Human-Induced Regeneration
An overview

Carbon Market Institute

What is Human-Induced Regeneration (HIR)?

Human Induced Regeneration (HIR) is one of a number of approved carbon removal or sequestration methodologies that drawdown carbon dioxide from the atmosphere and store it in vegetation. Approved under the federal government's Emissions Reduction Fund (ERF) and overseen by the Clean Energy Regulator (CER), HIR projects involve regenerating native forests by changing land management practices. Projects that are delivered using this method are designed to be carried out on areas where vegetation is being impacted by grazing, clearing and other activities which have suppressed potential growth of trees.

Earning credits

Carbon credits generated under the HIR method are based on the tonnes of carbon that trees or vegetation (biomass) growth removes from the atmosphere. One Australian Carbon Credit Unit (ACCU) represents a conservative estimate of one tonne of carbon removed from the atmosphere. For an ACCU to be issued for an HIR project, the method requires data collection, validation, independent auditing and reporting to the CER throughout the life of the project. In addition to regular auditing, the project proponent must undertake five-year "gateway checks" to make sure the trees are growing as they were forecasted to and that forecasted carbon abatement capacity has been correctly estimated. Once certified, the ACCUs are then available to sell under the ERF, to individuals and companies wishing to voluntarily offset their emissions, or for farmers to integrate into their agricultural supply chains.

Industry standards

Over half of all carbon credits issued under the Federal government's Emissions Reduction Fund are represented by signatories on a world-first Carbon Industry Code of Conduct, which holds Australia's carbon industry to higher standards of integrity, transparency and accountability than ever before. Fully operational from July 2021, the consumer protection mechanism has powers to investigate consumer complaints, monitor and audit activities of its signatories, and take enforcement action against those that deliberately mislead or disadvantage community clients.

Eligible land management practices

- Ceasing the destruction or suppression of native regrowth
- Removing livestock or managing the timing and extent of grazing in the area
- Managing feral animals humanely
- Removing plant species not native to the area
- Ceasing mechanical or chemical destruction or suppression of regrowth

Key features and myth busting

Additionality and levels of forest cover

To be approved by the CER and meet its "additionality" requirements, the project proponent must demonstrate that the activity is undertaken to a level "above and beyond normal management" practices. The management activities are designed to ensure the regeneration attains forest cover, which is defined as vegetation with the ability to reach at least two metres tall and at least 20%, not 100% canopy cover, assessed at a scale of 0.2 hectares. Properties will often have a patchwork of these vegetation or "Carbon Estimation Areas" (CEAs). Importantly, project areas are also required to have some level of vegetation at the start of the project to show that there is "forest potential". An often misunderstood, but equally important element is that any

existing trees are not included in counts of vegetation grown which is eligible to be issued. The CEAs are then managed in a way that ensures forest cover is achieved within 15 years and maintained over a period of either 25 or 100 years.

The independent Emission Reduction Assurance Committee recently reviewed the method's additionality and commissioned analysis which confirmed "strong statistical evidence that HIR projects resulted in increases in [additional] regeneration of vegetation in NSW and Queensland.

Boosting agricultural productivity or profitability

HIR projects, like other methods under the ERF, are designed to co-exist with sustainable agricultural practices, not replace them. Successful carbon farming projects involve grazing practices that improve land quality by boosting soil carbon and quality, improving pasture availability, water retention and helping biodiversity. By working in tandem, carbon farming projects and sustainable agriculture can ultimately deliver even greater profitability for land managers through improved productivity of grazing herds and other agricultural commodities - an additional income stream - while also improving the health of their land, drought resilience, natural capital and delivering important action on climate change.

In the case of HIR projects, they are not designed to generate wall-to-wall or 100% tree cover. Rather, they typically occur in regions with woodland ecosystems interspersed with pasture. This is the predominant ecosystem across much of the Australian landscape. Depending on the land and the agricultural enterprise, land management practices may include changing the way livestock is managed, protecting native vegetation at risk of clearing, regenerating or reforesting native vegetation, or improving soil quality. For example, by utilising rotational grazing and stocking at appropriate rates compared with pasture availability allows native saplings to regenerate and develop into woodland forests with more than 20% canopy cover. This provides shade for the livestock, and as a result, carbon is stored in vegetation and “biomass” collects on the ground. This improves the levels of carbon and other organic matter in soils, encouraging more healthy pasture growth and providing enhanced feedstock for the grazing animals.

Managing fires and ferals in interest of carbon projects

Fire, weeds and pests are sometimes believed to be barriers in undertaking carbon projects, however management of these threats is in fact built into the requirements for methods like HIR, and actually incentivises farmers and carbon project service providers to ensure the project mitigates them successfully. For example, projects on agriculture or conservation land must undertake weed or feral animal control and demonstrate to the CER that management goes above and beyond what would occur under standard practice. In the case of bushfires, the possibility of fire destruction on a property can have severe and long-lasting effects on the ability to earn ACCUs, and farmers are required by the CER to closely monitor any potential risks. Each project is required to have a permanence plan in place for full duration of the project crediting and permanence period, which includes maintaining fire breaks and having fire management plans in the event of a natural wildfire.

Conservative carbon estimates

At the project level, some areas of vegetation will naturally overperform and others will underperform, and to account for this, the HIR model reflects the predicted average trend over the duration of the project. For this reason, and to mitigate against other risks in delivering on often complex carbon sequestration forecasts, there are protections and conservative assumptions built into the method. See box:

Protections and conservative assumptions:

- Inclusion of a 5% risk of reversal buffer that acts as insurance mechanism to deal with any loss of sequestration that has already been credited.
- Inclusion of a 20% buffer if a project opts for the 25 year permanence period instead of 100 years.
- Exclusion of biomass and carbon accumulation in areas that are in the “management zone” of projects but outside the CEA, and therefore not being issued credits.
- Monitoring and reporting of any disturbance in the project area, including fire or removal of vegetation, each time an application is made for ACCUs and as part of every audit.
- Rigorous, regular and robust checks and independent audits on the performance of the projects using scientific and statistical methods to ensure conservative accounting of the removal of carbon from the atmosphere and the correct issuance of ACCU.
- In addition to regular auditing, there are five-year “gateway checks” to make sure the trees are growing as they were forecasted to and that forecast carbon abatement capacity has been correctly estimated.
- Conservative calibrations of the government model, FullCAM, using calibration sites from project areas with improved management practices and from areas where business-as-usual management practices are still being implemented. This leads to conservative predictions of the rate at which carbon is stored in vegetation following a management practice change.

Human-Induced Regeneration Benefits

Environmental

- Improved air quality
- Improved water quality
- Improved soil quality
- Biodiversity conservation
- Sustainable pest and weed management
- Sustainable land use and management

Social & Cultural

- Succession planning keeping families on the land
- Increased social capital
- Knowledge sharing and education
- Opportunity for protection of Indigenous sacred sites
- Improved physical and mental health
- Strengthened livelihoods and community cohesion
- Indigenous community empowerment and economic development opportunities

Economic

- Increased farm productivity
- Job creation in regional areas
- Career development opportunities
- Improved risk management
- Investment in regions and rural communities
- Diversified revenue streams for farmers and landholders

TERMS YOU MAY HEAR

Carbon Estimation Area (CEA)

The area of land within a project area, where eligible project activities are carried out, and for which a project participant expects to receive ACCUs.

Australian Carbon Credit Unit (ACCU)

Equivalent to 1 tonne of CO2 abatement that is issued by the CER. As the carbon credit produced from the regulated industry, it is the only carbon credit used by Australia in reporting our national 'carbon accounts'.

Biomass

The weight of plant material within a given area.

Emissions Reduction Fund (ERF)

The pool of funds allocated by the Australian Government to the CER to purchase some ACCUs, Corporations and governments also purchase some ACCUs. Recently re-badged to Climate Solutions Fund.

Crediting

The crediting period is 25 years from project commencement, which is the period over which ACCUs can be paid for.

Suppression

Where vegetation does not get the chance to grow to create substantial canopy cover.

Permanence

Dependent on the project, the permanence period is either 25 or 100 years from the date that the first ACCUs are issued, which is the time that the carbon stocks must be retained in the landscape. If 25 years is chosen, as the lesser period, the ACCUs are discounted by a further 20%.

Additionality

Assesses whether a project creates 'additional' emissions reductions that would not have occurred in the absence of the carbon project.

More Information

Carbon Farming Industry Roadmap carbonmarketinstitute.org/roadmap

Emissions Reduction Fund www.cleanenergyregulator.gov.au/ERF/Pages/default.aspx

Carbon Farming Eligible Activities www.environment.gov.au/climate-change/government/emissions-reduction-fund/methods

Analytical report on Human-Induced Regeneration method www.cleanenergyregulator.gov.au/ERF/method-development/emissions-reduction-assurance-committee-publications