

Highlights of [GAO-11-345](#), a report to the Chairman, Committee on Oversight and Government Reform, House of Representatives

Why GAO Did This Study

Carbon offsets are reductions in greenhouse gas emissions in one place to compensate for emissions elsewhere. Examples of offset projects include planting trees, developing renewable energy sources, or capturing emissions from landfills. Recent congressional proposals would have limited emissions from utilities, industries, or other “regulated entities,” and allowed these entities to buy offsets. Research suggests that offsets can significantly lower the cost of a program to limit emissions because buying offsets may cost regulated entities less than making the reductions themselves.

Some existing international and U.S. regional programs allow offsets to be used for compliance with emissions limits. A number of voluntary offset programs also exist, where buyers do not face legal requirements but may buy offsets for other reasons. Prior GAO work found that it can be difficult to ensure offset quality—that offsets achieve intended reductions. One quality criterion is that reductions must be “additional” to what would have occurred without the offset program.

This report provides information on (1) key challenges in assessing the quality of different types of offsets and (2) options for addressing key challenges associated with offset quality if the U.S. adopted a program to limit emissions. GAO reviewed relevant literature and interviewed selected experts and such stakeholders as project developers, verifiers, and program officials. This report contains no recommendations. View [GAO-11-345](#) or key components. For more information, contact David Trimble at (202) 512-3841 or trimbled@gao.gov.

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CLIMATE CHANGE ISSUES

Options for Addressing Challenges to Carbon Offset Quality

What GAO Found

According to experts, stakeholders, and available information, key challenges in assessing the quality of offset projects include the following:

- **Additionality.** According to many experts and stakeholders GAO interviewed, additionality is the primary challenge to offset quality. Assessing additionality is difficult because it involves determining what emissions would have been without the incentives provided by the offset program. Studies suggest that existing programs have awarded offsets that were not additional.
- **Measuring and managing soil and forestry offsets.** For projects that store carbon in soils and forests, it is challenging to estimate the amount of carbon stored and to manage the risk that carbon may later be released by, for example, fires or changes in land management. Some studies have estimated that projects involving soils and forestry could constitute the majority of offsets under a U.S. program.
- **Verification.** Experts and stakeholders said that verifying offsets in existing markets has presented several challenges. In particular, project developers and offset buyers may have few incentives to report information accurately or to investigate offset quality.

According to experts, stakeholders, and available information, policymakers have several options to choose from in addressing challenges with offset quality. These approaches often involve fundamental trade-offs, such as increasing the cost of offsets. Nevertheless, some research indicates that including offsets in a program to limit emissions could provide substantial cost savings that would not be provided by a program without offsets.

- **Additionality.** One way to assess additionality is project-by-project approval, a lengthy process that considers the individual circumstances of each project. Another approach is to group projects into categories and apply a standard to the entire group—for example, award offsets to all electricity generators with emissions below a certain level. While such standards may be less subjective and less costly to administer, they may also require a considerable up-front investment to collect data for various project types.
- **Measuring and managing soil and forestry offsets.** To address these challenges a program could, for example, adjust the amount of offsets awarded based on measurement uncertainty, or establish a “buffer pool” of offsets to compensate for any re-released carbon.
- **Verification.** To address this challenge, a program could, for example, hold verifiers liable for problems with offsets they have approved, contract with independent verifiers, and provide for rigorous oversight.

Experts also identified options that could address multiple quality assurance challenges, such as limiting the quantity or type of offsets that can be used for compliance. However, limiting the supply of offsets could also raise their cost. Regardless of the program design, many experts said an offset program should clearly identify goals, align incentives with goals, promote transparency, and continuously evaluate progress.