

Long-term strategies: state of play, challenges and possible support through the G20

Policy Brief

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1 A tool for charting a path to a climate friendly future

Long-term (climate) Strategies (LTSs) stand out from other government strategies, as they provide a vision of the national economy far into the future and encompass an unusually broad spectrum of policy areas. Ideally, LTSs and their underlying technical models present a clear trajectory to inform near- and mid-term policy making in each of the relevant sectors, engage relevant actors and translate international obligations into the national context. They can also guide a country when setting priorities in international cooperation (Calfucoy et al. 2022, Duwe & Iwaszuk 2019).

Preparing and implementing an LTS does not come without its challenges. To establish a long-term vision, input from a variety of stakeholders is needed and expertise with highly complex models is required to elaborate and analyze scenarios and their underlying emission pathways. Furthermore, for an LTS to be effective, it must be in line with other governmental priorities and strategies and embedded in the respective governance system. This necessitates the creation of dedicated institutional structures that facilitate coordination in all stages of LTS development and follow-up (Ross et al. 2021, Velten et al. 2022).

About this paper

This paper provides an overview of the process and challenges of developing an LTS, based on experience across the world as documented in literature as of mid-2022. It also looks at what support exists for countries undergoing this process and presents some ideas how the G20 could raise the political profile of the strategies and assist in their development and implementation.

Literature covering national experiences with LTSs is scarce; only a few publications provide a comparative overview of LTSs and their development processes (e.g., Groß et al. 2021, Ross et al. 2021, Velten et al. 2022). Hence, to supplement the research, **we added the insights of a workshop** conducted in July 2022 with relevant experts from NGOs and governmental agencies, organised as part of the **Climate Recon 2050 project in collaboration with Think20**, an outreach platform for G20 to think tanks. This input is cited as “CR Workshop 2022”.

1.1 History and current state of play

LTSs have been part of international climate policy since the beginning of the last decade—albeit under various names and acronyms. The concept was first introduced in the international climate negotiations in 2010 at the 16th Conference of the Parties (COP) to the United Nations Framework Convention on Climate Change (UNFCCC) in Cancún, Mexico. The COP decision recommended developed countries to produce low-carbon development strategies (LCDSs) and encouraged developing countries to follow suit (UNFCCC 2010, I.6). The Paris Agreement in 2015 reiterated this request in its call for the creation of ‘long-term low greenhouse gas emission development strategies’ (Article 4.19). In late 2021, the Glasgow Climate Pact strengthened the role of LTSs by urging parties to submit their strategies by the subsequent COP27 in 2022 (Velten et al. 2022).

The pact furthermore underlined the importance of aligning the Nationally Determined Contributions (NDCs), which lay out more detailed, short- and medium-term targets and measures, with the LTS (UNFCCC 2021a, IV. 32./35.). At the time of writing, 50 countries and the EU have formally submitted an LTS to the UNFCCC. This includes 13 of the G20 states (UNFCCC 2021b), with two more having published but not formally submitted their respective LTS. All G20 countries have indicated when they intend to reach net-zero emissions, and eight have already put concrete targets into national law (see Table 1 below).

The LTS’ political momentum will most likely increase in 2022, as the UNFCCC secretariat is preparing a **synthesis report on LTSs**, to be presented at the COP27 in Sharm-el Sheikh, Egypt, **in November 2022**, following a decision in the Glasgow Climate Pact (UNFCCC 2021a, IV. 25.). This **could increase the strategies’ visibility overall.**

Table 1: Overview of G20 countries’ LTS, mid-century targets and NDCs (as of November 2022).

G7	Country	LTS – Year submitted (*)	Year net-zero/carbon neutrality is pledged/indicated	NDC updated (*) (with reduced total emissions)
	Argentina	No LTS	2050 (declaration/pledge)	X (enhanced)
	Australia	2021	2050 (in policy document)	X (enhanced)
	Brazil	No LTS	2050 (declaration/pledge)	X
X	Canada	2022	2050 (in law)	X (enhanced)
	China	2021	2060 (in policy document)	X (enhanced)
	EU	2020	2050 (in law)	X (enhanced)
X	France	2021	2050 (in law)	X (enhanced) via EU
X	Germany	2022	2045 (in law)	X (enhanced) via EU
X	India	2022	2070 (in policy document)	X (enhanced)
	Indonesia	2021	2060 (under discussion)	X (enhanced)
X	Italy	2021 (not in UNFCCC registry, but on EU website)	2050 (in policy document)	X (enhanced) via EU
X	Japan	2021	2050 (in law)	X (enhanced)
	Mexico	2016	2050 (proposed/under discussion)	X
	Russia	2022	2060 (in law)	X (enhanced)
	Saudi Arabia	No LTS	2060 (in policy document)	X (enhanced)
	South Africa	2020	2050 (declaration/pledge)	X (enhanced)
	South Korea	2021	2050 (in law)	X (enhanced)
	Turkey	No LTS	2053 (in policy document)	
X	United Kingdom	2021	2050 (in law)	X (enhanced)
X	United States	2021	2050 (in policy document)	X (enhanced)

(*) The year refers to the latest submitted version. Source: Climate Watch 2022, UNFCCC 2021, 2022, zero-tracker (2022).

1.2 Long-term vision and targets

While there is no universal template for what an LTS should look like, and no two documents look exactly alike in structure and level of detail, certain elements are commonly covered. First and foremost, **strategies contain a long-term vision**. This vision usually consists of (different) scenarios for the future structure of the economy, plans for how to achieve a transformation on a sectoral level and, most importantly, **targets or projections for the middle of the century**. Additionally, most LTSs include some form of milestones or pathways for the decades up until 2050, sometimes in line with the NDCs (Ross et al. 2021). However, not all LTS prepared thus far include sufficient level of detail to inform decisions on future targets and on policies to achieve them (Velten et al. 2022).

Indonesia and Germany, chairs of the G20 and G7 in 2022, respectively, have both developed LTSs and submitted it to the UNFCCC. The German LTS (its Climate Action Plan 2050, published in 2016) sets an 80 to 95% emission reduction target for 2050 and lists targets for 2030 for some sectors (BMUB 2015). Since the publication of the German LTS, these targets have been revised to account for increased climate ambition, making an update necessary. Indonesia's LTS does not contain specific targets, but rather gives an indication of what could be achieved. This is spelled out as peak in emissions in 2030 and net-zero emissions by 2060 (Government of Indonesia 2021; for a more detailed analysis, see Boer et al. 2021).

1.3 How does the LTS fit with other national policy documents?

For the LTS to be an effective guiding tool, **it should be instrumental in shaping other national policy documents** not least short-term sectoral planning (Ross et al. 2021). If near-term policies are not sufficiently ambitious, the necessary infrastructure investments will not be made in time and the opportunity will be missed to prepare a just transition for those who currently depend on high-emission industries (Duwe & Iwaszuk 2019, Vener & Fransen 2019). A lack of long-term policy coherence also breeds the risk of 'locking in' climate-damaging technologies, leading to additional future costs or closing doors on optimal mitigation options altogether (Duwe 2022).

The NDCs are one of the most relevant policy documents in this regard. Their link to the LTS can be summarized succinctly: **'If a long-term strategy maps out a marathon course, NDCs are the mile markers'** (Vener and Fransen 2019). Hence, the relationship is reciprocal. Ideally, the vision contained in the LTS helps to prioritize policy measures, and the NDC realises the desired pathways described in the LTS by outlining concrete interim targets and policies and measures to achieve them.

The development of both documents can be synergistic if stakeholder consultation processes and government arrangements are carefully planned (Vener & Fransen 2019). However, in some cases, the LTS may be out of sync with other relevant national strategies. For example, the EU requires its Member States to align the near-term national planning documents (i.e., National Energy and Climate Plans or NECPs) with their LTS, but different methodologies underlying the short- and long-term projections, reverse sequencing (short before long-term) and diverging responsibilities for the two documents suggests that alignment cannot be assured or easily assessed (Velten et al. 2022). Political considerations also come into play—the development of the strategies with their longer-term perspective may take a backseat to the short-term policies – in evidence in the EU, for example (Velten et al. 2022). Indeed, analysis from the United Nations Environmental Programme (UNEP) confirms that there is still a discrepancy between long- and medium-term planning. According to their modelling, mid-century zero

emissions targets limit global warming to 1.9°C, whereas just taking into account the NDCs, global warming reaches 2.5°C over the course of the 21st century (UNEP 2021).

2 Insights from the preparation process thus far

The unique nature of an LTS presents its own set of challenges. Developing these strategies can be difficult. A coherent, comprehensive future vision spanning multiple election cycles must be contrived and, in parallel, the groundwork must be laid for this vision to be realised through concrete implementation actions. To achieve this, it is not only necessary to align LTSs with other strategies and national policies, as mentioned, but also to involve a variety of stakeholders to ensure broad societal backing for the strategy. Furthermore, technical modelling capabilities are required to develop future scenarios that orient policy making in the long term (see Groß et al. 2021, Ross et al 2021, Velten et al. 2022, Waisman et al 2021).

2.1 The development process for long-term strategies

The development of an LTS takes, on average, two to three years, according to interviews with country representatives (Groß et al. 2021). The time span, however, varies greatly and mostly depends on the speed of the consultation processes and the availability of data for modelling. **Central steps of the development process are: The creation of a vision, modelling of different scenarios, consultations with different government institutions and stakeholder engagement.** These may vary in order, happen in parallel or repeat themselves. In some countries, some steps are left out altogether (Elliott et al. 2019, Groß et al. 2021). After the strategy has been developed, it is usually formally published and communicated to the broader public. Additionally, a governance structure can be put in place that organizes and coordinates review and implementation (see 2.2, CR Workshop 2022).

The modelling exercise (if one is included) is conducted to develop scenarios that **identify possible pathways for the national economy through mid-century**. These scenarios often include information on required emission removals, projected costs and potential benefits. Models vary in their complexity, in terms of number of scenarios, sectoral resolution and parameters assessed. Some countries, such as Austria, designed their own models specifically for the LTS, while others adapted generic models to fit national circumstances, such as Czechia, Italy and Spain (Ross et al. 2021, Velten et al. 2022). In this stage, governments may consult with external scientific expertise, such as national academies, universities or other research institutions. In some cases, scientific experts play a more central role, developing the underlying methodological basis on behalf of the government (Velten et al. 2022). For example, Colombia conducted several supportive technical studies to define the commitments in its LTS and to evaluate mitigation options, risk management and resilience policies (Calfucoy et al. 2022). This exchange between scientists on the one side and ministries on the other side can also be a synergistic process: Research organizations can update their research based on governmental data and parameters, and responsible ministries can benefit from the additional insight of new analysis (CR Workshop 2022).

Generally, **having a broader stakeholder process is seen as beneficial** as it helps to gather relevant information from the private sector, civil society, NGOs and local governments and it supports buy-in to the strategy and resulting policies. Furthermore, interests of (marginalised) communities can be taken into account (Ross et al. 2021, Groß et al. 2021). As interests may diverge, these processes can furthermore help in identifying and mediating differing or conflicting interests (Duwe & Iwaszuk 2019).

Stakeholder participation varies from country to country and can happen at different stages of the development process, from the initial scoping phase to the implementation phase (Ross et al. 2021). Formats also differ. In the EU, for example, while Croatia, Portugal and Slovenia conducted workshops, Austria, Italy, and Czechia had online consultations with written comments, and the Netherlands asked for essays from the scientific community in an early scoping phase to identify priorities (Velten et al. 2022).

It is pivotal that representation does not merely happen at the very end of the LTS preparation process, and that there is a plan about what to do with the results and insights that arise from consultations. However, it is important to note that these consultations are also a question of administrative capacity, as they are oftentimes resource and time intensive (Velten et al. 2022).

2.2 Governance structures for long-term strategies

There are certain governance elements that are essential in facilitating the LTS development and its integration in national policy making.

To oversee the creation of the LTS, **countries often assign or create specific institutions**, which also, in many cases, take on the implementation of the strategy. The national environmental ministry often assumes this role, as it has the most technical expertise. In other cases, the ministry of finance or the prime minister's office have a coordinating function, as both have more resources available. Countries might also install a new structure altogether, such as an ombudsman or a specific committee. These coordinating bodies serve to facilitate engagement with and input from various government institutions, most often the relevant ministries. Regardless of the set-up, it is crucial that responsibilities are clearly delegated and that there is sufficient financial and political backing (Elliott et al. 2019).

The UK, for example, established an inter-ministerial group that is responsible for the LTS's implementation, while in Mexico, the Ministry of Environment and Natural Resources (SEMARNAT) is in charge (Elliott et al. 2019). In Germany, the Ministry for Environment led the preparation of the country's first LTS, but the updating is happening under a new Ministry for Economy and Climate Action, whereas in France the Ministry of Ecological Transition oversaw input from numerous sectors of government.

Legal frameworks can bestow the LTS with more political weight by mandating long-term planning and stakeholder engagement processes, assigning responsibilities, creating financing and monitoring processes and codifying the targets found in the LTS (Duwe & Evans 2021). Framework climate laws can further anchor the LTS in national governance as the long-term planning tool to guide climate policy decisions. Such laws, often stipulate regular monitoring and updating and emphasize the importance of a long-term vision for near-term action planning. For instance, Peru established in its Framework Law on Climate Change that lays down guiding principles and responsibilities for the updating of the National Strategy on Climate Change, which is the countries' LTS (Calfucoy et al. 2022).

Furthermore, to maintain a relevant and effective strategic document, **countries often establish review mechanisms and link these to a regular monitoring process**. This way, the LTS accounts better for *inter alia* changes in policy, new scientific discoveries, technological innovation (e.g., clean technology prices) and developments in international negotiations (Elliott et al. 2019) and geopolitics. While countries are free to revise their LTS whenever they deem fit, some choose to align national processes with the Paris Agreement's five-year cycles (including the EU). The extent of revisions, however, varies (Ross et al. 2021, Waisman et al. 2021).

For instance, the French climate law enshrines a five-year review and revision of the LTS to account for the latest scientific evidence and economic and social developments. Fiji has one of the most elaborate processes with a monitoring mechanism that tracks policies, emission reductions, co-benefits and means of implementation (e.g., finance) (Ross et al. 2021). At the European level, the EU Governance Regulation (Regulation (EU) 2018/1999) mandates the preparation of an LTS on a ten-year cycle for its Member States (with optional updates after 5 years), and the European Climate Law includes a progress check for the bloc's long-term target every five years.

One can argue, that by their very nature, LTSs should be seen as dynamic documents and not as a one off exercise, as they are documents projecting information into a 20-30 year time horizon, based on the state of knowledge at the time. Only through regular updates can relevant new information be taken into account, helping to keep the strategies relevant to inform national decision-making. **Regular, predictable cycles for updates can enhance resilience of the strategies against political and economic shocks** (such as consequences of the pandemic or the war).

2.3 Challenges in the process

The central difficulty in drafting an LTS is presenting a coherent vision and mapping out concrete steps to get there. This process is demanding, as the planning has to reach far into the future and at the same time should provide guidance for near-term steps, it has to include a variety of topics, stakeholders and processes and, for the most part, there is no pre-set template to follow (Duwe & Iwaszuk 2019).

As with most political undertakings, the political volition of the government in place has a great effect on the LTS' impact on policy making. Experience has shown that sometimes, **the development of the LTS happens somewhat isolated from day-to-day policy discussions on the national level** and is more seen as a response to an international request than a concrete strategic planning tool that guides central policies. **It is also difficult to maintain political momentum** for implementing the strategy through various election cycles, as different governments might have varying priorities (Calfucoy et al. 2022, CR Workshop 2022). Additionally, the **coherence with other important policy documents**, such as the NDCs, the NECPs (in the EU) or the Agenda 2030 or even other LTSs, is sometimes lacking (Velten et al. 2022, CR Workshop 2022).

For some countries, **certain aspects of the LTS can be underdeveloped, as the level of detail varies between sectors.** LTSs tend to be more elaborate in sectors like energy and industry and less specific in the areas agriculture, land use or biodiversity. Oftentimes, the topics adaptation and just transition are left out, leaving transformative potentials untapped (CR Workshop 2022). Furthermore, some developing countries do not consider the potential link between other developing goals and reducing emissions (Calfucoy et al. 2022, CR Workshop 2022).

The main technical challenge is the lack of capacity and capability to do long-term modelling and a missing comprehensive database. An analysis of the ASEAN member states showed that almost half do not have the analytical capacities for conducting research and long-term scenario modelling (Groß et al. 2021). Some countries also lack the sectoral and economic data as well as knowledge on how to use data tools. Correspondingly, methodologies to monitor and assess relevant climate policies and their outcomes are also missing.

If sound modelling has been conducted, the next difficulty lies in translating the results into strategic planning and concrete policies (Calfucoy et al. 2022). For this, an **institutional set-**

up that embeds the LTS in national policy processes is necessary. However, central tools, such as regular monitoring, clear responsibilities and the engagement of central stakeholders, is often missing or insufficient. A strategy that sits on a shelf (or in an online repository) and is not actively *used* by government as a guideline for decision-making, cannot have an effect on national climate policy (CR Workshop 2022, Velten et al. 2022).

Furthermore, **the LTS is too often understood as a purely environmental strategy**, even though its implementation concerns a variety of ministries as well as different levels of government. To include more governmental actors in the strategies' implementation, it can be necessary to include horizontal elements, such as an overarching structure or a coordinating mechanism in both development and implementation (Calfucoy et al. 2022, CR Workshop 2022).

Lastly, **LTS development and implementation often happen in a national silo.** Charting a path to a net-zero future based only on the context of a single country can limit the options available. Cooperation between countries could make the strategies more impactful. For example, green hydrogen is a central component in a lot of countries pathways; but scaling up green hydrogen production will require intensive international cooperation. Hence, cooperation on this topic when formulating the LTS might be beneficial but is currently lacking (CR Workshop 2022).

2.4 Support for developing an LTS

Developing a complex vision for the future economy also demands administrative and financial resources, which some countries lack. Hence, **different institutions offer support through cooperation, guiding documents, additional capacity and funding.** Supporting actors range from dedicated initiatives providing guidance and enabling cooperation, to development agencies and development banks helping countries individually.

The 2050 Pathways Platform, created in the wake of the adoption of the Paris Agreement, **is an example for a dedicated forum for exchange.** Currently, 14 out of the G20 countries are members. The platform facilitates the exchange of knowledge and experiences by bringing together of a variety of relevant actors together, both governmental and non-governmental, financially support LTS development and offers technical advice (2050 Pathways Plattform 2022). To provide guidance for policymakers, they also developed **a handbook that details the process of developing a vision for 2050**, including frameworks, principles, building blocks and examples (Williams & Waisman 2017). Similarly, the United Nations Development Programme and the World Resource Institute developed a checklist for LTS, that cover different aspects with question batteries, from mandate and planning to financial considerations (UNDP & WRI 2021). In the EU, the Climate Recon 2050 platform also tried to create a forum for dialogue among national actors involved in LTS development and implementation.

For financial and capacity support, several development banks have or will provide funding and resources through dedicated programmes, such as the European Bank for Reconstruction and Development, the Inter-American Development Bank and the World Bank (EBRD 2021, IADB 2019, WBG 2022). Some development banks, namely the African Development Bank and the Asian Development Bank, help countries individually with the development of their LTS (CR Workshop 2022, Pathak 2022). Different national development agencies also provide support on a country-by-country basis, for example the German International Climate Initiative, the French development agency and the UK FCDO (AFD 2022, IKI 2022a, 2022b, UK FCDO 2021). The EU has the initiative Euroclima+, which supports Latin American countries (Euroclima 2022).

In spite of these existing opportunities, some elements are still missing in the international support system for the LTS. While there is help for the drafting process, international

funding is scarce to support implementation after the LTS is published. However, for the LTS to have an impact, efforts must be long-term and continuous (CR Workshop 2022).

3 How the G20 can support the LTS

At the time of writing, 16 of the 20 member countries have developed and published a national LTS (see Table 1 above). The fact that the vast majority of G20 member countries already have a strategy in place is a good starting point for considering how the group could advance their use further.

As identified above, the main hurdles for the LTS to have an impact are missing political attention, coherence with national as well as international policy processes, and lacking financial and technical capacities. **The G20 has the political weight, the institutional capacity and opportunity to address these challenges.** It can offer support in various ways: increase the visibility of the strategies, direct financial or technical support for strategy development and implementation, as well as facilitating dialogue and cooperation.

This relationship goes both ways: If LTS are able to provide a coherent long-term roadmap to reach net-zero emissions, they go in line with the G20's ambition to advance effective, efficient and just transition to climate-friendly economies. This is urgently needed, as climate change, if left unaddressed, will cause major economic losses for both developed as well as developing countries (WEF 2022). **Well-made LTSs could support policy planning within and across countries as well as inform cooperation on specific topics,** as pathways and investment needs are laid out for the specific sectors. Furthermore, a positive side effect would be a strengthened connection between the G20 and the UNFCCC, or the Paris Agreement more specifically.

How exactly this could happen was subject of a discussion with relevant experts from think tanks and ministries from different parts of the globe at a dedicated workshop in July 2022 (CR Workshop 2022).

Several actions were identified:

- **Announce support for LTSs in the Leaders' Declaration.** This could be similar to the G7 communique in 2022, which mentions the commitment of the G7 to support developing countries in updating and implementing their LTS (G7 2022). A more impactful option would be to directly specify activities and mention institutions, such as backing for the support of development banks, the 2050 Pathways Platform or networks of national experts.
- **Create a dedicated working group:** The G20 could hold recurring sessions during each presidency discussing progress of the LTSs. These sessions could be an exchange on the respective experiences of countries and offer consultation for those that are developing or revising their strategies. A lasting anchoring of the issue in the institutional workings of the G20 would be particularly beneficial, as the G20 agenda is influenced by each annual presidency, which bears the risk that individual initiatives are not followed up by succeeding chairs.
- **Discuss related initiatives in existing working groups:** Finance is a core topic of the G20; and as part of the Finance Track, the Sustainable Finance Working Group discussed ways to mobilize sustainable finance (G20 Indonesia 2022). Hence, including a discussion on ways of financing LTS development and implementation could impulse further action of the individual countries down the road. Additionally, the LTS was

discussed in the environmental working group, where the topic can be further advanced (CR Workshop 2050).

- **Cooperation with and strengthen existing fora, namely 2050 Pathways Platform**, can be achieved through mentioning it the Leaders' Declaration or giving it a role in the G20 summits, such as officially inviting it for presentation or participation at official meetings.
- In their function as a forum on financial cooperation, the **G20 could make financing available**, not only for the development of the LTS, but their subsequent implementation through a corresponding declaration. This could happen through the appropriate financial institutions, e.g., development banks that already have dedicated programmes and cooperation (see 2.4).
- **Promote the inclusion of the LTS in the global stocktake**, through mentioning it in the Leaders' declaration or encouraging countries to bring it forward in the UNFCCC process. Including the LTS in the global stocktake could broaden its horizon by going beyond the 10-year timeframe of the NDCs. Inversely, as the global stocktake is a highly anticipated process in the climate policy realm, it could help to increase the visibility of the strategies and thus garner more political momentum.

The G20 have the power and capacity to address the challenges countries are facing when developing and implementing LTS. In concert with the spotlight on the LTS at COP 27, **the G20, under the Indonesian presidency, can create significant political momentum for the strategies** and thus improve their positive impact on national and international climate action.

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