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Carbon Integrity (Project Assessment and Final Decision)

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On this page: *Understand more on the inherent carbon-integrity risks of a given project based on its project type, specifically the nature of its project activities and generation of ERCs, and the robustness of project-level mitigation measures that can lower such risks. Read more below, or visit Strategic Guidance for Country System Assessments, Guidance for Countries in Assessing ERC Projects, or Mobilizing ERC Finance.*

C1: Carbon integrity: This criterion assesses the inherent carbon-integrity risks of a given project based on its project type, specifically the nature of its project activities and generation of ERCs, and the robustness of project-level mitigation measures that can lower such risks. This will help Governments and project developers understand the risks of additionality, measurability, and permanence due to the nature of the project activity, and the mitigants to manage these risks. Having mitigation measures in place will be important to give buyers confidence that the project has duly made efforts to manage risks within its control, withstanding the external risks due to the nature and location of the project activity.

This assessment takes a two-step approach to identifying the general risk of each project type and the possible mitigation measures to reduce these risks, as a method to assess the potential technical feasibility of the project at a preliminary level. This approach is taken to overcome time and expertise limitations required for doing a technical review of the project's carbon integrity while providing a sense of a project's ability to meet the carbon integrity expectations of the market.

The following sources and analyses, undertaken in the suggested order, can serve as a guide for the assessment:

1. Identify the inherent risks across additionality, measurability, and permanence at the project-type level using the provided risk matrix as reference. See Figure 4.13.
2. Review the project documents to understand the mitigation measures in place to address such risks or engage with the project counterpart if needed to complement information.
3. Compare the project's mitigation measures to the suggested best-practice mitigation measures for robustness. See Figure 4.14.
4. When assessed to be robust, reduce the risk level of the project by one level for the subcomponent, otherwise keep as is, following the guideposts provided for final rating. See Figure 4.12.
5. Update risk matrix and mitigation measures following checklist questions and suggested sources in Project Assessment and Final Decision.

In this criterion, each subcomponent measures the following risks:

- **Additionality**: Risk of project type not needing carbon finance to occur or not going beyond a business-as-usual scenario, and/or risk of its baseline scenario being disputed.
- **Measurability:** Risk of project type over-crediting due to tendency of leakage, lack of rigorous carbon accounting methodologies, and/or monitoring challenges.
- **Permanence**: Risk of project type incurring reversals due to probability, severity, and impact of natural reversal risks and nature of ERCs.

Figure 4.12. Guideposts for rating carbon integrity

Rationale for rating	Rating
• Low inherent risk. • Medium-low inherent risk with robust mitigation measures.	
• Medium-low inherent risk. • Medium-high inherent risk with robust mitigation measures.	
• Medium-high inherent risk. • High inherent risk with robust mitigation measures.	
• High inherent risk. • No or lack of robust mitigation measures.	

The lowest possible score for any subcomponent is rating of 2, as it is assumed that projects which pass the initial profiling step in Step One would pass a minimum threshold for carbon integrity.

As each project type has inherent carbon-integrity risks due to the nature of its respective project activity and generation of ERCs, the risk matrix provided maps out the risk level of each carbon integrity subcomponent for a specific project type. The risk levels assigned are as follows:

Low inherent risk

Medium to low inherent risk

Medium to high inherent risk

High inherent risk

Figure 4.13. Risk matrix for inherent carbon integrity risks of project types

Carbon	Integrity Principles	Additionality	Measurability	Permanence
Nature-based solutions	Avoided deforestation, or REDD	• High additionality risk due to unclear and changing legal/policy protection for forests. • Methodologies to define baseline deforestation rates (i.e., the counterfactual to the project being implemented) are often disputed.	• High risk of leakage of deforestation outside project boundaries, especially where: drivers of deforestation are highly mobile; there is limited regulation in jurisdiction; there are limited alternative opportunities for rural livelihoods.	• High risk of reversals fro illegal loggi land tenure conflicts, nat hazards such forest fires, a shifts in policy/protec status.

Carbon	Integrity Principles	Additionality	Measurability	Permanence
Afforestation, reforestation, and regeneration (ARR)	• Potential additionality risk in projects where wood harvest is sold, and revenue is more than ERC revenue	• Moderate risk of leakage of prior land use (e.g., grazing grasslands) outside project boundary. • Monitoring can be challenging due to reliance on self-reporting and limited opportunity for satellite monitoring.	• Moderate risk of reversals from illegal logging (in the case of regeneration), land tenure conflicts, and natural hazards such as forest fires.	
Improved forest management (IFM)	• Additionality is typically easy to demonstrate through economic analysis showing improved forest managen would not be attractive without carbon finance.	• Moderate risk of leakage of higher harvest rates outside project boundary. • Monitoring can be challenging due to reliance on self-reporting and limited opportunity for satellite monitoring.	• Moderate risk of reversals from illegal logging, land tenure conflicts, and natural hazards such as forest fires.	

Carbon	Integrity Principles	Additionality	Measurability	Permanence
Agricultural land management (ALM)	• Moderate additionality risk as improved agricultural practices (e.g., regenerative agriculture) become more mainstream and economically attractive without carbon finance.	• Moderate risk of leakage (e.g., if practices cause decreased yields, which is compensated for by converting uncultivated land to agriculture). • Monitoring can be challenging due to high cost of direct measurement and limited opportunity for satellite monitoring; costs may decrease with better technology.	• Moderate short-term risk of reversals from soil carbon release through change in agricultural practices where contracts and land tenure rights are not well defined. • High long-term risk of reversals with shifts in land ownership and practices.	
Engineered solutions	Renewable energy	• High additionality risk in markets where renewable energy is quickly becoming more economically viable than fossil fuels, without the need for carbon finance. • Methodologies to determine baseline grid emission factors are sometimes disputed.	• Monitoring of energy generation is straightforward, but is sometimes reliant on self-reporting.	• Low permanence risks given th ERCs are generated by avoided emissions an not by stored carbon.

Carbon	Integrity Principles	Additionality	Measurability	Permanence
Energy efficiency	• Heightened additionality risk in markets where cost savings from energy efficiency may be sufficient to justify interventions without the need for carbon finance.	• Monitoring of energy savings compared to baseline use require measuring equipment-usage and energy-service levels that could be challenging.	• Low permanence risks given that ERCs are generated by avoided emissions and not by stored carbon.	
	• Potential additionality risk in markets where energy from wastewater treatment or biogas capture can be sold.	• Limited approved methodologies to measure methane recovery in wastewater treatment or biogas capture.	• Low permanence risks given that ERCs are generated by avoided emissions and not by stored carbon.	

Carbon	Integrity Principles	Additionality	Measurability	Permanence
Landfill gas	• Heightened additionality risk in markets where energy from landfill gas can be sold or jurisdictions where landfill gas capture is regulated.	• Collection efficiency of gas leakage can be variable, but monitoring technology is relatively straightforward.	• Low permanence risks given that ERCs are generated by avoided emissions and not by stored carbon.	
Cookstoves	• Potential additionality risk in markets where efficient cookstoves are cheaper and already being bought by communities.	• Monitoring challenges over time; moderate risk households will revert to or maintain traditional cooking methods.	• Low permanence risks given that ERCs are generated by avoided emissions and not by stored carbon.	
Water filters	• Potential additionality risk where water filters or other low-carbon alternative water purification techniques are cheaper or subsidized.	• Methodologies to quantify emissions reductions from use of water filters in lieu of boiling are novel and contested. • Monitoring water filter use over time is challenging.	• Low permanence risks given that ERCs are generated by avoided emissions and not by stored carbon.	

Carbon	Integrity Principles	Additionality	Measurability	Permanence
Carbon capture, utilization and storage (CCUS)/Bioer with carbon capture and storage (BECCS)/Dire air capture (DAC)	• Additionality is typically easy to demonstrate through economic analysis that shows project would not be feasible without carbon finance, given high cost to develop.	• Limited monitoring challenges due to controlled environment at collection facilities and high degree of monitoring regulatory requirements.	• Limited permanence risk for leakage from geologic reservoirs; risk variable depending on storage/use technique.	

At a project level, project proponents can implement measures to mitigate these risks and therefore lower carbon integrity risk. See Figure 4.14. The presence of all listed mitigation measures will result in a lowered risk level by one level at the maximum. The adjustment limit to one level is due to the fact that while mitigation measures can reduce such risks, certain project types carry inherent risks that are beyond the control of the project proponents, and which should be taken into account to ensure robustness of this exercise. It is also important to note that the development of new requirements and methodologies by accrediting standards could also affect these mitigation measures and the best practice for ensuring carbon integrity. Further Guidance for Application provides guidance on the updating of these mitigation measures.

Figure 4.14. Mitigation measures for lowering carbon integrity risk levels at project-level

Carbon Integrity Principles
Nature-based solutions

Carbon Integrity Principles	
Additionality	• [For avoided deforestation] Project is in a region that has historically experienced forest loss, as proven by satellite imagery sources or national databases where available. • [For projects that produce and sell wood harvests from the project activity] Project's revenue from wood harvest is less than ERC revenue, or otherwise would not be generated at all without the ERC project. • Project uses jurisdictional-scale historical emissions for measuring baseline emissions, conservatively adjusted in the case of high forest, low deforestation countries.
Measurability	• Project identifies potential of activity-shifting leakages and market leakages and implements leakage prevention activities, e.g., supporting local stakeholders affected by the prevention of business-as-usual activities by reskilling them, addressing deforestation drivers, strengthening law enforcement, etc. • Where project has identified potential leakage, project has accounted for leakage compensation in its carbon accounting, specifically based on risk assessment at ex-ante estimations and then based on monitoring at ex-post calculations. • [For avoided deforestation] Project monitors a leakage belt area and tracks deforestation activities in the area.
Permanence	• Project has conducted a non-permanence risk assessment that comprehensively addresses internal, external, and natural risks that are substantially backed by referenced data, and compensates for the risk of reversals via an appropriate mechanism, e.g., a buffer pool enforced by the accrediting standard. • For projects with a non-permanence risk rating of above 10%, project has a plan for managing and mitigating the risk of reversals where identified, e.g., enforcing patrols to prevent illegal logging, thinning to reduce risk of forest fires and diseases, etc.
Engineered solutions	

Carbon Integrity Principles	
Additionality	• Project's non-ERC revenue or cost savings from project activity is less than ERC revenue, or otherwise would not be generated at all without the ERC project. • [For renewable energy] Project is not connected to a national or regional electricity grid, or, if so, is located in a Least Developed Country (LDC), Small Island Developing State (SIDS), or a Landlocked Developing Country (LLDC), or Low Income and Low Middle-income country where the penetration of renewable energy is less than 5% of the total grid-installed capacity. • [For household devices] Project references credible data sources to demonstrate low use of project activity.
Measurability	• Project affixes data loggers to devices or plant to capture data on usage over time more accurately. *As most risk factors for engineered solutions regarding measurability are associated with methodologies or monitoring challenges, mitigation measures at the project-level are limited or will be assessed within the scope of the MRV executional capabilities.
Permanence	• [For CCUS/BECCS/DAC] For carbon utilization, use for processes with long sequestration duration proven by research, e.g., concrete, mineral carbonation, lithium hydroxide refinery, or graphene for batteries. • [For CCUS/BECCS/DAC] For carbon storage, storage infrastructure has low risk of leakage, e.g., unmineable coal deposits, basalt formations, oil and gas reservoirs.

Related Content

- **Guidance for Countries in Assessing ERC Projects (Download PDF version)**

Additional Resources

- PPP Reference Guide
- Carbon Integrity and Environmental and Social Risk Management

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