IDDRI submission to the GST on behalf of the IMAGINE project

Using the Global Stocktake to identify and design opportunities for enhanced global collaboration that accelerates national climate and development action: the case of international finance

Contact: Johannes Svensson, johannes.svensson@iddri.org

Highlights / key messages

- The GST can help identify opportunities for enhanced international cooperation, by identifying the global conditions which could enable countries to accelerate climate action and reach climate and development objectives, and discussing how international cooperation can address these conditions.
- We have identified increased access to quality finance as a common global enabling condition for Argentina, Brazil, China, India, Indonesia, Mexico and South Africa¹ to jointly reach national climate and development objectives, and analysed the national investment priorities, and the barriers to finance that these priorities face (*table 1*).
- International cooperation on finance must develop institutional frameworks and instruments adapted to finance the full diversity of national investment priorities, in order to more successfully support national efforts to reach global climate objectives and national development objectives.
- International financial cooperation initiatives must also analyse whether and how they are currently taking into account the barriers to financing national investment priorities for climate and development in EMDCs, and report on this analysis and the additional actions pursued in order to improve their accountability.
- From this work, we extracted a few conclusions for the GST process: the need to organise the information collection and Technical Dialogues around systemic transformations and their enablers, so global enablers can be identified and acted upon.
- For the GST political phase, it should identify and act on areas for global collaboration required for increase ambition, and encourage the need for continued work on identifying such areas for international collaboration.

¹ The countries covered in this paper reflect the participation of in-country modelling teams from the respective countries in the Deep Decarbonisation Pathway Initiative. The research in this paper builds on analyses reflecting the heterogenous contexts of the countries, including in terms of economic development, financial and fiscal realities and different financing needs, including in terms of climate finance.

Introduction

Considering current pledges and targets, the world is on a path to surpass the 2°C temperature goal by the end of the century, showing a gap between global collective climate ambition and the objective to keep global warming to "well below 2°C" as endorsed in the Paris Agreement (PA). Furthermore, according to the latest IPCC AR6 report, current policies are largely inadequate to stay within the pledges and targets (IPCC, 2022; <u>Climate Action Tracker</u>).

To bridge both the ambition and the action gap, it is important that the international climate negotiations in the UNFCCC, in particular the Global Stocktake, identify opportunities for international collaboration in order to support increased national climate ambition, accelerated action on climate and development. To ensure that additional international collaboration effectively triggers accelerated action on climate and development, it must address international conditions identified by countries as having a potential to enable accelerated climate action nationally (Peres Català, 2022).

In the <u>Deep Decarbonisation Pathway Initiative</u>, we have worked with in-country research teams in Argentina, Brazil, China, India, Indonesia, Mexico and South Africa to identify the global conditions (defined here as conditions for which changes and shifts require major action from international actors) on which the success of their national low-GHG development scenarios depend. By identifying the conditions that enable accelerated national action, hereafter referred to as *global enabling conditions*, that are common across countries, we can establish priority areas for international collaboration with a potential to render possible accelerated national climate and development action and the alignment of climate and development objectives (Peres Català, 2022).

The UNFCCC Global Stocktake can play an important role in identifying such opportunities for international cooperation at a political level. This submission will outline an approach to how the Global Stocktake can be made a vehicle for accelerated national action toward climate and development objectives, by drawing insights from work done on identifying common global conditions. The work informing this submission has been carried out in the IMAGINE project, funded by the European Commission.²

This paper will first describe the method used to identify common global enabling conditions across the different countries. Second, based on the identification of improved access to affordable and highquality finance as a common global enabling condition, it will map the priority-transformations for international finance in the seven countries, and analyse the barriers to international finance for each transformation. Based on this analysis, the paper discusses some actions that national actors can undertake to improve the financeability of the transformations in respective countries, and discuss key messages for international financial actors. It will conclude by drawing insights from this collective work for the Global Stocktake.

Identifying and analysing common global enabling conditions of national low-GHG development pathways

Identifying common global enabling conditions across countries

The work to identify and analyse global enabling conditions for increased climate ambition and accelerated climate action in emerging economies was led by in country research teams in Argentina (*Fundación Bariloche*), Brazil (*Centro Clima/COPPE/UFRJ*), China (*Tsinghua University*), India

² The work presented here has been carried out as part of an independent research project, and does not reflect the position of the European Commission.

(*IIMA*), Indonesia (*CCROM & CREP-ITB*), Mexico (*Tempus Analitica*) and South Africa (*University of Cape Town*). To identify and analyse global enabling conditions, each team used low-GHG development scenarios providing quantified visions for achieving climate and development objectives for their respective countries.

The process consisted of multiple steps, which have been iterated to refine the analysis and reach agreement on common global enabling conditions, as well as formulating the enablers in a manner that corresponds to the needs of all countries covered in the study. The steps included collecting information regarding the global enabling conditions of country teams, based on an analysis of their own low-GHG development pathways to identify the global enabling conditions that these pathways depend upon; a synthesis of this information by researchers at IDDRI to identify areas of common global enabling conditions, and; collective discussions in which all research teams provide comments and proposed modifications on the proposed global enabling conditions. After multiple iterations, access to affordable and high-quality international finance (defined further below) for low-GHG investments in developing countries was identified as a common global enabling condition.

This topic corresponds with multiple important agendas this year (various World Bank reform efforts, , France's President Macron's initiative for a finance summit in June 2023, etc). This analysis seeks to ensure that discussions on climate finance going forward are better anchored in national priorities and better equipped to face the barriers to financing in a variety of emerging markets and developing countries (EMDCs). The following section provides an analysis of how to change conditions to ensure access to affordable and high-quality finance to low-GHG transformations in EMDCs.

Analysing a global enabling condition on improved access to affordable and high-quality finance

Following collective discussions with the involved research institutions, a global condition to the successful implementation of low-GHG development pathways in the different countries was defined as *improved access to affordable and high-quality finance to enable low-GHG investments in developing countries, consistent with global carbon neutrality*.

The scale of the finance must match the needs of countries to finance the full set of transformations required for the country to align with their commitments under the PA. The Songwe, Stern and Bhattacharya report (2022) indicates an investment need of 1 trillion USD/year by 2025, and 2,4 trillion USD/year by 2030, for covering the needs of EMDCs, excluding China. A significant share of these financing needs can be covered by domestic resource mobilisation, especially in emerging economies, meaning that a total of 1 trillion USD/year of external finance will be needed by 2030 (Songwe *et. al.*, 2022). This global estimation provides an indication of the order of magnitude of the financing need, and of the challenge ahead, and must be complemented by national estimations, targeting the transformations most relevant in the national context. Bridging this need for international finance requires both an increase in the total financial flows going to EMDC's, and a redirection of existing financial flows to transformations supportive of countries PA engagements and LT-LEDS.

But it's not only a matter of the magnitude of the flows of investments to the country: international financial markets and international financial collaborations include many different types of financing, and not all types are conducive for the countries in question to achieve their climate and development objectives. It is therefore necessary to define the criteria of the finance that can enable countries to implement their low-GHG development pathways.

• Accessible (especially for climate and/or development grants and overseas development assistance):

- Time required to apply for / access and receive finance is not too long for businesses and projects
- Reporting conditions imposed by donors do not place heavy administrative burdens on institutions
- Affordable: finance (including both concessional and commercial finance) is available at affordable rates to national actors.
- Long-term finance³: long-term finance is particularly necessary for countries to implement their low-GHG development pathways, although shorter term finance also has a role to play.

Overview of national priority-transformations for international finance

Each research team has identified the national transformations which are necessary for accelerating climate and development action in the short-term, and achieving national climate and development objectives in the medium- and long term central, based on government plans and on low-GHG development scenarios, and which fail to attract affordable and high-quality finance under existing financial structures (*table 1*).

To understand why these transformations are not currently financed, we have to look closer at the nature of the transformations themselves. We have therefore identified characteristics of the transformations that pose as barriers to their financeability under current financial structures, and analysed each transformation according to these characteristics (*table 1*). An underlying idea is that a transformation which corresponds with none of the characteristics should face no major barriers to receiving finance under current financial structures. For transformations that have one or several of the identified characteristics, additional action is needed to ensure that these transformations receive finance. The following characteristics were identified:

- **Transformations relying on actions by diffuse and small actors**, for instance on individual farms, or other SMEs, which could be a barrier for finance due to high administrative costs for financial institutions, and low creditworthiness of the actors.
- **Transformations requiring massive projects and/or investments**, for instance major infrastructure investments, which could pose as a barrier to finance given the sheer scale of the finance required, meaning that collaborations among different financial institutions are needed.
- **Transformations relying on non-mature technologies or markets**, which could pose a barrier for finance given the various risks that non-mature technologies represent.
- **Transformations requiring significant upfront action** in terms of research, construction, technology, etc, such as large infrastructure projects or the purchase of expensive technologies, *which could be a barrier to finance given high upfront costs and possible delays before returns on investment (or other results from the finance in case of concessional finance).*
- **Transformations requiring an institutionalised market that does not currently exist**, because there are currently no institutions or regulations encouraging a demand for the product/service, or organising transaction opportunities between seller and buyer (for instance, as is the case for the restoration of natural ecosystems in many jurisdictions, or for the phase-out of coal plants), *which could pose a barrier for finance given that it requires grants-based finance or public regulation*.
- Transformations requiring the expansion of a market currently too small for large-scale activities, for instance because most households or public entities have too weak finances to

³ The World Bank defines long-term finance as financial instruments with a maturity exceeding one year. https://www.worldbank.org/en/publication/gfdr/gfdr-2016/background/long-term-finance

pay for a good/service. This creates the need for grants-based finance or public subsidies or other regulatory support, *which could pose a barrier for finance as the end-users cannot pay the requested price for the product*.

Some transversal observations can be made regarding the transformations and their barriers (*table 1 below*). First, transformations in the agriculture and land use sector are challenging, primarily since they rely on many small and diffuse actors, such as farmers and other landholders, and on actors with limited financial capacity. Furthermore, nature restoration projects are often challenged by the lack of nationwide "markets" for the services provided. Second, the scale of projects and investments needed for transformations are a main barrier in the energy and transport sectors, especially for those requiring major infrastructure developments. Third, transformations in energy and transport are often challenged by the state of maturity of technologies, which although existing globally, face challenges in EMDCs. Regarding transformations based on negative emissions, the technologies are at an earlier stage of their maturity worldwide, posing barriers globally.

The transformations highlighted by the countries are diverse, reflecting the different national circumstances and policy priorities of the countries. If the countries of the teams participating in this analysis are to reach their climate and development objectives, all of the transformations analysed here must be financed. However, the diverse transformations have different characteristics that pose as barriers for finance. To overcome these barriers, both national actors and international actors must undertake action to ensure international financial collaborations and other financial arrangements that enable countries to engage a low-GHG development path to align climate and development objectives.

Transversal national actions to facilitate the financing of in-country transformations

National actors, in particular the government and other public actors, can undertake a set of actions which will positively impact the general investment climate in respective countries, thereby improving conditions for both international and domestically sourced finance of the full set of transformations identified in *table 1*. Such national actions are fundamental, although not sufficient, to attract increased financial flows to Paris-compatible transformations. These actions are described briefly below:⁴

- Ensure a national long-term policy framework with broad political and stakeholder support: clear and stable national industrial-, energy- and development policies and strategies are important to signal politically prioritised transformations to investors, and to inspire confidence regarding the long-term prospects of the transformations (Hourcade *et. al.* 2021; Songwe *et. al.* 2022; Temperton, 2016; OECD, 2021; Prasad *et. al.* 2022). Countries can translate the above policies into a national strategy for investment, to pinpoint the priority transformations for finance (Songwe *et. al.*, 2022). Such policies require broad political- and stakeholder support, and alignment with medium-term development objectives and long-term climate objectives to ensure their continuity. Broad political and stakeholder support cannot be solidly established without the existence of national in country expertise about different scenarios and pathways, that provide a structured basis for policy dialogue within the country and between the country and international players (Tyler & Mgoduso, 2022).
- Improving market conditions / business climate: a clear and transparent contract law and reliable judicial system inspires confidence in the stability of and foreseeability in the rules and contracts that foreign (and domestic) investors are subject to (Prasad, *et. al.* 2022), both to protect investors from sudden changes impacting their investments, and the projects and host-

⁴ The actions listed here correspond well with what Hourcade et. al. (2021) consider as "market-shaping" solutions.

countries from investors withdrawing engaged funds.⁵ It is important to balance the need to protect investors interests in order to encourage investments with the need to keep a policy space with the capacity to address todays and tomorrow's challenges (the Energy Charter in Europe for instance can be considered to have granted too far-reaching protection to fossil fuel investors that limited governments' capacities to legislate in key areas, particularly the environment).

Furthermore, establishing macroeconomic stability and the rule of law on the national territory is important for reducing the country credit risk rating and thereby the national interest rates for borrowing (Prasad *et. al.* 2022), and security-related costs for investments. However, both depend on structural factors that are hard to shift in the short- and medium term. For instance, macroeconomic stability depends on the national monetary policy, the structure of the national economy, as well as on international programmes around national debt – an ensemble of factors that are either partly beyond the control of national actors and/or difficult to change via public policy in the short- and medium term. Furthermore, the impact of stable and/or improving macroeconomic performance of developing countries on their credit ratings has been questioned by some authors (Fofack, 2021), indicating that improving macroeconomic indicators might not yield intended effects on interest rates on credit. Ensuring a national long-term policy framework with broad political and stakeholder support, and improving market conditions / business climate are actions to support investments and finance that are easier to achieve in the short- and medium term for national governments.

Necessary elements for international financial collaborations to effectively enable transformations at the national level

To match the actions discussed above by national actors in EMDCs, international financial actors must develop mechanisms to finance transformations with the range characteristics as identified in this paper, in order to enable countries to achieve accelerate climate and development action and reach objectives under the Paris Agreement. A plethora of initiatives on climate finance exist already, including multiple parallel initiatives to reform the World Bank (for instance Mia Mottley's Bridgetown agenda and US's Secretary of the Treasury Janet Yellen's reform initiative), the G20's Sustainable Finance working group, efforts to align taxonomies for finance across several markets, the Glasgow Financial Alliance for Net Zero (GFANZ), the Central Banks and Supervisors Network for Greening the Financial System (NGFS), to name a few. Furthermore, existing research points to actions by actors in the international financial community to bridge the investment gap in EMDCs, such as the initiatives cited above. These actions include the following: scaling up the finance provided by MDBs and DFIs; a greater involvement from the private sector in acting to overcome the barriers to finance that they face (for instance through the GFANZ); increase ODA and extend the use of Special Drawing Rights via the IMF to increase the finance available to EMDCs to engage on the required transformations (Songwe et. al. 2022); alleviating the debt burden of EMDCs; leveraging sovereign and multi-country guarantee funds to reduce investment risks and catalyse private finance; and increasing EMDCs access to green bonds markets (Hourcade, et. al, 2021).

However, many of the existing initiatives depart from the practices of financial players and their challenges, rather than being grounded in the finance priorities and their barriers at national levels. To successfully support national efforts to reach climate and development objectives, international financial collaborations must take into account national investment priorities, as well as the barriers facing the financing of these national priorities by developing institutional frameworks and instruments adapted to finance the full diversity of national investment priorities.

⁵ Hourcade *et. al.* (2021) further explore the domestic policies that create market conditions conducive to green investments.

Identifying adequate institutional frameworks and financial instruments requires first analyses identifying national investment priorities and the barriers to their financeability, based on granular country-based information, as this paper has done for seven emerging economies. As such, this paper provides an example of the type of research that should feed into "country platforms", defined as government-led, multistakeholder partnership that is used to attract and coordinate international public finance in support of common goals (Hadley *et. al.*, 2022).

Second, identifying adequate institutional frameworks and financial instruments also requires that international financial cooperation initiatives analyse whether and how they are currently taking into account the barriers to finance identified here based on national low-GHG development pathways, in order to design additional and more focused institutional frameworks and instruments to complement current activities, to ensure that their efforts contribute to overcoming the barriers analysed here. Furthermore, reporting on this analysis and the additional actions pursued would be a major improvement in their accountability, which is important as many initiatives on finance are more transparent on the processes that they have launched than on the tools they provide in order to have an impact on economic transformations.

The Global Stocktake can be an opportunity to better match the efforts made in existing international cooperation initiatives on finance with a diagnosis of the transformations required for countries to reach climate and development objectives, and the barriers for finance that they face. The next section will explain how.

Drawing insights for the GST process

A bottom-up approach to the GST

The Paris Agreement (PA) marked a shift in the approach to the collective climate problem, moving away from burden sharing to cooperative approaches. Yet, the practical translation of this paradigm shift in enhanced international cooperation is still limited in scale and scope, despite its potential for more ambitious climate targets and actions (Waisman et al., 2021). To foster cooperation and ratchet up countries' ambition, the PA established the Global Stocktake (GST), a mechanism aimed at assessing progress and inform new ambition, with its first round taking place in 2022 and 2023.

The first GST is being organised in three main phases: (1) information is collected from parties and nonparties with the objective to gather the latest science and ideas on mitigation, adaptation and means of implementation. This information is then synthesized into a synthesis paper; (2) in the Technical Dialogues, parties and other non-party stakeholders discuss on the basis of the synthesized information. Another synthesis is produced based on the dialogues. These two steps are repeated three times; (3) the outputs will be considered in a political moment at COP28 that will give a clear signal to parties and other stakeholders to increase ambition and action.

The Global Stocktake can play an important role in identifying areas where international collaboration is crucial to increase ambition and action, including by 1) gathering information from parties regarding the global conditions that must be in place for increased climate ambition and accelerated climate action in their respective countries (such as identified in NDCs, LT-LEDs, etc), 2) by identifying the common global conditions across countries, and 3) by organizing dialogues to identify priority areas for international collaboration based on the material submitted by parties (Peres Català *et. al.* 2022).

This bottom-up approach to gathering information and identifying enabling conditions facilitates and ensures ownership and leadership in countries, that can lead to stronger and better implementation.

Insights for the GST from the collective work on the global enabler on finance

The above analysis demonstrates the benefits of working across countries to identify key areas for international collaboration and providing key elements for its success, based on in-depth country analyses. The Global Stocktake can draw several insights from this work, as well as other international processes which aim to strengthen international cooperation on finance:

On the GST:

1. First, the UNFCCC process, with nearly-universal country participation, it is well-placed to identify the conditions for ambition increases accelerated action in a broad range of countries. To do this, across several submissions we argued that the information collection and synthesis part of the GST should have been organised around systemic transformations and their global enabling conditions, thereby encouraging countries to submit information regarding their global enabling conditions. This part of the GST process is now reaching its end, but the approach presented in this brief remains relevant for future iterations of the GST or similar processes.

2. Second, the enablers identified should be used to structure and organise the synthesis reports on actions that enable more climate action. These reports should, among other things, serve to synthesise information on the global enablers to identify the ones that are common to many countries, as has been exemplified in this brief.

3. This structuring would provide more in-depth and actionable information to foster an informed conversation in the Technical Dialogues. Therefore, the third round of the Technical Dialogues, coming up in Bonn in June 2023, should be organised to discuss a) the necessary transformations, building on the Word Café tables on system transformations that we saw at COP27; and b) their global enablers for different countries, in order to come to agreements on the international collaborations and specific mechanisms necessary to implement such enabling conditions.

4. This is also relevant for the final Consideration of Outputs of the GST at COP28. Its outcome should focus on fostering increases in national ambition and accelerating national climate action. Therefore, it should identify and act on areas for international collaboration required for countries to align their climate ambitions with the Paris Agreement objectives, and encourage the need for continued work on identifying such areas for international collaborations.

5. Regarding improved access to affordable and high-quality finance, this is already an acknowledged global enabling condition in the GST, discussed for instance at roundtable titled "enhancing the catalytic role of international climate finance for scaling up climate action" at the technical dialogue 1.2 at COP27. This is a relevant conversation to support accelerated climate and development action, and the research presented here on national investment priorities and barriers to their financeability can inform many of the questions raised previously regarding finance in the GST, and should be replicated elsewhere.

6. Furthermore, the Consideration of Outputs should recommend international financial initiatives, such as reforms of the World Bank and discussions on JETPs, to analyse whether and how they are currently taking into account the barriers to finance identified here based on national low-GHG development pathways, and design additional and more focused institutional frameworks and instruments to complement current activities, in order that they successfully support national efforts to reach climate and development objectives.

References

Climate Action Tracker. https://climateactiontracker.org/. Accessed on 5/3/2023.

Fofack, H (2021). The ruinous price for Africa of pernicious 'perception premiums': Unless fairer financing rules are implemented, historical biases will continue to sabotage sustainable development in the region. Brookings Institution.

Hadley, S., Mustapha, S., Colenbrander, S., Miller, M. and Quevedo, A. (2022) *Country platforms for climate action: something borrowed, something new?* ODI Emerging analysis. London: ODI (www.odi.org/en/publications/country-platforms-forclimate-action-something-borrowed-something-new/)

Hourcade, J.C; Glemarec, Y; de Coninck, H; Bayat-Renoux, F.; Ramakrishna, K., Revi, A. (2021). *Scaling up climate finance in the context of Covid-19.* South Korea: Green Climate Fund.

IPCC, 2022: Climate Change 2022: Mitigation of Climate Change. Contribution of Working Group III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [P.R. Shukla, J. Skea, R. Slade, A. Al Khourdajie, R. van Diemen, D. McCollum, M. Pathak, S. Some, P. Vyas, R. Fradera, M. Belkacemi, A. Hasija, G. Lisboa, S. Luz, J. Malley, (eds.)]. Cambridge University Press, Cambridge, UK and New York, NY, USA. doi: 10.1017/9781009157926

OECD (2021). Financial Markets and Climate Transition: Opportunities, Challenges and Policy Implications. OECD Paris. <u>https://www.oecd.org/finance/Financial-Markets-and-ClimateTransition-Opportunities-challenges-and-policy-implications.htm</u>

Prasad, A; Loukoianova, E; Xiaochen Feng, A; Oman, W, 2022. *Mobilizing Private Climate Financing in Emerging Market and Developing Economies*. IMF Staff Climate Note 2022/007, International Monetary Fund, Washington, DC.

Pérez Català, A., Svensson, J., Briand Y. (2022). How to organise a Global Stocktake that enhances national climate action and international cooperation. IDDRI, *Policy Brief* N°08/22

Songwe, V; Stern, N; Bhattacharya, A (2022). *Finance for climate action: Scaling up investment for climate and development*. London: Grantham Research Institute on Climate Change and the Environment, London School of Economics and Political Science.

Temperton, Ian (2016). *Reducing the cost of financing renewables in Europe*. Study on behalf of Agora Energiewende.

Tyler, E; and Mgoduso, L (2022). *Just energy transitions and partnerships in Africa: a South African case study*, Meridian Economics.

Waisman, H. *et al.* (2019) 'A pathway design framework for national low greenhouse gas emission development strategies', *Nature Climate Change*, 9(4), pp. 261–268. doi: 10.1038/s41558-019-0442-8.

The World Bank, at: <u>https://www.worldbank.org/en/publication/gfdr/gfdr-2016/background/long-term-finance</u>. Accessed on 5/3/2023.

Sector	Country	Transformation	Characteristics of transformations posing as barriers to financing						
			Diffuse and small actors	Large scale projects /investments	Non-mature technologies/ markets	Major upfront action	Institution- nalised market does not exist	Small market size	
AFOLU	BR	Restoration of degraded native forests, recovery of pastures and increase of Protected areas.	Х	Х			X		
AFOLU	BR	Adoption of sustainable agricultural practices and increased productivity of the cattle herd	Х				X		
AFOLU	MX	Land use and agricultural	Х		Х	Х	Х		
Residential	AR	Modernization and electrification of households building sector	Х		Х			Х	
Energy	AR	Expansion of RE production with domestic components		X					
Energy	ID	Deployment of low-carbon energy production							
Energy	IN	Deployment of storage batteries		X	Х				
Energy	IN	Deployment of mobile batteries		X	Х				
Energy	IN	Installation of hydrogen as alternative fuel		Х	Х	Х	X		
Energy	AR	Expansion of power generation capacity via big hydropower- and nuclear plants		Х		Х			
Energy	MX	Expansion of RE capacity		Х	Х			Х	

Table 1: transformations necessary for achieving national climate- and development objectives, and their characteristics

Sector	Country	Transformation	Diffuse and small actors	Large scale projects /investments	Non-mature technologies/ markets	Major upfront action	Institution- nalised market does not exist	Small market size
Energy	AR	Accelerate the deployment of Distributed Generation.	Х		Х			Х
Energy	ID	Expansion of RE capacity						
Energy	IN	Expansion of RE capacity				Х		
Energy	ZA	Expansion of new renewable power and storage capacity at utility, commercial and industrial, and residential scales	Х	Х		Х	X	Х
Energy	AR	Increasing and improving transmission and distribution of electricity	Х		Х			
Energy	CN	Phase down of coal power plants		X	Х		Х	
Energy	ZA	Grid expansion and strengthening		X		Х		
Energy	ZA	Grid strengthening and maintenance to enable higher level of distributed resources		Х		Х		Х
Energy	ZA	Energy efficiency and demand side management	Х				Х	Х
Industry	AR	Transformation of productive sector		Х				Х
Industry	BR	Improvements of energy efficiency and processes in industry	Х				Х	
Industry	ZA	Development of national value chain for renewables and batteries				Х	Х	

Sector	Country	Transformation	Diffuse and small actors	Large scale projects /investments	Non-mature technologies/ markets	Major upfront action	Institution- nalised market does not exist	Small market size
Industry	ZA	Development and deployment of new industrial processes and technologies (eg green hydrogen and steel)		Х	Х	Х	X	
Negative emissions	CN	Deployment of BECCS and other NETs		Х	Х		X	
Negative emissions	IN	Deployment of CCUS		Х	Х	Х	X	
Negative emissions	IN	Deployment of CCUS infrastructure		Х	Х	Х	X	
Other	ZA	Just Transition in coal communities	Х		Х	Х	Х	
Transport	MX	Changing urban structure, improving public transit and non-motorized infrastructure		Х	Х			
Transport	BR	Improving urban public transport infrastructure		Х				
Transport	ZA	Charging infrastructure for electric vehicles			Х		Х	
Transport	ZA	Improving passenger and freight rail infrastructure		Х		Х		
Transport	AR	Modernization and electrification of the transport (passenger and freight) sector		Х				Х
Transport	BR	Electrification of vehicle and transport networks		Х	Х	Х	X	
Transport	ID	Deployment of electric vehicles						

Transport	7.4	Deployment of electric vehicles for public				
	LA	transport (eg electric buses and minibuses)	Х		Х	