



GREEN
CLIMATE
FUND

6 May 2022

Response matrix for Energy access & Power generation Sectoral Guide

Summary

The accompanying sector guide was released for consultation in March 2021 and the consultation was open until the end of July 2021 to provide sufficient time for stakeholder to provide inputs. Consultation was open to the Board, advisers, observers, NDAs, Direct and International Access Entities, Civil society, Private sector representatives, Partner institutions and sector experts. The Secretariat received more than 350 specific comments and feedback on this draft. These and the responses by the Secretariat sector experts on how these comments were considered in the updated version of the sector guide is contained in this document.

This feedback and response matrix has been prepared for information purposes only to share the different comments received by the organizations that submitted feedback to the GCF in response to the public consultation of the "Energy access and Power generation Sectoral Guide" draft for consultation version 1.

The information and content in this document do not imply any judgment on the part of GCF concerning the legal status of any territory or any endorsement or acceptance of such boundaries.

Responses to feedback noted here are those of sector experts and may not necessarily be those of the GCF.

The mention of specific entities, including companies, does not necessarily imply that these have been endorsed or recommended by GCF.

For further inquiries regarding this feedback and response matrix please contact us via:
sectoralguides@gcfund.org

Sectoral Guide Section	Feedback (verbatim)	Organization	Response from GCF/DMA sector specialists
General	Sectoral guide makes reference to hydrogen as a potential storage solution. Please specify you are referring to GREEN hydrogen	IDB	Agreed and incorporated.
General	Sectoral guide does not mention actions to reduce methane emissions. Is it considered in another sectoral guide?	IDB	Not within the scope of this Guide. Refer to the relevant Guide; Ecosystems AND Agriculture.
General	The waste to energy option should have special consideration under the GCF. Unfortunately, it is mixed with biomass and that can be misleading. Municipal Solid Waste is still normally managed via landfills, especially in LAC creating a major environmental problem. Electricity generation is a viable solution with proven technology. A special program or call from the GCF could help mobilize investments in that area.	IDB	The Guide is intended to provide strategic guidance for the GCF priorities in the next 3-5 years. Waste-to-Energy is not a strategic focus of GCF but can be considered on a case-by-case basis.
General	Based on our experience with GCF Projects, and given changing markets and operating environments, it is best to include enough flexibility for adjusting specific programs based on reasonable circumstances (in the design stage so that these can be adjusted during the implementation stage.)	IDB	Noted.
General	One of the barriers that is not considered, particularly as it relates to Paradigm Shift, is the change of government, and thus potential/real changes in policies, programs, incentives that can quickly shift from incentivizing EE/RE investments to disincentivizing them.	IDB	Noted and agreed but beyond the scope of the Guide.
General	<p>GCF's draft sectoral guidelines (including energy generation) should recognise and support the different applications of carbon capture and storage technology (in energy production, industrial decarbonisation, low-carbon hydrogen production) in developing countries.</p> <p>Both the IPCC and the IEA (including in its latest Net-Zero by 2050 report) have made it clear that carbon capture and storage is needed to achieve Paris goals.</p> <p>-The IEA has concluded in their Technology Roadmap that the largest deployment of carbon capture and storage must occur in non-OECD countries.</p> <p>-Paragraph 35 of the GCF's Governing Instrument establishes the eligibility of carbon capture and storage for support by the GCF.</p> <p>-13 countries have included carbon capture and storage in their nationally determined contributions. Increased recognition of the role of carbon capture and storage on the path to 2050 and beyond is obvious in the long-term low-greenhouse-gas emission development strategies submitted under the UNFCCC, 24 of which include carbon capture and storage as of June 2021.</p>	Global CCS Institute	Noted and partially agreed. This guide includes storage in support of intermittent RE. Carbon capture is not a priority for GCF in the next 3-5 years due to high costs.

<p>General</p>	<p>Thank you for accepting comments on the draft sectoral guides, as well as for hosting the webinars. While there is slightly more mention of ESS risks and safeguard issues in these guides as compared to the previous, the IRM finds that information regarding sectoral-specific risks is insufficient. Providing guidance on the typical safeguard issues of the sector is critical to fulfilling due diligence requirements.</p> <p>There is precedent for adding this detailed guidance in the sector guides of other institutions (linked here as well as below). In the IFC's Good Practice Handbook on Assessing and Managing Environmental and Social Risks in an Agro-Commodity Supply Chain (https://bit.ly/2T9BfGX), there is quite an extensive section (about 10 pages) of information on both environmental and social risks beginning on p. 15. The following section, on p. 25, discusses methods of managing and mitigating these risks specific to the sector.</p> <p>Another example can be found in the ADB's Waste to Energy in Age of the Circular Economy: Best Practice Handbook (https://bit.ly/3f4eeh2). The information on safeguards is less than a page (p. 59), but this particular guide makes use of a table format (p. 58) detailing business risks that could prove to be a useful method of inserting information on ESS risks into existing guides without adding too much extra length.</p> <p>While adding sufficient safeguard information to the existing guide would likely add only about 4-5 pages, we would also like to suggest a companion guide as an alternative. Lalanath has previously spoken to Gerry about this. A companion guide would allow for detailed information and guidance on sectoral risks.</p> <p>The EBRD has a set of companion guides (https://bit.ly/3ysBAVm) that are excellent examples of the level of detailed guidance that we feel is necessary. They identify various sectoral-specific risks and give information on best practices and management actions for a number of sub-sectors. You may find the Sub-sectoral guidelines: Timber and wood products (https://bit.ly/3woaUU0) to be especially pertinent to the current set of sector guides.</p> <p>Please let us know if you would like to discuss this further, and we look forward to seeing the finalized guides.</p> <p>IFC Good Practice Handbook on Assessing and Managing Environmental and Social Risks in an Agro-Commodity Supply Chain</p> <p>ADB Waste to Energy in Age of the Circular Economy: Best Practice Handbook</p> <p>EBRD Environmental and Social Risk Management Companion Guides</p> <p>EBRD Sub-sectoral guidelines: Timber and wood products</p>	<p>Independent Redress Mechanism (IRM) / Green Climate Fund (GCF)</p>	<p>Noted. Chapter 3 mentions some aspects and refers to GCF safeguards policies.</p>
----------------	---	---	--

<p>General</p>	<p>TITLE AND SCOPE: The stated purpose of this Guide is to cover the contributions of the GFC to ensure “universal access to affordable, reliable and modern energy services” and to increase “substantially the share of renewable energy in the global energy mix”. Unfortunately this guide limits itself to the power sector and clean cooking. In order to be a guide on “Energy”, it would be important to include reference to other important energy sectors, such as transport and industry, which are completely excluded from table 1. We are informed that there are guides on industry and transport sectors, but the interface with energy on those sectors should be dealt by the “Energy Generation & Access Sectoral Guide”.</p> <p>Investments in renewable energy for the power sector alone will not be enough to help us achieve clean energy systems, since they are currently responsible for just around one third of final energy use today. Recent projections and roadmaps from energy agencies such as the IEA and IRENA project a need of at least 100 EJ of modern sustainable biomass renewable energy by 2050 if global net zero targets are to be met.</p> <p>To avoid any confusion, we strongly recommend either: (i) including various energy sources in the scope of the current draft Sectoral guide and renaming it “Energy Generation, flexibility and access” or; (ii) changing the title of this guide to “Power generation and access” in order to reflect its current scope.</p>	<p>Ministry of Foreign Affairs - Brazil</p>	<p>Noted. Clarification on scope and links to other sectors is highlighted through a section on the overall energy balance in Chapter 2.1. Changing the title to Energy Access and Power Generation is logic and agreed from a sector point of view.</p>
<p>General</p>	<p>It is not clear whether or not projects can target more than one of the "paradigm shift pathways". We suggest you to explicitly address this case throughout the document.</p>	<p>Ministry of Foreign Affairs - Brazil</p>	<p>Incorporated. Added "one or more" to line 64 and a similar sentence to line 503.</p>
<p>General</p>	<p>We would thus like to know when the Secretariat, in consultation with the Co-Chairs, intends to include this topic as an agenda item for Board consideration.</p>	<p>Ministry of Foreign Affairs - Brazil</p>	<p>To be communicated by SMT.</p>
<p>General</p>	<p>General mix-up between energy and power: Throughout the text, the studies on the need for energy done by international organizations such as the IEA and IRENA are quoted, even though the guide’s current version is restricted to power generation and clean cooking. It is important to properly inform that electrification is only a part of the energy sector. According to the IEA, in 2018, the power sector was responsible for 19% of the world’s energy consumption, behind transport and industry, each one accounting for 29% of the total consumption (https://www.iea.org/data-and-statistics/data-browser?country=WORLD&fuel=Energy%20consumption&indicator=TFCbySector). In its latest report “Net Zero by 2050”, the IEA describes seven key pillars for a clean energy system, one of them being electrification. This means this guide is far from covering the energy sector and references to the entire energy sector must be put into context or excluded from the text.</p>	<p>Ministry of Foreign Affairs - Brazil</p>	<p>Changed table 1 to define the scope more precisely. Also added Figure 1 and some text in the introduction on energy balance as part of chapter 2.1.</p>
<p>General</p>	<p>Lack of bioenergy funding: One of the other seven key pillars for a clean energy system identified by the IEA in its latest report (“Net Zero by 2050”) is bioenergy, which is underfunded in spite of its importance.</p> <p>According to the report, bioenergy plays a major role in the illustrative scenario of emissions neutrality modeled by the Agency. Traditional and unsustainable uses of bioenergy will need to be eliminated ("phased-out") and replaced by modern bioenergy, which, in its various forms - solid, liquid and gaseous biofuels -, would become the second most important source of energy supply in 2050, accounting for almost 20% of the global energy supply.</p> <p>We do hope to see this energy source, in its many different types (bioenergy, biogas, biofuels, besides bioelectricity) included in this series of guides.</p>	<p>Ministry of Foreign Affairs - Brazil</p>	<p>The Guide is intended to provide strategic guidance for the GCF priorities in the next 3-5 years (GCF1). Bioenergy is not a strategic focus of GCF1 but can be considered on a case-by-case basis, although only in cases were this fuel is actually renewable and fuel sourcing is sustainable.</p>

<p>General</p>	<p>The GCF's Energy Generation and Access Sector Guide accurately defines the three main areas: low-emission energy generation, efficient and reliable transmission, distribution and storage, and promoting access to clean energy. In each of these areas the barriers and resulting opportunities are appropriately identified. Finally, the last chapters on financing, case studies and investment criteria further strengthen the guide. However, there are details that should be taken into account for an adequate allocation of resources, greater socio-economic development impact in developing regions and improved sustainability of the investment framework.</p> <p>The technical achievements and the price development of renewable energies promote the complete decarbonization of the energy supply. However, the lack of storage capacities and insufficient integration of renewable energies in the power grid, as well as continued strong pressure from fossil fuel suppliers or power plant technology on decision-makers in developing countries, continue to prevent a faster spread of renewable energies and measures to increase energy efficiency. With a more systematic approach to decarbonize and extend the power sector in developing and emerging countries the GCF could offer its partner countries a comprehensive proposal for addressing these challenges.</p> <p>Energy generation: it is important to mainstream and encourage a greater impact on local players and/or SMEs. Considering that this is a business model widely proven and developed around the world, the different actors in the supply chain have reached minimums in terms of profitability. Renewable auctions around the world have shown how low the price per kWh can be when market conditions are optimal. The real challenge that exists is that the investors involved in the capitalization of the projects are incumbents or large utilities since their WACC is lower. This often prevents SMEs from participating in the value chain, without considering that for EPCs, for example, they do not achieve the economies of scale of the same players mentioned above. GCF should strive for the final beneficiary of the resources to be local players, preferably from local markets and communities, whose main challenge is access to capital, as identified in the report. One solution may be to create a guarantee mechanism vis-à-vis local and/or international FIs to ensure that they receive the necessary leverage to invest into local SMEs.</p> <p>Generation and transmission: where the business is concentrated in PPPs, government companies or utilities, efforts should be made to promote training and capacity building so that local communities (hopefully with a gender focus) are the ones to operate and maintain the transmission lines. It is not recommended that resources are allocated to PPPs and/or public service utilities, where in many occasions they can access capital through other debt or investment instruments (such as the capital markets as well as other private institutional investors). Further, promotion of case studies and best practices around regulation of off-grid energy generation and their grid integration, as well as interconnectivity of decentralized generation and distribution shall be promoted. Capacity building to regulatory authorities needs to be provided and incentives created to remove roadblocks for such business models.</p> <p>The GCF should add a fourth dimension on energy efficiency. Energy efficiency is central to climate mitigation, adaptation and resilience. Particularly against the backdrop of rising cooling demand in developing countries or emissions stemming from the buildings sector. In addition, energy efficiency can help to reduce pressures on the need for supply and grid expansion as well as on household expenditure while being important to the reliability and competitiveness of productive uses, particularly larger-scale industries. On the other hand, energy efficiency is one of the most complex and diverse areas in the energy sector and therefore particularly challenging for developing countries.</p>	<p>BMZ, BMU Germany</p>	<p>Noted and agreed but beyond the scope of the Guide.</p>
----------------	---	-----------------------------	--

<p>General</p>	<p>We highly welcome this vital document and grateful for the efforts exerted by all stakeholders involved in creating the Energy Generation and Access guideline draft. We hope that our comments and recommendations enhance the relevance and strengthen this document to better tackle the recent adaptation and mitigation issues. Extracting and producing energy from fossils for household, business, or food production is the top source of carbon and other gas emissions detrimental to the Earth and worsening climate change. Non-transparent activities and programs, illegal activities, collusions, and corruption among various actors are almost always part of the business of energy production and consumption. Ordinary citizens, local communities, indigenous peoples, women, and children are mostly the direct victims of such integrity problems.</p> <p>Our General Comments In developing energy resources, production, access, and distribution in developing countries, any targeted, planned, or even the potential for development of energy source should be aligned with the country's national adaptation plan of action (NAPA), nationally determined contributions (NDC), environmental policies, human rights laws, indigenous people's rights policies, gender and civil society participation in decision-making, and anti-corruption standards. In addition, massive energy production projects and programs that usually require vast spaces, land areas, and indigenous peoples' lands need those domestic and international standards to be implemented accordingly.</p> <p>On Fair Distribution of Electricity Accessing energy or electricity must be provided to communities accordingly with transparent and fair distribution processes. Preferences must be based on the community's need as a recipient and the necessity for its development. There must be no preference to region, municipalities, tribal, or familial based on the official or politician's affinity or affiliation. Policy on conflicts of interest for such projects/programs must be part of the package.</p> <p>On Promoting Access to Clean Energy The procurement of materials should be transparent so as not to purchase substandard materials that are not sustainable. Substandard materials could add more waste and carbon emissions. If possible, materials should be purchased from companies that promote green and renewable energy or materials produced from renewable energy resources. Companies and banks that still support and do business or promote fossil fuels must not be accredited or partner with the Green Climate Fund.</p>	<p>TI Korea</p>	<p>Noted with thanks. The point on alignment with country policies is covered under the section "role of GCF in financing" in the executive summary, and in the section on country ownership in chapter 6. Fair distribution is reflected in the sections on energy access, notably under the "Needs of the recipients" section of chapter 6.</p>
----------------	---	-----------------	---

<p>General</p>	<p>Humans are part of nature and the environment – throughout the document, the narrative of dichotomy and exclusivity of ‘humans’ and ‘nature’ is pervasive. GCF-funded projects should ensure that projects do not violate the rights and displace the stewards who have ensure that the ecosystem in question is still thriving.</p> <p>Biodiversity is degrading less rapidly in indigenous territories according to IPBES 2019. It can be assumed that these also means that ecosystem services are also degrading less rapidly.</p> <p>RRI study has shown that investing in the protection of indigenous peoples territories (and therefore indigenous peoples plans to protect their territories)</p> <p>Not only do humans benefit from ecosystem services (or nature’s contributions to people) but humans also contribute to nature, including ecosystems (people’s contributions to nature)</p> <p>We are concerned how the guidance is referring to nature based solutions every now and then in the guidance, in particular to provide solutions for grey and green infrastructure. May we caution that the GCF nor the UNFCCC has official definition of what NBS and thus, should not be used in the sectoral guidance at all. Using NBS as a term could create convoluted definitions and would not serve a clear purpose for the sectoral guidance.</p>	<p>Tebtebba Foundation</p>	<p>It appears as if this comment is not referring to this guide. NBS (Nature Based Solutions) is not mentioned in this guide.</p>
	<p>Please refer to clean and sustainable energy (no low emission) constantly and consistently in the document. Please update references to the last reports published in 2021 (IEA, IRENA, REN21, SDG7 tracking 2021...)</p> <p>Please also refer to efficient consumption and use of energy, as well as resource efficiency, waste management and circular economy principles.</p>		<p>Noted with thanks. Comments are adopted as specified below: '- For priorities, we generally write "renewable energy and geothermal energy" to communicate that, given the GCF1 time horizon, it is unlikely that GCF will be supporting major investments that are not renewable energy or geothermal energy, but low emission. However, with reference to the UNFCCC report from COP26, GCF will use low emission in general and system level terms (Please refer to the UNFCCC Decision 1/CP 26 section IV, para 20.) '- References to the last reports published in 2021 (IEA, IRENA, REN21, SDG7 tracking 2021...) are updated as of October 2021. '- In chapter 1 and 2 it is added text referina to</p>

General	<p>Please include connection with other SDGs, such as food, health, jobs and cities. Please also include other environmental objectives beyond CO2 emissions, such as pollution, adaptation and resilience, water and biodiversity. The energy sector can have a great negative impact in all these areas, with fossil fuels greatly contributing to pollution or land degradation. But also the role of critical minerals in the transition needs to be acknowledged, ensuring that the transition is green, sustainable and just, leaving no one behind.</p> <p>Please refer to energy generation at large, not only power. And Clean Cooking. And include specific references to the power sector and the benefits of the electrification of the economy.</p> <p>Please connect sustainable energy with the covid19 recovery and universal health access.</p> <p>It'd be useful if the GCF prepares a clear list of indicators for assessing and measure impacts of the energy projects funded under the GCF, including subsidies reforms and impacts on tariffs, as well as social impacts.</p>	IDAE Spain	<p>efficient consumption and use of energy, as well as resource efficiency.</p> <ul style="list-style-type: none"> '- Waste management is mentioned in section 2.3 and 3.1. '- Circular economy principles are mentioned in chapter 2.3. '- Reference to SDG's are incorporated in chapter 3. and chapter 6.2. '- Pollution is referred to in Chapter 2.2.3. '- Biodiversity is referred to in Chapter 3.1 '- The scope is made clearer in Chapter 1 and 2. '- Chapter 2. is updated to connect sustainable energy with the covid19 recovery and universal health access. '- Chapter 4. has been updated to include some further guidance regarding how GCF proceeds can be justified for paradigm shifting energy transition. '- Chapter 6.1 Impact potential has been updated to make the guidance more elaborate on specific indicators for assessing and measuring impacts of the energy projects funded under the GCF.
General	<p>Across the report, we would suggest being consistent by including nuclear among low emission generation sources. Clarifying GCF position on nuclear would help avoid confusion especially as it relates to GCF investment criteria.</p>	Sagar, Canada	<p>Nuclear is not a priority for GCF over the term (3-5 years) of the Guide. The Guide is focused on the prioritized technologies and subsectors for the coming 3-5 years.</p>
General	<p>Much of the Guide and descriptions contained jargon that may be of common use to climate specialists but would likely be unfamiliar to finance specialists or the intended audience of the document.</p>	USAID	<p>Noted and further clarifications incorporated throughout the text.</p>
General	<p>Though understood that the document is intended as a Sectoral Guide and that GCF has also developed the project preparation information and programming manual with further instructions (849-850), this document could benefit for more detailed description of precise, quantifiable measures that the GCF plans to use when making decisions regarding projects to fund.</p>	USAID	<p>Noted with thanks. In the chapter 3 and 4, high level guiding principles are included. Also, chapter 6 has been updated to provide principle guidance on result monitoring.</p>

General	<p>Though this may be covered in the GCF project preparation information and programming manual, from a project developer's perspective, this Sectoral Guide seems to lack information that would be useful when exploring options for potential funding:</p> <p>(i) What are the goals/objective of the GCF; (ii) What broad criteria would a project need to meet in order to qualify for funding; (iii) What steps need to be followed as part of the application process - and what are the time estimates for each step? (iv) What type of terms and conditions would be offered for financing and/or guarantees (i.e. interest rates, returns, grace period, forms of finance, etc.)? (v) What specific size/type of projects does the GCF finance?</p>	USAID	Partially Incorporated: - The goals/objective of the GCF are made clearer in the introduction as well as in Chapter 3. - Regarding the broad criteria that a project need to meet in order to qualify for funding; please refer to Chapter 6 GCF INVESTMENT CRITERIA. - Chapter 4 is updated to include more information on the prevailing terms and conditions for concessional finance, as well as what size of projects can be financed.
General	<p>The document contains limited consideration of gender issues. The word gender appears three times, once related to GCF investment criteria and twice in a section on Sustainable Development Potential. It would be interesting to speak about gender as it relates to the higher lever themes in the report: Transformational Planning and Programming, Catalyzing Innovation, and Mobilization of Finance at Scale.</p>	USAID	Gender aspects are included more explicitly in chapter 2.1, chapter 3.1 and chapters 6.3, 6.4 and 6.5.
General	<p>Could the GCF consider paying for projects that train local workers in a country for renewable energy (RE)/ energy efficiency (EE) jobs? This can lower the cost of equipment installation significantly in some areas, while providing jobs. The Mali case study mentions this very briefly, but it could be more generally included as a factor or feature in the sustainable development criterion. It is mentioned very briefly on line 914 but should warrant more attention.</p>	USAID	Yes, job creation is supported but primarily if it is linked to a project as capacity building activities and job creation OR if co-benefits. Please refer to updated text in Chapter 2.1 and Chapter 3.1.
General	<p>The document could be clearer as to whether the GCF will seek to fund community or cooperative level energy projects in remote, rural or in peri-urban areas. New, more collective business and financing models that seek to decentralize control over energy systems will be important going forward and can contribute to transforming the energy sector not only in terms of the technology used but also in terms of the governance and financial control over the systems.</p>	USAID	Noted and incorporated. Added the sentence "Supporting community or cooperative level energy projects or similar collective business and financial models." to Table 8 - please also note that the comment may pertain to the Cities guide and Industries guide as well.
General	<p>We applaud the emphasis of the draft guidelines on paradigm shifting pathways in both the energy and financing sectors. We appreciate the emphasis on building out renewables and energy storage deeply, at scale and with speed. However, it is important to assure that low-carbon technologies and approaches displace uneconomic uses of thermal power assets, rather than just growing alongside them. Otherwise, both resources will be sub-optimally utilized, and continued tensions between these resources will obscure root grid deficiencies. This could dampen public sentiment for future climate ambition. This will be especially important in developing countries with coal-heavy power sectors, especially when demand picks up again post-COVID and these countries face the pressures of getting power online to meet growing demand. Further consideration should be given to how financing of a managed phase-down of coal fired power, while preserving electric grid reliability, can be better assured by the concomitant buildout of cost-effective low-carbon alternatives that are well understood by the host country. Enhancing this understanding may require the establishment of an economic modelling case to assure apples to apples comparisons of costs. For example, comparing baseload coal price when coal is merely used for peaking is not the appropriate comparison when measured against renewables and other flexible resources.</p>	USAID	Noted with thanks. We agree with this statement and will welcome proposals that support the shift away from incumbent, unsustainable technologies and that addresses the dilemma of plant owners and governments when phasing down coal. Added to Table 3, transformational planning and programming: "Supporting countries planning and financing of a managed phase-down of coal fired power, while preserving electric grid reliability".

General	<p>Helpful to see recognition in the overall approach of the increased complexity of implementing multiple small actions and catalysing change in for eg domestic RE, clean cooking etc compared with catalysing large investment in a single, large, RE generator. And to indicate GCF approach to this (bundling, aggregating).</p> <p>However, the approach does seem to also cast developing countries as receivers of clean energy tech. Is there also GCF thinking on advancing country capacity to manufacture or assemble clean energy tech (eg solar, batteries, electric cook-stoves etc) to create local value in the context of the global energy transition?</p> <p>We're also unclear if non-electric/non-power energy themes/activities are included (e.g. non-electric heating, cooling, storage, distribution, etc., which are important parts of the energy theme)?</p>	UK	<p>Noted with thanks.</p> <ul style="list-style-type: none"> - Chapter 3 is updated to include opportunities to manufacture or assemble relevant technical assets. - The scope of this guide is clarified in Chapter 2. - Energy end use for agricultural processes, industry processes, building architecture and traffic planning is beyond the scope of this guide. Much of these aspects are covered in other sector guides.
Executive Summary	This assertion is a bit questionable if you consider level of emissions of certain developing countries eg. China, India.	UNDP	Noted and incorporated through per capita GHG emissions
Executive Summary	In introducing the document, it would be helpful if the Executive Summary was more explicit regarding who is the specific audience for the Sectoral Guide/who specifically is this document intended to help? (i.e. countries, accredited entities)	USAID	Please refer to the introduction, Chapter 1.2, that: "The purpose of this Guide is to support countries, GCF Accredited Entities (AEs), and other stakeholders..."
Executive Summary	<p>The documentation suggests that its purpose is to guide projects (seemingly on a one-by-one basis), but there are some goals that seem hard to factor into any specific project. It is not clear how the broader aspect of capacity building would be implemented through this guide for specific project proposals. For example, it is difficult to envision how a wind energy project proponent could include training the regulators in the windfarm project proposal.</p> <p>We very much support the concept of integrating capacity building into the GCF's approach. However, this guide seems to be more suited to guiding more generally the whole GCF programme design. It remains unclear how this would be implemented if it is meant to be applied on a project-by-project basis, unless the GCF intends to start prioritizing more training and capacity building projects versus the physical technology implementation. What could improve the overall outcomes would be metrics to evaluate success in the various pillars and under the different criteria, and a reporting system to keep the focus on meeting the overall objectives.</p>	Sagar, Canada	Noted and clarifications about how capacity building beyond specific projects can be supported are incorporated in Chapter 3 and Chapter 4.
Executive Summary	There is no reference to regulatory frameworks or market structures for the "Transformational planning & programming" portion of the "Low Emission Energy Generation" area (it is partly reflected in the "Transmission, Distribution, and Storage" portion).	Sagar, Canada	Added to the graphic. It is already contained in table 3
Executive Summary	Hyperlink or footnote to the GCF Strategic plan	ADB	Footnote added in the Introduction.
Executive Summary	Hyperlink or footnote to the approved work programme.	ADB	Added a reference to GCF/B.28/Inf.13
Executive Summary	The draft guidance offers an insight into energy sector developments, trends and barriers. It however provides limited guidance on the applicability of different GCF funding windows to support different types of activities needed for energy planning, programming or investments (e.g. what activities shall fall more strictly under readiness and which can be incorporated/sequenced as part of a funding proposal). Further, the paper does not give clarity on GCF position vis-à-vis certain types of solutions – such as biomass/biogas and does not guide the reader on the non-eligible types of investments for GCF for energy.	UNDP	Noted with thanks. Chapter 3 and 4 are updated to give clearer guidance.
Executive Summary	It would be nice for readers who are unfamiliar with GCF, if result areas are mentioned or referenced. This would prevent from confusion - 8 result areas & 10 sectoral guides	GIZ	Incorporated. The 8 result areas are now included as a footnote in the introduction.

Executive Summary	When developing policies, programmes, projects, and regulations	IDB	Noted and partially incorporated. Added "policies and regulations" to this sentence although the idea of programmes and projects is a little different from what the reviewer might have had in mind - i.e. GCF projects that typically also address policies and regulations.
Executive Summary	Carbon capture and storage should in the list of cross-sectoral issues, as it is relevant for both energy generation but also industrial decarbonisation.	Global CCS Institute	This table is about what is actually covered in the other guides, with relevance to this guide. Carbon capture is beyond the scope of this Guide that covers the next 3-5 years.
Executive Summary	Not only climate emergency but also undergoing a sixth mass extinction – might be good to rephrase as “ Humanity is breaching planetary boundaries, and global ecosystems are experiencing both a biodiversity crises and a climate emergency”	Tebtebba Foundation	Beyond the scope of the Energy Guide.
Executive Summary	Table ES-1 (table 1 introduction). Please refer to: “energy produced from renewable sources in a sustainable manner and includes bioenergy, geothermal energy, hydropower, ocean, solar and wind energy”. It'd be good to include a reference to promote efficient use and consumption of energy.	IDAE Spain	Incorporated. Adopted this wording although we diferente between renewable energy and geothermal energy (which is not renewable) - this was not made clear the way we listed the energy carriers initially.
Executive Summary	There are cross sectoral issues addressed missing	FAO	This table is about what is actually covered in the other guides, with relevance to this guide. Please refer to other guides.
Executive Summary	Clean, low emission and sustainable energy access, energy generation and consumption	IDAE Spain	"Low emission energy access and power generation" refers to an GCF result area that has changed name over time.
Executive Summary	There are studies that a proportion of so called 'natural' or 'wilderness' areas are actually low human impact ecosystems. Suggested rewording: “They encompass natural environments with various levels of intensity of human intervention from negligible or low impact to intensive”?	Tebtebba Foundation	Beyond the scope of this guide. This comment seems not to be referring the this guide.
Executive Summary	also innovative?	GIZ	Incorporated. Added "innovative".
Executive Summary	The term ecosystem services is superseded in IPBES with the phrase 'nature's contributions to people', which captures the observation that services may fit to more than one category – it may be useful to add this as a footnote (https://www.ipbes.net/glossary?search_api_fulltext=&f%5B0%5D=glossary_title_initials%3AE)	Tebtebba Foundation	Beyond the scope of this guide. This comment seems not to be referring the this guide.
Executive Summary	It is suggested to insert the share of GHG emissions from the energy sector	FAO	Incorporated. Added this information which is quoted later in the report.

Executive Summary	It would be useful to illustrate the scope of this development challenge with more specific numbers here as per the 2021 SDG7 Tracking report. https://trackingsdg7.esmap.org/downloads	UNDP	We have not included this in the executive summary - more detail is already given in the body of the report, noting however that the Guide focus on the medium term 3-5 years priority investments.
Executive Summary	The GCF should not accept or process accreditation applications from private sectors supporting fossil fuels for energy generation or stopped but did not transition from fossil fuel resources to renewable energy resources.	TI Korea	Beyond the scope of this Energy Guide.
Executive Summary & 2.Global Context	Please reflect the full range of ambition of the Paris Agreement. With the majority of countries not committed to net zero emissions by mid-century, the GCF should also increasingly focus on supporting efforts towards reaching the 1.5C-goal rather than just "well below 2C".	BMZ, BMU Germany	This wording has been adjusted given another request to use the IRENA 2021 report on pathways to 1.5C.
Executive Summary	Add unsustainable fuelwood as another type of fuel to transition from	IDB	Updated
Executive Summary	Reference can be updated to new reports from IRENA in 2021	IDAE Spain	Updated
Executive Summary	Add the part in bold: "While emissions from developing countries' energy sectors are relatively low compared to developed countries... "	IDB	Updated
Executive Summary	It is suggested to insert the current shar of renewable energy in the final energy consumption	FAO	This information is already in the body of the report. We have not included it in the executive summary.
Executive Summary	Though acknowledging that 'energy efficiency' is the subject of a separate GCF Sectoral Guide, this document misses an opportunity to underscore and highlight the importance of implementing comprehensive energy efficiency policies in the developing world as a means to lowering future energy demand -- while also cutting the long-term costs of energy to consumers. Despite the relatively low levels of per capita energy consumption in the developing world now, energy efficiency is still a concern in urban areas, in transport and in industry. This integrated discussion of energy efficiency should be included as part of this Sectoral Guide.	USAID	Incorporated. It is now made clearer in 1.INTRODUCTION and in 2.GLOBAL CONTEXT, that energy efficiency is paramount for the energy system transition.
Executive Summary	Due to the high upfront costs, renewable energy is "only" cheaper if the long term investment horizon is considered as also discussed later in the text. It would be better to also mention briefly in this sentence.	FAO	Incorporated. The sentence is edited: " <i>Hence, they have a unique opportunity to leapfrog to low emissions energy generation from renewable sources which have a lower life time cost than new fossil fuel based power in most parts of the world.</i> "
Executive Summary	We would like that also the concept of addressing energy poverty can be noted here, which is one of the key objective currently being addressed under the Italian Presidency of the G20. Although no definition has been internationally agreed in so far, energy poverty occurs when households or territorial units cannot fulfil all of their domestic energy needs (lighting, cooking, heating, cooling, information-communication) as a result of lack of access to energy services, an inability to afford them, or their poor quality or unreliability. Energy poverty affects developing countries in a specific manner given contexts with underperforming energy services markets. Energy poverty can also negatively impact the effectiveness of public services (e.g., health and education) as well as economic productivity. Therefore, it represents an obstacle to achieving the SDG7 goal of ensuring access to affordable, reliable, sustainable and modern energy for all. The eradication of energy poverty provides a number of health, economic, and climate co-benefits (Thema et al, 2017) while also building resilience of societies and economies when faced with health or climate emergencies.	Italy	Beyond the scope of the Energy Guide.

Executive Summary	Contribution to adaptation need to be better addressed. "Clean" can be a vague definition.	IDAE Spain	Text adjusted accordingly.
Executive Summary	It may be worth mentioning in the Exec. Summary the benefit of providing access to clean, modern energy systems related to: enabling economic development, and energy jobs creation.	TNC	Incorporated. It is now included: "Therefore, it is of paramount importance that developing countries plan strategically to attract global financial flows to shift to a renewable energy-based power system for meeting their economic and social goals, including economic diversification and job creation. "
Executive Summary	A set of common terminologies need to be defined throughout the doc: "Low emission energy access and power generation" vs "clean energy access and power generation"; what is the definition of "clean energy"? NB some uses "sustainable energy". The terminologies can be more consistent with the section of paradigm shifting pathways.	FAO	Thank you for pointing this out. The wording is now stream-lined and clarified. - Clean energy is used in citations of the overarching SDG7 formulation, Sustainable Development Goal (SDG) 7 "Affordable and Clean Energy", as well as in SDG 7a, and also when citing IEA or referring to IEA scenarios. In the latter case, it is made transparent that IEA also refer to technologies that are beyond the GCF immediate priority and therefore beyond the scope of this guide. -For GCF priority pathways (Chapter 3) "clean" is now replaced by "renewable", "renewable and geothermal" or "modern renewable", unless where referring specifically to clean cooking which is a demarcation against indoor pollution from traditional fuels.
Executive Summary	Change 'human encroachment' to "land/water/area change or conversion". There indigenous territories overlapping with protected areas, whose contributions in protecting these areas are not recognized and whose human rights are violated because of the fortress type model of conservation.	Tebtteba Foundation	Beyond the scope of this guide. This comment seems not to be referring the this guide.
Executive Summary	After 'inappropriate', add 'unsustainable'	Tebtteba Foundation	We didn't find this word anywhere. This comment seems not to be referring the this guide.
Executive Summary	While it is correct to emphasize the need for private sector investment, the solution to last-mile electrification still requires significant public financing. Low-income populations can afford all the costs. There is still a justification for targeted subsidies to achieve universal access to electricity and clean cooking fuels.	IDB	Noted and agreed. No change is however required in the Ex. summary text.
Executive Summary	The definition of energy forms including heat the doc is considering throughout the doc: e.g. the doc indicates "renewable energy-based electricity and promoting access to clean energy" - What is the scope of RE application for heat production (e.g. application of bioenergy feedstock for heating, recovery heat in resource efficiency in RES etc)?	FAO	This is beyond the scops of this guide. The scope is clarified in Chapter 1 and 2.

Executive Summary	Clean, affordable and reliable	UNDP	Wording is updated throughout the guide. SDG 7.1 to ensure universal access to affordable, reliable and modern energy services. IEA uses clean cooking.
Executive Summary	Another term that could be used for human -environmental system is socio-ecological systems	Tebtteba Foundation	This comment seems not to be referring to this guide.
Executive Summary	It should also be noted that this definition does not align with the investment criteria outlined in Chapter 6, which appear to be technology neutral so long as technologies have high mitigation potential. It is unclear whether "Low Emission Generation" could include generation from nuclear sources. Currently, it states that it "focuses on generating electricity from renewable sources" – we would suggest clarifying the GCF's position on this piece, and including nuclear among low emission generation sources.	Sagar, Canada	Carbon capture and storage is beyond the scope of this Guide.
Executive Summary	Carbon capture and storage should be listed under Low Emission Energy Generation. Whilst the penetration of renewable technologies will continue, there will remain a need for the dispatchable plant to manage RES variability – gas with carbon capture and storage is one of the solutions.	Global CCS Institute	Carbon capture and storage is beyond the scope of this Guide.
Executive Summary	We suggest expanding the concept of wave energy to the broader category of ocean energy and offshore renewables. Such technologies are described as forward-looking technologies in Chapter 3 Paradigm Shifting Pathways Energy Result Areas, which include also wave RE. In our opinion, their role can be further emphasized given the opportunity for the GCF to promote paradigm shifting interventions also in terms of: a) designing enabling regulatory frameworks specifically for offshore renewables; b) improved mapping on technical offshore renewable potential; c) international cooperation on R&D, investment research projects including consideration of local conditions, capacity building.	Italy	Updated
Executive Summary	Hydro' is listed as one of the renewable energy sources supported. Given the environmental impact of large-scale hydro, does GCF have a definition regarding the size of hydro projects it would support?	USAID	Rather than the size, it will be the overall ESS aspects that guide, refer to chapter 3.
Executive Summary	For energy distribution and storage, as already highlighted in the "Cities, buildings and Urban Infrastructure Sectoral Guidance", it is important to include here the concept of the implementation of smarter and digital power infrastructure systems. This is critical for the acceleration of the energy transition by ensuring a seamless and optimized interaction of electricity system elements on both the supply (e.g. DG, RES and storage) and demand (e.g. energy efficiency, DSR, EV) sides.	Italy	Agreed. These points are already made in the bullets and the body of the report
Executive Summary	Would this include efficiency improvements (retrofits) of existing transmission and distribution infrastructure, or only new infrastructure related investments? Please clarify.	ADB	Noted and agreed, retrofits can be justified. No changes are required in the executive summary.
Executive Summary	It may be useful to reference "affordable" energy access in here, as cost factors would play a significant role in driving transformative behavioural change. However, we recognise the tension between affordability for end-users and sustainable financing models which encourage private sector investment.	UK	"affordable" added in table ES-1.
Executive Summary	Access to clean energy should include also energy for thermal uses and clean cooking. Contribute to reduced emissions,	IDAE Spain	Modern renewable energy covers energy for cooking as well as other needs.
Executive Summary	The third "transformational pathway" (Promoting Access to Clean Energy) focuses on off-grid and mini-grid energy generation from renewables. We suggest the scope to include also the so-called "isolated systems", such as small or medium-sized cities not connected to the main or national grid and supplied by local power generation. This is the case of many cities in the Amazon region in Brazil, that still highly dependent on diesel generation (more than 95%). In that sense, this transformational pathway could be even more effective in terms of access to clean energy.	Ministry of Foreign Affairs - Brazil	The term "mini-grid" is used to address exactly the suggested scope - small or medium sized isolated grids
Executive Summary	We suggest explicitly referencing clean cooking, to avoid impression that this is only about electricity access	UK	The text is updated

Executive Summary	It would be useful to precise here the inclusion of clean cooking solutions as well.	UNDP	The text is updated
Executive Summary	Consider including clean cooking	GIZ	The text is updated
Executive Summary	The phrase "risks are higher" could be seen as an exaggerated general statement. New generation of all types requires long-term agreements and many years to achieve cost recovery. A "legally binding commitment for shifting to renewable energy" would not be essential where the levelized cost of energy (LCOE) for renewable energy (RE) is lower than for fossil fuels- market economics will drive that commitment.	USAID	Financial risks are high "legally binding" has been deleted.
Executive Summary	Suggest clarifying what is meant by the term "new fossil." Presumably, the reference means "new fossil fuel-based generation facilities," but clearer text could benefit the reader.	USAID	The text has been adjusted as suggested
Executive Summary	Even though Initial investment costs of some renewable energy (RE) technologies may be higher, most other infrastructure funded by non-recourse project finance requires the same two or more decades of revenue secured by long-term security package agreements. This is not that unusual. Similar to much stated in 91-101. All these things are critical for successful RE projects, but they are not unique risks associated with RE.	USAID	Agreed. No changes are required in the text.
Executive Summary	This statement might be not correct for some types of investments where return on investment or required revenue stream to make an energy project viable might not require 2-3 decades.	UNDP	Agreed, " two or more decades" is deleted from the text, and instead "many years"
Executive Summary	It is an aggressive statement, considering that renewable energy has achieved quite competitive prices in developing countries with subsidies to incumbents, at times through renewable energy auctions. The statement that only long-term PPAs can provide investment security is flawed.	BMZ, BMU Germany	Agreed and incorporated: "Even though levelized cost of energy from most renewable technologies are now lower than new fossil fuel-based energy generation, the financial risks are high because the initial investment costs need to be covered by many years of revenue that should be assured through a commitment for shifting to renewable energy."
Executive Summary	This section does not mention the implementation barriers (under, say, market barriers) for RE in developing countries. For example, when you have the presence of ill-intentioned or "sales-only focused" technology suppliers in a market, especially for distributed generation, who solely aim to sell as many RE units (e.g. SHS) as possible (rather than employing a model that also provides quality after-sales service, guarantees the equipment for a certain period, etc) and thus try to profit from the lower-income populations unfamiliar with the technology and in need of energy, which can hurt low-income populations, tarnish the reputation for RE and distort markets.	IDB	Good point. The text in the executive summary is however not changed. In this summary, it is referring primarily to barriers from the investors point of view that include inability to secure cash inflow. It is correct that underlying reasons for this include poor service. The point is very well taken and while the text is not changed here, it is included in chapter 4. Financing.
Executive Summary	Energy access seems to be absent from this sub-section.	UNDP	The sentence on off-grid investors applies to energy access. We have also added a comment about high technology costs.
Executive Summary	There a number of additional risks, eg. Currency risks, political risks etc.	UNDP	Added "and others" to line 100
Executive Summary	It is suggested to add: weak infrastructure and low awareness as barriers	FAO	Added "and others" to line 100

Executive Summary	This may not necessarily be the case for ALL countries. Suggest reformulating to "in a number of developing countries"	UNDP	Added the word "often"
Executive Summary	It is suggested to add: uncertainties in access to finance	FAO	Added "and others" to line 100
Executive Summary	Renewable energy development faces considerable risks related to siting. When considering long term planning (and regulations to drive smart deployment) consider including reference to "siting on low impact lands and waters" which not only avoids environmental harm, but helps de-risk and accelerate development by avoiding conflicts (with local communities or environmental groups).	The Nature Conservancy (TNC)	Added "and others" to line 100
Executive Summary	In a number of countries, the extension of the grid is also very limited.	UNDP	Added "and others" to line 100
Executive Summary	Other than financial and counter-party/off-takers risk there is also significant technological risk. At macro level there is often fiscal challenges due to technological imports/duties especially in countries where there are not enough domestic manufacturing markets. Perhaps through its policy level support, GCF could think of providing incentives in this area of technology transfer and/or manufacturing supply-chain.	ADB	Incorporated: "and other" is added to broaden the matter of risks here in the Executive Summary. Some more text regarding local manufacturing is included in the section "Drivers of change across paradigm shifting pathways"(in chapter 3. PARADIGM SHIFTING PATHWAYS: ENERGY RESULT AREA).
Executive Summary	The relative lack of institutional experience of RE projects and enabling frameworks, for both local developers and governments, also influences the risk perception and cost of capital.	UK	Incorporated: "and other" is added to broaden the matter of risks here in the Executive Summary. Some more text regarding institutional experience is included in the section "Drivers of change across paradigm shifting pathways"(in chapter 3. PARADIGM SHIFTING PATHWAYS: ENERGY RESULT AREA)
Executive Summary	Suggest rephrasing this sentence to enhance clarity. Does "reduce the expected rate of return" mean "reduce the expected rate of return required by investors"?	USAID	Incorporated: GCF aims to leverage its range of grant and non-grant instruments to de-risk renewable energy investments, reduce the cost of financing and thus the expected rate of return required by investors, increase affordability to end-users and accelerate the transition to renewable energy technologies.
Executive Summary	This may be misunderstood. The idea is to reduce the risk so that the expectation of the return to compensate the risk is reduced, but not to reduce the expected rate of return per se. as an alternative you can use "reduce the cost of financing".	UNDP	Incorporated:GCF aims to leverage its range of grant and non-grant instruments to de-risk renewable energy investments, reduce the cost of financing and thus the expected rate of return required by investors, increase affordability to end-users and accelerate the transition to renewable energy technologies.

Executive Summary	and large-scale deployment.	ADB	This doesn't appear to add any clarity to the message.
Executive Summary	This list should include "building local capacity" - for developers, govt agencies and local financial institutions. It is particularly relevant for 1) and 4).	UK	updated
Executive Summary	Is there not a role for GCF in helping to over-come some of the policy barriers identified in the previous section?	UK	There is no change required in the text. The answer is yes and GCF do support these type of activities linked to project implementation as well as in terms of readiness.
Executive Summary	And environmental?	UNDP	Incorporated. Added
Executive Summary	The paper could also discuss GCF general approach to funding pilot innovative technology deployment (for instance, hydrogen) and related (market) research and development investments, which often constitute a main barrier for pioneering/introduction of truly innovative and impactful technologies.	UNDP	To make GCF's general approach clearer, more clarifying text is added in Chapter 3. PARADIGM SHIFTING PATHWAYS: ENERGY RESULT AREA, "drivers of change across paradigm shifting pathways" and 4. FINANCING PARADIGM SHIFTING PATHWAYS "GCF Financial instruments for low emissions energy access and power generation projects".
Executive Summary	It would be good to clarify what enabling adoption of best practices in this context means in practice.	UNDP	Incorporated. Suggest writing best industry practice in the executive summary. It's meaning can not be covered in length in this guide.
Executive Summary	Change to 'contribution of indigenous peoples, women, youth and relevant stakeholders'	Tebtteba Foundation	This comment seems not to refer to this guide.
Executive Summary	This is included as an action for project implementation, however, isn't this a preparatory action for project development?	GIZ	Incorporated. The role of GCF in financing the paradigm shifting pathways also includes providing Readiness grants. This is clarified here in this executive summary. Furthermore, in chapter 4. FINANCING..., edits and additions are made to better clarify different funding windows and instruments that GCF offer to its partners.
Executive Summary	In Chapter 4, repayable grants are also mentioned as a distinct instrument. We suggest including / mentioning it here as well.	GIZ	Incorporated. Added "reimbursable grants".
Executive Summary	Given the GCF's goal is to align with countries' NDCs, some of which include nuclear, it would be helpful to clarify the GCF's position on nuclear in this document.	Sagar, Canada	This Energy Guide is focused on the prioritized technologies and subsectors for the coming 3-5 years.
Executive Summary	The paper could further discuss the role GCF would be aiming to play in the context of complementing other vertical funds (e.g. GEF) in energy sector and how complementarity shall be approached by the accredited entities in this respect.	UNDP	Beyond the scope of the Energy Guide.

Executive Summary	The six GCF investment criteria seem worthwhile but lacking a relevant point that ensures significant returns of investment. Therefore, we highly recommend the following addition to the investment criteria (7th criteria): (7) transparency and integrity: ensure that the finance/funds for energy are well-spent, benefiting the intended community and direct beneficiaries employing fiduciary standards, anti-corruption policies, gender-sensitive, indigenous peoples policies, and other integrity policies.	TI Korea	GCF investment criteria are established through Board decision.
Executive Summary	We suggest taking technological originality into consideration, among the criteria for assessing projects. This consideration can be relevant if intended to stimulate other initiatives than just new business models based on mature technologies. If it is plausible and the criteria is subject to change, the section 6 would be adjusted.	Ministry of Foreign Affairs - Brazil	GCF investment criteria are established through Board decision.
Executive Summary	Investment criteria include environmental, social, gender and economic benefits as co-benefits. But these are different from ensuring that each investment takes into account ESG factors (e.g. ensuring minimum flows) or other negative impacts that might be caused by RE projects. Perhaps the two should be treated separately and at the moment the latter (ESG) are not mentioned in the document but should be unless they are already implicit in the co-benefits? Would be good to clarify.	UK	GCF investment criteria are established through Board decision. Regarding ESS and typical safeguard issues of the sector, some more text is included in Chapter 3.
Executive Summary	Please include a reference to the do not significant harm approach. SDGs can be too vague, e.g. investing in a coal power plant can have positive impact on job creation, while damaging health, life on land, water or the climate.	IDAE Spain	GCF investment criteria are established through Board decision.
Executive Summary	Please include a reference to the project as part of the relevant national plans, such as NDC or NDP, or even INFF.	IDAE Spain	This is fully covered in the body of the report.
Executive Summary	The need to have "country ownership" as a criterion for GCF investment is understood. However, when countries are not carrying out integrated, transparent planning, limiting project support to only government-backed efforts can stand in the way of efficient, cost-reflective energy system build-out. This should be considered in depth somewhere – perhaps it is addressed in another section?	USAID	Beyond the scope of the Energy Guide.
Executive Summary	For the "Promoting Access to Clean Energy" line and the "Catalyzing climate Innovation" column, we suggest including the development of pilot projects, based on renewables. Pilot projects can be very important to prove the applicability, the readiness and the maturity of the technologies and business models in a local/specific context. Pilot projects are an important step towards scaling up clean energy solutions.	Ministry of Foreign Affairs - Brazil	We do not include it in the executive summary since pilots and demonstration projects are not highest priority for GCF, but will be considered on a case-by-case basis. Focus is rather on the commercialisation stage of innovation. PPF grants can not be used for pilots and demonstration projects.
Executive Summary	Under "Mobilization of finance and scale", low emission technologies should be linked not only renewable energy but also to other decarbonisation solutions, including carbon capture and storage where large scale investments are needed. As highlighted in the general comment, a large part of the world's carbon capture and storage capacity would need to be built in developing countries. The Global CCS Institute's report CCS Development in Southeast Asia elaborates on carbon capture and storage in the context of developing countries.	Global CCS Institute	Already incorporated. Carbon capture is beyond the scope of the Energy Guide.
Executive Summary	TNC fully supports the idea of "Integrated energy, land-use and climate investment planning" as well as the other referenced actions in the Low Emission Energy Generation and Transformational... box.	The Nature Conservancy (TNC)	Good.
Executive Summary	In the Promoting Access row, it may be worth including a bullet on "Engaging with communities to assess needs, priorities, and ensure proper alignment with proposed energy solutions..."	The Nature Conservancy (TNC)	Updated

Executive Summary	Currency risks is an important barriers to mobilize finance at scale for energy. It would be interesting to see example of hedging mechanisms and eligibility of using GCF resource for such type of risk coverage.	UNDP	Indeed hedging can be interesting to explore. We do not change the summary text since it can be part of the bullet: -crowd in private investment at scale...
Executive Summary	Under promoting energy access, it's necessary to include "skills development" in the off-grid energy access sector for the whole chain – business development (design, planning, etc.), technicians for installations and maintenance, and skills for productive use businesses (business and technical skills) and Consumer awareness measures. It would also be good to mention "SHS or standalone solar" under energy access so that it is not lost in the broader energy access term. Mini grids always go together with SHS.	GIZ	Skills development is added in Table 8 as well as in this summary matrix.
1. Introduction	The paper is rather lengthy, and repetition of certain sections or generic narratives could be avoided.	UNDP	Thank you for this reflection. Duplications have been avoided.
1. Introduction	The transport and energy approach could potentially be combined since the context of transport, mobility and circulation is often linked to energy. Clean fuel, the promotion of public transport, the elimination of traffic jams, the renewal of vehicle fleets are themes that could be considered.	USAID	Please refer to the Transport Sector Guide
1. Introduction	Carbon capture and storage should in the list of cross-sectoral issues, as it is relevant for both energy generation but also industrial decarbonisation.	Global CCS Institute	This table is about what is actually covered in the other guides, with relevance to this guide.
1. Introduction	There is reference in this guide to "sustainable biomass" and it is noted that biomass energy is considered in the land use guide... however given the sustainability challenges associated with biomass energy/fuels it would be important to address how these energy solutions are treated, including possibility that GCF not include such solutions equally along with other renewables.	The Nature Conservancy (TNC)	The guide only mentions "sustainable biomass".
1. Introduction	The guide intro references "renewable hydro" however throughout the document there is no consideration of the sustainability concerns around hydropower. What defines renewable or sustainable hydropower? Hydropower is almost never "low impact" and many/most new hydro investments should be avoided. What about upgrades/efficiency increases to existing hydro? Will GCF support old/inefficient hydro dam removal?	The Nature Conservancy (TNC)	There is no mentioning of renewable hydro.
1. Introduction	Low Emission Energy Generation' part: is this just power sector-focused? Would non-renewable clean energy technologies like CCUS be eligible here for proposals?	UK	CCUS is beyond the scope of this Energy Guide.
1. Introduction	*Efficient and Reliable Energy Transmission, Distribution, and Storage' would benefit from going beyond just the electricity sector here (e.g. non-electric-based thermal storage, distribution, etc.) (Page 14)	UK	Electricity storage is specifically prioritised because it is crucial for the possibility to increase renewable energy sources in the electricity mix significantly before 2030.
1. Introduction	*Catalysing climate Innovation' pillar: important that GCF identifies where its additionality is here, such as the gap between technology innovation and scale-up (page 8), which requires financing	UK	The additionality will be after pilot and demonstration level, in the commercialisation and system operation stage of Technology Readiness Level. This is clarified.
1. Introduction	*Co-benefits: good to see these as impact indicators, but currently quite vague and would be more valuable and measurable if proposals were asked to more closely and quantitatively link to a range of specific SDGs	UK	Noted but beyond the scope of this Guide.
1. Introduction	*Replication: would be useful to have this as an additional criterion for impact indicators (slightly different from scale-up and more about similar projects without GCF (or related) climate finance being implemented)	UK	Noted but beyond the scope of this Guide.
1. Introduction	To be consistent with the investment criteria outlined in Chapter 6, we suggest changing "Renewable energy generation context" to "low emission generation context"	Sagar, Canada	Renewable Energy Conext is a more accurate title.

1. Introduction	Please also include references to other SDGs, such as SDG 2, 3, 8, 12, 13 and 15.	IDAE Spain	A general reference to that more SDGs are brought up in section 6.3 Sustainable development potential is included here.
1. Introduction	There are cross sectoral issues addressed missing	FAO	This table is about what is actually covered in the other guides, with relevance to this guide.
1. Introduction	It is suggested to add the share of GHG emissions of the energy sector.	FAO	This information is already in the body of the report. We have not included it in this opening paragraph.
1. Introduction	<p>We suggest changing “modern renewable energy” to “modern low emission technologies” as other non-emitting technologies could be eligible under GCF investment criteria.</p> <p>It should be noted that the most recent IEA report titled “Net Zero by 2050 - A Roadmap for the Global Energy Sector” clearly identifies nuclear as a source of both clean energy and low-carbon electricity. In addition, the report identifies nuclear energy as an essential foundation for net zero transitions and that reducing the role of nuclear power could raise the costs of a net zero emissions pathway by \$2 trillion and increase the risk of not meeting the goal.</p>	Sagar, Canada	<p>A footnote is included to specify that the use of the term “<u>modern</u> renewable energy” is specifically used for differentiating from traditional biomass (open fires, burning waste etc.), which is otherwise the default option for people without access to “modern” energy service supply.</p> <p>Regarding IEA scenarios and nuclear; While it is true that nuclear is included in a few countries’ NDCs and IEA therefore also includes it in the scenarios, IEA is very clear about the priority in the immediate future and for reaching 2030 targets is on renewables. Regarding eligibility; GCF has no strict eligibility criteria and this guide is not about what is eligible but about the priority pathways. The guide identifies priority pathways for the immediate future and for reaching at targets as set in the Paris Agreement for 2030.</p>
1. Introduction	Carbon capture and storage should be listed under Low Emission Energy Generation	Global CCS Institute	Carbon capture and storage is beyond the scope of this Guide.
1. Introduction	Same comment to that of line 65 (t should also be noted that this definition does not align with the investment criteria outlined in Chapter 6, which appear to be technology neutral so long as technologies have high mitigation potential. It is unclear whether “Low Emission Generation” could include generation from nuclear sources. Currently, it states that it “focuses on generating electricity from renewable sources” – we would suggest clarifying the GCF’s position on this piece, and including nuclear among low emission generation sources.)	Sagar, Canada	This Guide aims to highlight the priority pathways for GCF1 which are more specific than the GCF investment criteria.
1. Introduction	See previous comments regarding “ocean energy and offshore renewables” and “implementation of smarter digital power infrastructure systems, to be included here as well as in other relevant sections of the guidance when referring to the respective results areas: a) “Low Emission Energy Generation” and; b) Efficient and Reliable Energy Transmission, Distribution, and Storage.	Italy	Thank you for your suggestion. A reference is made to ocean energy in the pathway as well as in Table 1 of the introduction.

1. Introduction	There should be explicit mention of universal access. No one left behind.	IDB	Universal access is adopted when relevant, such as when referring to the global context (based on SDG7 formulation). It is however intentional that GCF does not always adopt the SDG7 formulation in all aspects, since the UN goal includes the understanding that non-renewable energy may also be required for reaching all (such as e.g. LPG for cooking). GCF will apply a stringent climate rational and will give priority to renewable energy based access.
1. Introduction	Under the “transformational planning and programming” both rows should include considering supporting already existing indigenous peoples’ plans for their territories, Under “coalitions and knowledge to scale up success”, add take into account indigenous and local knowledge, innovations, practices and technologies subject to FPIC of indigenous peoples”	Tebtteba Foundation	This comment seems to de referring to another guide.
2. Global Context	Important to include information about the energy consumption in other end-user sectors. This will highlight the importance of transmission, distribution and storage for the electrification of hard-to-abate sectors.	IDB	Thank you for this comment which is well received. A brief summary of final consumption by sector is now included in chapter 2. Global Context and it is added a Figure 1. The role of transmission, distribution and storage is discussed in more detail in section 2.2.2 and there major loads contribution to system flexibility is now mentioned and hard-to-abate sectors are included.
2. Global Context	Global context can be updated with the new IEA and IRENA reports, and also in the context of the covid19 crisis and recovery.	IDAE Spain	References have been updated to the latest published figures.
2. Global Context	Clean cooking is absent from this sub-section.	UNDP	This comment is unclear since clean cooking is discussed in this sub-section.
2. Global Context	Can we make clear that this projection is under a BAU (or stated policies) scenario?	UK	A footnote is added to clarify this.
2. Global Context	In fairness to all, the document would benefit from complete information about all regions and the lack of access. While it is true that Africa bears the largest burden, other regions also need attention.	IDB	Section 2.2.3 provides a global view.
2. Global Context	Update these numbers as per the latest SDG7 tracking report 2021	UNDP	Updated in December 2021.

2. Global Context	<p>We would like to see reflected the concept of energy poverty as previously expressed in comments related to the introduction (lines 48-49). As regards clean cooking in particular, please check most recent estimates, which could be 2.8 billion people without access to clean cooking rather than 2.6 billion (IEA, 2020). For example, this year the Italian G20 Presidency is moving forward the work undertaken under the Kingdom of Saudi Arabia's G20 Presidency in 2020, where the G20 recognized the importance of focusing on the challenges of energy access, and access to clean cooking in particular, through its endorsement of the G20 Initiative on Clean Cooking and Energy Access and the five forward-looking options to scale-up modern energy cooking services. Embedded in the endorsed approach is the goal of going "beyond access" to provide clean cooking solutions that are affordable, reliable, sustainable and modern. This approach embraces the fact that, only after surpassing minimum access thresholds, modern energy cooking systems will generate positive impacts to improve health, well-being and productivity of households. Energy systems have positive impact when they enable the health and well-being of their target populations. When systems break down or target populations are unable to access services (due to lack of affordability, for example), the full positive impact of energy for development is compromised.</p> <p>For example, the Multi-Tier Framework (MTF), introduced by the World Bank/ESMAP in partnership with SEforALL in 2015, already began unpacking the different levels of energy access and, as a result, their differentiated impacts on health and well-being.</p>	Italy	<p>The figures of 2.6 billion are reiterated in the 2021 SDG7 Energy Progress Report so we have retained this figure, but added a footnote that indicates a range of estimates given in that report from 2.2 to 3.1 billion.</p> <p>The comments on the G20 initiative are noted and very welcome.</p>
2. Global Context	<p>A potential missed opportunity to mention the critical link to energy efficiency. There won't be a need to cover as massive an increase for energy generation if comprehensive energy efficiency policies are given priority.</p> <p>Note: It is understood that there is a separate guide, focusing on 'energy efficiency.' However, given the interrelationship between energy efficiency and energy generation, perhaps the topic should have more prominence in this guide as well?</p>	USAID	<p>The point is well taken and we have added a brief mention in Chapter 2.1, plus referred readers to the guide on energy efficiency.</p>
2. Global Context	<p>This merits inclusion even when the focus is on developing countries because despite their relatively low energy sector related emissions, very few of them are on track to reach their individual commitments under the Paris Agreement to limit warming to 1.5C. In Africa, only Gambia and Morocco have been identified as being on track to do so.</p>	USAID	<p>We agree with this comment</p>
2. Global Context	<p>The reference to "renewable energy sources" should be expanded to include "non-emitting sources" – the IEA is clear in the 2019 World Energy Outlook (the publication referenced in this line) that non-emitting generation sources in their Sustainable Development Scenario include nuclear and carbon capture technologies, not just renewables.</p>	Sagar, Canada	<p>This Guide focus on GCF1 and the priorities for developing countries now and the immediate future with 2030 as the target. IEA states clearly that up to 2030, the majority of the reductions in GHG emissions should come from already established renewable energy technologies. Beyond the scope of this guide, for reaching 2050 targets, IEA declares it is required that new technologies are developed and the groundwork for maturing such markets should start globally.</p>

2. Global Context	As it stands, the phrase on line 242 implies that prevention of climate change is possible only through electrification, what is clearly a narrow approach. We propose the following sentence: "For humanity to prevent catastrophic climate change, it is imperative and urgent to utilize all available technologies that contribute to the reduction of GHG emissions. One important contribution is to have power systems...."	Ministry of Foreign Affairs - Brazil	The message is valid. Given the importance of cutting down GHG emissions significantly in parallel to the fast growing populations and increasing energy demand, it is fundamental that the paradigm shifting energy transition happens earlier rather than later. This is needed to avoid locking in investments in non-renewable infrastructure. COP26 recognizes that limiting global warming to 1.5 °C requires rapid, deep and sustained reductions in global greenhouse gas emissions, including reducing global carbon dioxide emissions by 45 per cent by 2030 relative to the 2010 level and to net zero around mid-century, as well as deep reductions in other greenhouse gases.
2. Global Context	"Renewable energy sources" should be edited to "non-emitting sources".	Sagar, Canada	This Guide focus on GCF1 and the priorities for developing countries now and the immediate future with 2030 as the target. IEA states clearly that up to 2030, the majority of the reductions in GHG emissions should come from already established renewable energy technologies.
2. Global Context	Please include a reference to the fact that energy infrastructures also need to include climate resiliency provisions, i.e. investments should take into account climate considerations within the assessment infrastructure physical risk, to avoid unintended current and future infrastructure adaptation costs that can thus jeopardize the longevity and value of the investment. The circularity and sustainability of the future decarbonized energy system will rely on integrating the different energy sectors at every scale and considering the most cost-effective ways, leveraging a high degree of automated management and control and the efficient use of energy within all sectors (buildings, industry, mobility, ICT). In this context, three key elements will enhance the decarbonisation process, namely: "Sustainable Input", "Flexibility" and "Decentralization". Moreover, an adequate end-of-life management of renewable energy sources components, the adoption of eco-design strategies to increase the amount and value of materials that can be recovered and reused, and new supply chains for their possible repair/reuse for different applications will have to be properly explored, strengthening a circular economy.	Italy	Text to this effect has been added in chapter 2.1.
2. Global Context	Consider adding in the line - mechanical storage (e.g. pumped hydro, CAES) – this technology is mentioned in the whole document.	IDB	Reference to these technologies has been added.
2. Global Context	Please do not refer only to power generation	IDAE Spain	We don't approve to this change. Power generation is retained.

2. Global Context	Current baseline is mostly diesel generator, see eg. https://www.ifc.org/wps/wcm/connect/2cd3d83d-4f00-4d42-9bdc-4afdc2f5dbc7/20190919-Full-Report-The-Dirty-Footprint-of-the-Broken-Grid.pdf?MOD=AJPERES&CVID=mR9UpXC	UNDP	Updated text: "Across the developing world, frequent power outages result in the use of back-up diesel generators to supplement the power needs of industry and households. Business models for the benefit of renewable energy based back-up supply will be an important ingredient in the sustainable energy transition."
2. Global Context	Last-mile issues are a challenge almost everywhere. It would seem that GCF plans to focus only on Africa.	IDB	The text does not state that the focus is only Africa. The text states "particularly in Africa" which is accurate.
2. Global Context	See for example the climate investment opportunity estimates for energy access in Africa https://www.rockefellerfoundation.org/case-study/how-climate-investors-can-help-accelerate-energy-access-in-africa/?utm_source=LinkedIn&utm_medium=organic_social&utm_campaign=Power&utm_content=CaseStudy_CatShell	UNDP	Reference to this report is now incorporated in the guide.
2. Global Context	It would be good to make clear definition of 'modern renewables' in "...Modern renewables make up 14% of total primary energy supply (IEA, 2019a)" which I believe includes large hydro generation.	UK	A footnote is included in chapter 2.2.1: "Modern renewables excludes traditional use of biomass"
2. Global Context	Despite the huge potential for offshore wind, there are still some challenges in developing countries in terms of (i) regulatory framework (mentioned on Table 2, line 522); and (ii) competitiveness, especially when compared to other renewables. We suggest including these challenges.	Ministry of Foreign Affairs - Brazil	We have added this text in chapter 2.2.1.
2. Global Context	We strongly support reference to "offshore and ocean-based energy potential". See also our comment regarding the importance to reflect them in the summary for the result area "Low Emission Energy Generation" already made in the Executive Summary (and contents therein). We note with appreciation the consideration related to technical potential for offshore wind to grow. This potential is enormous in the global perspective and could become a crucial input to the production of low-carbon hydrogen. It would also be helpful to highlight the crucial contribution of the clean hydrogen production to decarbonize hard-to-abate sectors while providing additional system flexibility and economic growth, both in the short/medium term and the potential of hydrogen produced from renewable energy sources in emissions reduction to reach our climate goals in the long term. This should also be further stressed within Chapter 3 "Paradigm Shifting Pathways" (See comments below).	Italy	The text in chapter 2.2.2 is made more explicit to include the input.
2. Global Context	Biomass and biofuels are not suitable to be called "renewable energy" aside from the common issues that come with them, as seen in many cases, such as clearing an entire field of native plants or trees and plant another one-variety plant to extract or turn them into biofuels. An example of this was the project proposal for Fiji, which the Fund did not approve.	TI Korea	This guide consistently refers to sustainable biomass.
2. Global Context	Oil companies should not be allowed to lobby at international climate and environmental conventions and negotiations, including the COP (Conference of Parties) annual events. The Fund should encourage the contributing governments to support local financial institutions to promote local companies to create and transition to manufacturing renewable energy machines and tools. The most commonly accepted methods in transitioning from fossil to renewable energy include eliminating fossil fuel subsidies, putting a price on carbon, strengthening the investment in energy efficiency, and creating environments for phasing out coal energy consumption.	TI Korea	Noted but beyond the scope of this Guide.

2. Global Context	All countries must comply with their climate actions and targets, especially those categorized as "critically insufficient" and "highly insufficient" in responding to climate change by climateactiontracker.org. They must update their nationally determined contributions (NDCs) and make more ambitious climate targets and climate policy changes. The Green Climate Fund should strongly encourage those governments with 'insufficient' climate actions to fulfill their financial pledges and contribute their fair share for climate change projects and programs.	TI Korea	It is emphasised that countries need to raise ambition.
2. Global Context	IEA and IRENA as the two world-leading energy think tanks published scenarios showing at least 90% of renewables in power generation in 2050 for decarbonizing the power sector in line with the 1.5C-target. IRENA's preview of the World Energy Transitions Outlook: 1.5C Pathway shows that renewables and energy efficiency can reduce about 50% of the 36.9 Gt CO2 y-1 of energy sector emissions, which is almost double the figure cited here. If electrification and green hydrogen are added, the emissions reduction potential is almost three times of the figure cited here.	BMZ, BMU Germany	We have updated the text with reference to the "Global Renewables Outlook" from IRENA (2021) and "Net Zero by 2050" IEA (2021).
2. Global Context	Would this include efficiency improvements (retrofits) of existing transmission and distribution infrastructure, or only new infrastructure related investments? Please clarify.	ADB	The text clearly references "upgrading" not just new infrastructure.
2. Global Context	I will suggest adding a figure to translate those CO2 emission reductions to financial resources per year according to the projection mentioned in further chapters.	IDB	The details are given in the sections that follow - it would be unnecessarily repetitive to add them here too.
2.1.2	This paragraph doesn't seem to clearly relate to the transmission issues on which this section focuses. The discussion would not be weakened if this paragraph were taken out.	USAID	The point the paragraph makes is that transmission infrastructure needs upgrading so as to allow feeding in of large amounts of renewable energy. The paragraph seems to add value here.
2.1.2	Paris Agreement does not refer to non Annex I countries please amend it by referring to developing countries. Please refer to transmission challenges separate from distribution, as they can be very different. Please also refer to the role of interconnections and integrated energy markets, including energy systems integration, bringing together electricity and other uses of energy.	IDAE Spain	We have removed the reference to non-Annex I countries.
2.1.2 Transmission, distribution and storage	Few countries have proper regulation on this and even if regulation exists, there is a lack of capacity and experience to find an actionable model to do so. There are few or no case studies. Rather in contrast and to our knowledge, few distributed rural MGs in developing countries are built to national grid standards and there are both technical and financial barriers to future integration, apart from obvious regulatory opacity in many cases. However, examples such as the RREP (?) in Sierra Leone are starting to show how policy can account for the potential of future integration already in the micro-grid programme rollout	BMZ, BMU Germany	The point is well taken and has been added to the text.
2.1.2	Please update and include also the role of critical materials and digitalization of the energy systems (not only power) including energy systems integration, bringing together electricity and other uses of energy (e.g. the EU model)	IDAE Spain	While digitalisation is mentioned already, the aspect of critical materials is added in chapter 3.2.3
2.1	As mentioned in the document, there are many potential storage technologies and they can provide multiple services. In addition to barriers related to the technologies, it's important to note challenges also when it comes to the business models, in order to evaluate and pay for these different services (value stacking needed). We suggest the Sectoral Guide to recognise more explicitly that storage solutions to be funded should take that into account and, whenever possible, identify how storage projects can help overcome such business models challenges.	Ministry of Foreign Affairs - Brazil	Noted with thanks. While the guide cannot be specific on all aspects, it is viewed that this aspect may fall under the general in text in Chapter 3. Table 6. "Mobilizing financing for new <i>business models</i> for T&D and <i>storage services</i> for "green" grids."

2. Global Context	Please add here again a reference to the concept of the implementation of smarter and digital power infrastructure systems, that is critical for the acceleration of the energy transition by ensuring a seamless and optimized interaction of electricity system elements on both the supply and demand side (see comment above related to lines 67-69). Additionally, please refer also to the role of thermal energy distribution infrastructures, which confer resilience benefits (comments also referred to in the sectoral guidance dedicated to "Cities, buildings and urban infrastructures").	Italy	Text is updated to mention smart grids and excess heat. District heating is not brought up in this guide.
2. Global Context	When emission mandates are in place storage capacities can also contribute to have better electricity cost - https://pubs.rsc.org/en/content/articlehtml/2015/ee/c5ee01452b	IDB	The comment is well taken. We have not added this text here since it opens complex discussions about emission mandates and this appears to be too specific for this guide
2. Global Context	In accessing clean energy, there must be a just and transparent system that regulates the distribution of facilities that provide electricity to communities that need it the most. Non-transparent behavior by officials, conflict of interests, regionalism, ethnic biases, business interests must be prevented from happening when providing energy access to communities. Besides, all systems for energy distribution must be accomplished by setting up necessary policies and laws, including anti-corruption and conflict of interests.	TI Korea	The guide already highlights the need for transformational planning and programming,. GCF policies do require ethics.
2. Global Context	Make sure figures updated with 2021 SDG7 Tracking Report	UK	Text has been updated
2.1.2 & 2.1.3	Please update with the last reports in 2021, including the effects of covid19 in energy access.	IDAE Spain	Text has been updated
2. Global Context	Figure 2: Share of population without access to electricity does not seem correct. Please review.	UK	Text has been updated
2.1.3	Please clarify the title of the graph: is it the Share of population WITHOUT access to electricity" or WITH?	IDAE Spain	Thank you! The title has been adjusted to WITH
2.1	Figure 2 title should be replaced by: "Share of population WITH access to electricity", or as an alternative, adjust the colour legend to show the opposite 0-100% scale.	Ministry of Foreign Affairs - Brazil	Thank you! The title has been adjusted to WITH
Executive Summary & 2.Global Context	The graph title and colour code are inverted: countries in yellow (100%) have their population WITH full access to electricity, not WITHOUT as indicated by the title.	BMZ, BMU Germany	Thank you! The title has been adjusted to WITH
2.1.3	Is this the correct title of the graph? "Figure 2: Share of clean energy population without access to electricity"	IDB	Thank you! The title has been adjusted to WITH
2. Global Context	The title and legend are confusing: Does 'yellow colored countries' mean 100% share of population is without access to electricity? Is it not vice versa since MENA countries have electrification rates of close to 100%?	GIZ	Thank you! The title has been adjusted to WITH
2. Global Context	The title of the figure is a bit confusing: Should the "without" maybe be substituted with "with" as in: "share of population with access to electricity"	FAO	Thank you! The title has been adjusted to WITH
2. Global Context	Please check and, if necessary, update data on access to clean cooking fuels and technologies (see comment above lines 234-235).	Italy	Figures have been updated to the latest reports
2. Global Context	consider editing as follow: "... often in inefficient traditional cookstoves in poorly ventilated cooking places which contribute to	GIZ	Updated
2. Global Context	consider editing cause as follow - "... caused by exposure to emissions from inefficient use of"	GIZ	Updated

2.1.3 Access to clean energy	There are numerous clean cooking initiatives, support programmes, private sector approaches and business models, as well as different improved and clean technologies that tackle this problem. However, cooking tends to be very cultural and often the cultural component is not considered. This may include cooking practices inside vs. outside the home, time and hours of cooking, taste being influenced by cooking fuel (such as charcoal), by-product of heat from the stove, amongst others. Further, for certain technologies of clean cooking (LPG, e-cooking) there may be an issue with the supply chain of appliances as well as clean fuel.	BMZ, BMU Germany	The change of cultural values is one of the aspects of paradigm shift, it is very much recognised. The text is not expanded here, but the cultural change required for cooking is mention as an example of paradgm shifting potential (chapter 6).
2. Global Context	Consider adding 'girls'	GIZ	Updated
2. Global Context	suggested rephasing - "... clean cooking willto fires, improve their livelihoods and health conditions."	GIZ	Updated
2.1.3 Access to clean energy	Please add reference to the concept of energy poverty as recalled in comments above. Additionally, an energy poverty approach includes all basic household energy needs. By including all household energy needs that are required for improved health and well-being, the energy poverty approach recognizes the reality that different energy services are required by households. While SDG7 focuses on access to electricity and clean cooking, equally as important to maintain basic health is the ability to control indoor temperature (heating and cooling) especially under extreme temperature cases Making the best use of energy services requires an additional ability by households over time to (a) afford energy-efficient appliances and (b) maintain and improve the energy-efficient integrity of their housing structures or dwellings.	Italy	This guide aims to focus on climate change aspects of different energy planning and investments. While energy access is a target, the guide does not expand on energy poverty as a part of the energy access challenge. However, with respect to country priorities and national policies, such aspects will be relevant in project development to the extent that they are reflected in the NDPs.
2.1.3	There appears to be a redundant reference to "access to clean cooking"—perhaps one of these is meant to refer to something else?	USAID	Updated
2. Global Context	100% access to clean cooking mentioned twice	GIZ	Updated
2. Global Context	The energy system as a whole needs to adapt to climate change (climate proofing infrastructure). Water shortages and increased temperatures will have an impact. And contribute the adaptation goal of the Paris Agreement. Please update and draft better how the energy sector can contribute to adaptation and enhanced resilience.	IDAE Spain	The text is expanded accordingly; refer to chapter 2.1 and 2.2.2
2.1.3 Access to clean energy	In addition, productive use of energy (PUE) materialises benefits and gains for end-users through savings, additional cash generation, access to additional goods and services. This is often not quantified and lacks research compared to the benefits and gains accrued at the provider side. Yet, this is an important argument for clean energy development.	BMZ, BMU Germany	This is true, but does not automatically justify climate finance. Productive uses is included in Chpater 3, table 8 section about catalyzing climate innovation.
2. Global Context	Access to energy is crucial in agriculture as for example irrigation systems highly depend on energy to power them	GIZ	Yes. agriculture as one area of final energy consumption is mentioned in chapter 2.1. It is also covered in the agricultural sector guide.
2. Global Context	What does "ability for societies to plan ahead" mean?	GIZ	In chapter 2.1 the text is now more explicit concerning that access to energy facilitates collecting and accessing general and specific information as well as mobile banking, i.e. access to the financial market.

2.1.3 Access to clean energy	Linked to the previous comment, the additional gains for end-users is not quantified and therefore not measurable for investors. Finding appropriate measurement will enhance investors' assessment and may add to the return on investment.	BMZ, BMU Germany	Monitoring of impacts and co-benefits is further elaborated in chapters 6.1 and 6.3
2. Global Context	Developed nations should fulfill their promises to provide the financing needed to support the energy resources through GCF projects for developing countries. The "polluters pay principle," which is recognized globally by the Rio Declaration and other environmental conventions, shall be the moral guide in sustaining the GCF resources for climate adaptation and mitigation projects and programs.	TI Korea	The justice aspect and need for increasing international, financial support is further highlighted in chapter 2 and 4.
2. Global Context	To deliver maximum climate impact and meet sustainable development demand through "renewable energy, efficient use and consumption and achieving global energy access".	IDAE Spain	The text is completely changed due to multiple comments.
2. Global Context	Please also refer to the global energy system and the role renewables and energy efficiency can play there, not only electricity	IDAE Spain	The text is completely changed due to multiple comments.
2. Global Context	Please use the last report available, and update with the impact of covid19, and the opportunities for a green recovery.	IDAE Spain	We have included updates from the latest reports and the impacts of COVID-19. Reference is still made to the 2019 report since the 2021 report does not make a similar financial analysis.
2. Global Context	As we expressed in relation to other thematic sectoral guidance, while the estimates provided here are coming from different sources which are certainly reliable and valuable ones (The Energy Progress Report, IEA, IRENA, UNSD WHO, WBG), we are not sure whether assessing financial needs for specific results areas here is required. Needs are currently assessed in other contexts, e.g. a first overview of methodologies and approaches will be only discussed at the next COP26, with the objective of assessing potential financial needs rather than determining them. We are not therefore convinced whether having an estimated quantification of financial requirement within the sectoral guidance for results areas to assess investment priorities for the GCF-1 is currently included within the mandate.	Italy	Cost-estimates are moved to chapter 4 and are also updated/changed to reflect the IEA latest report on financing energy transition in emerging and developing markets. It is estimates but it is still useful since it gives a signal about the magnitude and also because it specifically regards the EMDE's, making the point that the lion part of investments in new energy infrastructure in the coming decades is predicted to happen in these countries, while the general debate still talks about "global efforts".
2. Global Context	Do the estimates include the support needed for uptake by end-users and not only the capex and opex for providers of solutions? Typically only the generation is considered for capital needs.	BMZ, BMU Germany	The estimated investment requirements have been updated and are summarised in chapter 2.4 with more granularity on parties investing in different energy supply.

<p>3. Paradigm Shifting Pathways: Energy Result Area</p>	<p>CCUS: We suggest to include a reference Carbon Capture, Utilisation and Storage (CCUS) in Pathway 1: low emission energy generation. This is a very relevant topic in light of the need to reduce emissions of GHG. According to the IEA report "A global pathway to net-zero CO2 emissions in 2050", CCUS may facilitate the transition to low liquid emissions of CO2, addressing the existing infrastructure and opening up economic pathways to increase the production of low carbon H2 (via BECCS or DACCS), as well as promote reforestation and waste to energy with carbon capture. It is important to support the establishment of markets for investment in CCUS and encourage the use of shared infrastructure of transport and storage of CO2 by relevant actors involved in the production of H2 and biofuels, operation of industrial areas, and retrofit of fossil based thermal power plants.</p>	<p>Ministry of Foreign Affairs - Brazil</p>	<p>This Guide focus on GCF1 and the priorities for developing countries now and the immediate future with 2030 as the target. IEA states clearly that up to 2030, the majority of the reductions in GHG emissions should come from already established renewable energy technologies.</p>
<p>3. Paradigm Shifting Pathways: Energy Result Area</p>	<p>This document will need to indicate a bit of overall time horizon we are talking about the gap and argue why the 3 paradigm shifts are so critical at this stage and should be achieved to fill the gap. it is not clear this guide is applied for the current replenishment period for/in 2020-2023 plan (see also para 66), which is now quite sure in a short period (now 2021 and only 2 yrs remain) if something concrete things should happen on the ground based on the guide. By doing so, the doc can more explicitly articulate why 3 paradigm shift pathways are top priorities among others to achieve the overall energy issues related to CC along with the proposed ToC (Fig. 3). A better presentation can be to introduce an indicative horizon of timeframe what to be achieved in the 1st replenishment (2020-2023) and beyond (whatever the guide can define), while a supportive global context how to/ by when fill the gaps is presented. Or articulate more with time bound using additional citations (at least like Section 2.4 of Forest and land use sectoral guide to understand where we stand and where we should go by when).</p>	<p>FAO</p>	<p>This is made clearer now in chapter 3. The guide concerns immediate targets for GCF1 and with the view to reach Paris Agreement targets for 2030 based on existing and available technologies. These are in essence viable albeit capital intense which is the reason why capital need be made available, WACC need be addressed/lowered for developing countries, and other financial risks need to be mitigated in these countries. The challenges beyond 2030 include a broader range of technologies that are already important for some countries. In such cases, GCF support that such complementary solutions are also assessed and incorporated in the long term integrated energy transition planning and financial strategic planning, including that markets are prepared and ESS aspects are prepared.</p>
<p>3. Paradigm Shifting Pathways: Energy Result Area</p>	<p>What about job creation? And waste management? And lower the energy prices at country level? Impact in the most vulnerable and poor populations? Please include these important references.</p>	<p>IDAE Spain</p>	<p>This is a citation</p>
<p>3. Paradigm Shifting Pathways: Energy Result Area</p>	<p>Include efficient use of energy and resources. Include references to national plans, such as the NDCs and NDPs</p>	<p>IDAE Spain</p>	<p>Updated</p>
<p>3. Paradigm Shifting Pathways: Energy Result Area</p>	<p>Wording and content of the 4 pillars is slightly different than the ones indicated in the summary from line 110 onwards</p>	<p>FAO</p>	<p>Adjusted bearing in mind that the list in 110 is a summary of the list in 468</p>

<p>3. Paradigm Shifting Pathways: Energy Result Area</p>	<p>The paper does not discuss for which funding windows this might be relevant and whether standalone projects focusing on fossil fuel subsidy reform would be acceptable to GCF or would be suitable only under readiness window.</p>	<p>UNDP</p>	<p>Chapter 4.2 is updated to provide a better understanding of how readiness grants can be used for transformational planning. Examples of transformational planning and preparedness actions, including sector reforms, are mentioned in e.g. Chapter 3, tables 3 and 8, but also in chapter 4.2.</p>
<p>3. Paradigm Shifting Pathways: Energy Result Area</p>	<p>How is this measured?</p>	<p>IDAE Spain</p>	<p>Enhanced planning is a combination of qualitative and quantitative measures. The AE will have described planned activities including specific deliverables, output, outcome, and impact with the help of selected indicators, a baseline and a target. GCF has accepted this presented monitoring plan as part of the FAA (funded activity agreement). The AE will monitor and report fulfilled achievements during the project in its Annual Performance Reports. GCF also plan for post project evaluations. In chapter 6.1 Impact potential, it is added more guidance on how to present and monitor impact. It will be the work of the AE to propose how improvements are made measurable, and GCF Secretariat provides their input during the interdivisional review of the proposal.</p>
<p>3. Paradigm Shifting Pathways: Energy Result Area</p>	<p>How will the GCF ensure this?</p>	<p>IDAE Spain</p>	<p>Ibid. (FP logframe, monitoring plan and annual progress reports (APRs))</p>
<p>3. Paradigm Shifting Pathways: Energy Result Area</p>	<p>In addition to the comment above, it would be useful to include consideration on the sequencing of the four pillars of the ToC in the context of a GCF project/programme.</p>	<p>UNDP</p>	<p>Chapter 3 and 4 are updated to provide a better understanding of the sequencing; specifically mentioning what can be considered as readiness activities.</p>
<p>3. Paradigm Shifting Pathways: Energy Result Area</p>	<p>Capacity building is also fundamental</p>	<p>IDAE Spain</p>	<p>This is true and already mentioned, but now also made explicit in bullet 4.</p>

3. Paradigm Shifting Pathways: Energy Result Area	This can be misinterpreted.	UNDP	The phrase has been removed to avoid the potential misinterpretation
3. Paradigm Shifting Pathways: Energy Result Area	All 3 pathways could also include technological barriers as commented above	ADB	This is true. Barriers is used in a broad sense
3. Paradigm Shifting Pathways: Energy Result Area	section references do not match	GIZ	Updated
3. Paradigm Shifting Pathways: Energy Result Area	Focus should be broader and include other environmental objectives beyond low emissions (biodiversity, circular economy, pollution, water, adaptation) Special attention should be also paid to social issues and human rights	IDAE Spain	This is true. The observation refers to all pathways so the common introductory section of Chapter 3 is updated accordingly with more explicit mentioning of other examples of factors driving the energy sector agenda as well as other externalities of energy investments. This guide can however not be expected to cover these other aspects thoroughly.
3. Paradigm shifting pathways: energy result area	The Low emission energy generation section is only covering renewable energy, leaving out other technologies like carbon capture and storage.	Global CCS Institute	This is with the view to provide priority pathways for GCF1 with 2030 as the target.
3. Paradigm shifting pathways: energy result area	How concretely it is expected that these technologies are transferred? Eg. Will the GCF support the capacity of countries to develop local content for the development of RE? It would be useful to provide concrete examples of this paradigm shift action.	UNDP	Yes this is supported. Local aspect is added in general introduction of chapter 3.
3.1.1 Pathway 1: low emission energy generation	There is a need to better clarify in this sectoral guidance the role of the GCF as to how it will address also de-risking, scaling up and leveraging private investment in the energy sector, in line with the USP. Particular attention can be focused, for example, on how GCF can support innovative public/private sector partnerships on R&D in innovative technologies, and market-led private innovation funding. Mainstreaming of energy policies at national level should also be enforced with a view to provide a short and long-term signal to private developers, research institutions and financial actors, i.e. through design of carbon pricing and fossil fuels subsidies reforms, regulation and performance standards, investment and competition policies. This is particularly relevant also in light of paragraph 4.3 “Catalysing private sector finance at scale” of the USP2020-2023. Please clarify also how the GCF can better cooperate with the private sector, in the context of addressing the barriers to paradigm shift in low carbon energy generation identified in Table 2, line 522.	Italy	The comment is well taken but it is beyond the scope of this guide to expand in any length on specific key areas.

3.1.1 Pathway 1: low emission energy generation	<p>"Political uncertainty": a very relevant barrier, which should include among the consequences the loss of tax incentives, currency sensitivity and/or loss of investment grade.</p> <p>While this is not "political uncertainty" per se but rather the political and regulatory environment as a whole, fossil fuel subsidies and current fiscal environment often maintain an uneven playing field favouring fossil fuels. This must also be addressed.</p> <p>"Capital scarcity": it should be taken into account that the prices of renewable energy around the world have dropped so much, it has become very difficult for local industry/start-ups to compete in price with incumbents, due to a higher WACC.</p> <p>"Lack of banking experience": it is worth adding that banks should start pledging the generation assets as collateral in order to lower the barriers for debt borrowers. In addition to being modular, generation assets can be relocated, which allows a secondary market development.</p>	BMZ, BMU Germany	Currency risk is mentioned as one of the financial risks. Fuel subsidy reforms are mentioned as a key target for transformational planning. While it is a good point on assets value and secondary markets, the level of specificity is considered to be beyond the scope of this guide.
3.1.1	It was not identified either in the barriers to paradigm (table 2) or in the actions to support (table 3) financial lines to improve the efficiency at bioelectricity generation facilities, such as acquisition of new power generation equipments. If available, such financial lines could positively impact, as they could increase the amount of power generated from renewable energy sources into national/regional power-grid and the share of clean electricity in overall energy system.	Ministry of Foreign Affairs - Brazil	This is already covered by •Covering incremental cost of delivering resilient energy services based on renewables (in Table 8. as part of "Mobilisation of investment at scale").
3. Paradigm shifting pathways: energy result area	The content in Tables 2 and 3 should be broadened to other low emission/ low carbon energy generation technologies, including carbon capture and storage.	Global CCS Institute	Carbon capture and storage is beyond the scope of this Guide.
3. Paradigm Shifting Pathways: Energy Result Area	Poor creditworthiness (utilities and investors) -It may be worth to mention that another limitation relies for investors on uncertainty in the power output of renewable energy, this may harm the creditworthiness of investors since they cannot ensure cash flow to repay loans – payment guarantees might be a mechanism that can help to overcome this limitation.	IDB	It is added in Table 3. "Transformational planning and programming" •Support the development and availability of updated renewable energy and geothermal energy resource mapping, such as wind maps, insolation, cloudiness and albedo inventories, water measurements, geothermal resource mapping.
3. Paradigm Shifting Pathways	It would be good to factor in energy demand-supply to ensure that the project is designed taking into account shifting energy market dynamics.	UK	It is already covered in table 3. Transformational planning and programming.
3. Paradigm Shifting Pathways	Would also include transparency over pricing, and consistent treatment of developers.	UK	It is already covered in table 3. Transformational planning and programming.
3. Paradigm Shifting Pathways	In the table there should be reference to fiscal environment eg perverse subsidies for fossil fuels or taxes on import of low carbon energy equipment	UK	It is already covered in table 3. Transformational planning and programming.

3. Paradigm Shifting Pathways	In the "Table 2: Selected barriers to paradigm shift in low carbon energy generation," in the barrier "Lack of strategic, managerial, and technical expertise at multiple levels": As per the comment above for line 85, please consider mentioning that another barrier (as part of market barriers) is ill-intentioned technology providers, who can enter or start to flood markets, especially poor, rural areas, but also cities, with cheap, non- workable RE technologies (esp. solar) and false promises. This is later included to some degree in Table 7 in line 557 as part of "social acceptance:" "Lack of trust in the technology, due to substandard products in the market and lack of stringent quality standards for the systems is also an issue in many markets." I would consider mentioning ill-intentioned technology providers and the consequences these have, such as lack of social acceptance, in both sections.	IDB	We believe ill-intention is a questionable statement. Instead Skills development and quality service provision is now mentioned in table 8 and also in the summary matrix in the executive summary (access/knowledge).
3. Paradigm Shifting Pathways	It is important for master plans/land use policies to include renewable energy where it is appropriate – low impact on nature/biodiversity/local communities – as well as where it should NOT be developed.	The Nature Conservancy (TNC)	Incorporated, mentioned in Chapter 3 and e.g. table 3." Transformational planning and programming" as well as " Expansion and replication of knowledge".
3.1.1	The specific issues of small island developing states (SIDS) should be noted here. The very small scale of their grids makes SIDS unattractive to conventional investors and financing sources. They will need special risk-reduction tools.	USAID	The text in Tab 2 Capital scarcity in nascent markets is edited to also mention small and remote markets. SID's are not mentioned explicitly. In chapter 4 it is further given examples of when granting or higher concessionality can be motivated.
3.1.2	Can the GCF support efforts to retrofit/update operational practices for fossil fuel plants to enhance flexibility in operations with increased variable renewable energy (VRE) share? What about conversion of gas plants to run on hydrogen (including gas/hydrogen mix)? Would be good to address/clarify these issues in the guide.	USAID	This is a good point and it is now clarified in the intro of chapter 6.2 Paradigm shifting potential, that GCF support transformational change but are reluctant to contribute to hybridisation. It can still be possible on a case-by-case basis given that there is a solid plan.
3.1.1	Distributed Energy Resources (DER) could be highlighted in this area as a resource that is different from utility-scale renewable energy (RE) plants; there doesn't seem to be clear emphasis on this strategy. This would include integrated distribution planning to better reflect DER and demand-side management (DSM) opportunities.	USAID	This falls rather under access, Table 8. where distributed energy business models is now explicitly mentioned as part of "Catalysing climate innovation"
3.1.1	Consider supporting Transformational planning related to low-impact siting criteria. Support the mapping/analysis work critical to show sustainable pathways for development.	The Nature Conservancy (TNC)	The low-impact siting aspects is mentioned in chapter 3.1.
3.1.1	Shared or standardised due diligence is also a long term objective to increase the mobilisation of finance at scale and pace.	UK	Covered by supporting dedicated clean energy programming mechanisms as well as general voluntary branch R&D
3. Paradigm Shifting Pathways: Energy Result Area	Mobilisation of investment at scale – it may be worth to consider in this section to add a point to develop climate prediction models in energy service providers to develop arbitrage strategies in short term markets - https://academic.oup.com/jigpal/article-abstract/28/4/570/5670473	IDB	Coverd by country readiness and general voluntary branch R&D

3. Paradigm Shifting Pathways: Energy Result Area	It would be useful to include considerations on currency risks in the barriers as well.	UNDP	Included
3.1.1 Pathway 1: low emission energy generation	<p>Does the transformational planning and programming consider creating an enabling environment for local RE equipment production? This may reduce cost, and solve hard currency / local currency issues.</p> <p>Technology innovation may need risk capital (grants) for R&D and field testing.</p> <p>SMEs should be included as a driver for transformation planning.</p> <p>Despite mentioning some digital and technological solutions, there should be a bullet point under 'Transformational planning and programming' dedicated to digitalization, connectivity, smart meters and grids, blockchain and other solutions that have allowed a greater democratization of renewable energy generation.</p> <p>Lack of solutions for decommissioning, which is a key stage of the renewable energy generation value chain.</p> <p>Catalysing climate innovation: While there may be no need to provide an exhaustive list of technologies, it is still worth noting for example agri-PV, which is quite important to densely populated countries like Bangladesh.</p> <p>Expansion and replication of knowledge: Information and knowledge management and diffusion are being mixed here. It might be worthwhile to seek advice and support from knowledge management experts too.</p>	BMZ, BMU Germany	<p>Local production and SME's being included in introductory text ch 3. as well as Table 3, digitalisation highlighted in Table 3 Transformational planning. Decommissioning (as well as waste management and recycling) is added in Table 3. Catalyzing Climate Innovation. Agri-PV is not explicitly mentioned but covered by general text that is expanded. Confusion corrected information/knowledge management. "lessons learnt" instead of information.</p>
3.1.1 Pathway 1: low emission energy generation	We appreciate reference to promoting technological innovation in lesser mature technologies such as offshore or floating wind, wave energy. Once again, we would like to have a broader reference to ocean and offshore renewable energy technologies as well as to the contribution of clean hydrogen production technologies.	Italy	<p>Green hydrogen is now specifically mentioned in storage, table 6. Catalyzing...</p> <ul style="list-style-type: none"> •Supporting and mobilizing new forward looking contract models with major load clusters for optimising power factor, flexibility, storage and demand-response measures for higher volumes of renewable share, including with green hydrogen.
3.1.2 Pathway 2: energy transmission and distribution, and storage	As regards possible actions to support development of cost-efficient offshore transmission, sea-cables and optimisation of large offshore RE park solution, we suggest to have a more holistic approach to this issue by highlighting possible examples including: design regulatory frameworks for offshore renewables; invest in R&D, in cooperation with industries, for innovative designs taking local environmental conditions into account; conduct public consultations early in the development process; raise awareness through detailed and improved mapping on technical offshore renewable potential and organize capacity building, etc.	Italy	This can be supported by Project Preparation Facilitation or as TA in a proposal. It also added in Table 3. "Transformational planning..." •Support the development and availability of updated renewable energy and geothermal energy resource mapping, such as wind maps, insolation, cloudiness and albedo inventories, water measurements, geothermal resource mapping.

3.1.2 Pathway 2: energy transmission and distribution, and storage	As regards possible actions to supporting investments in innovations in low emissions, climate resilient grid infrastructure technology, digitalization, and new storage technologies, please make reference also to the concept of the implementation of smarter and digital power infrastructure systems and thermal energy distribution infrastructure (see also comments related to line 67-69 and 355-356).	Italy	It is now included in Table 6.
3. Paradigm Shifting Pathways: Energy Result Area	This is barely visible	GIZ	Updated
3. Paradigm Shifting Pathways: Energy Result Area	Replace with: Other sector policies (e.g. land use or zoning)	GIZ	Updated
3. Paradigm Shifting Pathways: Energy Result Area	Technical knowledge and expertise	GIZ	Updated
3. Paradigm Shifting Pathways: Energy Result Area	not clear what the barrier is here	GIZ	Changed offered to "available"
3.1.2 Pathway 2: energy transmission and distribution, and storage	<p>Worth mentioning grid stability and incumbents' vertical role in the energy transmission and distribution industry. The big players in the generation business are often the same in the transmission, impeding the diversification of actors in developing economies, which shut competition off and prevent the lowering of prices and the improvement of quality.</p> <p>Another barrier is that it is a business that requires a lot of upfront capital. For this reason, in developing countries, it is done through PPP's, committing future funds. However, this comes back and adds a higher risk (and therefore cost) depending on political stability.</p> <p>Liberalisation of the energy sector followed by transparent energy trading through energy exchanges and real time energy/power allows the market to identify and fulfil gaps in a flexible manner. This flexibility is well suited to the intermittent Distributed Energy Resource (DER) generation of the future.</p> <p>Developing compensation structures for utilities that do not solely rely on power/energy consumption of end-users can help to improve their financial viability. In an increasingly self-reliant "prosumer/captive generation" customer base, the grid will act as a backup or storage buffer and needs to be compensated for just being available.</p> <p>One of the Industry barriers is also the disconnect between TSO's, DSO's and consumers. Smart grids of the future will require seamless communication and</p>	BMZ, BMU Germany	<p>Noted with thanks:</p> <ul style="list-style-type: none"> - Incumbents vertical role... included an additional sentence in the section "Electrical Industry Barriers": Incumbents vertical role in the power industry, often including both generation and transmission business, may impede the diversification of actors in developing economies. - PPP is now explicitly mentioned in all "possible action" tables 3, 6 and 8. - DRE/flexibility as well as prosumers is now mentioned in the general intro to Ch. 3. In table 6, it is our judgement that these are covered by: "Catalyzing climate innovation" •Supporting and mobilizing new forward looking contract models with major load clusters for optimising power factor, flexibility, storage and demand-

	<p>coordination between Transmission and Distribution Operators. The exact nature of the coordination and implementation model will vary from market to market and should involve decisions on which of the two entities takes how much responsibility and for what. Ancillary services procurement, control, cost allocation, etc. are some of the tasks that will need to be shared or allocated to the entities or even to a 3rd party independent operator. This represents a fundamental change in the relationships and hitherto clear boundaries between the transmission and distribution level services. This newer fuzzy relationship will need much more computational input (digital, predictive, AI) than was required in the past.</p>		<p>response measures for higher volumes of renewable share, including with green hydrogen". Note that these solutions will regard cities, real estate, industries, transport and agri-business and such topics as covered by other guides as well. - Digitalisation is included in table 6. Catalyzing climate innovation.</p>
3.1.2	<p>Creditworthiness of utilities is a problem but there is also a general lack of financing available in many countries for infrastructure investments with long lifespans. Utilities are supposed to recover the costs of financing through their tariffs, spread over a long period of time. Most commercial financing is only for short tenors with high interest rates (regardless of the borrower). This issue is often cited as a problem for generation projects, including independent power producers (IPPs), but it's a significant problem for transmission and distribution (T&D) investments, too, with fewer options for private investment.</p>	USAID	<p>The way the barriers are described covers the poor terms for credits. In the possible actions, there is a bullet "Supporting investments in innovations in low emissions, climate resilient grid infrastructure technology, digitalization, and new storage technologies" that serves to facilitate financing.</p>
3. Paradigm Shifting Pathways: Energy Result Area	<p>Existing...not in place - they are either non-existing or not in place!</p>	GIZ	<p>Updated</p>
3. Paradigm Shifting Pathways: Energy Result Area	<p>Not sure if this fits here, but a number of SSA countries start to struggle with over-supply. As the generation capacity far outweighs demand. Countries pay high "deemed energy" costs for this unused energy</p>	GIZ	<p>The point is valid. Although the specific SSA challenge is not highlighted it is in principle covered by table 3 Mobilization - Creating financing facilities dedicated to scaling up energy transition investments including replacement of existing fossil assets with renewable assets and 6 Catalyzing - Supporting regional power markets for renewable energy trade to increase power pooling volumes.</p>
3. Paradigm Shifting Pathways: Energy Result Area	<p>Lack of knowledge, awareness, and technical expertise</p>	GIZ	<p>Updated</p>

3.1.2	<p>On Table 5, the “Policy uncertainty” mentions the challenges related to business models. To address these challenges, we suggest including, on Table 6, Line 543, (“Transformational planning and programming” outcomes): Supporting market rules that allow an adequate remuneration scheme, considering value stacking from storage systems (provision of multiple services).</p>	Ministry of Foreign Affairs - Brazil	<p>This is covered by general branch R&D and voluntary initiatives for commercialisation at scale. For example, green procurement and standards can facilitate adequate remuneration schemes.</p>
3.1.2 Pathway 2: energy transmission and distribution, and storage	<p>Technology costs: Apart from technology costs, the lack of multiple supply chain options and an over-reliance on a single market (e.g. China) can be a huge market barrier to storage. This is not just at the raw materials/rare earth level, but also for components (such as cells). This is especially true for high power - low energy storage solutions such as Li-Ion, which is required for distributed renewable generation systems. Improvements in other storage technologies that can be more globally produced (such as flow batteries, lead acid etc.) will not only help with reducing costs, but also improving local implementation, disposal and recycling, as well as energy security.</p> <p>Policy uncertainty: Potential to support PPPs along transmission, distribution and generation to overcome segregated functions. E.g. Uganda has a mini-grid policy in place for private generation and public distribution.</p> <p>Poor creditworthiness: there are programs that tackle this problem for private sector players (e.g. minigrid operators) through providing offtaker agreements and PPA.</p> <p>Regulations for utility scale storage services are a big barrier to deployment. Adding mandates for “firm renewables” can help reduce the burden on utilities by putting some responsibility on the utility scale DRE generators to limit their intermittency.</p>	BMZ, BMU Germany	<p>Over-reliance on single markets and products is mentioned in the general text and together with local manufacturing skills, ESS. In table 6, a separate additional bullet is included in Catalyzing climate innovation: “*Support improvements in multiple storage technologies to avoid single market reliance and help developing countries to develop local skills for manufacturing, assembly, and operations, to reduce costs and improving local implementation, disposal and recycling.” PPP is made explicit included in all “possible action” tables 3, 6 and 8.</p>
3. Paradigm Shifting Pathways: Energy Result Area	<p>In table 5: Selected barriers to paradigm shift for energy storage: It is also important to mention the many negative examples of RES applications in combination with storages that represent a main barrier for further investment in this technologies due to lacking trust of stakeholders. E.g. there are many off-grid PV systems that run with batteries (e.g. public lighting), and beneficiaries often lack the knowledge on how to maintain these systems and are not financially prepared to substitute batteries after few years. This results in many RES worldwide not working and since they are often in public places, they have a high negative impact on public perception on functionality of the systems. Furthermore, there is also lacking knowledge and facilities to dispose of storage equipment in an environmental friendly way at the end of their lifetime, leading to significant pollution.</p>	FAO	<p>Skills development and quality service provision is now mentioned in table 8 and also in the summary matrix in the executive summary.</p>
3.1.2	<p>Unclear if already included in these categories - but suggest consider adding support for the use of system operations methods (e.g., dynamic line rating), use of new technologies (e.g., power flow devices, flexible AC transmission system - FACTS) and/or use of new technologies (e.g., carbon composite lines) to increase use of existing grid resources.</p>	USAID	<p>Use of system operations methods and use of new technologies are now made explicit as part of Table 6 Catalyzing: - Supporting investments in innovations in low emissions, climate resilient grid infrastructure technology to reduce losses, introduce digitalization, advanced system operation methods, new materials and technologies, including new storage technologies.</p>

3.1.2	Recommend emphasizing the reduction of losses as a measure that can reduce greenhouse gas GHG emissions on a large scale	USAID	This is already mentioned in the outset and global context. It is now also included in Table 6. Mob at scale. now made explicit as part of Table 6 Catalyzing: - Supporting investments in innovations in low emissions, climate resilient grid infrastructure technology to reduce losses, introduce digitalization, advanced system operation methods, new materials and technologies, including new storage technologies.
3.1.2	Environmental and social analysis and siting processes are often significant obstacles to timely development of transmission/distribution (T&D) grid infrastructure. Note that multilateral development banks (MDBs) often require host country governments to conduct this work and/or fund land acquisition and/or environmental mitigation costs. There is a risk that these processes will lag behind developments of new generation and slow down a clean energy transition. Recommend referencing these aspects of T&D expansion work including in planning and mobilization of financing at scale. Potentially also this could include knowledge-sharing efforts (e.g., around benefit-sharing for transmission projects, stakeholder engagement, etc.	USAID	Knowledge sharing efforts for transmission projects and stakeholder engagement is covered by general lessons learnt in table 6. It is also highlighted in the Ch.3 intro
3.1.2	Demand stimulation activities will be important. Projects that promote electric vehicle use, electric cooking and renewable energy industrial parks could be used to address imminent power generation surpluses in many countries.	USAID	Demand stimulation is covered in general terms in "catalyzing climate innovations". There is a limit to GCF supporting branch R&D and voluntary initiatives for commercialisation at scale while they are not in a commercialisation stage. When there is a scalable model or example, public private partnerships combined with dedicated credit lines or guarantees can facilitate.

<p>3.1.2 Pathway 2: energy transmission and distribution, and storage</p>	<p>It is worth mentioning virtual PPAs or virtual generation as a possible solution for distribution and transmission. This is possibly an important technological leapfrog that could put developing countries in a very good position by utilising decentralisation and digital tech.</p> <p>The table provides already quite an exhaustive list of interventions. However, this is also a good place to mention the importance of prediction technologies. Forecasting / Nowcasting technology is already quite advanced for Wind and catching up for solar. Improving predictability can vastly improve dispatch efficiency, reduce emissions from diesel/gas spinning reserves and thereby decrease the reliance on storage.</p> <p>Also, some of the old-school actions such as better monitoring and maintenance are still lacking in most developing markets. Bringing in digital monitoring and automation are still fundamental necessities.</p> <p>Stringent measures to detect and punish energy pilferage is note mentioned sufficiently in the document, but it is another older unresolved problem for most utilities which trickles down to PPA's, investor confidence and ultimate renewable energy investments. Use of pay-as-you-go or prepaid metering to prevent non-payment, good monitoring to identify leakages and penalisation of offenders to discourage theft can help improve performance of Discos and in turn the TSOs and power plant operators.</p>	<p>BMZ, BMU Germany</p>	<p>Virtual PPA is already mentioned.</p> <p>It is included in "possible actions" tables (3 and 8) support to general voluntary branch R&D for scalable commercialisation of new solutions and mechanisms for shifting, also such as model for predicting climate, voluntary standards, voluntary carbon credit trading.</p> <p>Energy pilferage is not explicitly brought up but general losses are now included in table 6.</p>
<p>3. Paradigm Shifting Pathways: Energy Result Area</p>	<p>Catalysing climate innovation – It is suggested to add the promotion of power curtailment agreements in private investors. This is very important specially in hydro dominated power systems in developing counties. - https://ieeexplore.ieee.org/abstract/document/5211172</p>	<p>IDB</p>	<p>While addressing curtailment and dispatch issues is mentioned in the global context, it is now also made explicit in table 6></p> <p>-Supporting addressing of curtailment and dispatch issues as well as regional power markets for renewable energy trade to increase power pooling volumes .</p>
<p>3. Paradigm Shifting Pathways: Energy Result Area</p>	<p>Consider full life cycle environmental impacts of various transmission, distribution storage options before recommending specific solutions.</p>	<p>The Nature Conservancy (TNC)</p>	<p>Full life cycle environmental impact is mentioned in table 3, knowledge management:</p> <ul style="list-style-type: none"> •Developing of green procurement guidelines for energy services that incorporate climate impact and minimum life cycle impact.
<p>3. Paradigm Shifting Pathways: Energy Result Area</p>	<p>Skilling for the RE access sector – the more capacities you have in the countries the easier to upscale these technologies in a sustainable and cost-friendly way</p>	<p>GIZ</p>	<p>Skills development and quality service provision is now mentioned in table 8 and also in the summary matrix in the executive summary.</p>

3. Paradigm Shifting Pathways: Energy Result Area	It is not just about promoting access to clean energy, is about promoting UNIVERSAL access to clean energy. The dimension of universality should be explicit; otherwise, focus would be only on large-scale projects without sufficient attention to last-mile problems of countries where electricity access is high.	IDB	We use modern renewable energy access. The SDG7 about universal access to affordable, reliable, modern energy and is interpreted as possibly including LPG. GCF would like to support access to renewable energy. In a specific case where it is proposed access non-renewable modern energy, the climate rational will be questioned.
3. Paradigm Shifting Pathways: Energy Result Area	Title should read shift in UNIVERSAL access to clean energy. Also, for last-mile electrification of isolated communities, geographical isolation and its consequences is a barrier (remote access). There should be a reference to the difficulties emanating from being in remote areas.	IDB	We use modern renewable energy access. The SDG7 about universal access to affordable, reliable, modern energy and is interpreted as possibly including LPG. GCF would like to support access to renewable energy. In a specific case where it is proposed access non-renewable modern energy, the climate rational will be questioned.
3. Paradigm Shifting Pathways: Energy Result Area	Title: shift in UNIVERSAL access to clean energy. Also, there are missing actions addressing last-mile electrification for remote, disperse populations.	IDB	We use modern renewable energy access. The SDG7 about universal access to affordable, reliable, modern energy and is interpreted as possibly including LPG. GCF would like to support access to renewable energy. In a specific case where it is proposed access non-renewable modern energy, the climate rational will be questioned.
3. Paradigm Shifting Pathways: Energy Result Area	Access to finance – one of the most recurrent barriers faced by financial institutions is the lack of coverage mechanisms to bear losses related to currency fluctuation.	IDB	Currency risk is now added explicitly.
3.1.3	Social acceptance itself is not a barrier to any development. The most common problem when introducing new technologies to remote areas and communities includes participation in decision-making. Most residents are not informed about the new construction of a nuclear plant or coal plant, for example. Human rights issues arise when locals are not informed, misinformed, disenfranchised, harassed and intimidated, murdered, and such common issues. If the paradigm shift in access to clean energy abide by and complies with the international (or even domestic) human rights standards, there would be no issue (or less) in social acceptance.	TI Korea	Many of these valuable points and aspects are brought into the more elaborate paragraph on planning, gender and ESS that is added to the intro of ch.3.

3.1.3 Pathway 3: promoting access to clean energy	Very much agreed. In order for investors to find low carbon rural energisation attractive, the benefits at both supply and end-user side need to become better quantified and measurable.	BMZ, BMU Germany	The guide (chapter 6) has been updated to incorporate method of principle guidance regarding monitoring and reporting in general and for resilience, adaptation and co-benefits in particular.
3. Paradigm Shifting Pathways: Energy Result Area	Ability to pay for energy services is also an important barrier for energy access. It is widely recognize by the off-grid industry that end-user subsidies play an important role for this market https://smart-end-user-subsidies.get-invest-matchmaking.eu/page-61	UNDP	Already mentioned in table 7
3.1.3 Pathway 3: promoting access to clean energy	Social acceptance: The segment on reliability and standards should be a category on its own as its implications go beyond social acceptance.	BMZ, BMU Germany	OK Table 8 possible actions should allude to standards as an enabling factor. Lack of standards and poor quality contribute to a number of barriers, but it is not necessary to make it a separate barrier. In our view, the aspects of standards and reliability related to social acceptance is covered by the bullet: •Promoting actions including local community engagement and consultations when designing energy access initiatives.
3.1	Considering the inclusion of isolated systems as part of the scope of this transformational pathway, as previously suggested, we recommend including on Table 7 ("Selected barriers to paradigm shift in access to clean energy") PPA and subsidy structure and tax mechanisms designed for fossil-based generation. For example, short PPA duration can be a barrier when higher upfront costs are needed, in opposition to diesel generation. Overcoming such regulatory, market and tax frameworks is key for leveling (or tilting) the playing field in favour of clean energy solutions.	Ministry of Foreign Affairs - Brazil	In table 3, it is included: •Developing customized micro- and mini-grid financing products for renewable energy services for fossil fuel replacement. The same is now also mentioned in Table 8, although it is assumed that proposals can cover more than one pathway and therefore it is not necessary to explicitly repeat possible actions in several pathways, but rather aim to mention once and in the most relevant place. In our view, in table 8, it is covered by Transformational planning: •Supporting the set-up of policy and regulatory reforms in renewable energy access (e.g. RE rural concessions, mini-grid regulations, RE Access target setting in NDCs).

3. Paradigm Shifting Pathways: Energy Result Area	small scale of assets, and lack of aggregation mechanisms	UNDP	Aggregation mechanisms is now included in "action tables" 3 and 8.
3. Paradigm Shifting Pathways: Energy Result Area	End-user subsidies and approaches to bridge the ability to pay gap remain essential in this sector. Innovative models such as Minimum Revenue Guarantee, can provide an attractive risk mitigation tool for mini-grids. Similar to model use for road concessions in PPPs.	UNDP	Granting is further elaborated in ch 4.
3. Paradigm Shifting Pathways: Energy Result Area	Suggest addition of 'use result-based incentives to catalyse private Investment'.	UK	PPP is included in all "action tables" (Table 3,6 and 8). Granting is further elaborated in ch 4.
3. Paradigm Shifting Pathways: Energy Result Area	Mobilisation of investment at scale – it may be worth considering adding securitization of RE investments to unlock private capital - https://www.nrel.gov/docs/fy14osti/60230.pdf	IDB	Bullet in table is updated to include securitization: • Unlocking local financial institution or commercial finance for low emission energy access projects, including securitization of renewable energy investments to unlock private capital. Financial derisking is further elaborated in ch. 4
3.1.3	On Table 8, we suggest including (i) "pilot/demonstration projects", mentioned before; (ii) reviewing tax and subsidies mechanisms and PPA's structures, to make it renewables-friendly (based on the previous comment).	Ministry of Foreign Affairs - Brazil	GCF currently rather focus on catalysing and scaling up in the energy access and power generation area. Referring to technology readiness scales, GCF is rather focusing on the commercialisation phase and not on technology demonstration phase. Technology Pilot and demonstration can be part of general branch R&D and voluntary initiatives for catalyzing innovation. Project start-up costs, demonstration and pilot projects are not eligible for GCF PPF granting. It is however mentioned in the context of T&D, flexibility and storage that new DSM business models are welcome, and are expected to incorporate decentralised renewable energy and storage solutions in major end-user sectors.

<p>3.1.3 Pathway 3: promoting access to clean energy</p>	<p>Transformational planning and programming: Cross sector dialogues should not only focus on demand in other sectors. Meaningful integration of e.g. water sector developments into energy planning is important. Number of countries experiencing water stress is growing.</p> <p>Catalysing climate innovation: E-cooking and PUE business models and appliances may greatly benefit from better upstream value chain integration (manufacturing, assembly) for cost reduction.</p> <p>Is there a consideration for energy-sharing/ peer-to-peer trading and prosumer business models?</p> <p>Mobilisation of investments at scale: Does the covering additional cost of delivering clean and resilient energy services also include the cost for support to uptake and end-users? This is greatly needed to speed up the use of clean energy and materialising on many SDGs.</p> <p>The mention of the promotion of leasing models is highly significant.</p> <p>It is worth mentioning that there should be a model that allows communities, once aware of the technology and its benefits, to acquire the asset. It would serve as a strategy to forward sell the asset to investors and would increase the sense of ownership by the communities.</p> <p>Develop a promotional model for "best cases".</p>	<p>BMZ, BMU Germany</p>	<p>Incorporated: - Transformational planning: Water stress and maladaptation is important for pathway 1 and 3, and is now further highlighted in general intro to Ch.3 - Catalyzing: upstream value chain integration is already covered. - Prosumer business models is added and mentioned explicitly. - Financing modalities is further elaborated in ch. 4. - Leasing models is already covered (we believe) by the general formulation of business models. - Transfer of assets is already a common exit strategy, it can however conflict with quality service target, so there is still room for improvement and public private partnerships. - Promotional models is not given high priority in GCF1, but can be included if motivated.</p>
<p>3.1.3</p>	<p>Promote actions including local community engagement consultations when designing energy access initiatives.</p>	<p>The Nature Conservancy (TNC)</p>	<p>Updated</p>
<p>3. Paradigm shifting pathways: energy result area</p>	<p>(5th bullet) In supporting the set-up of policy and regulatory reforms in clean energy access, one could consider not only RE target setting in NDCs but also carbon capture and storage targets in NDCs.</p> <p>The Global CCS Institute's Policy Factsheet and report on Policy priorities to incentivise large scale deployment of CCS include information on policy-relevant aspects.</p>	<p>Global CCS Institute</p>	<p>Carbon capture and storage is beyond the scope of this Guide.</p>
<p>3.1.2</p>	<p>Allied to the risk of stranded assets, there is an urgent need to address issues that hinder mini-grid developers' plans for new distributed generation projects. These include policy barriers such as compensation for grid encroachment and the terms for interconnectivity to the national grid which need to be addressed.</p>	<p>USAID</p>	<p>Policies on grid encroachment is made explicit here in Table 8 "transformational planning" (• Supporting the set-up of policy and regulatory reforms in renewable energy access (e.g. RE rural concessions, mini-grid regulations, policies related to the arrival of the national grid, RE Access target setting in NDCs)), as it is already mentioned in the executive summary.</p>

3. Paradigm shifting pathways: energy result area	It is suggested to add another column to make sure the consistency of approach which outcome(s) corresponds to which barrier(s) to be addressed. The table is still unclear e.g. how to address Barrier: Poor technology cost competitiveness.	FAO	The actions are selected because they are found relevant as part of the four pillars. The relevance may be based on a combination of barriers, and there is little added value to make the tracking explicit.
3. Paradigm shifting pathways: energy result area	Consider adding policy on grid arrival at mini-grid sites	GIZ	Already mentioned.
3. Paradigm shifting pathways: energy result area	Electric cooking in rural areas is quite ambitious and maybe just one solution. Alternative text: "Implementing transformational business models for the pathway towards clean cooking, including rural cooking solutions and distribution models or electric cooking based on renewable energy.	GIZ	The idea is to be ambitious in order to address priority transformational pathways and climate resilient solutions. The table is about possible actions and as such is not exclusive.
3. Paradigm shifting pathways: energy result area	e.g. pay-as-you-go models or fee for service	GIZ	The examples are fully in line with the text, but we have not added them since it does not appear to be necessary.
3. Paradigm shifting pathways: energy result area	The paper could further explore the concept of energy being seen as a resilience building element/factor and discuss in more detail the approach the GCF would be willing to take in this respect in the project funding context - discuss whether energy can be seen/presented also as adaptation measures; and if so, whether energy investments could trigger adaptation benefits/indicators as per the GCF result management framework. The presented description does not present GCF clear position on this topic and is rather generic.	UNDP	Updates are made such that the topic is further elaborated in general terms in ch 1 and 3. Specifically in section 6.1 Impact potential the recommendations on reporting against GCF result management framework is specified.
3.1.3 Pathway 3: promoting access to clean energy	Very much agreed. More initiatives are needed to enhance the database that feed into investor assessments and due diligence processes.	BMZ, BMU Germany	It is made explicit in chapter 6: 6.1 Impact potential and 6.3 Sustainable development potential that AE's contribution to knowledge management is encouraged/expected.
3. Paradigm shifting pathways: energy result area	More than reliable data, an agreed methodology to demonstrate adaptation impacts would be needed for projects to measure and report on adaptation impacts. Projects would benefit from a guidance and methodology approved or accepted by GCF on how to measure adaptation impacts. At the same time this additional guidance should not add additional burdens on projects, but rather help to operationalize, where impacts might be relatively indirect.	GIZ	General adaptation guidance is being refined. Specific guidance for the energy sector builds on these general and accepted methodologies.
3. Paradigm shifting pathways: energy result area	Please specify which guide	GIZ	We have referred the reader to table 1.

3. Paradigm shifting pathways: energy result area	Is this agreed between GCF Sec, iTAP and Board? Experience has shown that iTAP is strict on the adaptation rationale. Are there official GCF requirements regarding data?	GIZ	Identifying and specifying co-benefits is in line with Board approved guidance and needs no further approval. To report adaptation impacts, it is required that the climate stress/hazard as well as the causality between vulnerability and energy services can be demonstrated. This is clarified in chapter 6.1.
3. Paradigm shifting pathways: energy result area	Replace 'electricity end-use' with "energy end-users" here – as this would include clean cooking as well	GIZ	Updated
4. Financing Paradigm Shifting Pathways	In addition to financing renewable energy projects, this chapter should also look at other low carbon technologies, including carbon capture and storage, that the developing countries will need to scale up. The Global CCS Institute's report Financing CCS in Developing Countries includes relevant information.	Global CCS Institute	Carbon capture and storage is beyond the scope of this Guide.
4. Financing Paradigm Shifting Pathways	Please ensure consistency – it's observed that throughout the document the order of these three pathways are different	GIZ	Updated
4. Financing Paradigm Shifting Pathways	What about fossil fuels subsidies? Will the GCF support countries in reforming their fiscal space and e.g. use swaps for supporting renewable and energy efficiency projects instead?	IDAE Spain	This is possible and the text is updated to mention the "debt for climate swap" in Chapter 4
4. Financing Paradigm Shifting Pathways	The paper could also further macroeconomic factors such as high indebtedness that country has to face.	UNDP	OK , more macroeconomic aspects are included in Ch. 4
4. Financing Paradigm Shifting Pathways	Recommend re-naming the section 'Financial barriers' – as the section also discussed other barriers as well, not just financial	GIZ	This section mentions other barriers covered in section 3, but the focus here is financial, not other barriers.
4. Financing Paradigm Shifting Pathways	Financial?	GIZ	it is now written "financial barriers".
4. Financing Paradigm Shifting Pathways	The WACC of non-incumbents is higher, therefore promoting a monopoly of the energy market.	BMZ, BMU Germany	TRUE, Needs no response. Is covered in general terms.
4. Financing Paradigm Shifting Pathways	It would be useful to further illustrates the different type of guaranteed that could be deployed, eg. Partial credit risk guarantees, PPA guarantees, minimum revenue guarantees (?), etc.	UNDP	Yes this is supported. It is suggested more examples of types of guarantees in Ch. 4 - need help from PSF?
4. Financing Paradigm Shifting Pathways	Unclear sentence	GIZ	Corrected

4. Financing Paradigm Shifting Pathways	Based on this description, one might get an impression that the grant funding is to be used primarily, if not only for technical assistance. The paper does not explicitly explore the role of grant in de-risking energy investments (e.g. reducing risk for instance through regulatory and policy work; or compensating for risk in form of direct financial incentives). Equally, it does not consider the role of a traditional grant In development of nascent energy markets and the importance of pilot demonstrations funded through non-reimbursable grants. Further, the paper does not explore the role of non-reimbursable grants in the context of upfront subsidies, result-based payments, on-granting solutions etc. Secondly, the paper lacks any thinking on reimbursable grants and their possible use (e.g. in the context of geothermal investments – used for exploratory drilling and reimbursed to a donor if results of the drilling have positive outcomes). The fact that the use of different financial instruments is not discussed in a more comprehensive manner with appropriate examples appears to be a significant limitation of this section/presented approach.	UNDP	The text is edited.
4. Financing Paradigm Shifting Pathways	How does this exactly work? What are conditions for repaying? Are these paid back to GCF through EE and AE?	GIZ	Yes it is repaid to the EE/AE as specified in the FAA for the project/programme.
4. Financing Paradigm Shifting Pathways	The applicability of lending and guarantee mechanism is rather generic and would merit further exploration, with possible examples from the previous portfolio (or GCF desired types of future investments in energy space). For instance, further elaboration on potential applicability of payment guarantees, credit or loan guarantees, policy based guarantees in GCF energy context could be explored.	UNDP	The text is expanded somewhat, but more details are beyond the scope of this guide.
4. Financing Paradigm Shifting Pathways	This generalisation might be misleading for project developers and accredited entities and might give impression of the GCF intention to limit provision of grant funding in energy space to LDCs, while countries with a higher income status might not be equally considered. It would be recommended to remove such a statement from the guidance. Equally, depending on the type of guarantee and other factors, there might be a space for it even in a less developed economy.	UNDP	The text is edited
4. Financing Paradigm Shifting Pathways	What about the impacts in the energy tariffs? And the social impacts?	IDAE Spain	The text is edited
4. Financing Paradigm Shifting Pathways	Some energy access investments for off-grid solutions may already be viable and served by commercial finance (e.g. SHS companies), yet due to higher risk allocation, resulting higher cost of capital, as well as high operating cost in remote areas, the resulting LCOE for end-users is much higher and reduce the positive impact on other SDGs besides energy access. Furthermore, vulnerable communities and the poorest people remain excluded due to the affordability gap.	BMZ, BMU Germany	No response required
4. Financing Paradigm Shifting Pathways	Concessional financing should be given with the intention that over the medium/long term, support to similar projects should require reduced subsidy on the basis of capacity building and demonstration effects.	UK	Agreed. This is made clearer as the text is edited
4. Financing Paradigm Shifting Pathways	Criteria for subsidy should go beyond making a project viable, it should about end energy poverty. For example, a “modern minimum energy” consumption is being discussed in several high-level forums.	IDB	The text is updated
4. Financing Paradigm Shifting Pathways	Cannot be limited to power generation and low emissions as the only indicator	IDAE Spain	Agreed. The text is updated.

4. Financing Paradigm Shifting Pathways	Additionally, the grants are presumably used for addressing legislative barriers and not for capex investment.	BMZ, BMU Germany	While the overall intention and target is to crowd in private capital and equity and loans for investment in renewable energy technologies, excluding grants for capex is avoided here, since there are still markets where granting of capex might be motivated until the sector has succeeded to crowd in private capital (or public sector is less indebted).
Section 4	Utility transmission and development (T&D) investment programs often require a multiyear perspective with interconnected assets in different packages. It is not efficient to seek financing on a line-by-line (or substation-by-substation) basis. There can be some cost-savings to larger investment programs (e.g., uniform tower or equipment designs, bulk procurement incentives from suppliers, maintenance cost reduction). Recommend that the GCF look for opportunities to support medium-term investment programs rather than project-specific investments. Creating a working capital fund that utilities could draw on to complement investments on a flexible basis would also be useful. Utilities are often unable to make incremental progress on investment programs due to shortfalls in available cash; this creates backlogs in investments that can create obstacles for larger programs.	USAID	Good point and such programmes are welcome. The guide does not have to be that specific, but as the text is updated the financing of grids is more articulated.
Section 4	Would these include electricity evacuation from existing power generation (conventional) or only RE, or RE+others? Please clarify.	ADB	Only Renewable Energy, as a principle. While this is complex to monitor, some guiding directions are provided.
Section 4	... promoting UNIVERSAL access to clean energy...	IDB	We use modern renewable energy access. The SDG7 about universal access to affordable, reliable, modern energy and is interpreted as possibly including LPG. GCF would like to support access to renewable energy. In a specific case where it is proposed access non-renewable modern energy, the climate rationale will be questioned.
4.3 Co-financing	Suggest clarifying if the GCF considers investments in a publicly owned or shared resource (e.g., storage technology) that supports integration of several renewable energy (RE) power sources to capture the RE plants as co-financing? For example, would it be more cost-effective to have a utility develop its own battery system or other storage tool (e.g., pumped hydro using an existing reservoir) that would serve a number of projects rather than having each project develop its own storage? Would the financing for the generation projects count as co-financing?	USAID	The guide can not be so elaborate on specific projects. There are different markets and challenges. More than the benefit of scale, there is also a redundancy/ reliability aspect, where storage can be situated to offer quicker kick-starting.

4. Financing Paradigm Shifting Pathways	This example might not be the most suitable to capture the incremental cost calculation as it only gives impression of capturing the capital costs of construction without considering further longer-term impacts or costs. Also, it would mean that the countries would actually need to do a calculation of costing for undesirable coal-fired investment which might also sounds a bit odd in the context of promotion of low carbon energy solutions. If this approach is to be applied, first, it would be recommended to give further examples or illustrations; second, to consider the concept long run incremental cost - A long run incremental cost (LRIC) refers to the changing costs that a company can somewhat foresee. Examples of long-run incremental costs include rent increases, expansion costs, and maintenance expenses. Long run incremental costs are gradual costs a company/entity is able to predict and plan for over the long term and in some scenarios might offer a more suitable reference point.	UNDP	The text is updated to better reflect GCF policies and guidance on minimum concessionality and economic and financial analyses.
Section 5	While this is a good geographic spread of case studies, is there a viable project from East or Southern Africa that would also merit inclusion?	USAID	The examples are not changed.
6. GCF Investment criteria	It seems the number of investment criteria increased from 6 to 7, with the addition of "Coalitions and networks multiply GCF energy portfolio impact" at the end of the section. If this is the case, the number of criteria should be changed from 6 to 7 in line 848. In addition, this seems to be a mix of GCF envisioned partnerships as well as ones that the Project should form and cultivate. How then will this new 7th criteria be measured?	IDB	There are only six investment criteria. The layout is enhanced.
6. GCF Investment criteria	The emphasis on countries where access to electricity/clean cooking is low is understandable but short-sighted. There is a value in helping to solve the last-mile issue that some countries with high access are facing because eventually current low access countries will reach high access ratios and will be facing those same issues and seeing how others did it will make it easier.	IDB	Good point. Last mile customers is added in chapter 2.1 Global context.
6. GCF Investment criteria	Paris Agreement does not refer to non Annex I countries please amend it by referring to developing countries	IDAE Spain	Updated. Also in other instances.
6. GCF Investment criteria	Please, redraft it : there is a clear link between access to sustainable and clean energy and climate change, including improved adaptation and resilience to	IDAE Spain	This comment is redundant after text revision.
6. GCF Investment criteria	and scientifically verifiable impacts have been difficult to establish in recent GCF-projects (could you please clarify elaborate more? Does the GCF plan to include relevant indicators in their future projects?)	IDAE Spain	GCF will support and guide AEs in this regard and the text is updated to be more specific. Please also refer to knowledge management and the lessons learnt that will help to develop guiding principles.
6. GCF Investement Criteria for Impactful Energy Proposals	Drought?	GIZ	Updated
6. GCF Investement Criteria for Impactful Energy Proposals	It is also important to ensure that the development/deployment of renewable energy solutions (especially high land requirement technologies such as solar PV, and ag dependent biomass) do not lead to excess conversion of food productive agricultural lands.	The Nature Conservancy (TNC)	Thanks. This is now included 3.1

6. GCF Investment Criteria for Impactful Energy Proposals	The needs of the recipient communities should be addressed systematically for them to adapt to the impacts of climate change. To accomplish this, the government should already have a set of frameworks, national plans, and policies with which the projects will be aligned. During the project proposal process, various stakeholders must partake to capture the country's needs and fit the project with its nationally determined contributions. Acceptance of the project is not a barrier to its implementation as communities have already been represented during the project proposal creation period. This entails that possible issues of food security, land-grabbing, and other human rights issues will be prevented.	TI Korea	Most of this is covered by an updated text in the general introduction in chapter 3 and also possible actions to enhance transformational planning and programming, see tables 3,5 and 8. Also chapter 6 covers these aspects more clearly after text updates.
Section 6	See comment above (Executive Summary, 151-152) regarding the country ownership criterion. (The need to have "country ownership" as a criterion for GCF investment is understood. However, when countries are not carrying out integrated, transparent planning, limiting project support to only government-backed efforts can stand in the way of efficient, cost-reflective energy system build-out. This should be considered in depth somewhere – perhaps it is addressed in another section?)	USAID	The dilemma is not tackled in depth in this guide, it's beyond the scope.
Section 6	Alignment with important medium and long-term energy sector planning documents like Least Cost Power Development Plans to provide guidance for new power generation opportunities. (938)	USAID	Updated
Section 6	All projects should be gender responsive and need to consider the requirements of the GCF Gender policy, this should be incorporated more clearly in this section.	BMZ, BMU Germany	The document is updated throughout to better reflect different gender aspects in the energy transition. Chapter 3. priorities and requirements specifically mentions the GCF gender policy that all proposals need to follow.
7. Conclusion	While line 983 mentions energy access to all, the universal element is not coming strong across the guide, in particular, when it refers to last-mile challenges of rural, isolated, disperse, low-income population. The challenges of a developing country with 97% access to reach that last 3% are very different to the challenges of a country with 50% access to improve say to 90%.	IDB	Removed the word "to all" and replaced it with universal, which essentially conveys the same meaning.
7. Conclusion	GCF should establish that its focus will not be on promoting large renewable energy generation projects, as the players that will be awarded these projects do not require mechanisms such as those offered by GCF. For the development of medium and large-scale generation projects, GCF should act as a guarantor for local companies/start ups against financial institutions to reduce their WACC in financing. Also, grants should focus on rural and community empowerment (energy access) projects in non-interconnected areas and subsidies and co-financing for innovation projects such as smart grids or hydrogen storage. A more efficient allocation of resources could be achieved in this manner.	BMZ, BMU Germany	GCF will be acting for minimum concessionality with a focus on the climate rational and will also back and support that local financial institutions to become financiers of renewable energy. The latter aspect can in some circumstances motivate that GCF support the financier even for quite large projects.