



ACR

AT WINROCK INTERNATIONAL

Afforestation and Reforestation of Degraded Lands

WHAT IS THE OPPORTUNITY?

Establishing forests on marginal and degraded lands presents one of our greatest opportunities to remove carbon dioxide from the atmosphere and mitigate climate change.



Abundant A/R opportunities exist across all U.S. states and for all different types of forest landowners.

Approximately 130 million acres in the continental U.S. are **suitable** for afforestation and reforestation (A/R) activities. Expanding A/R on these lands has the potential to capture and store more than 314 million tons of CO₂ annually (equivalent to annual passenger vehicle emissions of ~ 67 million cars or ~15% of the U.S. Paris Agreement climate target).ⁱⁱⁱ

Restoring forests also provides many non-carbon ecosystem benefits, such as biodiversity, habitat, water quality, and soil health.

Marginal site conditions, land use conversion, previous intensive management, and/or natural disturbance (e.g., wildfire, pests, pathogens) are all reasons forests may not naturally occur or may not naturally regenerate. In these cases, A/R efforts such as site preparation and planting are necessary to establish forests on these lands.

HOW DO CARBON MARKETS HELP ADDRESS THIS CHALLENGE?

Abundant A/R opportunities exist across all U.S. states and for all different types of forest landowners. However, the upfront costs associated with A/R initiatives are often significant, making it difficult to raise the financial and human capital necessary to implement reforestation at scale and over the long timeframes needed to realize and ensure impact. A/R carbon projects offer an additional revenue stream for landowners that helps to incentivize project development and recoup associated expenditures.

A/R carbon projects create enabling conditions through site preparation, and/or plant trees where natural forest has been displaced or does not naturally occur. As the trees grow, they sequester carbon.

Carbon projects generate revenue by quantifying and monetizing the verified carbon sequestration benefit of planting new forests. Each carbon credit issued represents a ton of CO₂ removed from the atmosphere (and therefore is classified as a “removal” credit), which can then be monetized in the carbon market.

The voluntary carbon market has recently seen unprecedented growth and demand for carbon credits, stemming from over 2,000 corporations pledging to reduce and offset their GHG emissions to achieve net zero targets. As part of this surge in corporate net zero commitments, a new demand for verified ‘removal’ credits (credits attributed to carbon sequestration from tree growth, as opposed to reduced or avoided emissions) has emerged in recent years.ⁱⁱⁱ

ACR’S METHODOLOGY

ACR’s Methodology for Afforestation and Reforestation of Degraded Lands is built on core principles that ensure the highest environmental integrity and scientific rigor. It applies to lands that are degraded and are expected to remain degraded in the absence of the project. A/R projects in non-REDD+ countries are eligible for crediting.

The methodology establishes guidelines for identifying degraded land, determining the eligibility, and quantifying the carbon stocks in tree biomass associated with the project activity – ex-post. Carbon in wood products, litter, and soil organic carbon are optionally quantified.

A/R projects often occur on lands previously converted to agriculture or livestock, lands that have been abandoned, or those that are producing marginal yields. Only native species that would occur under natural forest conditions are acceptable for planting.

A/R credits developed under this methodology **qualify** for a first of kind feature in the ACR registry to be tagged as “removals”. Removals are quantified, verified, issued, labeled, and therefore may be specifically marketed as such.

BASELINE AND PROJECT SCENARIO DEVELOPMENT

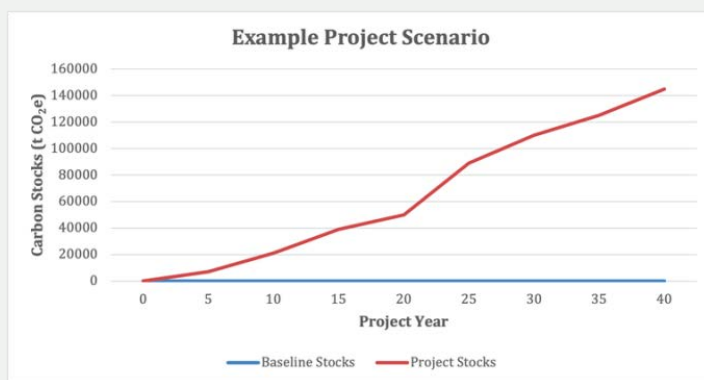
The baseline and project scenario under the methodology assume initial carbon stocking to be negligible (i.e., the land would not return to forest cover without human intervention). This assumption stems

from the eligibility requirements of the methodology which require the project be implemented on degraded land that is expected to continue to degrade in the absence of the project.

Where trees are completely absent across the site and regeneration is not expected, the baseline will be zero. Where some natural regeneration occurs, remnant trees are either excluded from the project area or considered in both the project and baseline scenarios. Regeneration monitoring areas are used to monitor naturally occurring regeneration on proxy sites outside the project area to ‘net’ out any natural regeneration and serve as an additionality safeguard.

Crediting is a function of the difference between project scenario (tree planting) and baseline (non-forest) carbon stocks

The graph below provides a generic example of the different trajectories for baseline and project carbon stocks. The example illustrates a project with seedlings planted across 10,000 acres and monitored over a 40-year crediting period. The growth of trees above the zero baseline indicates the volume of removal credits issued to the project as they are verified ex-post over time.



ACR CORE PRINCIPLES

ACR's methodologies are built from the carbon market's founding core principles. These principles include:

Real: The emission reductions or removals must be measured, monitored, reported, and verified ex-post to have already occurred.

Additional: The project must generate 'additional' GHG removals, that exceed what would have occurred under a business-as-usual (baseline) forest management scenario.

A/R projects demonstrate additionality by applying the ACR three-pronged test:

1. *Project activities must exceed current effective and enforced laws and regulations, and activities must not be required by any law or regulation.*
2. *Project activities must exceed common practice when compared to similar landowners in the geographic region.*
3. *Project activities must face a financial or implementation barrier.*

In addition, ACR requires the use of the tool "Combined tool to identify the baseline scenario and demonstrate additionality in A/R CDM project activities."

Permanent: Projects must commit to long term monitoring, reporting, and verification of carbon stocks for a minimum of 40 years and must contribute to a reversal risk buffer pool at each issuance to compensate for unintentional reversals. Requirements for reversal mitigation are set out in the legally-binding ACR Reversal Mitigation Agreement and include project compensation for intentional and unintentional reversals.

Free of Leakage: For A/R projects, leakage is defined as the displacement of agricultural activities resulting in a decrease of removals or increase of emissions to areas outside the project boundary. Leakage is conservatively estimated and deducted at each credit issuance to account for any potential displacement of agricultural production to lands outside the project area.

Verified: All projects must be validated and verified by a qualified, accredited, and independent third party to assess the project against ACR requirements and that they have correctly quantified net GHG reductions or removals.

Transparent: All relevant documents and credit issuances are publicly available. ACR requirements and processes are clearly outlined in the ACR Standard and approved methodologies.

ADDITIONAL BENEFITS

Reestablishing forest cover offers both climate and co-benefits. ACR utilizes the **United Nations Sustainable Development Goals (SDGs)** as a metric for tracking a projects SDG accomplishments. Tracking SDGs is one of several project requirements outlined in the GHG Project Plan – an overarching document that ensures adherence to the ACR standard and methodology.

Some of the benefits from A/R projects, as defined by the SDGs, include:

- GOAL 6: Clean Water and Sanitation
- GOAL 8: Decent Work and Economic Growth
- GOAL 9: Industry, Innovation, and Infrastructure
- GOAL 11: Sustainable Cities and Communities
- GOAL 13: Climate Action
- GOAL 15: Life on Land

Contact ACR



For more information or questions on A/R carbon projects, please contact the ACR forestry team at ACR@winrock.org

i Cook-Patton et al. 2020. Lower cost and more feasible options to restore forest cover in the contiguous United States for climate mitigation. One Earth 3, 739-752.

ii Forgiione et al. 2018. Natural climate solutions for the United States. Science Advances 4(11), eaat1869.

iii Forest Trends' Ecosystem Marketplace. 2021. 'Market in Motion', State of Voluntary Carbon Markets 2021, Installment 1. Washington DC: Forest Trends Association.