



Government Intervention in Support of Quality Carbon Credits

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Carbon Direct helps organizations turn industry-leading carbon science into action through its end-to-end platform and advisory services. With a team of over 40 top carbon scientists, Carbon Direct helps companies and governments around the world reach their climate goals with integrity.

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Summary for Policymakers

The voluntary carbon market (VCM) enables companies to purchase carbon credits¹ to address their greenhouse gas (GHG) emissions. Designed effectively, these credits have the potential to drive trillions of dollars toward vital climate projects. Numerous protocols have been established to ensure that these credits are of high quality and deliver meaningful carbon emission reductions or removals as designed. Despite these efforts, low-quality credits persist in the VCM. These low-quality credits are either not additional (i.e., the credited activity would have occurred without the credit payment) or fail other basic quality tests. As more corporations declare their intention to meet net-zero or other climate goals through actions that include the purchase of credits in the VCM, urgent questions are arising as to what role the federal government should play in improving the quality of the market. Two basic concerns spur these questions. First, consumers, shareholders, and the climate are all at risk if corporate investments in carbon credits do not deliver real and measurable emissions reductions or removals. Second, corporations that currently buy low-quality credits may be unintentionally misallocating their resources, instead of investing them in activities with real climate benefits.

To respond to these growing questions, this issue brief outlines five possible approaches for federal intervention with the potential to foster high-quality carbon credits. These approaches are not intended to be comprehensive; rather, they demonstrate a spectrum of possible government interventions, including legislative, regulatory, and administrative, with the goal of protecting credit buyers from low-quality or fraudulent credits and enhancing credit suppliers' ability to develop high-quality carbon credits in line with robust protocols.

Scenario 1—No federal government involvement: The federal government could rely solely on private-sector and international momentum to create a more unified and effective vision of quality standards for carbon credits. This option would require no additional federal action or engagement beyond existing legislation, rulemakings, and guidance.

Scenario 2—Federal government guidance and recommendations on best practices: The federal government could choose to develop lists of recommended market actors (e.g., carbon credit registries and providers of verification services) that contribute to the production of high-quality carbon credits. The government would offer information but not require voluntary carbon market participants to follow the guidance or recommendations. Taking this action would help to demystify the carbon markets ecosystem for buyers, sellers, and project implementers of carbon credits while still

¹ Carbon credits refers to representations of a unit of carbon dioxide reduced or removed. Carbon credits used by companies specifically to mitigate (residual) emissions are referred to as carbon offsets.

allowing maximum flexibility for private-sector participants in the voluntary carbon markets. An additional feature could be that federal agencies would be required to use this guidance when they purchased carbon credits, thus setting minimum guardrails for government procurement.

Scenario 3—Federal government approved certification of quality: The federal government could choose to provide a voluntary “stamp of approval” for credit quality at the protocol level. This certification or labeling system could either:

- (a) be drafted by the federal government, with input and developmental support from the private sector (similar to the U.S. Environmental Protection Agency’s [Energy Star](#) voluntary labeling system for home appliances), or
- (b) be drafted by the private sector with government observation and limited participation (similar to [ANSI](#) or [ISO](#) standardization processes).

Market participants would not be required to adhere to the standards or certification processes but could instead elect to work only with credits that use the labeling system.

Scenario 4—Federal government assisted self-regulation framework for credits: The federal government could help facilitate the formal designation of a self-regulated compliance framework for registries and market actors. For example, one or more self-regulatory organizations (SRO) could be formed; these SROs would be self-regulating but subject to government-backed guardrails for enforcing credit quality. Examples of SROs include the New York Stock Exchange (NYSE) and the Financial Industry Regulatory Authority (FINRA), both of which write and enforce rules and standards that apply to participating members within a certain industry.

Scenario 5—Direct federal regulation of credits: The federal government could assert full regulatory authority over carbon credits bought and sold in the United States, and would have a broad mandate to develop quality control standards. These regulations would provide minimum product or commodity standards for carbon credits and require that carbon credits exchanged among U.S. registrants meet these minimum requirements. The regulatory authority (which could be vested in an existing or new agency) would impose market oversight, disclosure, and other information-sharing requirements for carbon credit suppliers and buyers.

Each of the intervention scenarios outlined here would require varying degrees of private and public spending, corporate buy-in, political capital, and federal action. These scenarios are not comprehensive but represent tangible policy futures for improving credit quality which will have to continue developing in the years ahead. Despite the clear problems with credits today, carbon credits’ potential in driving meaningful climate action justifies the work required to build bipartisan coalitions that spur effective private investment.

Introduction

Climate change affects billions of people globally and threatens major disruptions to economic, social, and environmental systems.² Despite progress toward the clean energy transition, collective global commitments are insufficient to avoid the worst effects from climate change.³ Rapid and profound reductions in greenhouse gas (GHG) emissions across all economic sectors, paired with rapid growth of carbon dioxide (CO₂) removal from the atmosphere, are needed urgently. Voluntary carbon markets (VCMs), which allow finance to flow toward activities that reduce and remove carbon from the atmosphere, are positioned to play an increasingly significant role in driving climate action. Financing for climate-friendly practices whose benefits are quantified and made tradable in the form of carbon credits helps propel the transition to a decarbonized economy.

Below, we describe and analyze five scenarios for federal action that could increase carbon credit quality. These interventions have the potential to ensure that the generated credits are more likely to be durable, additional, and real. They focus on helping differentiate and ensure quality (as defined in **Table 1**). Comparatively, these approaches focus less on levers such as direct federal support for carbon-beneficial activities; research into climate-smart agricultural approaches; funding for monitoring, reporting, and verification; standardizing market architecture (e.g., contracts); or regulating claims made by companies using credits, although all these levers could fit within the complement of activities highlighted in these scenarios. Rather, these interventions describe a spectrum of government actions aimed at improving the quality of carbon credits. These changes have the potential to increase participation from a wide range of actors and to steer private investment toward activities that will reduce emissions and improve greenhouse gas removal while avoiding fraudulent credits, wasting money for climate solutions, or delaying or reducing climate benefits.

2 IPCC. "Summary for Policymakers." *Climate Change 2022: Impacts, Adaptation, and Vulnerability*. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [Pörtner, H.O, et al. (eds.)]. Cambridge and New York: Cambridge University Press, 2022, pp. 3–33. https://www.ipcc.ch/report/ar6/wg2/downloads/report/IPCC_AR6_WGII_SummaryForPolicymakers.pdf.

3 IPCC. "Summary for Policymakers." *Climate Change 2022: Mitigation of Climate Change*. Contribution of Working Group III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [Shukla, P.R., et al. (eds.)]. Cambridge and New York: Cambridge University Press. https://www.ipcc.ch/report/ar6/wg3/downloads/report/IPCC_AR6_WGIII_SummaryForPolicymakers.pdf.

BACKGROUND

Between 2019 and 2020, the number of companies and subnational governments with net-zero climate commitments nearly doubled, as many made climate action a priority in their COVID-19 recovery plans.⁴ As part of the U.N. Race to Zero campaign, the majority of these actors pledged to meaningfully contribute to a net-zero carbon economy by 2050.⁵ Participants are seeking to reduce emissions within their direct control where possible. To help mitigate remaining and historical emissions, many actors are joining the voluntary carbon market to purchase carbon credits representing reduced, avoided, and removed emissions. Independent registries administer these credits, and each registry has protocols for different carbon project types (**Figure 1**). This marketplace enables organizations, particularly in the private sector, to support climate-beneficial projects that go beyond what they could do alone.⁶ The VCM is experiencing rapid growth, reaching a total value of more than \$1 billion in 2021.^{7,8} By 2030, estimates suggest that the VCM could scale to over \$100 billion per year depending on market dynamics and pricing scenarios.⁹

The use of carbon credits is not without controversy. Some opponents argue that credits pose a “moral hazard” by justifying the persistence of carbon-intensive or difficult-to-decarbonize sectors, thereby delaying progress toward climate goals while simultaneously allowing greenhouse gas and co-contaminants to continue unabated in communities overburdened by pollution.¹⁰ The widely publicized presence of low-quality credits exacerbates

4 Data-Driven EnviroLab and NewClimate Institute. *Accelerating Net Zero: Exploring Cities, Regions, and Companies’ Pledges to Decarbonize*. 2020. Available at: http://datadrivenlab.org/wp-content/uploads/2020/09/Accelerating_Net_Zero_Report_Sept2020.pdf.

5 UNFCCC. “Commitments to New Zero Double in Less Than a Year.” *United Nations Climate Change*, 21 Sept. 2020. Available at: <https://unfccc.int/news/commitments-to-net-zero-double-in-less-than-a-year>.

6 In theory, these markets also help to find and fund the lowest cost emissions reductions, reducing the costs of addressing climate change and potentially allowing for more ambitious mitigation.

7 Trove Research. *Voluntary Carbon Market: 2021 in Review and 2022 Outlook*. 31 Jan. 2022. Available at: <https://trove-research.com/report/voluntary-carbon-market-2021-in-review-and-2022-outlook/>.

8 Ecosystem Marketplace. *Markets in Motion: State of Voluntary Carbon Markets 2021*. 15 Sept. 2021. Available at: [https://www.ecosystemmarketplace.com/publications/state-of-the-voluntary-carbon-markets-2021/#:~:text=Data%20from%20the%20State%20of,%24472.9M\)%2C%20and%20growth%20in](https://www.ecosystemmarketplace.com/publications/state-of-the-voluntary-carbon-markets-2021/#:~:text=Data%20from%20the%20State%20of,%24472.9M)%2C%20and%20growth%20in).

9 “Taskforce on Scaling Voluntary Carbon Markets Summary Pack.” Institute of International Finance, 25 Jan. 2021. Available at: www.iif.com/Portals/1/Files/TSVCM_Summary.pdf.

10 Temple, J. “Carbon Removal Hype Is Becoming a Dangerous Distraction.” *MIT Technology Review*, 19 Apr. 2022. Available at: www.technologyreview.com/2021/07/08/1027908/carbon-removal-hype-is-a-dangerous-distraction-climate-change.

Figure 1. Key participants in voluntary carbon markets.



these challenges.^{11,12,13} Notably, there is some consensus around the criteria that characterize high quality carbon credit projects (**Table 1**). Yet despite agreement in theory, these principles have yet to be widely implemented in the market. Research has shown that more than half the credits within the market might not meet quality standards, depending on the subtype and criteria used, and that the percentage of low-quality projects might even top 90%.¹⁴ For some, the persistent shortcomings of carbon markets over the past two decades are evidence that they will never work as intended.

Table 1. Quality criteria for carbon credits.¹⁵

Criteria	Description
Clear additionality relative to a credible baseline	A project is “additional” if it directly leads to climate benefits, compared with what would have happened otherwise (the counterfactual). Determining additionality is linked to the question of what would have happened without the project, known as the project baseline.
Minimal carbon leakage	Carbon “leakage” occurs if a project reduces or eliminates emitting activities, but these activities simply move to other areas; or if economic factors cause other emissions to correspondingly increase. This leakage can reduce or eliminate the net carbon benefits from the project.
High (long duration) permanence	The carbon benefits of a project (emissions reduction or removal with storage) are durable if they persist for a long period relative to the project type, without emissions returning to original levels or stored carbon being released back into the atmosphere.
Robust MRV/carbon accounting	Accurate, comprehensive methods are used to estimate, monitor, report, and verify (MRV) project benefits.
Do no harm	The project does not lead to any significant harms of any form, does not exacerbate environmental injustice, and the overall net benefits exceed any harms.

- 11 Elgin, B. and Zachary M. “The Real Trees Delivering Fake Corporate Climate Progress.” *Bloomberg*, 17 Dec. 2020. Available at: www.bloomberg.com/news/features/2020-12-17/the-real-trees-delivering-fake-climate-progress-for-corporate-america?leadSource=uverify%20wall.
- 12 Greenfield, P. “Revealed: More Than 90% of Rainforest Carbon Offsets by Biggest Certifier Are Worthless, Analysis Shows.” *The Guardian*, 30 Jan. 2023. Available at: www.theguardian.com/environment/2023/jan/18/revealed-forest-carbon-offsets-biggest-provider-worthless-verra-aoe.
- 13 Song, L. “An (Even More) Inconvenient Truth: Why Carbon Credits for Forest Preservation May Be Worse Than Nothing.” *ProPublica*, 22 May 2019. Available at: <https://features.propublica.org/brazil-carbon-offsets/inconvenient-truth-carbon-credits-dont-work-deforestation-redd-acre-cambodia/>.
- 14 Multiple sources have found that only a limited number of carbon credit projects demonstrate the environmental benefits they sought to achieve. See, for example: Cames, M., et al. *How Additional Is the Clean Development Mechanism?* Öko-Institut, 2016. https://climate.ec.europa.eu/system/files/2017-04/clean_dev_mechanism_en.pdf; West, T., et al. “Overstated Carbon Emission Reductions From Voluntary REDD+ Projects in the Brazilian Amazon.” *Proceedings of the National Academy of Sciences of the United States of America*, vol. 117, no. 39, National Academy of Sciences, Sept. 2020, pp. 24188–94. <https://doi.org/10.1073/pnas.2004334117>; and Calel, R., et al. *Do Carbon Offsets Offset Carbon?* Centre for Climate Change Economics and Policy (CCCEP) and Grantham Research Institute on Climate Change and the Environment, 2021, http://eprints.lse.ac.uk/112803/1/GRI_do_carbon_offsets_offset_carbon_paper_371.pdf.
- 15 Adapted from: Carbon Direct and Microsoft. *Criteria for High-Quality Carbon Dioxide Removal*. Apr. 2022. Available at: https://d13en5kcqwfled.cloudfront.net/files/Criteria-Doc_FY23_April-2022.pdf.

Still, given the projected increase in demand for carbon credits and the need to drive investment toward climate beneficial projects, it is likely that credits will continue to serve a substantial and increasing role in the global campaign against climate change.¹⁶ While deep reductions in emissions are essential, carbon dioxide removal (CDR) will also need to massively scale up in the coming decades. Both reductions and removals may use carbon credits as a revenue stream.^{17,18,19} Carbon credits should be effective and impactful to help achieve ambitious climate goals.

ASSESSING THE FEDERAL GOVERNMENT'S ROLE IN SUPPORTING CREDIT QUALITY

Despite the many critiques of the VCM and the varying proposals to improve the market, the appropriate role for the federal government to strengthen credit quality is unclear. In the United States, a spectrum of potential government intervention exists. The choices range from lighter-weight interventions characterized primarily by private-sector leadership within the VCM to “heavier” intervention characterized by substantial regulatory involvement and realignment of the credit market’s structure and function. In this report, we describe five levels of intervention across this spectrum. These scenarios are not a comprehensive overview of potential interventions, and we do not describe the ideal set of quality criteria for credits. Rather, we illustrate a variety of potential futures where improved carbon credits channels private capital toward meaningful climate impacts.

16 Goldberg, J. “Comment on the Enhancement and Standardization of Climate-Related Disclosures for Investors.” 17 June 2022. *Securities Exchange Commission*. Available at: <https://www.sec.gov/comments/s7-10-22/s71022-20132289-302821.pdf>.

17 National Academies of Sciences, Engineering, and Medicine. *Negative Emissions Technologies and Reliable Sequestration*. 2019. Washington, DC: The National Academies Press. <https://doi.org/10.17226/25259>.

18 Intergovernmental Panel on Climate Change (IPCC). *Global Warming of 1.5°C*. 2018. Available at: www.ipcc.ch/sr15.

19 Energy Transitions Commission. *Mind the Gap: How Carbon Dioxide Removals Must Complement Deep Decarbonization to Keep 1.5°C Alive*. March 2022. Available at: <https://www.energy-transitions.org/publications/mind-the-gap-cdr/>.

International Momentum on Credit Quality

The voluntary carbon market is global. For example, a company headquartered in the United States might look to secure carbon credits in South America to help mitigate emissions from China-based supply chains. In terms of carbon credit demand, rules that govern U.S.-headquartered companies operating in multiple regions across the globe have the potential to influence the approach of these companies. To some extent, data privacy requirements in the European Union have produced a comparable effect.²⁰

Any U.S. government intervention in voluntary carbon credit markets should therefore account for actions taken elsewhere in the world. On the international stage, efforts to standardize quality are already underway (**Figure 2**) and could lead to greater domestic standardization. Although these global activities do not all necessarily represent “best practices,” these efforts will affect interactions with the VCM domestically.

For the VCM, international regulatory and voluntary efforts at standardization might change the quality criteria, supply, and availability of carbon credits. For example, the United Nations’ Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) applies to international aviation. It sets rules on which carbon credits are allowed to apply to international aviation offsetting, and it only allows certain types of more recently produced credits. Voluntary efforts at market governance, such as the multistakeholder Integrity Council for the Voluntary Carbon Market, might also lead to widely used rules that have cross-cutting effects across the globe.²¹

Federal interventions in VCMs have the potential to affect credit-generating activities in the United States, to influence U.S. companies and the credits they buy domestically or internationally, and to alter industry architecture (e.g., registries, exchanges) based within the United States, depending on the specific target and form of intervention. In this brief, we assume that the minimum target of most interventions is to influence credit-generating activities within the U.S. geographic footprint. However, some approaches might target credits transacted by U.S. entities, which is likely to involve credits of both domestic and international provenance.

Policymakers should consider carefully both the feasibility and effects of domestic action on the internationally enmeshed voluntary carbon market.

20 Ius Laboris. *The Impact of the GDPR Outside the EU*. 17 Sept. 2019. Available at: <https://iuslaboris.com/insights/the-impact-of-the-gdpr-outside-the-eu/>.

21 Shankleman, J., and Natasha W. “Carney’s Bid to Grow Carbon Market Rejiggered Amid Controversy,” *Bloomberg*, 16 Mar. 2022. Available at: www.bloomberg.com/news/articles/2022-03-16/carney-s-bid-to-boost-carbon-market-scaled-back-amid-controversy#xj4y7vzkg.

Figure 2. Globally, national and international bodies are developing regulatory oversight of carbon markets and carbon reduction or removal activities. These initiatives will encourage tighter oversight across the industry as the lowest bar for “best practice” is raised.^{22,23,24,25,26,27}

Canada and **Hong Kong** progressed efforts to establish market-based approaches for domestic or regional carbon credit schemes to stimulate carbon reduction and removal activities. Protocols for establishing high-quality credits are being developed in both jurisdictions.

The **European Commission** began a public consultation process in early 2022 to develop an EU Carbon Removal Certification Mechanism (EU CRC-M) to enable monitoring and verification of carbon sinks against the targets set by the 2021 EU Climate Law. This will complement the EU Sustainable Carbon Cycles (SCC) initiative, which aims to scale the carbon removal and recycling potential of agriculture and farming as well as heavy industries. It is likely that policy makers will recommend that the certification scheme applies to both compliance markets and EU-traded credits within VCMs.

Efforts to increase regulatory oversight are also being made by **international non-governmental bodies**. 2022: the UN launched a group that will produce recommendations on four areas related to standardization. This group aims to increase accountability for non-state actors, often the primary participants of VCMs, and therefore will have repercussions for global VCM standards.

The **Australian** Clean Energy Regulator administers national carbon markets for the Emissions Reduction Fund (ERF), which approves methodologies for Australian carbon credit units. In 2021 the ERF began developing new methods for soil carbon, carbon capture and storage, plantation forestry, blue carbon and biomethane. The ERF is voluntary, designed to incentivize organizations to adopt technologies that reduce emissions.

- 22 Hong Kong Monetary Authority. “Hong Kong Monetary Authority - Cross-Agency Steering Group Releases Assessment of Carbon Market Opportunities for Hong Kong and Next Steps.” *Hong Kong Monetary Authority*, 20 Mar. 2022. Available at: www.hkma.gov.hk/eng/news-and-media/press-releases/2022/03/20220330-3.
- 23 Environment and Climate Change. “Government of Canada Announces Next Step in Creation of Domestic Carbon Offset to Further Support Clean Growth.” *Government of Canada*, 5 Mar. 2021. Available at: www.canada.ca/en/environment-climate-change/news/2021/03/government-of-canada-announces-next-step-in-creation-of-domestic-carbon-offset-to-further-support-clean-growth.html.
- 24 Australian Government Clean Energy Regulator. *About Carbon Markets*. Available at: <https://www.cleanenergyregulator.gov.au/Infohub/Markets/Pages/About-Carbon-Markets.aspx>.
- 25 Australian Government Clean Energy Regulator. *About the Emissions Reduction Fund*. Available at: <https://www.cleanenergyregulator.gov.au/ERF/About-the-Emissions-Reduction-Fund>.
- 26 European Parliament. “Legislative Proposal on a Union Certification Framework for Carbon Removals. | Legislative Train Schedule.” *European Parliament*, 20 Feb. 2023. Available at: www.europarl.europa.eu/legislative-train/theme-a-european-green-deal/file-carbon-removal-certification.
- 27 United Nations. *Secretary-General Will Push Business, Investors, Cities to ‘Walk the Talk’ on Net-Zero Pledges, Launching Expert Group as Climate Crisis Worsens*. 31 Mar. 2022. Available at: <https://press.un.org/en/2020/sga2109.doc.htm>.

Scenarios for Federal Government Intervention

The purpose of this report is to envision ways the U.S. federal government might support the proliferation of quality carbon credits for climate benefits. Although the harmonization and alignment of quality criteria are central to advancing meaningful and trustworthy carbon credits, the scenarios we lay out do not discuss the ideal balance of quality criteria. Instead, the scenarios outline different degrees of government intervention in the “upstream” components of determining credit quality, which could lead to improved credit implementation and quality over time.

In the rest of this section, we outline five intervention scenarios with increasingly stringent levels of government intervention. These scenarios involve a mix of private-sector, legislative, and executive action with varying potential outcomes and challenges.

Design considerations for federal policy

Most government interventions help address the challenge of ensuring the production and sale of high-quality carbon credits that provide the benefits they claim. Federal interventions toward this end can be characterized along three key axes:

- **Optionality of participation:** whether participation in or adherence to specific requirements is voluntary or mandated for private-sector participants.
- **Degree of industry leadership:** whether the activities or governance are primarily industry-led, industry-led with government oversight, or government-led.
- **Authorization needed:** degree to which activities require additional rulemaking or legislation.

These are far from the only dimensions to consider when designing interventions in the voluntary carbon market. Additional axes of consideration are presented in the Appendix.

We have specified five scenarios, ordered by degree of government involvement (**Table 2**), that describe different pathways for how standardization and alignment of quality credits could be established and maintained. The scenarios focus on process and do not assert what quality credits *are*.

Table 2: Summary of scenarios across key axes

#	Scenario	Optionality of participation	Degree of industry leadership	Authorization required
1	No additional government involvement	Voluntary	Industry-led	N/A
2	Government provides light guidance on best practices	Voluntary	Industry led w/ U.S. government (USG) confirmation of best practices	Existing authority or new legislation
3	Government-approved certification of quality	Voluntary	Industry-led w/ USG oversight or USG-led	Existing authority or new legislation
4	Government-assisted self-regulation framework for credits	Voluntary (strongly encouraged)	Industry-led w/ USG oversight	Existing authority or new legislation
5	Government regulation of credits	Mandatory	USG-led	New legislation

Scenario 1: No federal government involvement

Description: Sole reliance on private-sector and international momentum to move toward a more unified vision of quality standards for carbon credits. No federal government engagement is assumed beyond what has already passed into law or suggested through rulemakings and guidance.

Detail: For nearly two decades, voluntary carbon markets have developed without significant government involvement. As the market continues scaling and maturing, this process is expected to continue. For example, efforts are underway to harmonize what constitutes quality carbon credits and how those credits may be responsibly used by organizations. There are also more providers of information that offer independent third-party assessments of credit quality. Credit generating methodologies are being updated to take advantage of increasingly powerful scientific tools (e.g., remote sensing and machine learning), and new registry bodies are emerging. Developments are occurring particularly rapidly in the area that has to do with emergent hybrid and engineered carbon dioxide removal technologies, many of which are just coming to market. All of these activities will likely advance even in the absence of federal engagement. It remains to be seen how quickly and completely such developments will raise credit quality and address other problems within the current voluntary carbon market.

Potential Outcomes and Challenges:

- **Some potential for increased credit differentiation.** Through efforts by domestic and global actors,²⁸ maturation of the VCM could occur and result in improved standardization and greater visibility into credit quality, but these gains would not be universal across all credits. Some natural maturation will occur within the market over time as a result of existing and future developments, but might not be sufficient to meet the challenges facing the market.
- **Despite the existence of some quality credits, fraudulent and mischaracterized credits will still be sold.** In the absence of additional government involvement, instances still might occur in which actors claim the same carbon benefits twice or companies falsely make net-zero emissions claims in investing and advertising materials. In some cases, those offering credits might claim incorrect carbon benefits in good faith, because of misunderstandings of or confusion about the criteria for high-quality credits.
- **Lack of a policy driver leaves uncertainty and market confusion.** Absence of a government-led intervention strategy could allow disparate private-sector-led efforts to further proliferate, and this might increase confusion for market actors trying to determine how to approach the procurement of quality credits across different guidance frameworks.

Scenario 2: *Federal government guidance and recommendations on best practices*

Description: The federal government could develop voluntary guidance and lists of recommended market actors that produce high-quality carbon credits. The lists could include recommended carbon credit registries, providers of monitoring, reporting, and verification (MRV) services, or carbon credit project developers. The goal of identifying recommended market actors would be to help clarify the carbon market ecosystem for buyers and sellers (i.e., project implementers) of carbon credits without requiring compliance to specific protocols or frameworks. In the case of carbon credits related to soils, forests, grasslands, wetlands, and agriculture, the Growing Climate Solutions Act is largely aligned with this scenario. This scenario would produce lists for all relevant carbon credit project types (i.e., natural, hybrid, and engineered approaches).

Detail: Guided by new legislation or existing executive authority, a federal agency or interagency task force would codify federal guidance as to the best

28 Examples of domestic and global actors working to improve the VCM include the Greenhouse Gas Protocol, Net-Zero Banking Alliance, Oxford Principles, Science Based Targets Initiative, Sustainable Markets Initiative, Taskforce on Scaling Voluntary Carbon Markets, Institutional Investors Group on Climate Change, Voluntary Carbon Market Integrity initiative, and Integrity Council for the Voluntary Carbon Market.

practices for the generation of high-quality carbon credits. This guidance would then identify individual market participants (see Figure 1) who adhere to best practices, in the eyes of the federal government. The lists would serve a purely informational purpose, with no corresponding requirements for market participants.

Potential Outcomes and Challenges:

- **Developing the list of market actors meeting federally recommended guidelines would be conducted using standard processes for revision and appeal.** The federal agency or agencies tasked with developing the list could adopt similar methods to those already in use at federally recognized accrediting agencies for higher education. This can present both benefits and challenges because external advice from experts is generally seen as beneficial, but the process for generating and updating the list over time can be subject to political gamesmanship as new Presidential administrations reflect new priorities.
- **Lists may not capture nuances in quality.** Some observers have suggested that the only way to accurately judge credit quality in the current market is on a protocol- and project-level basis. The approach of creating a list of recommended market actors fails to capture this level of granularity and therefore risks providing an implied seal of approval to low-quality projects alongside high-quality ones. One potential way to minimize this challenge would be for the federal government to supplement the list with more information and voluntary guidance on the different ways to evaluate protocol and project quality.
- **Voluntary compliance to the approved list means fraudulent credits would continue to be produced and sold.** Despite a potential increase in acknowledgment of “quality” by market participants, many credit purchasers might be unaware of the existence of a federal list of registries and providers meeting government-recommended quality criteria. This lack of knowledge would reduce the potential for improved trust in the market and the prevention of inaccurate or misleading carbon claims.

Growing Climate Solutions Act

The Growing Climate Solutions Act (GCSA; S. 1251 / H.R. 2820), which was part of the Consolidated Appropriations Act of 2023 that was signed into law on December 29, 2022, includes a voluntary guidance approach for credits applied to agriculture and forestry projects. The GCSA authorizes a U.S. Department of Agriculture (USDA) program to identify protocols and methodologies for nature-based credits that ensure consistency, reliability, effectiveness, efficiency and transparency. In addition, the Greenhouse Gas Technical Assistance Provider and Third-Party Verifier Program will register covered entities that can help farmers, ranchers, and private forest landowners carry out activities that prevent, reduce, or mitigate greenhouse gas emissions. An Advisory Council will oversee these lists and approval processes; the council will have a broad membership, including scientists, farmers, ranchers, voluntary environmental credit market experts, NGOs, and representatives from all the relevant government agencies. With these approved protocols and third-party verifiers publicly available via USDA.gov, the U.S. government will signal to VCM participants clear bounds on what constitutes “quality” without requiring compliance to a particular program. Without additional government intervention, the burden is on the private sector to self-regulate.

Federal government procurement of carbon credits

Government procurement of carbon credits—in which a federal agency would purchase credits from the VCM to offset a specified amount of carbon emissions from federal activities—could be viewed as a method of indirectly implementing Scenario 2. This would require the procuring agency or agencies to determine what quality criteria are eligible for its purchases, but the federal government would not mandate or require the adoption of its criteria. Federal procurement criteria would set a very powerful precedent for voluntary adoption, similar to the Federal Information Processing Standards (FIPS)²⁹ or military specifications and standards (e.g., MIL-SPEC, MIL-PRF),³⁰ and corporate buyers may reasonably look to these same criteria voluntarily for guidance. Such issues may warrant the designation of lead agencies for determining government procurement criteria or an interagency taskforce to prevent divergent approaches across government.

29 See “Compliance FAQs: Federal Information Processing Standards (FIPS) | NIST.” *NIST*, 8 July 2021. Available at: www.nist.gov/standardsgov/compliance-faqs-federal-information-processing-standards-fips.

30 See “Defense Standardization Program Specifications and Standards.” *Defense Standardization Program*. Available at: www.dsp.dla.mil/Specs-Standards.

Scenario 3: *Federal government approved certification of quality*

Description: The federal government would provide a voluntary “stamp of approval” for credit quality at the protocol level. This certification or labeling system could either:

- (a) be drafted by the federal government, with input and developmental support from the private sector (similar to EPA’s [Energy Star](#) voluntary labeling system for home appliances), or
- (b) be drafted by the private sector with government observation and limited participation (similar to [ANSI](#) or [ISO](#) standardization processes).

Market participants would *not* be required to adhere to the standards or certification processes but could instead elect to work only with credits that use the labeling system.

Detail: This intervention envisions the creation of a voluntary labeling system for high-quality carbon credits and projects. The labeling system would be co-developed as a public-private partnership and serve as a federally recognized cross-cutting benchmark to compare different project and protocol types, increasing transparency for buyers.

A useful analog for this voluntary certificate approach is the EPA Energy Star program. Although a federal agency manages the program, the specifications for individual products to qualify are developed (and periodically revised) using an iterative process that incorporates extensive private-sector feedback. Once these specifications are established, private entities are responsible for verifying that their products meet them and qualify for the Energy Star designation. As a voluntary program, the Energy Star label provides guidance for both manufacturers and purchasers, but there is no requirement or mandate for its use. The same is likely to be true in the carbon credit space.

Following this analogy, a federal “Carbon Star” program could be developed as a voluntary labeling mechanism for high-quality carbon credits. Such an approach would likely occur at the level of the more than 100 credit-generating protocols (as compared to Scenario 2, which focuses on organizations that create or use such protocols). Procedurally, this program would likely require legislative authorization. The process for creating and developing the Carbon Star program should rely on significant private-sector engagement, including through the creation of an oversight board with broad industry and academic representation, similar to the Advisory Council in the GCSA.

Similar to how the Energy Star program creates different labels for different products (e.g., refrigerators and washing machines), different labels would be created for different carbon credit project types (e.g., forest restoration, direct air capture to saline storage, etc.) The long-term climate effects and co-benefits could be clearly articulated and differentiated as part of the labeling system;

this would create an opportunity to differentiate qualities such as durability terms for carbon sequestration or tangible benefits for environmental justice and rural communities.

History and Mission of EPA's Energy Star Program



The EPA established the Energy Star program in 1992 under a provision of the Clean Air Act, which directed the agency to “develop, evaluate, and demonstrate nonregulatory strategies and technologies for air pollution prevention.”³¹ The directive became more specific through Energy Policy Act legislation in 2005 that instructed the EPA and U.S. Department of Energy (DOE) to implement a voluntary labeling approach to energy efficient products and buildings.

The Energy Star program provides consumers and businesses alike with actionable information related to the energy-efficiency performance of various products, residential and commercial buildings, and industrial facilities. The program acts as a trusted standard and government-backed labeling system to denote performance relative to industry best practices around energy consumption. It has led to thousands of partnerships across numerous sectors to deliver broad value, including energy and cost savings, air quality improvement, avoided greenhouse gas emissions, consumer education, and business competitiveness. A major benefit is that the program serves as a centralized national platform allowing industry actors to certify their business practices and products against a credible and well-recognized standard, obviating the need to create countless individual programs that could fragment the market, introduce barriers to program implementation, inhibit clean energy innovation, or create confusion among the public.³²

The program is designed as a public-private partnership that involves the sharing of industry data with the EPA; this in turn allows the agency to define energy efficiency performance standards and establish criteria by which products and buildings can be certified. With EPA oversight, multiple third parties conduct the testing and certification of qualifying products and buildings. Importantly, the program emphasizes flexibility and adaptability

31 “Statutory Authority for ENERGY STAR.” *ENERGY STAR*, 23 Mar. 2023. Available at: <https://energystar-mesa.force.com/ENERGYSTAR/s/article/Under-what-statutory-authority-does-the-ENERGY-STAR-program-exist-1600088467292>.

32 “About ENERGY STAR.” *ENERGY STAR*. Available at: www.energystar.gov/about.

to changing market realities and technological advancements. Despite being established by the EPA in 1992, the Energy Star program formally partnered with DOE in 2009 to leverage the strengths of each agency to share roles and responsibilities, enhance program implementation, standardize approaches to product evaluation, and avoid market confusion and duplication of efforts. The governmental partnership also benefits private-industry actors who may be interested in different facets of the program and are better served by greater interagency coordination and program integration.³³

As an alternative to a government-led certification of credit quality, private sector actors could choose to take the lead, with government observation or technical assistance in facilitating the certification. Two existing and reputable entities are the International Organization for Standardization (ISO) and the American National Standards Institute (ANSI). ISO frameworks for standardization can support private sector-led voluntary consensus standards. For example, ASTM International facilitates the ISO standardization of some lifecycle assessments (LCAs) in the United States.³⁴ ANSI, by contrast, accredits individual standards developing organizations, such as ASTM International, to carry out the development and use of quality standards for carbon credits. In all of these scenarios, government officials from the National Institute of Standards and Technology (NIST) or EPA could provide technical assistance or otherwise participate in the development of the standards without leading the process.

Potential Outcomes and Challenges:

- **Likely improvements to transparency and market integrity, relative to no intervention.** A federally recognized approval process at the protocol level is likely in the long run to force harmonization among protocols and methodologies for a given set of project types.
- **Possible political challenges with authorizing legislation or taking executive action.** Stakeholder resistance to the creation of a seal of approval will depend significantly on the level of private-sector engagement and transparency around the approval process. An uncertain industry response could make it more difficult politically to implement an effective standard, and the certification process would potentially be vulnerable to political priorities shifting across administrations. An oversight board with broad industry, civil society, and academic representation could help avoid political challenges.
- **Possible operational challenges for approving individual protocols.** Many protocols exist for individual project types, and a labeling system would

33 "Why EPA?" *ENERGY STAR*. Available at: https://www.energystar.gov/about/origins_mission/epas_role_energy_star.

34 As an example of this work see details on ASTM's E60 Committee on Sustainability: <https://www.astm.org/get-involved/technical-committees/committee-e60>.

need to ensure that the approval process applies quality criteria fairly, using consistent quality standards across very different climate crediting projects. The labeling system will also have to address difficult questions, such as whether to allow for a retroactive certification of credits that may meet newly established standards.

Scenario 4: *Federal government assisted self-regulation framework for credits*

Description: The federal government would help facilitate formal designation of a mandatory, self-regulated, compliance framework for registries and market actors. One example of a framework: the formation of a self-regulatory organization (SRO) that would self-regulate quality but have government-backed guardrails to enforce the quality of the credits.

Detail: Following the example framework of SROs: an industry forms this structure to exercise internal governance after establishing clear rules and criteria for operating within the SRO. Examples of SROs include the New York Stock Exchange and the Financial Industry Regulatory Authority (FINRA), both of which write and enforce rules and standards that apply to participating members. These organizations are primarily industry-regulated, but their structure includes guardrails for oversight by the federal government. For example, FINRA sets and enforces rules for licensing dealers, addressing disputes, and finding misconduct for securities firms in the United States. It is composed of the same organizations that it governs, but it is ultimately overseen by the Securities and Exchange Commission (SEC), and any rules it sets are superseded by SEC regulatory authority if discrepancies occur. The role of FINRA and other SROs in the securities industry was established statutorily by the Securities Exchange Act of 1934.

In the case of the VCM, self-governance would likely involve carbon market participants coalescing to establish or codify a U.S.-based industry group that would enforce some level of self-governance—a role that is at present loosely held by a handful of non-profits, including voluntary carbon registries (organizations that set and enforce the rules around how carbon credits get produced). Forming an SRO would likely mean some level of harmonization among existing approaches would occur. Examples include implementing requirements on which bodies are approved to issue carbon credits (e.g., arbitrary credits cannot be created); issuing definitions relating to carbon credits (e.g., differentiating between existing and not-yet existing credits); and pursuing other matters such as credit quality. Industry members that skirt basic rules can be subject to disciplinary action, including fines or expulsion from the SRO.

An industry-driven SRO would need to be backstopped by a responsible government body with oversight authority. In the case of the voluntary carbon market, the Commodity Futures Trading Commission (CFTC) may be the existing government authority to play this role.

Potential Outcomes and Challenges:

- **Likely improvements in credit quality and transparency over the status quo.** A self-regulatory organization facilitates harmonization in protocols and processes among the SRO participants. Success relies partially on a recognition that with transparent, federally-recognized pathways to credit quality, investor pressure and social license to operate will be sufficiently strong to force VCM actors into the SRO.
- **Some political challenges with authorizing legislation or taking executive action, but benefits would come from using existing VCM structures.** Education and public engagement on SROs are likely needed to build relevant political coalitions for this proposal. That said, market actors might appreciate that this proposal has the potential to build off existing systems and not “reinvent the wheel.”
- **Operational uncertainties and challenges exist, with policy design choices influencing final outcomes on market integrity.** Although the NYSE as an SRO is subject to SEC rules and regulations, no clear federal entity exists for establishing rules and regulations on carbon credits today. (CFTC oversight of carbon credit markets may require some expansion of current authority, depending on the specific actions.) Determining appropriate guardrails for the SRO could prove difficult and is likely to determine the degree of trust surrounding SRO implementation. Moreover, international compatibility of SRO authority may also prove difficult, as many aspects of the voluntary carbon market span national boundaries.

Scenario 5: Direct federal government regulation of credits

Description: The federal government would assert full regulatory authority over carbon credits bought and sold in the United States, with a broad mandate to develop centralized quality control standards. These regulations would provide minimum product or commodity standards for carbon credits and require that carbon credits exchanged among U.S. registrants meet these requirements. The new regulatory authority would also oversee markets and impose market-disclosure and other information-sharing requirements for carbon credit suppliers and buyers. An analogy for this form of intervention is how the federal government addressed fraudulent financial instruments by creating the SEC.

Detail: Scenario 5 proposes designating a new federal regulatory authority within either an existing or new agency. The regulator would have a broad mandate to develop centralized quality control standards. Its mandate would include overseeing and defining accurate disclosure and evaluation of climate change risks and opportunities. The new authority would provide minimum standards on the quality of credits that could be generated and traded. This scenario represents a whole-of-government approach toward promoting better outcomes in the VCM.

A centralized standards body could also provide guidance on corporate disclosures of credit usage and the reporting of business activities related to the buying, selling, and trading of carbon credits. Such disclosures should include purported emissions-related outcomes from carbon credit purchases and how that relates to any voluntary climate commitments made on behalf of companies to inform shareholders and other corporate stakeholders.

A defining feature of Scenario 5 is the designation of new federal authority to plan and facilitate all market reform efforts related to the VCM. The most straightforward implementation of this new authority would be to house it in a new office within an existing federal agency, such as the DOE, USDA, or EPA, whose mandate would include (but not be limited to) the responsibilities listed in **Appendix Table A-1**. Such an arrangement would provide an opportunity to create a highly specialized entity from the ground up that would serve as the central program administrator to ensure quality control. This office would be staffed in part by a diverse set of rotating experts from across the federal government to ensure that technical expertise is available to support quality criteria and protocols across all project types in the VCM.

Impetus for creation of the SEC



The Securities Exchange Act represents a compelling parallel to Scenario 5. To alleviate dangers inherent to uncontrolled financial market operation and to restore confidence and legitimacy after the 1929 market crash, Congress passed the Securities Exchange Act of 1934.³⁵ This legislation established the SEC with an aim of bringing governance and transparency to previously underregulated securities markets.³⁶ With increasing demand from corporate commitments and a lack of standardized quality control and credibility within available carbon credit supply, the VCM faces a similar predicament that could require a similar solution.

35 U.S. Congress. *United States Code: Securities Act of, 15 U.S.C. §§ 77a-77mm 1934. 1934.* Retrieved from the Library of Congress, Available at: <https://www.nyse.com/publicdocs/nyse/regulation/nyse/sea34.pdf>.

36 Jacobson, R. and Weinberg, K. "Giving Carbon Credit: Lessons From Unchecked Financial Markets." *GreenBiz*, 31 Mar. 2021. Available at: www.greenbiz.com/article/giving-carbon-credit-lessons-unchecked-financial-market.

Potential Outcomes and Challenges:

- **Likely improvements in credit quality and transparency over the status quo.** The intrinsic structure of top-down regulation will force the harmonization of protocols and processes for carbon credits. If the regulatory implementation is imperfect, then this harmonization may or may not result in improvements in credit quality across the board.
- **Significant political challenges to mandatory compliance through authorizing legislation or executive action.** Implementing this new authority would likely require Congress to pass legislation and would need to leverage expertise from across the U.S. government and within the private sector to establish regulatory frameworks that are tailored for project design and longer-term MRV of carbon credits. The idea of the government subsuming current market actors' roles in adjudicating credit quality and dictating how carbon credits are used may face resistance.
- **Operational uncertainties exist for implementation.** Determining the most appropriate agency (existing or new) to house the mandatory compliance scheme is unclear and will likely affect the scope of implementation and regulation. Avoiding significant changes when the White House changes parties will necessitate the creation of buffers against potential lapses in appropriations and shifting priorities across administrations. The government will also face technical challenges in defining standardized mandates for quality across diverse project types and (potentially) defining allowable claims about the climate impact of those credits.

Synthesis

The goal of each scenario described in this issue brief is to support the standardization of quality carbon credits issued to drive reductions and removals of GHG emissions. In the VCM, the exchange of quality credits will require a designation of clear rules, usage guidance, and reliable oversight—but the policy pathway for positioning the rules and guidance remains uncertain.

The five scenarios range from very limited federal government intervention and reliance on the private sector in the voluntary carbon market, to vesting full regulatory authority in a federal agency for overseeing and managing the quality of carbon credits. Each scenario comes with potential benefits and drawbacks and should be evaluated considering the status of the voluntary carbon market with regard to quality.

In the context of Scenario 1 (no federal intervention), many critics have suggested that the central problem within carbon markets is lax rules by which credits are generated and verified.³⁷ Voluntary bodies set these rules and third-party verifiers are then paid by the credit-generating parties to carry out the verification process. This structure can lead to incentives that are aligned to generate higher numbers of low-quality credits. The most significant check on such behavior is public disclosure through the news media and other independent analysis.³⁸ Such disclosures pose reputational risk to credit buyers and sellers, and they create pressure to improve quality within the market overall. However, without stronger and more sustained checks, problems within the markets will persist. These quality issues threaten the foundations of the burgeoning voluntary carbon market.

The benefits of federal intervention to address these concerns, such as the interventions outlined in Scenarios 2–5, are still being debated. In developing this report, BPC and Carbon Direct held a series of stakeholder workshops to iterate upon the five scenarios for intervention. The stakeholders reflected the many views of both incumbents and new entrants into VCMs, and included representatives from companies buying and selling credits in the market, carbon registry representatives, and leading environmental NGOs. Although no broad consensus emerged as to the ideal path forward for government intervention, a majority of participants gravitated toward Scenarios 3 (Carbon Star) and 4 (SROs) as the scenarios most likely to receive the political and industry support necessary for real-world change.

37 See, for example: Badgley, G., et al. “Systematic Over-crediting in California’s Forest Carbon Offsets Program.” *Global Change Biology*, vol. 28, no. 4, Wiley-Blackwell, Feb. 2022, pp. 1433–45. <https://doi.org/10.1111/gcb.15943>.

38 See, for example: Greenfield, Patrick. “Revealed: More Than 90% of Rainforest Carbon Offsets by Biggest Certifier Are Worthless, Analysis Shows.” *The Guardian*, 30 Jan. 2023. Available at: www.theguardian.com/environment/2023/jan/18/revealed-forest-carbon-offsets-biggest-provider-worthless-verra-aoe.

Given the complexities of the voluntary carbon market, in which quality may be determined by nuanced issues such as the construction of counterfactuals (i.e., what would have occurred in the absence of the carbon project), some have questioned whether the federal government has the ability to define and arbitrate quality effectively. And interactions with international, cross-sector actors further complicate matters. Many stakeholders suggest that because the carbon market is still maturing, inappropriate or ineffective government action might inhibit its development. These dangers would be exacerbated by greater involvement, for example, of a well-meaning but ill-equipped government body that mandated quality and control standards without fully vetting or understanding their implications; such a situation could cement rather than solve the issues identified in the market today. A high-touch intervention would require not only funding and mandate but also a significant investment of intellectual capital.

Others, however, argue that the government is well equipped to help protect market participants from fraud, misleading claims, and other risks.³⁹ At a minimum, there is a hope that the government can steer the market away from the lowest-quality credits, which may in some cases border on fraudulent. More ambitiously, the government could help to address challenging issues, such as how to compare benefits that last for 10 years with those that last for 1,000 years. It can carry out these actions in a way that respects existing and developing market paradigms through largely voluntary action.

Regardless of how the federal government becomes involved in the VCM, it is important to underscore the value of regular reassessments of the intervention strategy in a dynamic voluntary carbon market. Carbon credits should represent real benefits that would not have occurred otherwise, be accounted for accurately, and connect to valid claims. Robust, periodic assessment of these issues, e.g., through an independent assessment of carbon credit projects, could help cut through uncertainty and provide a clear sense of what challenges(s) exist within the market.

New variants on persistent challenges in the VCM can also arise as new technologies and approaches to managing carbon dioxide emerge rapidly. This creates potential divisions within the market. Some stakeholders emphasize that incumbent credit providers (e.g., those in forestry) are more likely to favor existing standards, while newer providers (e.g., those in direct air capture) are likely to favor alternative approaches, including government involvement. Given this reality, it is possible that certain scenarios in this report will have different outcomes and challenges when applied to incumbent methods of generating credits versus emerging technology-based methods, and a solution that bridges several scenarios could accommodate this divide.

39 CarbonPlan. "Letter to Chairman Behnam of Commodity Futures Trading Commission." 7 October 2022. *Carbon Plan*. Available at: <https://files.carbonplan.org/CFTC-Climate-Risk-RFI-Comment-Letter-10-07-2022.pdf>.

Outlook

Right now, some carbon credits do not accomplish meaningful climate outcomes. This difference between intention and outcome is a liability to organizations and consumers.

The need to address climate change is urgent. And the VCM has an important role to play in supporting and scaling solutions for carbon reduction and removal. Yet within the current market, many credits are low quality. This means that companies fear the credits they are purchasing in service to environmental goals might result in negative press; that the actions of bad actors will tarnish the market as a whole; and that end consumers have little faith in company claims. Government and other actors interested in a robust and trusted VCM need to move quickly to define parameters and standardize quality criteria to help inform the actions of both project developers and buyers in the marketplace. Ongoing global efforts to enact market reform by multiple actors are promising, but they also run the risk of producing disjointed guidelines that could ultimately increase confusion among stakeholders. Regulation could provide guardrails for this nascent but rapidly growing market and promote harmonization.

U.S. policymakers will need to determine whether (and to what extent) the federal government (1) should intervene in market reform efforts, and (2) to what extent those efforts should be aligned with those of the private sector itself and with other jurisdictions. The intervention scenarios presented in this report illustrate the unique capabilities of the U.S. government to support quality within the voluntary carbon market.

Appendix

Additional design parameters worthy of consideration for government intervention scenarios in support of quality carbon credits:

- **Specificity:** Efforts to address issues may be as broad as targeting the handful of rule-making bodies within the voluntary carbon market or as specific as addressing elements within each of the more than 150 methodologies by which credits are generated.
- **Leverage point:** The ecosystem of voluntary carbon credits is multifaceted, and it includes registries, project developers, landowners, validation and verification bodies, ratings agencies, and buyers. Each of these participants offers different leverage points for intervention. This is one of the key considerations for an intervention's ultimate geographic reach (see Box, "International Momentum on Credit Quality.")
- **Governance/ responsible government agency:** Who decides the specifics of any particular performance standard, list, regulatory policy, or other intervention may greatly affect the implementation of policy. Regulatory authority, resourcing, and the speed at which the government is able to adjust to the dynamics of a fast-advancing market are also important considerations.
- **Stringency, minimum cut-offs, and calibration:** This set of considerations has to do with how strictly quality is defined and rules are enforced.
 - **Stringency:** How permissive versus stringent rules are in ensuring carbon integrity and protecting against fraud versus encouraging broad market participation. For example, are "early adopters" who instituted practices before the availability of carbon finance allowed to generate credits?
 - **Minimum cut-offs:** Minimum thresholds for goods sold differ from labeling systems designed to differentiate quality (e.g., the appliance standards program versus the Energy Star label). The two approaches may be combined.
 - **Assessment method:** Carbon credits are intangible goods, and many carbon credits historically have failed to deliver, so gauging success might require calibration exercises that check how effective a program is through careful study of a representative sample of projects. The form, regularity, and focus of such assessments are important.

Table A-1. Potential Responsibilities of New Federal Regulatory Authority (Scenario 5)

Responsibility	Description
Communications and reporting	<ul style="list-style-type: none"> • Provide annual progress and performance report to Congress and the public to demonstrate program outcomes and justifications for its continuance. • Communicate with program participants and engage in regular outreach efforts to include seeking potential partnerships.
Corporate disclosures	<ul style="list-style-type: none"> • Regulate corporate disclosures and report on business activities related to the buying, selling, and trading of carbon credits. • Disclosures should include purported emissions-related outcomes from carbon credit purchases and how that relates to any voluntary climate commitments made on behalf of companies to inform shareholders and other stakeholders.
Data collection and management	<ul style="list-style-type: none"> • Perform ongoing data collection across all program activities and serve as a central clearinghouse to make the data publicly available. • Data that is collected should inform reporting activities to Congress and the public.
Education and awareness	<ul style="list-style-type: none"> • Promote public awareness and education on various topics, such as program plans and market outcomes, lessons learned, and industry best practices; also make resources, such as standardized contracts for carbon crediting, available to program participants.
Incentive structures	<ul style="list-style-type: none"> • Develop a strategic framework to encourage program participation and help reduce barriers to entry for program participants. Strategies could include crafting incentive structures, such as federal procurement mandates, to create a demand pull for quality carbon credits and financing options, such as loan guarantees to encourage project development (including for new entrants in the VCM). • Incentive structures should encourage rather than inhibit innovation across new technologies and business models to the extent reasonable through a risk management framework.
Management and coordination	<ul style="list-style-type: none"> • Serve as the central management and coordination body across the U.S. government and private sector, to include international outreach efforts and liaising with similar global actors working on VCM reform.
Market oversight	<ul style="list-style-type: none"> • Monitor VCM activities and market outcomes with the objectives of seeking continuous improvement in program execution, ensuring credit quality, and promoting transparency in market outcomes.
Performance tracking	<ul style="list-style-type: none"> • Conduct periodic program reviews in conjunction with third-party auditors to assess key performance indicators against the specific mandate of the new federal regulatory authority.
Setting standards	<ul style="list-style-type: none"> • Establish program standards and quality criteria at the level of protocols and projects, which should include considerations across the full life cycle of a project from credit validation through long-term monitoring, reporting, and verification. • To the extent possible, standards-setting activities should be harmonized with existing standards from public and private standards bodies across jurisdictions that clear a certain quality bar. • Administer and enforce standards framework with the ability to regulate and invalidate non-qualifying projects and credits.



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