets to check for compatibility. Address any areas of inconsistency in future NDC/LT-LEDs updates e.g. by increasing ambition of short-term goals in key sectors.
- If a country has an NDC but not yet an LT-LEDs, the NDC can help frame the pathways/ scenario development, by providing an indication of the key actions that will be taken in the short-term. If a long-term vision has not yet been established, long-term targets can be framed as aspirational to ensure that short-term political challenges do not derail the focus on achieving the necessary long-term transformation and emphasize areas where greater innovation is needed. Countries that do not plan to develop an LT-LEDs before revising their NDCs should consider setting sector-specific targets aligned with key sector benchmarks (Levin and Fransen 2019), guided by the goals of the Paris Agreement and the outcomes of the Global Stocktake.
- If possible, add any related **transition targets** (quantitative indicators) based on the modelling results, such as the number of people to be trained or the number of new job opportunities to be created.

### Step 3: Derive Medium- and Short-term Policies, Actions and Measures to Reach Long-term Targets

- Derive **short- and medium-term policies, actions and measures** (for both mitigation and adaptation action) that would be necessary to achieve the targets that were identified under the previous step (NDC targets but also longer-term LT-LEDs targets).
- Identified policies, actions and measures need to be **concrete, ambitious, implementable and trackable** (e.g. see Stage III, Step 1. related to financial feasibility).
- **Identify and prioritize areas where short-term action is crucial to unlock long-term mitigation potential**, ensuring that short- to medium-term plans prevent carbon lock-in (e.g., large-scale infrastructure projects). Simultaneously, review existing regulations and policies to identify key actions, address contradictions (e.g., fossil fuel subsidies), and determine additional measures needed to achieve long-term transformation.
- **Ensure consistency between mitigation and ad-**

**aptation planning** to maximize synergies and avoid conflicting measures (e.g. prioritise adaptation measures that also have mitigation co-benefits and vice versa). When prioritising measures for the short- and longer-term, consider the aspects of Just Transition, gender equity and social inclusion.

**Germany** adopted its Climate Action Plan 2050 in 2016, which sets the target of achieving net-zero GHG emissions by 2045 (recently updated from 2050). This plan outlines sector-specific targets for energy, industry, transport, buildings, agriculture and forestry, ensuring that each sector contributes to the overall decarbonisation goal. To ensure alignment with its long-term goals, Germany implemented the Climate Action Programme 2030, which sets interim targets for reducing emissions by 65% by 2030 (compared to 1990 levels). The programme includes specific policies, such as carbon pricing, renewable energy expansion, transport electrification, policies to incentivise sustainable building practices, etc. Germany's Climate Change Act, passed in 2019 and updated in 2021, legally binds the government to meet specific emission reduction targets for each sector (Federal Ministry for Economic Affairs and Climate Action 2025).

## Stage III: Implementation

1. Align the Financial and Economic Planning for LT-LEDs and NDC
2. Address Technology Needs and Capacity Development from Long-term Perspective



### Step 1: Align the Financial and Economic Planning for LT-LEDs & NDC

- Use a **consistent approach when estimating the financing needs** for the LT-LEDs as with the NDC. Given the long-term nature, the actions in LT-LEDs are normally less specific. However, the approach to costing needs to be the same.
- Ideally, develop a **combined investment plan** covering both the short-term investment priorities in the NDC and the longer-term investment needs in the LT-LEDs. This should include a profile on the investment needs over different time periods e.g.

2025-2030, 2030-2040, 2040-2050. The combined investment plan should outline the key funding mechanisms, including public finance, private investments, and international climate finance and concrete steps to mobilise this finance (such as policies and instruments to promote investment) as well as a broader outline of the key measures/activities to be implemented. The combined investment plan is also a very powerful message to investors, helping to unlock the finance needed by the countries.

**Mauritania** has recently launched a programme of economic reform and green transformation, supported by the International Monetary Fund's (IMF) Resilience and Sustainability Facility, which will help it strengthen resilience to climate change and consolidate its policy framework. In this context, the development of an LT-LEDs and the harmonisation between various policy processes including the NDC revision were key markers and a precondition to attract international funding.

- In case of any already existing short-/medium-term plans for investment, make sure that they are not contradicting the combined LT-LEDs/NDC investment plan and, if needed, consider exit strategies and alternatives to these investments, in order to address the issue of stranded assets and potential carbon lock-ins.
- **Align financial planning cycles with NDC and LT-LEDs timeframes.**
- Develop a **robust strategy of communicating with financial and technical partner institutions** providing them with information on the holistic planning of LT-LEDs and NDCs and planning their financial involvement in both processes.
- **Track the implementation of the combined investment plan.**
- The national climate transparency system should be used to **track and report climate finance allocation and spending.**

For developing investment plans, countries can be guided by international tools such as the NDC Investment Planning Guide and Checklist developed by the NDC Partnership (NDC Partnership 2023).

The **Rwanda** Green Fund (FONERWA) and the Development Bank of Rwanda (BRD) launched the Rwanda Green Investment Facility (also known as IREME Invest) to support and attract private sector investment. FONERWA provides grants to green public projects through the NDC Facility. Since the 2023 revision of the National Investment Policy, all investments must demonstrate how they address Rwanda's climate resilience needs. FONERWA has proved to be an effective mechanism to manage domestic and international climate finance flows for both the NDC and for Rwanda's LT-LEDs (Gross and Ivleva 2024).

## Step 2: Address Technology Needs and Capacity Development from Long-term Perspective

- Prioritise **investment in technologies** that are key to achieve both the short- and the long-term targets. Identify where short-term action is necessary to develop key technologies or actions important for the long-term transition. This may include Research, Development and Demonstration (RD&D) of key mitigation (e.g. Carbon Capture, Storage and Utilisation - CCUS) and adaptation (e.g. Nature-based solutions - Nbs) measures.

Ensure that **capacity-building** efforts contribute to the achievement of both NDC and LT-LEDs objectives.

**Hungary's** commitment to decarbonization, as outlined in its National Clean Development Strategy (NCDS), places significant emphasis on robust Research, Development, and Innovation (RDI) to achieve ambitious climate neutrality targets. Recognizing that nearly 45% of future emission reductions will rely on technologies currently in early development stages, Hungary prioritized RDI investments to achieve both short-term improvements and long-term systemic transitions and calls for a diverse portfolio of mitigation and adaptation technologies. The Strategy focuses on the value chain maturity of electrification, hydrogen fuels (and its derivatives), e-mobility, building energy efficiency, bioenergy and renewable energy sources, energy storage and CCUS technologies with a strong emphasis on creating smart, resilient, and flexible energy networks.

In **Pakistan**, the Government is developing an NDC Technology Roadmap for the waste and water sectors. The Roadmap aims to identify key opportunities for the deployment and scaling up of new and emerging technologies to support the achievement of NDC targets. It identifies and prioritizes both existing and emerging climate technologies through a structured technology assessment process, distinguishing between immediate deployment opportunities and those requiring longer-term support. Using the Technology Readiness Level (TRL) framework, the Roadmap outlines staged actions across research, policy, capacity building, financing, and governance to scale up technologies aligned with both mitigation and adaptation objectives. This forward-looking approach enables Pakistan to address short-term action while systematically preparing for long-term climate transitions, providing a clear pathway for investment, innovation, and institutional strengthening.

## Stage IV: Implementation Tracking and Updating

1. Establish Harmonised Systems for Monitoring, Evaluation and Reporting on LT-LEDS and NDC
2. Update and Revise the LT-LEDS and the NDC



### Step 1: Establish Harmonised Systems for Tracking and Reporting on LT-LEDS and NDC

- Design a **common climate transparency framework for tracking and reporting** the progress of implementing both the LT-LEDS and NDC (e.g. common online platform to track NDC & LT-LEDS progress). There is no formal reporting requirement and mechanism for LT-LEDS under the Enhanced Transparency Framework (ETF) as opposed to the NDCs, for which implementation tracking is conducted through the submission of BTRs. However, it can be very useful for countries to develop a domestic transparency system to mo-

nitor both NDCs and LT-LEDS to have a better overview of the progress made. Applying the same methods that the ETF foresees for NDC tracking to the long-term goal – e.g. by tracking and reporting on the long-term goals in the BTRs - can be helpful to align reporting and tracking progress (for example, applying the elements that countries need to provide to enhance clarity, transparency and understanding of the NDC to the LT-LEDS). The outcomes of progress tracking need to inform all future NDCs and LT-LEDS updates.

- The **coordination body** may oversee or guide the implementation and tracking system. This body needs to ensure that the system tracks progress in a way that aligns short-term NDC targets and actions with the long-term LT-LEDS vision. The transparency system provides data and evaluations that the coordination body should use to adjust policies, reallocate resources, and update both NDCs and LT-LEDS.

**South Africa** is strengthening alignment at the level of tracking and reporting through updating the National Climate Change Information System, a web-based platform for tracking progress towards all national climate goals. The platform is managed by the Department of Forestry, Fisheries and the Environment and tracks mitigation and adaptation action, finance, Article 6 cooperation and just transition work (Gross and Ivleva 2024).

- Include **detailed information** in the LT-LEDS and NDC texts to describe the assumptions and methodologies used in both documents, making them more transparent to stakeholders. As far as possible, use consistent categories and terminology when describing long- and short-term targets, timeframes and the scope. For example, the NDC can explain how its revised target is aligned with the long-term goals and an LT-LEDS may include interim milestones. Countries with no LT-LEDS can transparently explain in the NDC how it aligns with the country's longer-term development goals and the long-term goals of the Paris Agreement (Levin and Fransen 2019).
- Establish a **mechanism and a responsible team/institution** to review the alignment of the content of the latest NDC and the LT-LEDS on a regular basis before the plans are updated/finalized.
- In the formulation of the LT-LEDS, **align the indi-**

cators for tracking implementation progress with NDC targets to monitor progress consistently.

- **Link national progress tracking with international reporting mechanisms**, ensuring consistency with UNFCCC processes (also aligning reporting as much as possible with other international processes – e.g. reporting on adaptation and biodiversity targets – to save resources, for example, by using the BTR as a comprehensive reporting instrument).
- Ensure **continuous review and improvement** of the tracking system, leveraging international best practices. This process can be aligned with BTR improvement process.

**Nigeria** uses the NDC Implementation Framework as a platform to coordinate, mobilise and track progress towards its NDC goals, and is planning a similar framework to track LT-LEDs progress to have an effective overview of the country's progress towards both short- and long-term climate and development objectives (Gross and Ivleva 2024).

## Step 2: Update and Revise the LT-LEDs and the NDC

- Based on the results of progress tracking, **adjust targets, policies, actions and measures** if necessary and reflect the adjustments in both future NDCs and LT-LEDs review cycles. This can be done based on the BTRs. Projections could go as far as feasible in the future to understand if countries are on track to meet their short-term and long-term goals.
- Include strategies in the LT-LEDs to **mitigate the impacts of short-term economic or political shocks while maintaining focus on the long-term goals**: Allow for temporary shifts in targets (e.g., moving to a lower-ambition scenario) while committing to returning to the original pathway as conditions stabilise. Integrate measures in the LT-LEDs that enhance resilience to shocks, such as diversifying funding sources, enhancing institutional capacity, and building robust governance frameworks. Conduct regular reviews of LT-LEDs to assess progress and recalibrate targets if necessary. Leverage international climate finance and technical assistance to address gaps caused by the disturbance.

**Morocco's** national Net Zero Emissions trajectory was designed to ensure energy sovereignty and reduce the national energy bill to mitigate the exposure to external shocks due to international price volatility and geopolitical crises, by making optimal and flexible use of Morocco's abundant and competitively priced renewable energy resources; developing a diversified, competitive and affordable renewable energy and electricity supply for all industrial and economic operators in the country; drastically reducing the carbon footprint of electricity produced in Morocco to address new carbon adjustment tariff barriers, particularly that of the EU's carbon border adjustment mechanism (CBAM) (Pérez Català et al. 2024).

- Maintain **ongoing engagement across stakeholders** to ensure the update and revision process can respond to new information by enhancing ambition or including additional components. Ensure updates to short-/ medium-term plans are included in order to enhance ambition of longer-term plans.
- Ensure the timing of the **update of NDCs and LT-LEDs is coordinated** to allow the broad vision of the long-term strategy to inform shorter-term plans and vice versa. For example, align processes in a way that LT-LEDs will be updated in regular five-year intervals to inform future NDC submissions (Hans 2020). Establish a formal mechanism for synchronising updates between NDCs and LT-LEDs, ensuring that short-term adjustments are reflected in long-term pathways.

Countries like **Ukraine, the Republic of Marshall Islands** and **France** included statements of intentions to review and revise their long-term strategies at least every five years in their LT-LEDs (Roeser et al., 2019). Other countries like Chile intend to update their LT-LEDs every 10 years (Chile's Long-Term Climate Strategy: The Path to Carbon Neutrality and Resilience by 2050, 2021). Australia, Canada, France, Germany, Ireland, Japan, Nigeria, Thailand, the UK and the US have already updated their LT-LEDs.<sup>5</sup> This demonstrates a trend towards integrating more ambitious targets, interim milestones, latest science and innovative technologies into LT-LEDs, with the aim of better aligning short- and long-term pathways with the goals of the Paris Agreement.

<sup>5</sup> [Long-term strategies portal | UNFCCC](#).



## Conclusion

Aligning NDCs and LT-LEDS is critical to achieving long-term climate objectives while ensuring that short-term actions contribute meaningfully to structural transformation. The alignment process involves strategic planning across key stages, including creating an aligned governance and stakeholder engagement mechanisms, setting clear mid-century objectives, designing short-term policies that avoid carbon lock-in, ensuring consistency between near-term actions and long-term visions, developing a combined investment plan and establishing harmonised systems for tracking and reporting on LT-LEDS and NDCs. This approach prevents temporary solutions from hindering progress and instead facilitates a just transition to low-emission and climate resilient development. Even if the LT-LEDS is still in the planning stages, alignment can be initiated by embedding long-term considerations into the NDC, aligning modelling and data sets and establishing integrated governance structures. By integrating adaptation and mitigation strategies into both NDCs and LT-LEDS, countries can address immediate needs while pursuing low-emission development and consistently building resilience to future climate risks. Ultimately, the alignment of NDCs and LT-LEDS fosters a pathway that is both ambitious and achievable, ensuring sustainable progress toward net-zero emissions.

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