

ISSUE BRIEF

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Importing Climate Mitigation: The Potential and Challenges of International Forest Offsets in California Climate Policy

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1. Summary

California is one of a few states acting independently to cut its greenhouse gas (GHG) emissions. The California Global Warming Solutions Act, otherwise known as Assembly Bill (A.B.) 32, is a California state law requiring substantial emissions cuts, which state regulators have chosen to do through a combination of regulations and a cap-and-trade program. A.B. 32's cap-and-trade program includes provisions allowing for *offsets*, or credits generated by actions taken to reduce overall atmospheric GHG levels in ways other than direct emissions reductions from regulated parties.

One provision allows for offsets to be generated by reducing emissions from deforestation (RED) outside the United States. The development process for A.B. 32-compliant international RED offsets is ongoing, but will be based on domestic forestry protocols developed by the Climate Action Reserve (CAR). Currently, California has a joint memorandum of understanding with Chiapas, Mexico, and Acre, Brazil, to potentially supply forest carbon offsets. Offset protocol development is already underway in Chiapas through CAR. With an A.B. 32 emissions allowance price of \$25 in 2020, Chiapas may be able to supply 247,000–510,000 tons of carbon dioxide equivalent (CO₂e) in forest carbon offsets to the A.B. 32 market at an average cost of \$12–\$18.

This potential supply is not guaranteed to find its way to California, however. A.B. 32 has already experienced several legal challenges and remains politically controversial. The political and legal

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challenges are connected. Opponents of A.B. 32 or of offsets may use the courts to delay or block parts of the program they oppose when they are unsuccessful in the political process. No individual class of legal challenge clearly prevents California from moving ahead with offsets, but incompatibility with state law, federal statutes, or the U.S. Constitution could exclude their use under A.B. 32. Such legal challenges could force California to restrict or eliminate offset programs, but the issue needs more research.

2. The Goals of A.B. 32

In 2006, California ratified Assembly Bill (A.B.) 32, the Global Warming Solutions Act, to reduce greenhouse gas (GHG) emissions within the state, with the goal of mitigating global climate change. This act, the first passed by any state to comprehensively address GHG emissions, calls for California to reduce its emissions to 1990 levels by 2020 through a combination of regulatory and market measures. The California Air Resources Board (ARB), the lead agency for implementing A.B. 32, is responsible for developing the state's approach for reaching its reduction targets through its scoping plan. The scoping plan calls for ambitious reductions in California's carbon footprint. Reducing GHG emissions to 1990 levels means cutting approximately 30 percent from business-as-usual emissions levels projected for 2020, or 15 percent below the emissions expected in 2012.² Furthermore, California's long-range goals, reflected in California Executive Order S-3-05, require an 80 percent reduction of GHGs from 1990 levels by 2050.

3. The Role of Offsets

In developing a cap-and-trade program, ARB has officially adopted rules that allow firms to use offset credits for compliance. A.B. 32 will allow regulated firms to meet their compliance obligation by obtaining offsets equal to as much as 8 percent of their total yearly emissions. Speed of implementation and cost are central to the inclusion of offsets, as their ability to reduce the overall costs of cap-and-trade systems has been well-established.³ ARB's most recent economic analysis further reinforces the effectiveness of offsets as a cost control mechanism, even when they are used in limited quantities, as is currently proposed.⁴

California has also recognized the importance of reducing some forms of international emissions in achieving global GHG reductions. Specifically, offsets that reduce emissions from deforestation

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² Air Resources Board (ARB), California Environmental Protection Agency, *Climate Change Scoping Plan: A Framework for Change* (Sacramento, CA, 2008), http://www.arb.ca.gov/cc/scopingplan/document/adopted_scoping_plan.pdf (accessed September 21, 2011).

³ R.J. Kopp, *Role of Offsets in Global and Domestic Policy*, issue brief 10-11, (Washington, DC: Resources for the Future, 2010), <http://www.rff.org/RFF/Documents/RFF-IB-10-11.pdf> (accessed September 21, 2011).

⁴ ARB, California Environmental Protection Agency, "Update Regarding the Proposed Offset Component of the California Cap-and-Trade Program," news release (Sacramento, CA, 2010), http://www.arb.ca.gov/cc/capandtrade/meetings/062210/offset_program_update.pdf (accessed September 21, 2011).



(RED)⁵ represent a major supply of low-cost mitigation options that simultaneously address a sizable portion of global GHG emissions.⁶ Recognizing the great potential to protect at-risk forest carbon and reduce overall costs, the A.B. 32 cap-and-trade program includes provisions for sectoral offset programs from international partners.⁷ Sectoral offset programs require that an entire economic sector (not just individual actors within the sector) reduce its emissions for credit in the cap-and-trade market. California is moving forward with these provisions and has already signed memoranda of understanding (MOUs) with the states of Chiapas, Mexico, and Acre, Brazil. The MOUs move California toward the inclusion of RED offsets exclusively from projects in these two areas.

Initial efforts to develop RED offset protocols in Chiapas are underway, whereas protocol development in Acre is still in its preliminary stages. These efforts will probably build on work already undertaken by the Climate Action Reserve (CAR), a U.S. nonprofit that establishes regulatory-quality standards for the development of GHG reduction projects in North America and has worked closely with California's offsetting programs. ARB adopted four of CAR's existing offset protocols for inclusion in the scoping plan: domestic forestry, urban forestry, livestock methane management, and ozone-depleting substance destruction.⁸

CAR adapted two of its existing project protocols—the Livestock Project Protocol and the Landfill Project Protocol—for use in Mexico. It is now proceeding with efforts to adapt its Forest Project Protocol for the development and registration of forest projects in Mexico. The project protocol will probably be partially based on the standards used for the U.S. domestic forest project protocol, but with amendments that address key issues for Mexico's inclusion in California's RED architecture.

Currently, CAR's Forest Project Protocol for domestic avoided deforestation projects requires landowners to provide tangible evidence that the forests in the project area are at risk of conversion into alternative land uses. They must also establish carbon stock baselines based on estimated rates of conversion from those factors. Project owners must then continue to monitor and report carbon stocks on the forest through standard biomass sampling applied to established forest models. Avoided conversion projects under the CAR protocols must undergo an initial real estate appraisal to determine the highest-value alternative use and must either be protected under a conservation easement or converted to public ownership. Forest projects undergo on-site

⁵ Unlike international proposals and voluntary carbon offset standards, California's efforts will initially focus on reducing emissions only from deforestation, which is why it is termed RED, as opposed to REDD. Proposals that additionally consider forest degradation or other concepts, like sustainable forest management and carbon stock enhancement, are termed *REDD* (to include degradation) or *REDD+* (to include degradation as well as sustainable forest management and carbon enhancement).

⁶ GHG emissions from deforestation and forest degradation represent between 12 and 17 percent of total global emissions.

⁷ ARB, California Environmental Protection Agency, *ARB Emissions Trading Program Overview* (Sacramento, CA, 2010), <http://www.arb.ca.gov/newsrel/2010/capandtrade.pdf> (accessed September 21, 2011).

⁸ B. Shillinglaw et al., "The California Carbon Market: Implications for Forest Carbon Offset Investment," *Market Outlook* (Chatswood, Australia: New Forests, December 2010), <http://www.newforests.com.au/news/pdf/articles/CaliforniaCarbonMarket2010.pdf> (accessed September 21, 2011).



verification by a third-party verifier every six years, and report on carbon stocks every year. Currently, projects must contribute a certain number of offsets to a buffer pool to insure against unexpected losses of stored carbon, known as reversals. The number of credits put in the buffer pool for each project is determined by specific project risk factors, which are separate from the initial forest conversion risks. These protocol requirements are in place to ensure that credits generated through forest products are real, permanent, and above-and-beyond what would have happened (or “additional”). This protocol will serve as a model for Mexico’s forest protocol, meaning that similar requirements are likely to be used.

4. Supply of Mexican Offsets

CAR’s domestic forest protocols are useful, but are not ideal for the sectoral approach ARB is taking under A.B. 32. California needs to address the following issues to successfully develop international offset protocols for its cap-and-trade system:

- Address differences in forest ownership and management between the United States and Mexico, especially issues of land tenure and indigenous rights. The CAR domestic protocols operate under assumptions of clear title to land. International forest offsets will require significant modification because issues of tenure and land ownership in areas with native peoples, as in Chiapas, are often complicated. Sectoral RED projects will require long-term commitments to new regimes of land use practices; thus, in adapting the Forest Protocol to Mexico, ARB will need to ensure that land use rights are not negatively impacted as a result of RED activities and commitments.
- Improve measurement techniques and protocols. Modification to important factors for measuring forest carbon, like emissions factors and biomass equations, must occur for the types of forest communities found in Chiapas. Similarly, ARB and the state of Chiapas need to review the capacity of available forest simulation models as well as current Mexican forest inventory programs to inform forest measurements.
- Establish rules governing the verification, transferability, and viability of offsets. CAR will have to modify eligibility criteria, additionality criteria, and baseline procedures in its Mexico forest protocol to accommodate technical and jurisdictional challenges.⁹ Similarly, California and CAR will have to address larger structural issues with sectoral RED. Not only will RED efforts have to be in line with existing regulations at the federal, state, and local levels in Mexico, but on-the-ground implementers will have to develop guidance and standards for ensuring that nested RED projects¹⁰ can be counted in larger sectoral architectures, such as national or international climate change agreements.

⁹ Climate Action Reserve, “Mexico Forest Project Protocol: Reforestation Statement of Intent” (Los Angeles, CA, March 2010), <http://www.climateactionreserve.org/wp-content/uploads/2010/03/Mexico-Forest-Project-Protocol-Statement-of-Intent.pdf> (accessed September 21, 2011).

¹⁰ Nested projects refer to RED or REDD efforts that begin at the individual project level, but can be integrated into larger subnational or national REDD programs without negatively affecting existing incentives.



4.1 POTENTIAL OFFSET SUPPLY

Presuming that the A.B. 32 cap-and-trade program comes online in 2013 as is currently planned, the forest sector in Chiapas will play an important role as it progresses. If offsets are fully used by regulated parties (as many expect they may be), then they could represent 214–232 million metric tons (mmt) of carbon dioxide equivalent (CO₂e) reductions over the life of the program.¹¹ Sectoral offsets may supply between 25 and 50 percent of all offsets through three compliance periods (2013–2014, 2015–2017, 2018–2020), potentially generating a supply of 73 to 106 mmt CO₂e.¹²

International sectoral RED cannot enter the market until 2015, but when it does, Chiapas will be at the front of the line to supply credits to California. Governor Juan Antonio Sabines Guerrero told an audience at the 16th Conference of the Parties of the U.N. Framework Convention on Climate Change in Cancun that he expected Chiapas could supply 2 mmt CO₂e in offsets to the A.B. 32 market.¹³ Although that level of supply is technically possible from the state of Chiapas, the complexities of bringing offsets to market suggest that a much smaller supply will actually make it to California.

Using the Forest Carbon Index (FCI), a forest carbon supply tool developed jointly by Resources for the Future and Climate Advisers, we are able to roughly estimate the supply of offsets that may be available to A.B. 32 markets. The FCI¹⁴ uses multiple biological and socioeconomic data sets to highlight geographic areas with the potential to generate viable forest carbon credits.¹⁵ By employing information on carbon content in forest ecosystems and opportunity costs of foregone uses of land (such as agriculture) to preserve forests, the FCI can generate rough estimates of the present value of offsets from avoiding deforestation. The value of forest carbon credits depends on the amount of stored carbon in a standing forest, scaled by the socioeconomic factors that affect the ability to realize the credits. Calculations from the FCI suggest that more than 223 mmt CO₂e are available in aboveground forest carbon within Chiapas. Figure 1 below shows the locations of the most carbon-rich areas in the state. The Lacandon Rainforest in the eastern part of the state is the most prominent aspect of the carbon-scape, though major carbon stores exist in the Sierra Madre de Chiapas mountain range in the south by the border with Guatemala and in the forests north of Tuxtla Gutierrez.

¹¹ Shillinglaw et al., “The California Carbon Market.”

¹² See J. Niles, “TFG Briefing Note on Proposed CA A.B. 32 Regulations” (San Diego, CA: Tropical Forest Group, November 2010), http://photos.mongabay.com/10/TFG_BriefingNote_AB32_ProposedRegs.pdf (accessed September 21, 2011). See also Shillinglaw et al. “The California Carbon Market.”

¹³ M. Roosevelt, “Chiapas to California: Preserving Forests for Dollars?” *Los Angeles Times*, December 9, 2010, <http://latimesblogs.latimes.com/greenspace/2010/12/cancun-climate-forests-carbon-trading-california-chiapas.html> (accessed September 21, 2011).

¹⁴ For more on the data sets and equations used in the FCI, see Forest Carbon Index, official website, www.forestcarbonindex.org (accessed September 21, 2011).

¹⁵ A.J. Deveny et al., *Forest Carbon Index: 2009 Report* (Washington, DC: Resources for the Future and Climate Advisers, 2009).



Cost is a significant factor in determining the amount of offsets available to the markets. Preserving forest cover for RED offsets must compete with other types of land use in Chiapas, like agriculture, which may have more value than the money collected from providing offsets to California. As a result, some areas will not go into offset development until the price of offsets is sufficiently high to protect forested lands. Increasing allowance prices in the A.B. 32 market may result in a greater supply of offsets from Chiapas. Table 1 shows how different allowance prices and discount rates¹⁶ in A.B. 32 may affect offset supplies. Our short analysis shows that the cost of establishing offsets could vary between about \$12 and \$18 per metric ton of CO₂e produced, which regulated parties will certainly consider an attractive cost control option if allowance prices are \$25 as ARB estimates they could be in 2020.¹⁷ Such a price, however, will not mobilize as large a volume of offsets as Governor Guerrero and others may anticipate. The FCI estimates that Chiapas may potentially supply between 247,000 and 510,000 mt of forest offsets at an allowance price of \$25. Higher allowance prices will bring more forested lands into offset production; an allowance price of \$50 may result in just over 1.3 million tons of forest offsets from Chiapas.

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¹⁶ The FCI uses discount rates in its calculations to help estimate the present value of offsets over a contracted time, which CAR standards set at 100 years for US forest offsets. Standards for offsets from Mexico are not yet set.

¹⁷ ARB, California Environmental Protection Agency, *Updated Economic Analysis of California's Climate Change Scoping Plan*, staff report to the Air Resources Board (Sacramento, CA, 2010), http://www.arb.ca.gov/cc/scopingplan/economics-sp/updated-analysis/updated_sp_analysis.pdf (accessed September 21, 2011).



Figure 1. Potential REDD Quantities in Chiapas, Mexico

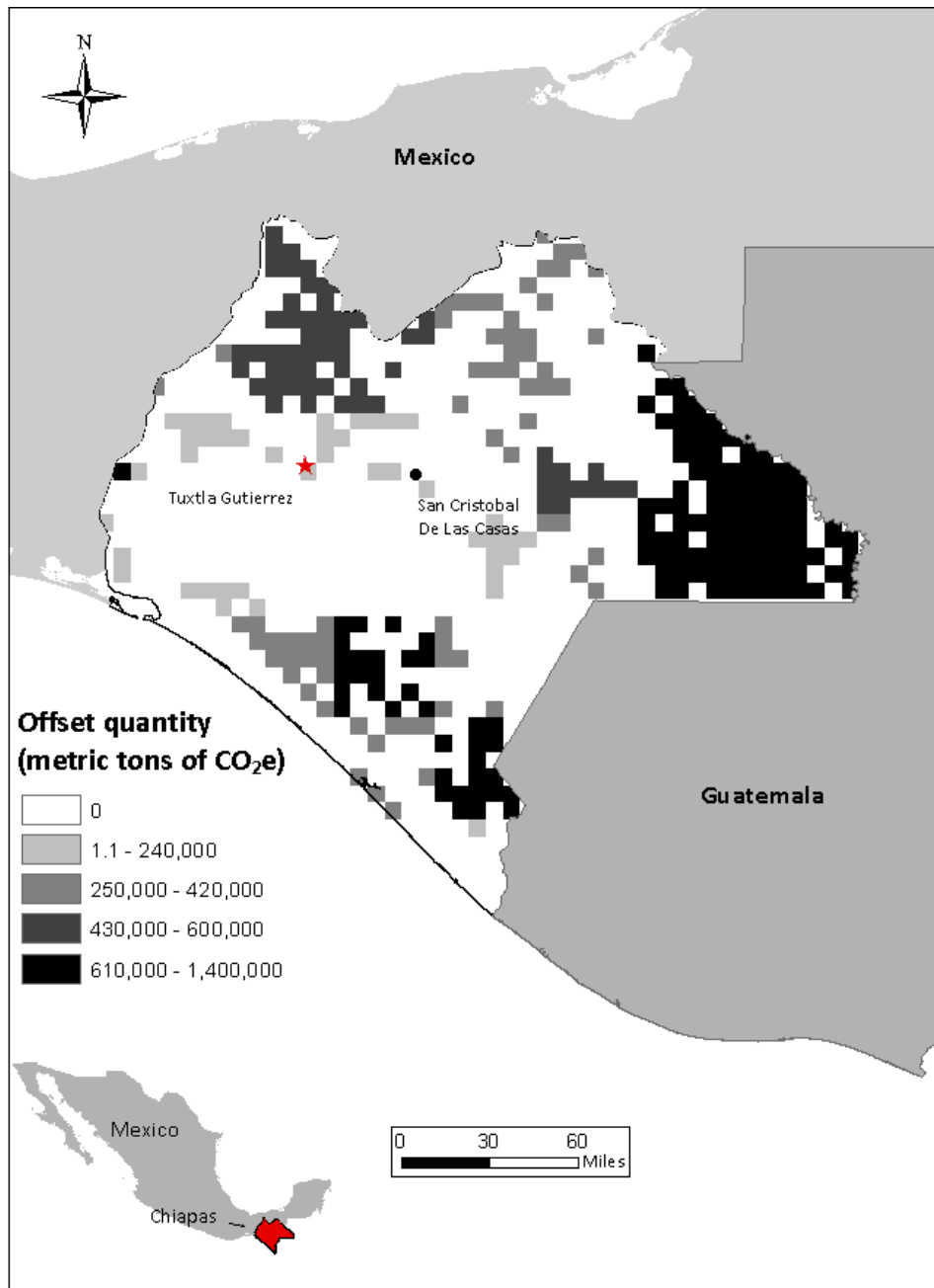


Table 1. Offset Costs and Supply from RED in Chiapas under Different A.B. 32 Scenarios

A.B. 32 allowance price (U.S. dollars)	Discount rate	Average offset cost (\$/mtCO₂e)	RED offset supply (mtCO₂e)
\$25	5%	12	509,689
\$25	10%	18	246,963
\$40	5%	12	913,268
\$40	10%	18	579,571
\$50	5%	12	1,314,245
\$50	10%	18	791,000

5. Challenges for California’s Offset Plans

Large volumes of offsets could mean substantially lower costs for meeting A.B. 32’s goals—but this does not immunize them from attack. California faces a series of potential legal and political challenges to A.B. 32 in general and specifically to offset provisions in the scoping plan. None of these challenges appears alone sufficient to exclude offsets, but none can be ruled out, either, and in concert they may undercut ARB’s offset plans.

ARB’s efforts to implement A.B. 32 have already faced significant challenges. A statewide referendum that would have halted the program until and unless state unemployment levels dropped significantly was put to a vote in 2010.¹⁸ The “Yes on 23” campaign was in part supported by the petroleum industry. Although the measure was defeated by a wide margin, it was believed by many at the time to be a significant threat to the program. ARB’s scoping plan was also the target of a suit by environmental justice (EJ) groups that oppose cap-and-trade because they believe it may have negative local environmental effects.¹⁹ This suit was successful in halting implementation of the A.B. 32 scoping plan—a judge ruled that ARB had not adequately assessed alternatives to cap-and-trade, as required by the California Environmental Quality Act (CEQA).²⁰ ARB has since revised its scoping plan to comply with the judge’s interpretation of CEQA requirements and is moving ahead with implementation.

¹⁸ California Proposition 23 would have blocked implementation of A.B. 32 until state unemployment was less than 5.5 percent for four consecutive quarters.

¹⁹ *Associated Irrigated Residents v. CARB*, case no. CPF-09-509562 (2011), available online at http://webaccess.sftc.org/minds.asp_pdf/mainpage.asp?Web_Server=webaccess.sftc.org&MINDS_Server=ntimagex&Category=C&DocID=03218463.

²⁰ *Id.*, Order Granting in Part Petition for Mandate (March 18, 2011), <http://cdn.law.ucla.edu/SiteCollectionDocuments/Environmental%20Law/Court%27s%20Final%20Order%203%2017%2011.pdf> (accessed September 21, 2011).



5.1 POLITICAL CHALLENGES

Further political challenges to A.B. 32, and in particular to offset provisions of the scoping plan, are likely. As past experience indicates, they could come from either side of the political spectrum.

The EJ groups' objection to cap and trade arises from a concern that firms in already-polluted areas will obtain allowances from elsewhere rather than reducing their GHG emissions. This is even more likely if offsets provide a source of low-cost, external allowances into the A.B. 32 system. The more offsets available, the less California firms need to reduce their direct emissions—this is the point of offsets. EJ groups have explicitly stated their opposition to trading mechanisms in general and offsets in particular.²¹ For this reason, EJ groups seem likely to continue their political and legal opposition to A.B. 32 as California brings offsets into the program.

Industry groups might also oppose offset provisions of A.B. 32. This is somewhat paradoxical, because offsets are intended as a cost containment mechanism that would reduce the impact of A.B. 32 regulation on industry. Nevertheless, if opponents of the entire program believe it can be held up or undermined by focusing opposition on a particular element of it, they may take that opportunity.

5.2 LEGAL CHALLENGES

ARB's carbon offset plans face at least three separate classes of legal challenge. Opponents could challenge the plans under state law, federal law, or the U.S. Constitution.

5.2.1 STATE LAW—CEQA

As the current EJ suit illustrates, the procedural requirements of CEQA are a weapon with which environmental regulation can be relatively easily attacked. In the current suit, the court ruled that ARB had failed to adequately consider alternatives to cap and trade. It is possible that future CEQA challenges could be directed at offset provisions of the scoping plan, offset protocols, or agreements with offset providers. Such challenges could delay offset programs if courts stay their implementation during the suit or if courts rule in favor of challengers and ARB is forced to issue new, revised rulemakings.

CEQA's requirements are purely procedural, but they can have substantive impact. If ARB is compelled by CEQA suits to do further analysis of offsets and alternatives, it could reach different conclusions—including that offsets are environmentally inadequate, though such a change in

²¹ See EJ Matters, "The California Environmental Justice Movement's Declaration on Use of Carbon Trading Schemes to Address Climate Change," <http://www.ejmatters.org/declaration.html> (accessed September 21, 2011).



ARB's position is unlikely. It could also conclude that including offsets in its scoping plan is not worth the cost of defending against CEQA suits and decide to sacrifice offsets as part of a compromise with EJ groups. This also seems unlikely, in part because ARB is moving ahead with its revised but broadly unchanged scoping plan, and also because EJ groups' opposition to that plan is grounded in its cap-and-trade foundations, rather than in offsets alone. A compromise cannot be ruled out, however, and it is also possible that industry groups could bring CEQA suits of their own.

5.2.2 COMPATIBILITY WITH EPA REGULATIONS

For the first time since the passage of A.B. 32, federal action on climate is underway in the form of regulation by the U.S. Environmental Protection Agency (EPA) under the Clean Air Act (CAA). As of mid-2011, EPA has issued new regulations limiting GHG emissions from new vehicles and from new and modified power plants and industrial facilities, or *stationary sources*. It has plans to issue further regulations on existing stationary sources, starting with fossil fuel power plants and petroleum refineries.

These regulations will come in the form of performance standards which, for existing sources, states will be charged with implementing. Understandably, those states like California with existing state-level GHG policies will try to establish equivalency—that is, they will argue to EPA that their climate programs are already sufficient to meet the requirements of the new federal regulation. This is, in principle, compatible with the CAA—the statute does devolve implementation authority to the states, presumably including some degree of flexibility, though it also gives EPA the power to accept or reject state plans and, if inadequate, replace them with a federal implementation plan (or FIP). As states seek equivalency, the question is therefore whether their existing policies are within the scope of authority delegated under the CAA (and, secondarily, whether EPA will accept them as equivalent).

Offsets appear likely to be a major source of tension between California's climate policy and EPA policy under the CAA. Most legal scholars agree that §111, the section of the CAA under which EPA will issue its upcoming performance standards, allows EPA and the states to use a broad range of flexible policy tools, up to and including most forms of emissions trading.²² But these same scholars do not agree about whether this scope for flexibility extends to include offsets.

Some scholars argue that offsets are legally compatible with §111. Pointing to other sections of the CAA that explicitly allow offsets and to language indicating that states have broad implementation authority, they argue that no principled distinction can be drawn between

²² See Gregory E. Wannier et al., "Prevailing Academic View on Compliance Flexibility under § 111 of the Clean Air Act" (discussion paper 11-29, Washington, DC: Resources for the Future, July 2011) <http://www.rff.org/rff/documents/RFF-DP-11-29.pdf> (accessed September 21, 2011).



presumably-legal general emissions trading and offsets. Other scholars argue that offsets are incompatible with §111. They argue that the section’s failure to mention offsets, in contrast to other parts of the CAA, is telling; that the language giving broad authority to states does not apply to §111; and above all, that offsets do not reduce emissions, which the act requires performance standards to do.²³ These scholars do not argue that offsets are not effective in fighting climate change, but rather that some types, including those generated by afforestation, do not actually reduce *emissions* from regulated facilities. Instead, offsets reduce atmospheric carbon *concentrations*.²⁴ The distinction is irrelevant from a geophysical perspective but possibly crucial from a legal one.

This controversy is among the greatest areas of uncertainty surrounding the upcoming GHG performance standards. EPA appears unlikely to explicitly include offsets in its rulemaking (which may include a model rule for states), but its stance on equivalency of state programs that include offsets, like California’s, is unclear. Even if EPA approves such programs, litigation is likely. Groups that oppose the EPA GHG rules in general or offset provisions in particular could sue EPA, alleging that it overstepped its authority under the CAA in giving California credit for the net emissions reductions the state achieved via offsets.

These dual risks—that EPA might not accept offsets or that courts might block their inclusion anyway—could lead California to reconsider its offset programs before they even get off the ground. The EPA performance standards are expected to be proposed by the end of 2011 and finalized by the end of 2012, by which time A.B. 32 implementation will still be in its nascent stages. If the rulemaking process reveals a tension between the performance standards and offsets, California will have to carefully consider whether to proceed.²⁵

It is important to note, however, that even if offsets are deemed incompatible with EPA performance standards, this does not doom A.B. 32 in general or offsets in particular. Such a decision by EPA or ruling by a court does not make offsets illegal—it just means that California could not rely on them to comply with federal standards. California’s emissions reduction goals will probably continue to be more ambitious than EPA’s. California can use any tool it sees fit for reducing power plant emissions beyond the level required by federal performance standards,²⁶ including offsets. In fact, if California restricts offset use to this state-specific portion of the emissions reduction target (or possibly if it can show through modeling that non-offset mechanisms alone generate sufficient emissions reductions to meet the federal standards), then A.B. 32 offsets will not conflict with the CAA.

²³ See *id.*

²⁴ See *id.* See also Molly K. Macauley and Nathan Richardson, “Seeing the Forests and the Trees: Technological and Regulatory Impediments for Global Carbon Monitoring,” *Berkeley Technology Law Journal* (forthcoming 2011).

²⁵ Similar incompatibility risks exist for planned connections between emissions markets in California and in Canadian provinces.

²⁶ Subject only to the limits of the U.S. Constitution; see next section.



Therefore California might at most only have to reduce the volume of offsets available, or restrict their use in other ways. But given the tenuous political position of offsets in the scoping plan’s compromises, it is possible that ARB will decide that a smaller role for offsets isn’t worth the political and administrative costs.

5.2.3 CONSTITUTIONAL ISSUES

It is somewhat unusual for a state to negotiate with a foreign government, as California continues to do with Mexico and Brazil. A major reason is that such agreements may be unconstitutional. The Compact Clause of the U.S. Constitution provides that states may not “enter into any Agreement or Compact with another State, or with a foreign Power.”²⁷ Other constitutional doctrines reserve foreign affairs powers for the federal government.

Would international offset programs under A.B. 32 violate these or other constitutional doctrines? The answer is unclear and relatively underexamined by legal scholars. Some scholars have looked at whether connecting state-level emissions trading markets to markets in other countries (such as the E.U. Emissions Trading System) would be unconstitutional, and have come to mixed conclusions.²⁸ The analysis for offset agreements is similar in many ways.

Although formal treaties between California and countries that either supply offsets or provide opportunities for market link-up would probably be unconstitutional, it might be possible to characterize such agreements as private contracts or nonbinding agreements instead, easing this concern. And doing so might be easier for offset supply than it would be for full market integration. If so, constitutional concerns would be less significant for offsets. On the other hand, such characterization may not be so easy. Offset exchange requires oversight on both ends of the transaction, and ongoing inspection, verification, and enforcement probably requires government involvement, likely supported by formal agreements that carry the force of law. It is telling that California has begun its offset experiment by negotiating with state-level governments abroad rather than with private parties. ARB will have to be very careful as the current MOUs become more formal. If these agreements look too much like treaties, they will be a ready legal target for opponents. In any case, more study of these issues by constitutional and international law scholars is needed.

6. Conclusion

Barring significant structural, legal, or political challenges, by 2015 California will be able to import significant numbers of offsets from Mexico, and may be receiving offsets from Brazil or developing processes to do so. These offsets may help reduce the cost of meeting California’s

²⁷ U.S. Const., art. I, § 10.

²⁸ See Douglas Kysar and Bernadette Meyler, “Symposium: Like a Nation State,” *UCLA L. Rev.* 55 (2008): 1621. See also Erwin Chemerinsky et al., “California, Climate Change, and the Constitution,” *ELR* 37 (2007): 10653.



emissions reduction targets and will potentially provide ancillary benefits to offset suppliers. Offsets from Mexico, the most developed of the two programs, are likely to provide a sizable share of offsets, depending on the market price of carbon, and to do so at costs significantly below allowance prices.

But it will be a surprise if everything does go smoothly. Political opposition to A.B. 32 remains significant, and opposition to offsets in particular is widespread among EJ groups that have already successfully delayed the program. Even if offsets survive political opposition, opponents are likely to resort to legal action. State, federal, and constitutional law all provide plausible routes of attack.

Offsets may become an important part of A.B. 32, and California may become an invaluable policy laboratory for wider use of offsets in other states, in future federal policy, and in other countries. But offsets are not a *fait accompli*. California will have to clear both foreseen and unforeseen hurdles to develop a successful and effective offset program as part of A.B. 32's cap-and-trade system. The structural, legal, and political challenges faced by offsets under A.B. 32 may also foreshadow tests to larger national or international offsetting programs. A.B. 32's successes and trials will inform future strategies by other nations on how to incorporate international forest carbon in climate change mitigation mechanisms.

