M-1. Establish a Carbon Sequestration Project

GHG Mitigation Potential

Varies

Variable reduction in GHG emissions

Co-Benefits (icon key on pg. 34)

Varies

Climate Resilience

Climate resilience benefits vary by sequestration project; for example, investing in a tree-planting project could provide heat reduction, flood prevention, and ecosystem benefits to areas surrounding the project.

Health and Equity Considerations

Local carbon sequestration projects should be prioritized, if possible, to create local co-benefits in pollution reduction and job creation. Consider including a local hiring provision (see *Inclusive Economy* measures in Chapter 5, *Measures for Advancing Health and Equity*).

Measure Description

This measure will establish a carbon sequestration project. Carbon emissions are sequestered by embedding the carbon in a structure that will hold the emissions and keep them out of the atmosphere. Sequestration can happen through biological, chemical, or physical processes.

Scale of Application

Project/Site and Plan/Community.

Implementation Requirements

Projects might include (a) geologic sequestration or carbon capture and storage techniques in which CO_2 from point sources, such as power plants and fuel processing plants, is captured and injected underground; (b) novel techniques involving advanced chemical or biological pathways; or (c) technologies yet to be discovered.

Cost Considerations

Carbon sequestration projects can cover a wide range, with the high-cost option being constructing carbon capture and storage facilities. The potential for these projects to achieve long-term costs savings depends on the type and project-specific circumstance.

Expanded Mitigation Options

Non-applicable.

GHG Reduction Formula

$A = -B$

GHG Calculation Variables

ID	Variable	Value	Unit	Source
Output				
A	GHG reduction from sequestration project	[ ]	MT CO_2e	calculated
User Inputs				
B	Amount of CO_2e sequestered	[ ]	MT CO_2e	user input
Constants, Assumptions, and Available Defaults				
	None			

Further explanation of key variables:

- (B) – The amount of the sequestration must be defined by the user and should be quantified using a published carbon offset protocol or one of the California Climate Investments quantification methodologies.[28]

GHG Calculation Caps or Maximums

None.

Example GHG Reduction Quantification

The user reduces GHG emissions by funding and implementing a carbon sequestration project. In this example, a biomass plant is revitalized to use oxy-combustion technology to capture CO_2 from the biomass waste gasification process. The project achieves an annual emissions reduction of 1,500 MT CO_2e.

$$A = -1{,}500 \ \frac{\text{MT } CO_2e}{\text{yr}}$$

Quantified Co-Benefits

Depending on the type, a sequestration project could achieve improved air quality, water conservation, or improved ecosystem health. The protocol used to quantify GHG reductions by the user may include methodologies or recommendations for quantifying these co-benefits.

Sources

- None.

[28] CARB approved compliance offset protocols for various project types are available on CARB's website here: https://ww2.arb.ca.gov/our-work/programs/compliance-offset-program/compliance-offset-protocols.