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Environmental Integrity in the California Tropical Forest Standard: Addressing Leakage, Additionality, and Permanence so that Credits Benefit the Climate

"Environmental integrity" provisions of the California Tropical Forest Standard (TFS) ensure that credits issued under the TFS benefit the climate by as much or more than the amount of tons that are credited.

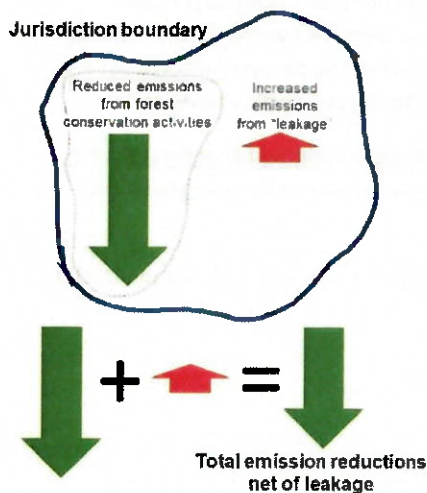
Ensuring environmental integrity. A carbon market mechanism has environmental integrity if the transfer of credits through that mechanism lead to the same or lower aggregated global emissions;ⁱ i.e., climate benefits aren't less than the amount of tons that are credited. Environmental integrity is especially important when credits have the potential to be used in a compliance market to ensure climate benefits aren't diminished if companies in a cap-and-trade system substitute the purchase of offset credits for some portion of their allowance purchases to meet their compliance obligations.

For tropical forest offsets, the most significant environmental integrity considerations are:

- accounting for deforestation that may shift elsewhere as a result of forest conservation efforts (addressing "leakage");
- ensuring that reductions in deforestation are the result of real actions (ensuring "additionality"); and
- managing the risk that achievements in reducing deforestation will be reversed later (addressing "permanence").

These design considerations have been understood and analyzed for two decades, including by the UNFCCCⁱⁱ and by California.ⁱⁱⁱ They are surmountable and can be addressed effectively in jurisdiction-wide programs more easily than stand-alone projects.^{iv} With respect to all three of the above considerations, TFS takes a highly conservative approach. TFS^v has multiple measures in place to effectively address each of these risks, as explained below. These measures are equivalent to and in some cases exceed provisions placed on California's domestic emission reductions.

While it is important to minimize the risk that credits might benefit the climate by less than the amount of tons that are credited, it should not be overlooked that tropical forest credits under TFS are likely to benefit the climate by *more* than the amount of tons that are credited, for reasons explained below.



Addressing leakage. TFS addresses leakage by specifying that credits are to be issued for jurisdiction-wide emission reductions.^{vi} Thus any leakage of emissions that occurs within the geographic boundaries of the jurisdiction is automatically fully accounted for. This is equivalent to how California accounts for its statewide emission reductions.

In addition, TFS requires partner jurisdictions to "manag[e] and mitigat[e]...leakage and ... detect and account for any remaining leakage outside the implementing jurisdiction's borders."^{vii} and to produce a sector plan that describes the "mechanisms it will use to minimize leakage of emissions outside of its borders to the extent feasible under law."^{viii} This includes explaining how domestic economic activity has increased in the jurisdiction, and demonstrating that the drivers of deforestation are being addressed and aren't simply being displaced. This is a high bar that exceeds the requirements of California's domestic program.

The best way to reduce leakage beyond state and national boundaries is to encourage broad participation in ambitious climate programs. I.e., to reduce deforestation everywhere, rather than nowhere.

Ensuring additionality. TFS ensures additionality by specifying that emission reductions are measured relative to real historical emissions (the “reference level”), calculated by averaging emissions over a recent decade. Reference levels are calculated “using transparent and high-quality remote sensing and ground-level data, and best available historical annual deforestation rates.”^{ix} This is in line with how California measures its own emission reductions relative to the reference year 1990. It is consistent with the provisions on reducing emissions from deforestation in Article 5 of the Paris Agreement of the UNFCCC.^x

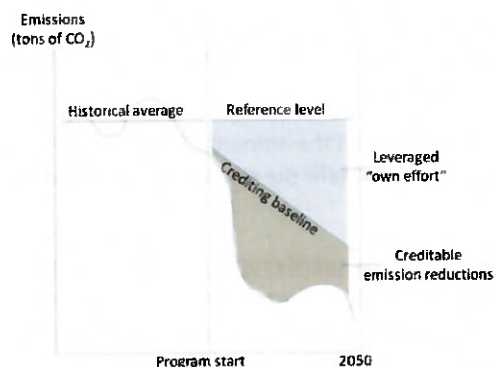
In addition, TFS requires partner jurisdictions to produce a sector plan that describes “the legal, policy, and program tools that the jurisdiction will use to reduce emissions across the tropical forest sector within the jurisdiction’s geographic boundaries,”^{xi} thus demonstrating that emission reductions relative to the reference level are the result of real actions. This exceeds the requirements placed on entities covered by California’s cap-and-trade program.

Addressing permanence. TFS addresses permanence by specifying that credits are issued for jurisdiction-wide emission reductions, pooling the risk that achievements in conserving forests in any single location will be reversed in future years.

In addition, TFS requires that at least 10% of credits are set aside in a buffer pool that to be drawn upon in the event that deforestation ever goes above the crediting baseline, so that the program remains whole. Jurisdictions must also undergo a risk assessment with a higher proportion of credits contributed to the buffer pool for higher risks of reversals.^{xii} This approach to permanence is more conservative than that applied to crediting emission reductions in other sectors.

Going forward, the best way to assure that achievements in reducing deforestation persist is through the support of a long-lasting program with long-term incentives for forest conservation.

Leveraging “super-additional” emission reductions. Importantly, purchases of tropical forest carbon credits are likely to benefit the atmosphere by *more* than the amount of tons that are credited. Emission reductions beyond those that are credited are termed “super-additional.”^{xiii}



TFS leverages super-additional emission reductions is by specifying a crediting baseline that begins at least 10% below the historical reference level and “linearly declines to a jurisdictional-specific 2050 GHG emissions target for the forest sector.”^{xiv} As a result, partner jurisdictions must reduce emissions by at least 10% below historical rates without compensation; only beyond this point can emission reductions be sold. This provides an upfront incentive for jurisdictions seeking to sell emissions reductions to reduce emissions as quickly as possible. Furthermore, this crediting baseline declines over time, thus leveraging ever-greater “own effort” on the part of the partner jurisdiction. This is equivalent to how California’s emissions cap declines over time.

TFS also leverages emission reductions by crediting only emission reductions that can be accounted for accurately. E.g., reductions in emissions from deforestation can leverage unaccounted-for reductions in emissions from degradation; reductions in carbon dioxide can leverage unaccounted-for reductions in methane.

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ⁱ Lambert Schneider and Stephanie La Hoz Theuer (2019). “Environmental integrity of international carbon market mechanisms under the Paris Agreement.” *Climate Policy* 19: 386-409.

ⁱⁱ <https://www.tandfonline.com/doi/full/10.1080/14693062.2018.1521332>

ⁱⁱⁱ UNFCCC (2013). Warsaw Package for REDD plus. <https://unfccc.int/topics/land-use/resources/warsaw-framework-for-redd-plus>

^{iv} REDD Offsets Working Group (2013). “California, Acre, and Chiapas: Partnering to Reduce Emissions from Tropical Deforestation.” <https://www.arb.ca.gov/cc/casemtrade/sectorbasedoffsets/caw-final-recommendations.pdf>

^v For a historical summary see Chapter 9 of Francis Seymour and Jonah Busch (2014). “Why Forests? Why Now?” Center for Global Development, Washington, DC. 429 pp. https://www.cgdev.org/sites/default/files/Seymour_Busch_why_forests_why_now_full_book.pdf

^{vi} California Air Resources Board (2018). “[Revised] California Tropical Forest Standard” State of California, Sacramento, CA. https://www.arb.ca.gov/cc/ghgsectors/tropicalforests/revise/ca_tropical_forest_standard_english.pdf

^{vii} California Air Resources Board (2018). Chapter 4, p. 13

^{viii} California Air Resources Board (2018). Chapter 7, p. 16

^{ix} California Air Resources Board (2018). Chapter 10a, p. 10

^x California Air Resources Board (2018). Chapter 4, p. 13

^{xi} UNFCCC (2015). Paris Agreement. https://unfccc.int/sites/default/files/english_paris_agreement.pdf

^{xii} California Air Resources Board (2018). Chapter 10a, p. 10

^{xiii} California Air Resources Board (2018). Chapter 11.3, p. 21

^{xiv} Antonio Bento, Ravi Kanbur, and Benjamin Leard (2012). “Super-additionality: A neglected force in markets for carbon offsets.” Working Paper 2012-05, Cornell University, Ithaca, NY

^{xv} <http://publications.dyson.cornell.edu/research/researchpdf/wp/2012/Cornell-Dyson-wp1209.pdf>

^{xvi} California Air Resources Board (2018). Chapter 6, p. 14