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Energy and Extractives

Sector Note on Applying the World Bank Group Paris Alignment Assessment Methods

This Sector Note outlines the sector-specific issues for applying the World Bank Group (WBG) Paris Alignment (PA) assessment methods to operations with activities in the energy and extractives (E&Ex) sector. The Note is not a stand-alone document and should be used in conjunction with the applicable WBG PA assessment methods[1] for demonstrating alignment. The Note will be updated from time to time to capture the lessons learned; incorporate progress, breakthroughs, and developments in technologies, policies, practices, and consumer behavior; and reflect the evolving pipeline of the WBG's E&Ex-related operations. The relevant activity types for the E&Ex operations addressed in other Sector Notes are (i) buildings covered by the Urban, Disaster Risk Management, Resilience, and Land Note; (ii) water resource management with a focus on dams and reservoirs covered by the Water Note; and (iii) electrification of transport covered by the Transport Note.

Energy is essential for economic development and poverty reduction. It also accounts for a sizable share of global greenhouse gas (GHG) emissions. Mining helps realize a lower-carbon future by meeting a substantial increase in demand for several key minerals and metals to manufacture cleaner energy technologies.

1. Investment Operations: Main Considerations in Assessing Paris Alignment of E&Ex operations

Mitigation

Decarbonizing the supply and consumption of energy, fuel, and minerals is critical for meeting the mitigation goals of the Paris Agreement. Operations with significant scope 1 GHG emissions (direct emissions under the control of the project-implementing entity) require the most scrutiny. "Significant" scope 1 emissions are those from unabated combustion (that is, without carbon capture) of fossil fuels and unsustainable biofuel. Emissions are considered low or negligible when they are much lower than those of such unabated combustion.

The PA assessment includes assessing that the activity being financed is consistent with (does not hinder) the country's climate commitments, captured in the Nationally Determined Contribution (NDC), Long-Term Strategy (LTS), and other climate-related strategies and policies. In checking the consistency with the country's climate commitments, the assessment is informed, if available, by the WBG's own climate analysis, e.g., findings of the relevant Country Climate and Development Report (CCDR); where sensible and possible, efforts may be made to prioritize the activities in the country's climate commitments that are also reinforced in the CCDR. The assessment also includes determination of whether each activity is universally aligned or non-aligned by checking against the applicable lists. If the activity being assessed is not on the universally aligned or non-aligned list and is not inconsistent with the country's climate commitments, the WBG PA methods will be followed to assess if the risk of the activity's having a negative impact on the country's or the sector's low-GHG emissions development pathways is low, modifying the activity's design as needed. The risk assessment should consider the specific country and project or program development context, including economic, institutional, and technical feasibility and market considerations, as well as the specific private sector considerations. The risk assessment includes

[1] WBG PA assessment methods are conceptually consistent with the joint MDB Paris Alignment Approach (MDB PA Approach) and consist of the following: (a) For the **World Bank**, the World Bank Paris Alignment (PA) Methods (WB PA Methods) are applicable to operations under three financing instruments—(i) Investment Project Financing (IPF), including operations using Financial Intermediaries, (ii) Programs for Results (PforR), and (iii) Development Policy Financing (DPF). (b) For **IFC** and **MIGA**, the assessments apply the <MDB PA Approach> to operations under Direct Investment Operations, Financial Intermediaries, and Corporate General Purpose (CGP) Financing. The MDB PA Approach for CGP Financing applies only to IFC and MIGA.

consideration of feasible lower-GHG-emissions alternatives,[2] whether the operation could prevent or slow down the transition to lower-carbon alternatives, and the operation's economic viability in the face of the energy transition.[3] The appropriate risk assessment approach and risk mitigation measures will depend on both the nature of the WBG operation and the level of the broader WBG country engagement with the private or public counterparts (for example in applying system-wide or asset-level assessment).

The remainder of this section is confined to those activities that are deemed to be neither universally aligned nor non-aligned and have been assessed not to be inconsistent with the country's climate commitments. They are (i) grid-connected unabated emissions-intensive power and heat generation; (ii) transportation and storage of natural gas and distribution of emissions-intensive heat; (iii) subsidy reform and commercial and collection loss reduction; (iv) efficiency improvement of assets with no scope 1 emissions; (v) clean household energy services reliant on fossil fuels; (vi) technical assistance (TA) and practices in support of international good practice; (vii) reduction of fugitive methane emissions and gas flaring and venting; (viii) carbon capture, utilization, and/or storage (CCUS); (ix) closure of thermal coal mines and coal power plants; (x) TA for oil and gas; and (xi) mining. This is not an exhaustive list of E&Ex projects covered by the three WBG institutions. Other topic areas will be added as necessary in future updates to the Note.

Unabated emissions-intensive power and heat generation in a grid-connected system

For grid-connected power generation combusting natural gas or oil, this Note requires (for the World Bank only) least-cost modeling of the grid subject to limits on GHG emissions that are consistent with a Paris-aligned long-term decarbonization pathway appropriate for the country's power sector (Box 1). Where such modeling is undertaken, the question being posed is not *whether* the asset being financed is aligned, but *which* assets are on the decarbonization pathway and *how* they should be operated to remain on the pathway. An activity can be deemed aligned if the model selects the asset and there is nothing in the contractual, regulatory, or commercial framework that prevents the asset from being operated in the way specified by the model—more specifically the manner in which the average annual utilization rate declines over the modeling period as the system's share of renewable energy rises and the plant increasingly dispatches electricity primarily to complement variable renewable energy to ensure supply reliability. If, however, there is a power purchase agreement with minimum offtake that exceeds the utilization rates specified by the model in later years, the activity may not be aligned unless the agreement can be modified to achieve alignment with the modeling results.[4]

If sufficient data are available for comparable system-wide modeling, an activity involving heat generation for a district heating system with significant lifecycle GHG emissions may also be assessed based on the results of least-cost modeling subject to suitable emission limits (box 1).

[2] The assessment should focus on feasible lower-GHG emissions alternatives. "Feasible" means "commercially available and technically and financially viable" for IFC and MIGA and "technically feasible and economically viable" for the World Bank.

[3] For World Bank investment operations, the question of the economic viability after accounting for transition risks is not applicable to Technical Assistance components.

[4] For World Bank investment operations, TA components targeting power generation from natural gas should be anchored in least-cost decarbonization modeling of the grid system.

Box 1: Modeling of least-cost decarbonization

If information is available, power system expansion may be modeled by seeking least cost as the objective function, subject to limits on GHG emissions. Emissions over the planning horizon may be limited either annually (or at some other time intervals) until they decline to close to zero, or alternatively on cumulative emissions. Shadow prices of carbon are endogenous and can be calculated. This approach is equivalent to modeling least-cost decarbonization, for which a grid-connected power system is ideally suited: proven methodologies and data for modeling exist, and the grid is managed by a system operator who exercises control over the entire system, schedules power dispatch in order of increasing marginal cost, and manages energy storage.

The model captures every power plant in the grid and how it should be operated, thereby enabling both system-level and asset-level analyses. Large grid systems are especially suited because they allow marginal analysis, whereas much simpler modeling may be more appropriate for small systems.

If the requisite information is available, the assessment of a natural gas storage or pipeline project in which gas is supplied primarily to the grid power system may similarly be based on the assessment of gas generation plants using least-cost decarbonization modeling of the grid. A project distributing heat in a district heating system reliant on a fossil fuel that can be modeled in the manner described in box 1 may follow the same approach.

Transportation and storage of natural gas and distribution of emissions-intensive heat

An activity designed solely to reduce fugitive methane emissions is Paris-aligned as described on page 6. Pipelines or storage tanks delivering natural gas mainly to grid-connected gas-based power as well as heat generation plants in a district heating system may be assessed by modeling least-cost decarbonization as described above. For other cases, there are several possible scenarios that potentially make the activities aligned without having to reduce the utilization rates over time. Gas in the future may be biomethane or synthetic very-low-carbon methane. Depending on the materials of construction, the gas transported or stored can also be varying mixtures of natural gas and very-low-carbon hydrogen. The anchor customers may be hard-to-abate heavy industries equipped with CCUS in the future. Similarly, heat being distributed may become decarbonized over time. One transition risk for district heating is a shift from centralized to decentralized heating, potentially making the district heating system uneconomic over the long run. Country circumstances should be examined on a case-by-case basis to assess whether these assets may undermine the mitigation goals of the Paris Agreement or else be made uneconomic as a result of decarbonization.

Energy and fuel subsidy reform and commercial and collection loss reduction[5]

Consumer price subsidies discourage the adoption of more efficient appliances and equipment and encourage non-essential consumption of electricity, heat, and fuel. For electricity, heat, or fuel distributed through a network, commercial and collection losses lower the effective prices paid and have the same effect as consumer price subsidies. Reforming price subsidies and reducing commercial and collection losses increase the effective prices paid and reduce demand. The underlying principle is that the price elasticity of demand is non-zero and negative.

Producer price subsidies may be used to keep consumer prices artificially low, encourage inefficient production, or do both, and could increase fossil fuel consumption where the producers being subsidized consume or process fossil fuels. For these reasons, the activities reforming subsidies and reducing

[5] The reform and design of government policy is outside the scope of the influence of IFC and MIGA.

commercial and collection losses help lower emissions, promote rather than prevent the energy transition, and reduce transition risks, making them aligned with the mitigation goals of the Paris Agreement. Investment options include installation of meters for more accurate billing; use of digital technologies to take human interference out of metering, billing, and bill collection; and establishing card reading systems linked to mobile banking for conditional cash transfers to the vulnerable to compensate for inflation. These investments as well as TA,[6] disbursement-linked indicators in PforR operations, and policy actions (see section 2 below) in support of this category of activities are considered aligned.

Efficiency improvement of appliances and equipment with no scope 1 emissions

Reducing energy consumption by appliances and equipment while delivering the same level of service is essential for decarbonization. There is a trade-off between affordability and the degree of efficiency improvement attained, and the efficiency gains that are affordable and enable achievement of the operation's objective should be selected. If an activity supports efficiency improvement of assets with no Scope 1 emissions—such as assets using purchased electricity or heat—it can be considered aligned because improving efficiency does not prevent the transition to low-GHG emissions development pathways, nor will the economics of the activity be undermined by transition risks. However, if the equipment is part of a larger facility reliant on fossil fuels such as cement factories, the larger facility combusting fossil fuels will need to be assessed for Paris alignment. Examples include TA to help formulate new efficiency standards to tighten them; establishment of laboratories to test appliances and equipment for compliance with efficiency standards; financing of assets with no Scope 1 emissions meeting efficiency standards more stringent than what is legally required; enforcement of standards for which compliance is weak; and financing of assets to meet new, tightened efficiency standards that have recently been introduced in the market.

Clean household energy services reliant on fossil fuels

About two-fifths of the developing world lacked access to clean cooking energy in 2020, and at the current rate of progress, the 2030 target of universal access to clean household energy services will be missed, particularly in Sub-Saharan Africa, which lags all other regions. According to one global scenario for attaining universal access by 2030 that is also on the path to net-zero emissions by 2050, 40 percent of those newly gaining access to clean cooking energy would do so by adopting liquefied petroleum gas (LPG). Even stoves burning natural gas or LPG can reduce the global warming potential of emissions because traditional stoves burning solid fuels emit a considerable amount of black carbon, the global warming potential of which is two to three orders of magnitude higher than that of carbon dioxide (CO_2). Therefore, financing of cooking technologies using LPG or natural gas is considered aligned as long as households are moving up the tiers in the multi-tier access framework, reaching a higher tier in the manner financed by the operation is the most affordable option, and no mains gas pipelines are constructed for this purpose. If households are already in the highest tier, further assessment needs to be carried out. The issues to consider include relative affordability compared to lower-carbon options, the ease of abandonment of polluting fuels, safety concerns, and supply reliability (the latter two of which affect the extent to which households will continue to stay in the highest tier), as well as the state of price subsidies and the impact on GHG emissions. If mains pipelines are constructed, the activity falls under transportation of natural gas.

Technical assistance or PforR components in support of international good practice (World Bank only)

Activities that

- improve governance and transparency;

[6] TA in this note refers to IPF and PforR operations with TA components.

- improve operational efficiency;
- strengthen and implement health, safety, and environment policies, regulations, and standards;
- improve the financial state of energy suppliers through means that do not entrench or maintain subsidies;
- improve the legal, regulatory, or commercial framework; or
- strengthen the capacity of government regulators, institutions, and entities to establish, monitor, and enforce or comply with regulations and standards

are considered aligned, provided the measures are in line with international good practice and do not specifically target production or direct use of fossil fuels. The latter category will require further assessment, as described in the case of TA for oil and gas.

PforR operations in support of financial recovery of utilities are common. Improving the financial viability of energy firms or sub-sectors that are not focused only on fossil fuels is considered unlikely to have a negative impact on the sector's low-GHG emissions development pathways and is considered aligned because without a financially strong sector, future investments will be at risk, when there is an urgent need to scale up investments in renewable energy and potentially costlier but more efficient technologies. The fact that the utility or the sub-sector happens to have some plants running on fossil fuels does not change the assessment. By contrast, improving the financial viability of a plant or a sub-sector that handles only fossil fuels should be subject to more detailed assessment.

Reduction of fugitive methane emissions, gas flaring, and gas venting

Fugitive methane emissions and gas venting release methane, a powerful GHG, to the atmosphere, while gas flaring emits CO_2, unburned methane, black carbon, nitrous oxide, and other products of incomplete combustion with high global warming potential. The Global Methane Pledge, which was launched at COP 26 and has been endorsed by more than 130 countries since, recognizes the urgent need to reduce methane emissions in the near term. Ending routine flaring and venting and minimizing fugitive methane emissions will reduce the emissions of two important short-lived climate pollutants—methane and black carbon—and deliver relatively quick wins compared to cutting the emissions of other GHGs with a much longer atmospheric lifetime. And yet these reduction measures may not be implemented because doing so may make the overall investments less profitable. For this category of activities, there are no alternatives with lower emissions as such, given emissions are being reduced; emissions are not "locked in" because they are being reduced or eliminated; and the transition to a low-GHG emissions development pathway is expected to enhance the economics of these activities.

Carbon capture, utilization, and storage

The Intergovernmental Panel on Climate Change (IPCC) has cited CCUS as an essential component in the portfolio of mitigation options. In the most recent report published in April 2022, the IPCC reaffirmed the critical importance of CCUS in most decarbonization pathways that meet the temperature goals of the Paris Agreement. CCUS is likely to pose a low mitigation risk and is therefore likely to be considered aligned in most cases.

Closure of thermal coal mines and coal power plants

Global experience has shown that the shift away from coal can take decades and is replete with economic, social, and cultural challenges. Support for closure of thermal coal mines or coal power plants and helping the affected workers and communities in a manner consistent with the core elements of a just transition fosters the phase-out of universally non-aligned activities. As such, these activities are considered aligned, as they are likely to pose a low mitigation risk. Aside from decommissioning, support could include

retraining workers for new areas of employment and strengthening social protection to the families and communities affected by job losses.

Technical assistance for oil and gas (World Bank only)

The global push for decarbonization has shifted the interest of investors in upstream oil and gas, from focusing primarily on the size of reserves and associated costs to a search for where two or three areas of interest overlap: (i) plentiful reserves and relatively low production costs, (ii) the ease of minimizing GHG emissions including availability of low-GHG-emissions electricity, and (iii) the potential for hub-scale CCUS. This shift means that the current basins may no longer be suitable for future investments and hydrocarbon production may instead move to new basins with the foregoing characteristics, some of which could be in new producing countries. This backdrop informs when and how the World Bank may provide TA. In particular, an operation that will increase oil and gas production—such as in a new producing country—is not automatically non-aligned. The Project Development Objective is typically to help the government develop policies; formulate laws, regulations, standards, and a commercial framework in line with international good practice; and strengthen institutions to implement the policies and monitor and enforce the laws, regulations, and standards fairly and equally on all companies. Examples include support for the Extractive Industries Transparency Initiative; regulations for controlling gas flaring and fugitive methane emissions; and development of a natural gas network grid code establishing rules for, among others, non-discriminatory third-party access to large infrastructure.

With respect to assessing whether there are alternatives with lower GHG emissions, the TA should include the elements needed to reduce emissions along the supply chain, thereby reducing scope 3 emissions for end-users and minimizing the overall well-to-burner-tip emissions. The TA should not make the fiscal and regulatory frameworks for upstream oil and gas more favorable to investors than what international good practice would suggest after adjusting for geological, geopolitical, and other risks in the country. For example, tax holidays granted only to gas producers would not be considered consistent with international good practice in fiscal policy. If the anchor customer for the domestically produced natural gas is the power sector, the assessment should be based on the role of natural gas in the least-cost decarbonization pathway for the grid power system. Domestic supply obligations designed to keep domestic prices artificially low would not be considered consistent with international good practice. Examination of consumption outside the country is considered beyond the scope of assessment.

Mining

Extraction of thermal coal is universally non-aligned and the WBG will not invest in its extraction or support TA specifically targeting such extraction.

Accelerating the deployment of renewable energy, electrification of transport and other economic activities, and energy efficiency improvement calls for scaling up extraction and the refining of the minerals that are critical for these activities. While minerals are essential for decarbonization, extraction and refining processes can have a high emissions intensity. Therefore, risk mitigation measures (including TA and advisory services) should capture the main elements of climate-smart mining, such as using more renewable energy during extraction in remote areas, avoiding deforestation, supporting sustainable land-use practices, repurposing mine sites, and supporting recycling. In a country that extracts or has potential reserves of thermal coal alongside other minerals, an operation that provides TA for mining could be considered aligned, provided the TA does not specifically target thermal coal extraction and does not carve out thermal coal for special treatment.

Adaptation and resilience

Risks from climate hazards can compromise the performance of assets or the effectiveness of TA. Increasing frequency and magnitude of extreme weather events (heatwaves, storms, droughts, strong winds) and associated consequences (flooding, landslides) potentially affect all physical assets, requiring adjustments to siting, contingency planning, maintenance practices, and redundancy. The long-term effects of climate change—such as permanent changes in the distribution probabilities of temperatures and precipitation and rising sea levels—are important, especially for long-lived assets, and require changing climate conditions to be captured in the assessment.

Assessment of risks from climate hazards and their subsequent impact on energy operations is highly location and development context specific. Country and location-specific climate information should be used, such as from the World Bank's Climate Change Knowledge Portal, along with expert judgment to determine the climate hazards relevant to the operation. Exposure from relevant climate hazards should be assessed under various climate change scenarios over suitable timeframes, based on the nature and lifetime of activities and assets being created or services being provided by the project.

An operation's exposure to relevant climate hazards is based on two main factors: (i) whether the operation is in a location and setting where (directly or indirectly) the relevant climate hazards are expected to occur, and (ii) whether the assets, systems, beneficiaries and/or vulnerable groups might be exposed to these hazards. Certain locations and investments could be highly exposed to climate change—for example, transmission and distribution (T&D) systems in small island developing states could be highly sensitive to rise in sea levels and the increased frequency and intensity of extreme weather events (e.g., hurricanes). Once an operation's exposure to relevant climate hazards is known, their impact on activities financed by the operation must be assessed considering the level of exposure and sensitivity, and the operation's vulnerability to these impacts should be determined based on its adaptive capacity.

Two categories of E&Ex activities that are particularly vulnerable to risks from climate hazards are (i) water-intensive activities and (ii) support for T&D infrastructure including construction, maintenance, and operation.

Water-intensive activities

The water consumption of power generation varies considerably across countries, technologies, and cooling methods. Broadly, biomass and storage hydropower are the two most water-intensive generation methods, with water consumption being an order of magnitude higher than the next group of technologies with comparable water consumption volumes: oil, nuclear, thermal coal, concentrating solar power, and geothermal. This Sector Note takes storage hydropower as an illustrative example. Although closed-loop pumped storage plants are not continuously connected to a natural water stream such as a river, their technical and operational features relevant for reducing risks from climate hazards are similar to those of storage hydropower.

Changing precipitation patterns—when, where, and how much precipitation declines—pose by far the greatest challenge to the resilience of hydropower generation. Falling precipitation affects not only hydropower but also water availability upstream and downstream of the plants, such as for irrigation and drinking water. Examples of interventions to strengthen resilience are:

- **Asset-level engineering and design measures** include increasing the reservoir capacity.
- **Asset-level operational and maintenance practices** include revising maintenance scheduling, adjusting commercial operations, revitalizing vegetation in catchment areas, and controlling and removing sedimentation.

- **System-level measures** include using state-of-the-art methodologies and tools for system-level planning, expansion planning that includes hydropower potential assessment, forecasting of hydrology impacted by climate change and scenario-building, and contingency planning such as ensuring adequate spare capacity in gas-fired power plants to be able to bring them online at short notice.
- **Institutional capacity building** includes training utility staff on new software to use the above state-of-the-art methodologies and tools.
- **Cross-sectoral coordination** is essential for prioritizing water use among competing needs so that no essential use of water is disproportionately harmed.

Transmission and distribution infrastructure

Extreme temperatures, flooding, strong winds, landslides, and wildfires can all compromise the performance of T&D infrastructure or even disable it. There are asset-level and system-level measures to strengthen resilience.

- **Asset-level engineering, design, and construction measures** include avoiding corridors vulnerable to flooding and tightening technical specifications for the most critical assets to protect them against more amplified or more frequent extreme weather events, such as allowing for higher thermal margins.
- **Asset-level operational and maintenance practices** include greater use of condition-based maintenance, live line maintenance, identifying areas vulnerable to wildfires and pruning vegetation appropriately, and improved allocation of spare parts and stockholding.
- **System-level measures** include not installing critical assets—such as two transmission lines—in close proximity; adoption of Special Protection Schemes to activate corrective responses to predetermined conditions; implementation of System Protection Schemes to prevent propagation of large disturbances through the grid; and embedding the design of the project in system-level planning with contingency planning for extreme weather events for the entire grid.
- **Institutional capacity building** includes training utility staff on the use of digital technologies to adopt condition-based maintenance.

2. Development Policy Financing: Main Considerations in Assessing Paris Alignment of E&Ex Operations

E&Ex-related prior actions in Development Policy Financing broadly comprise eight categories: (i) sector recovery and phase-out of economic distortions, such as strengthening payment discipline and reforming tariff and price subsidies; (ii) transparency and corporate governance, such as improving licensing frameworks and requiring independent audits and publication of financial statements; (iii) market rules and market reform, such as third-party access rules and regulations and establishing or strengthening grid codes; (iv) regional collaboration, such as joint procurement procedures and improving the contractual basis for regional trade; (v) improving energy efficiency; (vi) policy and regulatory reforms to facilitate renewable energy; (vii) supply expansion and access, such as adoption of least-cost expansion planning, grid expansion, off-grid electrification (based on renewable energy), making access more affordable, and increasing access to clean energy services; and (viii) natural gas.

Mitigation

Most categories cited above do not increase GHG emissions and do not introduce or reinforce significant and persistent barriers to the country's ability to pursue a low-emissions development pathway, and hence would be considered aligned. Prior actions that support aligned activities discussed in section 1 are also aligned. However, grid expansion planning in category (vii) and natural gas in (viii) call for more scrutiny.

Least-cost expansion planning and grid expansion

Policy support typically involves adoption of least-cost expansion planning for the power sector or a commitment to update the plan regularly. Grid expansion should follow a system-wide expansion plan. Least-cost expansion planning involves modeling existing and future assets to meet energy demand and maximize affordability. With respect to assessing whether the prior action is likely to cause a significant increase in GHG emissions, the least-cost expansion plan should be aligned with the country's climate mitigation commitments, which are checked first. With respect to preventing the transition to the country's low-GHG emissions pathways, virtually all NDCs commit the countries to reducing GHG emissions, increasing electricity supply from renewable energy, or both. If the country has an LTS, the strategy may also impose additional requirements for grid expansion. Least-cost expansion planning should be aligned with these mitigation commitments.

Natural gas

Policy actions for natural gas are for either market and regulatory reform or support for gas to power, for which the assessment should generally follow the guidelines for TA for oil and gas. Examples of market or regulatory reforms include introduction of non-discriminatory third-party access to gas pipelines and storage terminals, ending state monopoly, and establishing an independent gas regulator. These fall under policies and practices in line with international good practice and pose neither mitigation nor adaptation risks.

Support for the development of gas to power may present a mitigation risk, and the operation's alignment with the Paris Agreement's mitigation goals should be assessed to demonstrate that the risk of the program's having a negative impact on the country's low-GHG emissions development pathway is low. Such assessment should examine the role of natural gas in the power sector, and more specifically whether gas to power being supported is part of the power sector's low-emissions development pathway, for example as demonstrated by least-cost decarbonization modeling of the grid system (box 1). As the share of solar and wind power increases, natural gas can also play a useful role in strengthening supply reliability.

Adaptation and resilience

Policy actions in support of storage hydropower should consider the risks from climate hazards described in section 1 and appropriate reduction measures, as described below. Policy actions in support of T&D should similarly consider adaptation risks if they are relevant.

Storage hydropower

Examples of risk reduction policy actions are:

- A legal framework (regulations or amendments to existing laws or regulations) defining institutional mechanisms, procedures, and criteria to prioritize water uses across various sectors in the river basin, possibly including
  - steps to ensure minimal supply for essential uses, and/or
  - establishment of a forum for cooperation and coordinated decision-making among government agencies

- Adjustments to secondary legislation, regulations, and/or grid codes to define criteria for optimal decision-making, particularly for managing physical and economic risks and defining methodologies to optimize operation, information flows, and institutional responsibilities
- Modifications of the legal framework and/or contractual framework (including market rules) to reallocate costs, benefits, and risk-bearing.