

## Carbon Offsets for South Carolina Family Forest Landowners

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### Introduction

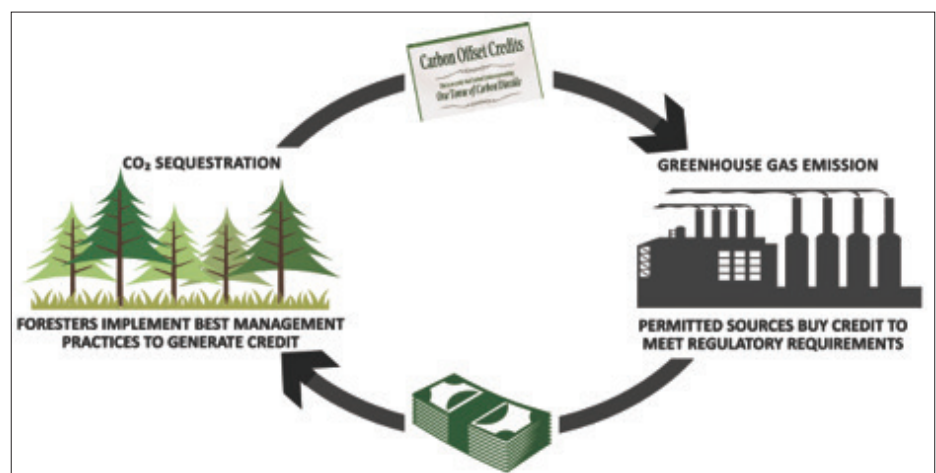
In recent decades, market-based instruments to reduce emissions of greenhouse gases (GHGs) have received considerable attention at international, national, and regional levels. Notable among them is the cap-and-trade policy. The most popular cap-and-trade programs to reduce GHG emissions include the European Union's Emissions Trading System, the Northeast Regional Greenhouse Gas Initiative, the Midwestern Regional Greenhouse Gas Reduction Accord, and California's Cap-and-Trade Program (CA-CTP), which is part of the Western Climate Initiative (UCS, 2017). The CA-CTP is the second-largest carbon market in the world, established by the California Air Resources Board (CARB) with the aim of reducing California's GHG emissions to 1990 levels by 2020 (Hsia-Kiung et al., 2014). This fact sheet explores the CA-CTP and its potential of engaging South Carolina (SC) family forest owners (FFO) in the carbon market through creation and trading of "carbon offsets," also known as "carbon credits" or "carbon offset credits."

### What is a Carbon Offset?

A carbon credit is equivalent to one metric ton of carbon dioxide (CO<sub>2</sub>) (Green Assets, 2017), and it is reduction in emissions of CO<sub>2</sub> or GHGs (from sectors not covered by a cap) to offset emissions from regulated entities (Hsia-Kiung et al., 2014). Demand for forestry carbon offsets is likely to increase in the U.S. as the carbon market under the CA-CTP grows. Regulated entities under the CA-CTP can purchase and use carbon offset credits from uncapped sectors. The economic value for emission reductions in sectors that are not covered by the cap is determined by the offsets generated.

### Why is this Important?

Forests act as carbon sinks and play an important role in combating climate change and its impacts. Climate change is caused by anthropogenic activities. It is a global challenge in that emissions anywhere affect the global environment, and hence, people everywhere, suggesting the need for international cooperation in combating climate change (United Nations, 2017). However, comprehensive GHG emission reduction policies are lacking at nationwide levels in most countries including the United States. To achieve low-carbon economies in the U.S., states and organizations advocate policies that reduce GHG emissions. The CA-CTP, for instance, allows the use of carbon offset credits from projects that are capable of reducing GHG emissions to be sold in California's carbon market as a means of compensating owners for reducing GHG emissions. Carbon offset credits can be created by any qualified project in any part of the U.S. and sold to a compliance company in California to offset its emissions. Projects currently approved as sources of carbon credits under the CARB's forest offset protocol are U.S. forest and urban forest projects (Hsia-Kiung et al., 2014). Under the forest offset protocol, credits generated are based on total amount of carbon sequestered by a forest in metric tons of CO<sub>2</sub>. To qualify for participation in earning credits, a project must be managed for the purpose of reducing GHG emissions, providing wildlife habitat, and improving watershed benefits for a minimum of 100 years (CARB, 2017).



Carbon sequestration and the sale of carbon offset credits by SC FFOs will be beneficial in many ways, including combating climate change. Southern U.S. states are predicted to be the hardest-hit in terms of economic losses due to climate change. Increases in mean sea level have higher direct economic damage on the gross domestic product of SC and other southern states than their counterparts (Hsiang et al., 2017). Participation in the carbon market will also help in providing habitat for wildlife and improving watershed benefits for SC. In addition, it would create market opportunities for carbon trading in SC and provide opportunities for supplemental annual income to participants

### How Can SC Family Forest Owners Create Offsets to Sell?

Forest management in SC, including 98.6% of timber harvests, is in compliance with the state's recommended best management practices (BMPs) (SC Forestry Commission, 2017). The BMPs are hallmarks of good forest stewardship, signifying that SC FFOs can generate carbon credits based on forestland management activities recommended by CARB. CARB's recommended management activities include reforestation, improved forest management (IFM), and avoided conversion of forestland to non-forestland uses (L&C Carbon, 2017). Currently, IFM is the most common forest management type for forest projects in California's carbon market. To participate, FFOs should satisfy some management requirements including the following:

- Land management activities must comply with all federal, state, and local law regulations.
- Forest volume in the project area must be maintained or increased over the project life, except for unintentional decline due to unavoidable catastrophe.
- Project lands must consist of a mix of native tree species.

To bring a forest carbon offset project to the CA-CTP, the project must first get listed with a CARB approved carbon registry, followed by a complete tree inventory of the project area. Based on an analysis of the inventory data, the amount of available carbon offset is calculated for the project and verified by a third party. CARB then approves the carbon offset project after the verification process which then gives the forest landowner the right to sell the offset credits through a broker.

Some forest projects in SC have already sold carbon credits in the California's carbon market through carbon developers. The Francis Beidler forest, owned by the Audubon Society sold approximately 450,000 carbon credits at not less than \$8 per credit in California's

carbon market in 2014, through a San Francisco carbon developer company known as Blue Source (Smith, 2014). Brookgreen Gardens also sold 162,551 carbon credits in California's carbon market in 2015 through the Green Assets carbon developer company (Green Assets, 2015).

### Limits to CA-CTP Eligibility

The CA-CTP forest offset protocol provides eligibility rules under which GHG reductions of forest offset projects are calculated, and also for monitoring and reporting of offset project and offset project data, respectively (CARB, 2011). Under the forest offset protocol, offset projects must sequester carbon in addition to other ecological functions. Eligible project activities include reforestation which involves tree planting or removal of impediments to natural reforestation, with no rotational harvesting of reforested trees or existing trees during the first 30 years after commencement of the offset project, unless to prevent or mitigate diseases. Improved forest management comprises management activities such as increasing rotation age, thinning diseased and suppressed trees, increasing and maintaining tree stocks at high level, and all other natural forest management practices that enhance carbon stocks on a forestland. Avoided conversion ensures that the forest cover is maintained through a qualified conservation easement and is eligible on forestland that is privately owned prior to commencement as an offset project.

### What do Carbon Offsets Mean for SC FFOs?

South Carolina FFOs who are willing to participate in the CA-CTP carbon market will receive carbon offset payments annually. Payments received will depend on the carbon offset market price, which is determined by the interaction of supply and demand in the carbon market. Offset prices also vary across type, location, standard, and other attributes of a project (Hamrick and Galant, 2017). Average price of offsets in California's carbon market is projected to be about \$35 per ton of carbon dioxide equivalent (tCO<sub>2</sub>e) between 2013 and 2020 (Reuters, 2010), and ranged from \$10 - \$11/tCO<sub>2</sub>e in 2016 (Hamrick and Galant, 2017).

### Summary

Forest carbon offsets will provide supplemental income in addition to other benefits to SC FFOs who decide to participate in California's carbon market. SC FFOs will also have the opportunity to contribute their quotas to efforts to reduce climate change impacts if they decide to create and sell forest offsets. Offsets can be sold through credit developers who first find buyers. A buyer can be a broker or the end user which is the regulated entity in the CA-CTP.

The project must get listed with a CARB approved carbon registry for a complete tree inventory to be taken, and the number of offsets to be calculated based on agreed forest management activities. The project is then verified by a third party before CARB's approval to sell offsets.

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