The Limits of Administrative Law as Regulatory Oversight in Linked Carbon Markets

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ABSTRACT

Many commentators have celebrated the link between carbon markets in California and Québec as an example of effective coordination of sub-national climate policy instruments. Here, I argue that this enthusiasm is misplaced. California recently amended its carbon market regulations to enable significant leakage of emissions to neighboring states. These reforms reduce the environmental effectiveness of the market, contradict clear statutory guidelines, and dilute the integrity of the state's compliance instruments. Moreover, the reforms took place in an administrative process that never recognized the leakage implications, raising questions as to whether California alerted its Canadian counterparts of the consequences of its internal reforms. I review this transition from three perspectives: the relevant administrative proceedings in California, the mutual obligations both governments accepted under a bilateral agreement, and the standards California law imposes on prospective linked markets. Each perspective reveals major shortcomings. Rather than demonstrating a successful model for harmonizing carbon market systems across different legal jurisdictions, the link be-

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tween California and Québec exemplifies a major institutional weakness: in a linked carbon market, participating governments must continuously monitor the administrative processes of each jurisdiction in order to maintain market integrity. But as the California experience demonstrates, administrative law may not be up to the task of ensuring that practical market operation follows the rule of law.

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I.
INTRODUCTION[1]

Many believe that sub-national climate mitigation policies offer a meaningful path forward by simultaneously encouraging global negotiations and persisting in the absence of international agreements. Although state and provincial governments certainly deserve credit for early action on climate, everyone understands that no local government can solve a global problem on its own. Thus, a critical task for sub-national climate policymakers is encouraging others to join or harmonize efforts with their systems. With this goal in mind, the link between California's and Québec's carbon markets appears to offer the first major victory in linking climate policy systems since the contentious integration of the Kyoto Protocol's Clean Development Mechanism into the European Emissions Trading Scheme.[2] Will the partnership between California and Québec set an example for others?

Here, I argue that excitement over the link between the carbon markets in California and Québec is both unwarranted and premature. Fundamentally, proponents of this link have overlooked the practical challenges of maintaining the integrity of linked carbon markets through parallel administrative legal pro-

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1. This article is based on work prepared for a conference presentation. *See* DANNY CULLENWARD, LINKAGE, LEAKAGE AND ADMINISTRATIVE LAW (2014), *available at* http://www.environment.ucla.edu/perch/resources/panel-3-cullenward.pdf (presented at the California-Quebec Adventure: Linking Cap and Trade as a Path to Global Action? at the University of California, Los Angeles on April 1, 2014).

2. For an overview of the European system and its link with the Clean Development Mechanism, *see generally* ALLOCATION IN THE EUROPEAN EMISSIONS TRADING SCHEME (A. Denny Ellerman et al. eds., 2007). For a critical overview of the problematic experience with carbon offset credits, *see generally* Michael W. Wara, *Measuring the Clean Development Mechanism's Performance and Potential*, 55 UCLA L. Rev. 1759 (2008). The controversy over the use of questionable offset credits remains a significant concern among climate policy experts. *Compare* Richard G. Newell et al., *Carbon Market Lessons and Global Policy Outlook*, 343 SCIENCE 1316, 1316-17 (2014) (supporting the increased use of carbon markets without mentioning the European Union's experience with offset credits), *with* Danny Cullenward & Michael Wara, *Carbon Markets: Effective Policy?*, 344 SCIENCE 1460, 1460-61 (2014) (raising concerns about the potential for leakage and low-quality offsets to undermine carbon market performance).

cesses. Rather than demonstrating a successful example, the link between California and Québec provides a useful illustration of how governments are likely to fail to anticipate significant risks in recognizing one another's market-based compliance mechanisms. The California-Québec experience also highlights a critical tension in the drive to link carbon markets: with each new jurisdiction's entrance into a linked market, the burden of regulatory and civil society oversight increases for all involved.[3] These problems suggest that linking carbon markets is more difficult than previously imagined, raising questions about the viability of expanding sub-national carbon markets as a path towards regional and international policy harmonization.

Reflecting on these challenges, I argue that administrative law is an inadequate tool for maintaining the integrity of technically complex policy instruments like carbon markets. Even in the relatively simple case involving two linked jurisdictions whose market designs share common origins—California and Québec both developed their respective policies through the Western Climate Initiative ("WCI"), an effort to develop a re-

3. The other major example of this phenomenon occurs in the northeastern states' Regional Greenhouse Gas Initiative ("RGGI"). For an insightful treatment of the political economy in this carbon market, *see generally* Bruce R. Huber, *How Did RGGI Do It? Political Economy and Emissions Auctions*, 40 ECOLOGY L.Q. 59 (2013). The number of states participating in the system has vacillated over time, reaching ten at one point. There are currently nine RGGI participants, due to the recent departure of New Jersey. *See State Statutes & Regulations*, REG'L GREENHOUSE GAS INITIATIVE, http://www.rggi.org/design/regulations (last visited July 3, 2014). Each state has its own implementing legislation and regulations, based on a model program rule. *See id.* Participating states are clustered in New England and in the Mid-Atlantic, regions of the United States that already cooperate in a number of economic spheres due to their close proximity. This suggests that oversight issues may be fewer in RGGI than in the case of linked markets involving market designs not based on a single model rule, or those that involve jurisdictions with fewer preexisting economic relationships. RGGI's price levels have also been extremely modest, generally ranging between $2 and $4 per metric ton of carbon dioxide. *See* POTOMAC ECONOMICS, ANNUAL REPORT ON THE MARKET FOR RGGI CO_2 ALLOWANCES: 2013, at 18 (2014), *available at* http://www.rggi.org/docs/Market/MM_2013_Annual_Report.pdf. As a result, the modest market prices provide very little room for regulatory changes in one state to significantly affect region-wide prices—unlike in California.

gional cap-and-trade program for greenhouse gases[4]—substantial flaws in the California-Québec linkage have become apparent.

While the two governments were engaged in the detailed and laudable work required to harmonize the joint operation of their market systems, California was modifying its own regulations through formal and informal processes. These reforms resulted in significant adjustments to the liability regime underlying California's market structure.[5] The new rules allow regulated entities in California to transfer the liability for their high-emitting electricity imports to unregulated parties in neighboring states. This allows parties to replace their dirty imports with cleaner resources via transactions that create the false appearance of emissions reductions in California's market, without reducing net emissions to the atmosphere. Because California has historically imported a large amount of high-emissions coal power from neighboring states, there is a significant potential for regulated entities to exploit the new rules. As a result, the reforms have major implications for the demand for compliance instruments—not to mention the environmental integrity of California's flagship climate policy. Presumably, changes of this magnitude would have been relevant to the Québécois government, which,

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4. *See History*, W. CLIMATE INITIATIVE, *available at* http://www.westernclimateinitiative.org/history (last visited July 3, 2014). However, WCI was more than shared history. The process culminated in a draft policy design concept that members were encouraged to implement. *See generally* W. CLIMATE INITIATIVE, DESIGN FOR THE WCI REGIONAL PROGRAM (2010), *available at* http://www.westernclimateinitiative.org/component/remository/general/program-design/Design-for-the-WCI-Regional-Program/. WCI participants fell into one of two categories: partners and observers. *See id.* at 3. At its peak, WCI participants included seven states (Arizona, California, New Mexico, Montana, Oregon, Utah, and Washington) and four Canadian provinces (British Columbia, Manitoba, Ontario, and Québec). *Id.* Many others participated as observers, including six American states (Alaska, Colorado, Idaho, Nebraska, Nevada, and Wyoming), three Canadian provinces (Nova Scotia, Saskatchewan, and Yukon), and six Mexican states (Baja California, Chihuahua, Coahuila, Nuevo Leon, Sonora, and Tamaulipas). *Id.* As a result, jurisdictions that participated in the WCI process share a history and common program design. Thus, the link between California and Québec should present fewer challenges than would be present in a link between two systems that do not share these qualities.

5. *See infra* Parts II.B, III.

by this time, had already amended its market regulations to accept California-issued compliance instruments and was negotiating a bilateral agreement with California concerning the joint operation of their linked markets. Yet nowhere in the state's own administrative record does the California Air Resources Board ("ARB") recognize the impact of its internal reforms on the market's integrity. Only in response to public comments—issued after the two governments formally linked their markets—did ARB consider the argument that its reforms undermined the integrity of its cap. Ultimately, ARB dismissed these concerns, despite its own economic advisers' observations to the contrary.[6]

This article focuses on the extent to which formal administrative processes are capable of preserving the integrity of linked carbon markets. Section II begins with a review of two simultaneous administrative processes in California: one enabling the link with Québec and another amending the core carbon market regulations. Next, I describe the effect of California's internal reforms on the carbon market's integrity in Section III. Section IV reviews the bilateral agreement between the two governments, asking whether California satisfied its obligation to keep Québec informed about the expected impacts of its new regulations. Finally, I consider the safeguards California law imposes on ARB when considering new market partners in Section V. Consider the hypothetical situation in which another state relaxed its resource shuffling rules, as California did in reality, but that California did not. Would that jurisdiction meet California's stringent standards for evaluating prospective partners? I conclude that the answer would be no, but only if state policymakers were to look beyond a formalist analysis of the legal standards in prospective linking partners. In practice, actual market conditions will be determined as much by informal guidance documents and discretionary enforcement strategies as by codified legal standards. This suggests that the regulatory oversight cost of pursuing a bottom-up, state-by-state strategy for linking carbon markets raises significant and underappreciated challenges. It also highlights the inadequacy of administrative law as a mechanism

6. *See infra* Part III.

to anticipate problems from linking carbon markets.

II.
A TALE OF TWO ADMINISTRATIVE PROCESSES

Like complex financial contracts, which are generally reviewed by specialized attorneys and signed by each client organization's executives, linked carbon markets are the product of sequential negotiation and review. The key difference is that, while discussions about linking carbon markets begin through private discussions between policymakers, they are formalized through parallel administrative law processes. In turn, administrative law places the burden of due diligence on agencies. Agencies evaluate prospective partners and promulgate linking regulations, all while remaining subject to the standard requirements of public notice and comment periods. Once linked, the markets are designed to operate as a single, dynamic financial system, with regulatory oversight divided among participating governments.

As a result, environmental regulators—which legislatures typically task with operating carbon markets—must now accept the duties of international (or at least interstate) financial regulators. Their new currency is tradable compliance instruments. The fundamental legal mechanism in carbon markets is the requirement that regulated industries (known in California as "covered entities") surrender one compliance instrument for each metric ton of greenhouse gases they emit.[7] When one market links with another, it does so by allowing its regulated entities to use the compliance instruments of its linked partner.[8] When two

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7. *See, e.g.,* CAL. CODE REGS. tit. 17, § 95856 (2014) (requiring covered entities in California's carbon market to submit compliance instruments); CAL. CODE REGS. tit. 17, § 95802(a)(83) (defining covered entities); CAL. CODE REGS. tit. 17, § 95802(a)(68) (defining compliance instruments as including allowances, offsets, and other instruments issued by jurisdictions with which California has officially linked its market system); CAL. CODE REGS. tit. 17, § 95802(a)(9) (defining allowances as tradable compliance instruments); CAL. CODE REGS. tit. 17, § 95802(a)(14) (defining offsets as tradable compliance instruments).

8. *See, e.g.,* CAL. CODE REGS. tit. 17, § 95802(a)(68) (defining compliance instruments in California as including those instruments issued by jurisdictions with which California's market has been formally linked); CAL. CODE REGS. tit. 17, § 95943 (approving compliance instruments issued by the Government of

markets mutually recognize each other's instruments they form a bilateral link.[9] Thus, a regulator that previously might have been worried about putting catalytic converters on car tailpipes now faces a new and challenging task: harmonizing the details of its domestic market regulations with those of prospective partner jurisdictions.

In practical terms, bilateral linking allows the regulated parties in one jurisdiction to employ compliance instruments from either system to meet the requirements of their home jurisdiction. Due to the mutual recognition of these instruments, the entire linked market is affected if either regulator makes a mistake or a harmful change in domestic policy. Therefore, it is essential that jurisdictions choose their linking partners carefully.

As I describe below, California's process for vetting and approving a link with another cap-and-trade market unfolded at the same time ARB decided to modify its core market regulations. Because these reforms occurred in parallel, they offer an interesting opportunity to examine how the administrative law process conducts due diligence when assessing prospective market links, as will be discussed in Sections IV and V in greater detail. Here, I provide an overview of the process by which California linked its market to Québec's (Section II-A), a review of California's internal carbon market reforms (Section II-B), and a comprehensive timeline of the key events in both processes (Section II-C).

A. California's Linking Regulations

California never intended to be the only jurisdiction pricing carbon. In fact, its climate policy was developed with the goal of participating in a regional carbon market. After all, the state's program has its origins in the Western Climate Initiative ("WCI"), a regional effort among state and provincial leaders to harmonize sub-national climate policies across the western

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Québec for use in California's market as of January 1, 2014).

9. Dallas Burtraw et al., *Linking by Degrees: Incremental Alignment of Cap-and-Trade Markets*, RESOURCES FOR FUTURE, Apr. 2013, at 1, 7-9, *available at* http://www.rff.org/Documents/RFF-DP-13-04.pdf.

United States and much of Canada.[10] Despite WCI's impressive initial membership, only a handful of jurisdictions adopted carbon markets (or any other stringent climate policies). By the time the California market came into being, Québec was one of the few WCI jurisdictions that had followed a similar path. With their shared history and common market design principles,[11] a prospective link seemed natural.

This is not to say that the prospective link did not present challenges. Questions about the integrity of a linked system, its enforceability mechanisms, and legal jurisdictional issues remained. In 2012, the California Legislature passed S.B. 1018, which requires the governor of California to make four affirmative findings before linking with any other carbon market. The governor must conclude that: (1) the other program is "equivalent to or stricter than" California's market, (2) linking maintains the State of California's jurisdiction over participants in linked markets to the maximum extent permitted by the state and federal constitutions, (3) the linking jurisdiction has enforcement powers that are "equivalent to or stricter than" those of California, and (4) participation in a linked system by California will not impose "significant liability" on the state government for any failure associated with the linkage.[12]

In response to this statute, ARB, the Office of the Attorney General, and the Office of the Governor each compared the California and Québécois programs.[13] After review, the governor made the necessary affirmative findings to enable the formal regulatory amendments. The internal review only lasted from February to April of 2013, though the development of linking regulations and informal discussions between California political leaders, California agency staff, and their Québécois counterparts began much earlier. Critically, the formal administrative review of Québec's system analyzed a snapshot of the prospective

10. DESIGN FOR THE WCI REGIONAL PROGRAM, *supra* note 4, at 3.

11. *See generally id.* (describing a common policy design for carbon markets among WCI members).

12. CAL. GOV'T CODE § 12894(f) (West 2013).

13. *See* discussion *infra* Part II.C (providing citations to the relevant milestones in the linking process).

linked market rather than employing a continuous approach to regulatory oversight. Instead, the ongoing and joint operation of the two markets is subject to a bilateral agreement signed by the two governments.[14]

B. *California's Domestic Reforms*

At the same time California was preparing to link with Québec, ARB was in the middle of significantly changing its core market rules. These reforms occurred first through informal regulatory guidance documents and later through formal administrative procedures. Notably, the informal changes to California's market design began just before Québec finalized its link to California, and the formal changes concluded after California finalized its link to Québec.[15] In other words, California made a significant domestic regulatory transition in the middle of the process whereby the two governments linked their carbon markets. As a result of both their subject matter and timing, California's domestic reforms speak directly to the sufficiency of using formal administrative law processes to conduct due diligence on prospective linking partners.

California's internal reforms concern treatment of emissions from imported electric power, an important emissions category included in the state carbon market.[16] Understanding the effect of the reforms requires some additional context, beginning with the observation that California is a significant net importer of

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14. *See* Agreement Between the California Air Resources Board and the Government du Québec Concerning the Harmonization and Integration of Cap-and-Trade Programs for Reducing Greenhouse Gas Emissions, Cal.-Que., Sept. 27, 2013 [hereinafter "Bilateral Agreement"], *available at* http://www.arb.ca.gov/cc/capandtrade/linkage/ca_quebec_linking_agreement_english.pdf. For convenience, I refer only to the English language version of the Bilateral Agreement; however, an equally authoritative version was executed in French at the same time, *available at* http://www.arb.ca.gov/cc/capandtrade/linkage/ca_quebec_linking_agreement_french.pdf.

15. *See* discussion *infra* Part II.C (providing citations to the relevant milestones in the linking process).

16. *See* CAL. CODE REGS. tit. 17, § 95852(b) (2014) (making "first delivers" of electricity responsible for the emissions associated with their electric power supplies); CAL. CODE REGS. tit. 17, § 95802(a)(146) (defining electricity importers as "first delivers").

electricity. In 2012, for example, California imported 34% of its net power consumption from neighboring states.[17] In terms of greenhouse gas emissions, the impacts of California's domestic and imported power consumption are roughly equal; in 2012, electricity production from in-state facilities accounted for 11.2% of total state emissions, whereas imports accounted for 9.6%.[18] Thus, while California imports about one-third of its electric power, those imports contribute about half of the emissions from its overall electricity consumption.

The key insight here is that California's imported power has been significantly more carbon-intensive than its domestic power. Indeed, the largest share of imported power emissions comes from a handful of high-carbon coal-fired power plants, which are mostly located in the Southwest.[19] In contrast, California does not have any significant in-state coal power plants.[20] Instead, its domestic electricity production primarily comes from a mixture of relatively low-carbon natural-gas-fired power plants, along with zero-carbon nuclear and renewable energy systems, including hydropower.[21] Therefore, the treatment of emissions from

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17. Cal. Energy Comm'n, *California Electrical Energy Generation*, ENERGY ALMANAC, *available at* http://energyalmanac.ca.gov/electricity/electricity_generation.html (last visited July 10, 2014) [hereinafter *California Electrical Energy Generation*] (reporting Net Energy Imports of 102,786 GWh and California Generation plus Net Imports of 302,113 GWh for the year 2012).

18. CAL. AIR RES. BD., CALIFORNIA GREENHOUSE GAS EMISSION INVENTORY: 2000-2012, at 12 (2014), *available at* http://www.arb.ca.gov/cc/inventory/pubs/reports/ghg_inventory_00-12_report.pdf.

19. *See* CAL. AIR RES. BD., CALIFORNIA'S 2000-2012 GREENHOUSE GAS EMISSIONS INVENTORY TECHNICAL SUPPORT DOCUMENT 15-18 (2014), *available at* http://www.arb.ca.gov/cc/inventory/doc/methods_00-12/ghg_inventory_00-12_technical_support_document.pdf (describing "specified" imports from certain identified coal power plants).

20. *See California Electrical Energy Generation*, *supra* note 17 (reporting Commercial In-State Generation from coal power of 1,580 GWh in 2012, which is approximately 0.5 percent of the total California Generation plus Net Imports of 302,113 GWh).

21. *See id.* (reporting high production from in-state power plants using natural gas, nuclear, hydroelectric, and other renewable energy resources). Note that despite conventional wisdom to the contrary, hydropower is actually not a zero-greenhouse gas resource. Inundated biomass and changed biogeochemistry in reservoirs can lead to significant emissions of carbon dioxide, methane, and nitrous oxide. *See generally* GREENHOUSE GAS EMISSIONS – FLUXES AND

imported power will play a significant role in the performance of California's carbon market.

This context is necessary to understand California's internal market reforms, which focus on an issue called resource shuffling. As discussed in more detail in Section III, *infra*, resource shuffling occurs when electricity importers swap out their high-emitting resources and replace them with cleaner imports.[22] For example, if a utility sells its legacy coal power import contract to a neighboring state, replacing the lost coal deliveries with natural-gas-fired power, this has the effect of reducing emissions within California's market. Critically, however, it does not result in the coal plant shutting down. Quite the opposite: the coal plant will continue to produce dirty electricity for its new, unregulated owners. The swap merely re-arranges which party on the western electricity grid is legally responsible for consuming the carbon-intensive resources, without reducing net emissions to the atmosphere. Instead, the liability for those emissions simply "leaks" to an unregulated party.[23] Thus, the fact that California has historically imported significant deliveries of coal

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PROCESSES: HYDROELECTRIC RESERVOIRS AND NATURAL ENVIRONMENTS (Alain Tremblay et.al.eds.,2005) [hereinafter "Hydroelectric Reservoirs"] (a standard reference in the field with a focus on Québécois reservoirs). In the tropics, these emissions can rise to levels comparable to the pollution from equally sized power plants. *See generally* Philip M. Fearnside & Salvador Pueyo, *Commentary: Greenhouse-gas emissions from tropical dams*, 2 NATURE CLIMATE CHANGE 382, 382-84 (2012). However, there are no documented reservoirs in temperate areas that produce this scale of impact. Reservoirs in Québec have been well studied, while California reservoirs have not. *See generally* HYDROELECTRIC RESERVOIRS. Luckily, there is little reason to think that California's reservoirs are causing significant emissions. For an overview of the scientific issues, *see generally* Ivan B. T. Lima et al., *Methane Emissions from Large Dams as Renewable Energy Resources: A Developing Nation Perspective*, 13 MITIGATION & ADAPTATION STRATEGIES FOR GLOBAL CHANGE 193, 193-206 (2008) (estimating global methane emissions from hydroelectric reservoirs of 104 million tons per year and assessing strategies for capturing and/or destroying these emissions).

22. The newest market regulations define resource shuffling as "any plan, scheme, or artifice undertaken by a First Deliverer of Electricity to substitute electricity deliveries from sources with relatively lower emissions for electricity deliveries from sources with relatively higher emissions to reduce its emissions compliance obligation." CAL. CODE REGS. tit. 17, § 95802(a)(338) (2014). The definition then refers to a number of exemptions, discussed later in this paper. *See id.* (citing CAL. CODE REGS. tit. 17, § 95852(b)(2)(A)); *see infra* Part III.

23. For additional discussion on leakage, *see infra* Part III.

power creates an attractive opportunity for prospective resource shufflers: if allowed, the cheapest compliance option for many utilities would be to sell their coal power to neighbors who do not face legally binding climate policies.[24]

ARB has consistently prohibited resource shuffling as a formal matter,[25] but new regulations effectively repeal this ban. In response to pressure from stakeholders, ARB adopted what it calls a "safe harbor" approach to resource shuffling. Specifically, ARB identified 13 activities that are exempted from the definition of, and therefore the prohibition on, resource shuffling.[26] These safe harbor reforms were introduced first through an informal regulatory guidance document in November 2012,[27] and subsequently

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24. *See* Severin Borenstein et al., *Report of the Market Simulation Group on Competitive Supply/Demand Balance in the California Allowance Market and the Potential for Market Manipulation* (2014), *available at* http://www.arb.ca.gov/cc/capandtrade/simulationgroup/msg_final_v25.pdf (finding that "there is likely to be significant 'reshuffling' of electricity purchases among buyers and sellers across state lines"); *see also id.* at 17, fig. 1 (showing "Costless Reshuffling" and "Costly Reshuffling" as the lowest-cost abatement options for regulated entities in California). Note that the other zero-cost listing ("Complementary Measures") is technically not a compliance option. Rather, this term refers to the emission reductions required by other state policies, whose effects will contribute to emission reductions in the sectors subject to California's carbon market. *See id.* at 14 (defining complementary policies as programs that abate GHGs "outside the cap and trade program."). Because these emissions reductions are mandatory, they are distinct from the range of voluntary options regulated entities in the carbon market might choose to reduce their emissions. *See generally* Michael Wara, *California's Energy and Climate Policy: A Full Plate, But Perhaps Not a Model Policy*, 70 BULL. OF ATOMIC SCIENTISTS 26 (2014) (discussing the relationship between California's complementary policies and its carbon market).

25. CAL. CODE REGS. tit. 17, § 95852(b)(2) (prohibiting first delivers from resource shuffling). Note that the core prohibition on resource shuffling was unmodified in the regulatory amendments, though the underlying definition was changed in ways that are unimportant for the purposes of this article. *See* CAL. CODE REGS. tit. 17, § 95802(a)(338). Note further that if an activity fits within one of the safe harbors, it is exempted by definition from the prohibition. *Id.* This is true even if the activity would otherwise fit into one of the affirmatively defined categories of resource shuffling defined in § 95852(b)(2)(B).

26. CAL. CODE REGS. tit. 17, § 95802(a)(338) (defining resource shuffling as excluding the safe harbor exemptions codified in § 95852(b)(2)(A)).

27. *See* CAL. AIR RES. BD., CAP-AND-TRADE REGULATION INSTRUCTIONAL GUIDANCE, APPENDIX A: WHAT IS RESOURCE SHUFFLING? (2012) [hereinafter INSTRUCTIONAL GUIDANCE APPENDIX A], *available at* http://www.arb.ca.gov/cc/capandtrade/guidance/appendix_a.pdf.

codified in a formal regulatory process that was approved in April 2014.[28] As explained in Section III, *infra*, the safe harbors are so broad as to effectively overwhelm the prohibition against resource shuffling that technically remains on the books. They also include explicit exemptions that allow utilities and other regulated parties to divest their legacy coal assets without running afoul of the prohibition on resource shuffling.

From the standpoint of linking markets, California's internal reforms lower the environmental quality of the state's compliance instruments. To the extent that regulated parties in California rely on resource shuffling to leak emissions, a party acquiring compliance instruments from the California system can no longer rely on those instruments to represent net emission reductions. For the same reason, a linked market that accepts these compliance instruments will also see the environmental integrity of its system degrade. Thus, California's internal reforms should have raised significant concerns for Québécois policymakers. The fact that they occurred after Québec amended its regulations to accept California compliance instruments should only increase the stakes.

C. *Regulatory Timeline*

The major milestones in California's internal reforms and linking process are identified below. Notably, California began its internal reforms through an informal guidance document that was released one month before Québec finalized its link to California. The formal regulatory process began six months later and concluded after the two governments signed an agreement concerning the joint operation of their market systems. For convenience, I omit the many years of discussion about linking the two systems, taking for granted the two governments' mutual interest in creating a robust and effective linked market by the beginning of 2012. In addition, I use the labels "(L)" and "(R)" to denote events related to linking the markets and California's internal reforms, respectively.

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28. *See* Cal. Air Res. Bd. Res. 14-4 (Apr. 25, 2014) [hereinafter Resolution 14-4], *available at* http://www.arb.ca.gov/regact/2013/capandtrade13/res14-4.pdf.

(L) May 2012: ARB releases proposed regulations that would operationalize its link with Québec.[29]

(R) October 2012: ARB directs its staff to develop a "safe harbor" approach to reforming the prohibition on resource shuffling.[30]

(R) November 2012: ARB issues an informal guidance document adopting its "safe harbor" approach to resource shuffling.[31]

(L) December 2012: Québec finalizes regulations that operationalize its link with California.[32]

(L) February 2013: ARB notifies the governor's office of its intention to link with Québec.[33]

(L) February 2013: California Attorney General issues advice to the Governor's office on the legality of the proposed link.[34]

(L) April 2013: Governor Brown issues the necessary findings

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29. *See* CAL. AIR RES. BD., PROPOSED AMENDMENTS TO THE CALIFORNIA CAP ON GREENHOUSE GAS EMISSIONS AND MARKET-BASED COMPLIANCE MECHANISMS TO ALLOW FOR THE USE OF COMPLIANCE INSTRUMENTS ISSUED BY LINKED JURISDICTIONS, STAFF REPORT: INITIAL STATEMENT OF REASONS (2012), *available at* http://www.arb.ca.gov/regact/2012/capandtrade12/isormainfinal.pdf.

30. *See* Cal. Air Res. Bd. Res. 12-51 (Oct. 18, 2012), *available at* http://www.arb.ca.gov/cc/capandtrade/final-resolution-october-2012.pdf; *see also* CAL. AIR RES. BD., CALIFORNIA CAP-AND-TRADE PROGRAM ATTACHMENT A: CLARIFYING RESOURCE SHUFFLING DEFINITION (2012), *available at* http://www.arb.ca.gov/cc/capandtrade/attachmenta.pdf (identifying thirteen specific safe harbor provisions).

31. *See* INSTRUCTIONAL GUIDANCE APPENDIX A, *supra* note 27.

32. *See* Regulation Respecting a Cap-and-Trade System for Greenhouse Gas Emission Allowances, R.R.Q., c. Q-2, r. 46.1 [hereinafter Quebec Regulations], *available at* http://www2.publicationsduquebec.gouv.qc.ca/dynamicSearch/telecharge.php?type=3&file=/Q_2/Q2R46_1_A.HTM.

33. *See* Letter from James N. Goldstene, Executive Officer, Cal. Air Res. Bd., to Edmund G. Brown, Governor of Cal. (Feb. 22, 2013), *available at* http://gov.ca.gov/docs/SB_1018_Transmittal_to_Governor.pdf; *see also* CAL. AIR RES. BD., DISCUSSION OF FINDINGS REQUIRED BY GOVERNMENT CODE SECTION 12894, at 1 (2013) [hereinafter DISCUSSION OF SECTION 12894 REQUIRED FINDINGS], *available at* http://www.arb.ca.gov/regact/2012/capandtrade12/2nd15dayatta6.pdf. (stating that the document's purpose is to provide "background and support for the Air Resources Board's plan to request that the Governor make certain findings as a predicate to linking the Cap-and-Trade programs developed in parallel by California and Québec.").

34. *See* Letter from Christopher S Crook, Cal. Deputy Attorney Gen., to Cliff Rechtschaffen, Senior Advisor to the Governor of Cal. (Mar. 5, 2013), *available at* http://gov.ca.gov/docs/AG_Letter_SB_1018.pdf.

to allow California to link with Québec.[35]

(L) April 2013: ARB approves final regulations that operationalize the link with Québec, to become effective January 2014.[36]

(R) July 2013: ARB releases a discussion draft of prospective carbon market regulatory reforms that would codify the "safe harbor" approach to resource shuffling.[37]

(R) September 2013: ARB formally proposes new regulations that codify the "safe harbor" approach to resource shuffling.[38]

(L) September 2013: California and Québec sign a bilateral agreement concerning the joint operation of their linked markets.[39]

(L) November 2013: ARB issues its linkage readiness report.[40]

(L) January 2014: Both markets are officially and bilaterally linked.[41]

(R) April 2014: ARB approves new market regulations, codifying the "safe harbor" approach to resource shuffling.[42]

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35. *See* Letter from Edmund G. Brown, Governor of Cal., to Mary Nichols, Chair, Cal. Air Res. Bd. (Apr. 8, 2013), *available at* http://gov.ca.gov/docs/Request_for_SB_1018_Findings.pdf.

36. *See* Cal. Air Res. Bd. Res. 13-7 (Apr. 19, 2013) [hereinafter Resolution 13-7], *available at* http://www.arb.ca.gov/cc/capandtrade/linkage/resolution13-7.pdf.

37. *See* CAL. AIR RES. BD., CAP-AND-TRADE REGULATIONS DISCUSSION DRAFT JULY 2013, at 96-99 (2013), *available at* http://www.arb.ca.gov/cc/capandtrade/meetings/071813/ct_reg_2013_discussion_draft.pdf.

38. *See* CAL. AIR RES. BD., STAFF REPORT: INITIAL STATEMENT OF REASONS, APPENDIX E: PROPOSED REGULATION ORDER 83-87 (2013), *available at* http://www.arb.ca.gov/regact/2013/capandtrade13/capandtrade13isorappe.pdf (proposing to amend CAL. CODE REGS. tit. 17, § 95852(b)(2) (2012)).

39. *See* Bilateral Agreement, *supra* note 14.

40. *See* CAL. AIR RES. BD., LINKAGE READINESS REPORT (2013) [hereinafter LINKAGE READINESS REPORT], *available at* http://www.arb.ca.gov/cc/capandtrade/linkage/arb_linkage_readiness_report.pdf; *see also* Letter from Edmund G. Brown to Mary Nichols, *supra* note 35, at 4 (requiring ARB to submit a progress report to the Governor by November 2013); *see also* Resolution 13-7, *supra* note 36, at 9 (resolving to submit a progress report to the Governor by November 2013).

41. *See* CAL. CODE REGS. tit. 17, § 95943(a) (2014) (allowing covered entities in California to employ compliance instruments issued by the Government of Québec as of January 1, 2014); *see also* Quebec Regulations, *supra* note 32, at Appendix B.1 (deeming compliance instruments issued by ARB "equivalent" to the those created by the Québécois regulations).

42. *See* Resolution 14-4, *supra* note 28.

As this timeline indicates, ARB began the process of reforming its market regulations shortly before Québec formally recognized California compliance instruments for use in its own market. California's internal reforms then progressed over the next year, significantly changing the state's liability regime. After successfully proceeding through the statutory requirements for linking its carbon market to others, ARB issued its reciprocal link with Québec a few months before its internal reforms were completed.

From an administrative law perspective, it is critical to note that California changed its market regulations after Québec agreed to accept Californian compliance instruments as equivalent to Québécois compliance instruments. Thus, the impact of California's internal reforms on its own market also affected Québec. As the next section describes, California's regulatory changes had profound consequences for the environmental integrity of California's market, yet no public government document acknowledged these consequences during the administrative proceedings.

III.
LEAKAGE FROM RESOURCE SHUFFLING

California's internal reforms raise important concerns about the environmental, financial, and legal integrity of its carbon market. The core problem is known as leakage, which California state law defines as "a reduction in emissions of greenhouse gases within the state that is offset by an increase in emissions of greenhouse gases outside the state."[43] To the extent resource shuffling is allowed, it results in leakage. In turn, leakage undermines the environmental performance of the carbon market as a climate policy instrument. Should the emissions reductions reported in California result from a transfer of emissions liability outside of the state policy system, no net climate benefits would actually accrue. Thus, when ARB amended its regulations to allow regulated parties to resource shuffle, the regulator encouraged leakage and reduced the extent to which the carbon market reduces emissions of greenhouse gases to the atmosphere.

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43. CAL. HEALTH & SAFETY CODE § 38505(j) (2010).

In addition to diminishing the environmental performance of the market, California's reforms also affect its financial and legal integrity. Specifically, the new regulations reverse a once-clear state policy to avoid leakage. When the California legislature passed A.B. 32, the Global Warming Solutions Act of 2006, it delegated broad authority to ARB to develop appropriate policies and measures to reduce state emissions to 1990 levels by the year 2020.[44] Although the legislature did not specify which types of policies or instruments should be adopted, it created some important requirements for ARB to follow. One of the most important requirements is a directive that, "to the extent feasible," ARB shall "minimize leakage" in the design of its market regulations.[45] Unfortunately, as discussed below, ARB's resource shuffling reforms uphold neither the spirit nor the letter of this statutory requirement.

A. *Expert Opinion in the Administrative Process*

As a threshold matter, one might question whether ARB understood the likely consequences of its domestic reforms; however, there is no doubt that the regulator had advance warning from trusted sources regarding the obvious leakage implications of relaxing its resource shuffling rules. For example, before ARB first adopted its safe harbor policy through a regulatory guidance document issued in November 2012, several prominent economists concluded that resource shuffling posed serious threats to the effectiveness of sub-national climate policies like those of California.[46] A subsequent study, first published in January

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44. *Id.* at § 38550 (defining the 2020 target); *id.* at § 38562(a) (authorizing ARB to adopt regulations to achieve the 2020 target).

45. *Id.* at § 38562(b)(8).

46. *See generally* Meredith L. Fowlie, *Incomplete Environmental Regulation, Imperfect Competition, and Emissions Leakage*, 1 AM. ECON. J.: ECON. POL'Y 72 (2009) (estimating the leakage risks from various market design approaches in California); James Bushnell et al., *Local Solutions to Global Problems: Climate Change Policies and Regulatory Jurisdiction*, 2 REV. ENVTL. ECON. & POL'Y 175 (2008) (finding that "reshuffling" in state-level, market-based policies like carbon markets could lead to significant leakage); Karen Palmer et al., *Allowance Allocation in a CO_2 Emissions Cap-and-Trade Program for the Electricity Sector in California*, RESOURCES FOR FUTURE, Oct. 2009, at 1, 24-27, *available at*

2013, identified the leakage risks from resource shuffling in California's carbon market, finding that "current policy will lead to substantial 'reshuffling' and limit the impact of California's emissions cap."[47]

Lest these concerns seem merely academic, it is worth noting that three of the economists in question were members of the Emissions Market Assessment Committee ("EMAC"), a trio of prominent academics that advised ARB on the carbon market through December 2013.[48] Indeed, a draft EMAC report from June 2013 found that if resource shuffling were permitted in California's market, between 120 and 360 million tons of carbon dioxide could leak to neighboring states.[49] Examining only the leakage risks from allowing California utilities to divest from their legacy coal power imports (a subset of all possible resource shuffling transactions), an independent study found that ARB's safe harbor amendments could cause between 108 and 187 million tons of carbon dioxide to leak to neighboring states if all legacy coal contracts were divested.[50] (For comparison, a 2013 study

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http://www.rff.org/RFF/Documents/RFF-DP-09-41.pdf (discussing leakage concerns in detail); Justin Caron et al., *Leakage from Sub-national Climate Initiatives: The Case of California*, MASS. INST. TECH. JOINT PROGRAM ON SCI. & POL'Y OF CLIMATE CHANGE (May 2012), *available at* http://globalchange.mit.edu/files/document/MITJPSPGC_Rpt220.pdf (estimating the leakage risks for California's carbon market); James Bushnell and Yihsu Chen, *Allocation and Leakage in Regional Cap-and-Trade Markets*, 34 RESOURCE & ENERGY ECON. 647 (2012) (estimating the leakage risks for California's carbon market).

47. James Bushnell et al., *Downstream Regulation of CO_2 Emissions in California's Electricity Sector*, 64 ENERGY POL'Y 313, 313 (2014), *available at* http://www.sciencedirect.com/science/article/pii/S0301421513008690. These results were first published as a University of California working paper. James Bushnell et al., Downstream Regulation of CO_2 Emissions in California's Electricity Sector (January 2013) (Energy Institute @ Haas Working Paper #236), *available at* http://ei.haas.berkeley.edu/papers.html.

48. *See Emissions Market Assessment Committee*, CAL. AIR RES. BD., *available at* http://www.arb.ca.gov/cc/capandtrade/emissionsmarketassessment/emissionsmarketassessment.htm (last visited July 3, 2014). The EMAC members are Severin Borenstein (University of California, Berkeley), James Bushnell (University of California, Davis), and Frank Wolak (Stanford University). *Id.* The contract supporting EMAC activities expired in December 2013. *Id.*

49. Borenstein et al., *supra* note 24, at 14.

50. Danny Cullenward & David Weiskopf, Resource Shuffling and the California Carbon Market 2 (July 18, 2013) (unpublished working paper), *available at* https://www.law.stanford.edu/publications/resource-shuffling-and-the-

from the Electric Power Research Institute estimated that the cumulative mitigation required under California's carbon market through 2020 is between approximately 100 and 400 million tons.[51])

Thus, by the time ARB began a formal administrative process to codify the safe harbors first promulgated as informal guidance provisions, its own economic advisers and many independent researchers had concluded that exemptions to the prohibition on resource shuffling would lead to significant leakage. More bluntly, the evidence suggested that, if permitted, resource shuffling could lead to a quantity of leakage comparable to the size of the carbon market as a whole, meaning that regulated companies could rely on resource shuffling to achieve a significant portion of their expected emission reductions. These findings were also included in the administrative record.[52]

Although many technical experts identified leakage from re-

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51. ELECTRIC POWER RESEARCH INST., EXPLORING THE INTERACTION BETWEEN CALIFORNIA'S GREENHOUSE GAS EMISSIONS CAP-AND-TRADE PROGRAM AND COMPLEMENTARY EMISSIONS REDUCTION POLICIES 6-4 (2013), *available at* http://www.epri.com /abstracts/Pages /ProductAbstract.aspx ?ProductId=000000003002000298 (click on the "Download" hyperlink) (indicating a wide range of potential abatement of between 97 and 397 million tons). The estimates quoted here assume the full use of carbon offsets. *Id.* at 6-5. The range reflects whether covered entities use the Allowance Price Containment Reserve, a buffer pool of compliance instruments set aside in case of high prices, and the performance of California's many "complementary policies." *See id.* at 6-4. These policies are separate regulations like the renewable portfolio standard, low carbon fuel standard, and other policies that exist independent of the carbon market but nevertheless contribute to the emission reductions in economic sectors covered by the carbon market. *See id.* at 4-1. For additional comparisons between the estimated leakage risks and the size of the carbon market, *see* Cullenward & Weiskopf, *supra* note 50, at 27-30.

52. *See* Letter from Danny Cullenward, Philomathia Research Fellow, Berkeley Energy & Climate Inst., to Steven Cliff, Chief, Climate Change Program Evaluation Branch (Oct. 23, 2013), *available at* http://www.arb.ca.gov /lists/com-attach/4-acc2013-VDcAc1wxAzwBYgZo.pdf (attaching Danny Cullenward, Op-Ed., *Don't Let Accounting Tricks Dominate the Carbon Market*, SAN JOSE MERCURY NEWS, Oct. 21, 2013, and Cullenward & Weiskopf, *supra* note 50); Letter from Danny Cullenward, Philomathia Research Fellow, Berkeley Energy & Climate Inst., to Cal. Air Res. Bd. (April 4, 2014), *available at* http://www.arb.ca.gov/lists/com-attach/253-capandtrade13-VjVcNVY6UW9WNQln.pdf (attaching Bushnell et al., *supra* note 47, and Borenstein et al., *supra* note 24).

source shuffling as a critical market design issue, it is surprising how few commented directly on the specific reforms proposed by ARB. Cullenward and Weiskopf were the first to do so, finding that the initial safe harbors explicitly exempt resource shuffling of legacy coal power imports. In addition, the safe harbors effectively repeal the overall prohibition through a series of loosely constructed exemptions that regulated parties could exploit to justify nearly any transaction.[53] It is extremely unlikely that ARB could ever enforce its prohibition against resource shuffling in practice because one of the adopted safe harbors places the evidentiary burden on ARB to show that a purported resource shuffling transaction was motivated exclusively by a purpose of avoiding compliance obligations in the carbon market.[54] As a result, ARB's safe harbor policy undermines the formal prohibition on resource shuffling.

Given these broad exemptions, it is unsurprising that one can observe transactions that are causing leakage and would constitute resource shuffling under the carbon market regulations, but for the safe harbor policies adopted by ARB. Indeed, during the period between ARB's promulgation of the informal guidance document and its approval of formal regulatory amendments that codify the safe harbors into law, at least three major resource-shuffling-related transactions occurred. These transactions leaked 30 to 60 million tons of carbon dioxide into neighboring states.[55] Moreover, each transaction squarely fits in one of

53. *See* Cullenward & Weiskopf, *supra* note 50, at 21-26 (reviewing each safe harbor and the logical gaps in the exemption-based safe harbor policy). This analysis was based on the safe harbors contained in the informal guidance document, which differed only slightly compared to the formal regulatory text subsequently approved by ARB in April 2014. These changes were minor and do not affect the conclusion that the codified safe harbors explicitly permit divestment of legacy coal power imports. *See* Letter from Danny Cullenward to Cal. Air Res. Bd., *supra* note 52, at 3-5 (reviewing individual safe harbor provisions now codified in the California market regulations).

54. *See* Letter from Danny Cullenward to Cal. Air Res. Bd., *supra* note 52, at 4 (citing CAL. CODE REGS. tit. 17, § 95852(b)(2)(A)(7) (2014)) (noting that a defendant in an enforcement action need only name generic reasons like diversifying contractual counterparties, reducing local air pollution impacts, or other tangential facts to claim protection under the broadest safe harbor provision).

55. Danny Cullenward, *Leakage in California's Carbon Market*, 27 ELECTRICITY J. (forthcoming 2014). *See also* Letter from Danny Cullenward to

the safe harbor provisions Cullenward and Weiskopf criticized as permitting the divestment of California's legacy coal imports.[56]

Thus, by the time ARB voted to adopt its market reforms, it had significant evidence in its administrative record that: (1) absent a clear rule prohibiting resource shuffling, significant leakage would result; (2) that the safe harbors gutted the prohibition on resource shuffling; and (3) resource shuffling of legacy coal contracts pursuant to the safe harbor exemptions had already caused significant leakage.[57] Nevertheless, ARB concluded that its safe harbors would not lead to significant leakage[58] and that no analysis of these risks was required under the California Environmental Quality Act.[59]

B. *Some Legal and Practical Consequences*

In the face of substantial evidence that its reforms would lead to significant leakage, ARB's resource shuffling amendments

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Cal. Air Res. Bd., *supra* note 52, at 5-7 (documenting the three transactions and calculating their associated leakage impacts); Debra Kahn, *Calif. Cuts Part of Its Greenhouse Gas Emissions by Exporting Them*, E&E CLIMATEWIRE, Apr. 25, 2014, *available at* http://www.eenews.net/climatewire/stories/1059998444; Evan Halper & Ralph Vartabedian, *Despite California climate law, carbon emissions may be a shell game*, LOS ANGELES TIMES, Oct. 25, 2014, http://www.latimes.com/science/la-me-climate-shell-game-20141026-story.html; David Roberts, *California's carbon market is leaking*, GRIST, Oct. 30, 2014, *available at* http://grist.org/climate-energy/californias-carbon-market-is-leaking/

56. *Compare* Letter from Danny Cullenward to Cal. Air Res. Bd., *supra* note 52, at 3-4 (evaluating the safe harbor exemptions for coal power imports in a comment letter to ARB prior to ARB's adoption of the regulatory amendments), *with* Cullenward & Weiskopf, *supra* note 50, at 23-24 (evaluating the same safe harbor exemptions in July 2013, prior to the formal regulatory amendments).

57. *See generally* Letter from Danny Cullenward to Cal. Air Res. Bd., *supra* note 52.

58. *See generally* CAL. AIR RES. BD., AMENDMENTS TO THE CALIFORNIA CAP ON GREENHOUSE GAS EMISSIONS AND MARKET-BASED COMPLIANCE MECHANISMS: FINAL STATEMENT OF REASONS 227-328 (2014) [hereinafter FINAL STATEMENT OF REASONS] (responding to public comments on the resource shuffling amendments during the 45-day notice-and-comment period); *id.* at 784-860 (responding to public comments on the resource shuffling amendments during the 15-day notice-and-comment period).

59. *See id.* at 1049-52 (responding to public comments on the environmental assessment conducted under the California Environmental Quality Act and concluding that no further analysis is required).

are, in my view, a violation of the statutory requirement to "minimize leakage" "to the extent feasible."[60] ARB should not have adopted such a permissive approach to resource shuffling. In fact, ARB need not have modified the original prohibition on resource shuffling at all.

While the original prohibition was admittedly inflexible and could have been improved, ARB should have adopted one of at least two alternatives that would have avoided leakage. First, ARB could have relaxed its rules while requiring companies whose transactions cause leakage to continue to be responsible for the emissions that would have otherwise left the system, pricing these emissions at the market rate.[61] This solution would have increased the market's administrative complexity, but it would have imposed the costs of controlling leakage directly on the parties responsible for leakage. Second, ARB could have relaxed its resource shuffling rules and observed the leakage that results, subsequently tightening the overall carbon market cap to account for that leakage. While a much simpler solution to implement, this path would have required a separate and politically fraught administrative process. It would have also socialized the costs of leakage across all market participants, rather than putting the costs directly on parties causing leakage.[62]

As these options demonstrate, ARB had feasible alternatives to accomplish its policy objectives without causing significant leakage—including the option not to amend the regulations in the first place. Thus, the safe harbor reforms adopted in April

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60. CAL. HEALTH & SAFETY CODE §§ 38562(b)(8) (West 2007).

61. For a fully developed regulatory text implementing this approach, *see* Cullenward & Weiskopf, *supra* note 50, at 35-37, 39-43 (describing this approach as a "reverse offset").

62. EMAC economist James Bushnell first suggested this option to me. Note that under this policy approach, electric utilities would still be allowed to shift emissions liability to other states. Although the regulator would simultaneously tighten the cap to reflect this transfer, the distributional consequences of these decisions would be significant. Utilities (and their customers) would avoid the direct cost of compliance, which would fall diffusely on the market as a whole through a tighter cap that is binding on all regulated parties. In contrast, if utilities (and their customers) were to retain the liability for emissions that were allowed to leak out of the market, the costs would fall on those parties who cause the leakage, not diffusely across all market participants.

2014 are inconsistent with the statutory requirement that ARB minimize leakage to the extent feasible.

In addition to contradicting its enabling statute, ARB declined to evaluate the environmental impacts of its safe harbor approach, raising concerns about the inadequacy of its analysis for the purposes of the California Environmental Quality Act ("CEQA").[63] ARB claimed that it was not making any significant changes to its regulations and therefore could rely on a 2010 environmental assessment document.[64] Ironically, however, the 2010 environmental review was conducted in the rulemaking process that led to the simple and effective prohibition on resource shuffling that ARB's most recent reform has effectively gutted. ARB's reliance on this older document is therefore seriously inadequate.[65]

Beyond the environmental and legal consequences of California's domestic reforms, it is useful to consider the market impacts. By allowing regulated parties to divest their high-carbon imports, resource shuffling relieves regulated parties of the obligation to surrender emissions permits. Thus, resource shuffling decreases overall demand in the carbon market. Because the maximum potential for resource shuffling is comparable to the size of the entire carbon market, the impacts on prices should be significant. Whether private actors in the energy markets fully exploit this strategy remains to be seen; however, at this point no legal barrier exists to prevent them from doing so. Even in the short term, downward pressure on carbon market prices from re-

63. *See* Letter from Danny Cullenward to Cal. Air Res. Bd., *supra* note 52, at 8-10 (noting that California's environmental review of the 2013-14 amendments merely referenced an assessment conducted in 2010 during the rulemaking that led to the simple prohibition against resource shuffling, without accounting for the fact that ARB was creating major exemptions to this once-strong prohibition).

64. *See* FINAL STATEMENT OF REASONS, *supra* note 58, at 1050-52 ("Because the impacts of the proposed amendments fall within the scope and scale of those already analyzed in the 2010 [environmental review document], and the amendments do not result in any additional or more severe impacts than previously analyzed in the prior certified environmental documents, the EA concluded that no additional alternatives analysis for the amendments was required.").

65. *See* Letter from Danny Cullenward to Cal. Air Res. Bd., *supra* note 52, at 8-10 (criticizing ARB's environmental analysis for the purposes of CEQA).

source shuffling—due to at least three significant coal-fired power plant contract divestments—is likely to have contributed to the current market conditions.[66] California carbon prices have generally stayed between approximately $13 and $20 per metric ton of CO_2 over the short history of the market.[67] Beginning in July 2013, and coincident with ARB's proposed regulations implementing its safe harbor policy, the market price fell steadily towards the minimum price floor. Over the following six months, three major coal-fired power plant contract divestments caused tens of millions of tons of CO_2 to leak out of the market, with the market price stabilizing at just above the minimum market price floor.[68] These observations are consistent with the theory that the safe harbors have enabled and will continue to enable significant leakage out of California's market.

The impact on the long-term financial stability of the carbon market is even more worrisome. State law clearly directed ARB to minimize leakage. Regardless of whether ARB's resource shuffling amendments run afoul of this standard as a matter of state administrative law (or evaded the necessary environmental review under CEQA), there is little question that the safe harbor policy is a significant reversal of a core market design parameter. As explained above, the extent to which regulated entities in the electricity sector can rely on resource shuffling to divest their legal high-carbon imports has major implications on the demand for compliance instruments and thus the prevailing market price. In turn, ARB's reforms call into question the fundamental effectiveness of California's carbon market as a policy instrument. If the market regulator cannot—or will not—commit to

66. *See generally* Cullenward, *Leakage in California's Carbon Market*, *supra* note 55 (reviewing the leakage impacts from coal contract divestments enabled by ARB's reforms).

67. *See id.* at fig. 4 (presenting secondary trading data for California Carbon Allowances, the tradable emissions permits in the California market); *see also* CAL. CARBON DASHBOARD, *available at* http://calcarbondash.org/ (last visited July 7, 2014) (providing data and visualizations describing trading activity in California's carbon market).

68. *See* Letter from Danny Cullenward to Cal. Air Res. Bd., *supra* note 55, at fig. 4. Note that the price floor establishes a minimum price, below which ARB will not sell emissions permits at its quarterly auctions. *See* CAL. CODE REGS. tit. 17, §§ 95911(b)-(c) (2014).

market rules that produce moderately high carbon prices, will private actors treat the market price as a credible signal of California's long-term climate policy goals?[69] Once a regulator manipulates its rules to artificially reduce the carbon price—by sacrificing the environmental integrity of the market—it seems highly unlikely that investors will risk capital on the basis of a market price that is subject to political intervention. In particular, private investors are unlikely to use the carbon market price to justify investment in new energy infrastructure projects like renewable power plants and transmission lines, for which the economics must be sound over a period of decades, not months. Thus, ARB's market reforms undermine the credibility of its plan to use carbon markets to affect long-term energy investment decisions in California.

IV.

CALIFORNIA'S RESPONSIBILITIES UNDER THE BILATERAL AGREEMENT

In addition to looking at the impacts of this regulatory change from a domestic legal perspective, one can also evaluate it as an example of the challenges associated with operating a linked carbon market according to the principles articulated in intergovernmental agreements. Recognizing the need to harmonize their regulations and codify a set of best practices for the joint operation of the linked market, California and Québec signed the Bilateral Agreement in September 2013.[70] This document states that the two governments have a shared objective to "work jointly and collaboratively toward the harmonization and integration of . . . [their respective] cap-and-trade programs."[71]

To help the parties achieve this goal, the Bilateral Agreement sets out several substantive and procedural standards each government commits to follow. The most relevant passage is found in Article 4, which discusses each government's responsibilities

69. California has an aspirational target of reducing its greenhouse gas emissions 80% below 1990 levels by the year 2050. *See* Arnold Schwarzenegger, *Executive Order #S-03-05*, CAL. OFFICE OF GOVERNOR (June 1, 2005), *available at* http://www.climatechange.ca.gov/state/executive_orders.html.

70. Bilateral Agreement, *supra* note 14.

71. *Id.* at Art. 1.

when reforming its internal market regulations:

> Either Party, or the Parties together, may consider making changes to their respective program . . . To support the objective of harmonization and integration of the programs, any proposed changes or additions to those programs shall be discussed between the Parties. The Parties acknowledge that sufficient time is required to enable effective public review and comment prior to adoption. The Parties shall consult regarding changes that may affect the harmonization and integration process or have other impacts on either Party. Each Party's public process for making program changes must be respected.[72]

Under this provision, each signatory retains the authority to amend its own regulations according to the applicable domestic administrative law requirements (*e.g.*, public notice and comment) that apply.[73] The critical requirement in Article 4, however, is not a repetition of each party's domestic legal standards; rather, it is the inclusion of a new obligation for both governments: mandatory discussion between the parties of any proposed domestic regulatory changes. Therefore, Article 4 raises two interesting questions about the simultaneous administrative processes that were underway in California during the development of the Bilateral Agreement. First, did ARB understand the leakage impacts of its safe harbor reforms on the prohibition on resource shuffling? (Recall that in the state administrative record, ARB disputes the claims that its reforms degrade the prohibition on resource shuffling and would cause significant leakage.[74] Nevertheless, as I argued in Section III-A, ARB had credible evidence to the contrary.) Second, did ARB and the Québécois government discuss the significant leakage implications of California's internal reforms?

While the answer to these questions is not publicly known at this time, there are four possible outcomes (see Table 1).[75]

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72. *Id.* at Art. 4.

73. *Id.* at Art. 3 ("The procedural requirements of each Party shall be respected, including appropriate and effective openness and transparency of each Party's public consultations.").

74. *See* sources cited *supra* notes 58-59.

75. This analysis is premised on the argument that the safe harbor reforms

TABLE 1: POSSIBLE OUTCOMES

		Bilateral discussion of leakage?	
		Yes	No
Did ARB expect leakage?	Yes	Coordinated[76] violation of California administrative law	Unilateral violation of Bilateral Agreement, Art. 4
	No	Mutual failure to anticipate major market impact	Unilateral failure to anticipate major market impact

First, if ARB understood the leakage impacts of its reforms and shared this information with its Québécois partners, then the state administrative record does not reflect the agency's understanding of its own actions, which were taken in coordination with a foreign government. This would raise additional concerns about the legality of its reforms under state law.[77] Second, if ARB understood the leakage impacts but did not share this information with the Québécois, this would likely violate Article 4 of the Bilateral Agreement. Enabling leakage risks at approximately the scale of the entire market almost certainly rises to the level of "changes that may affect the harmonization and integration process or have other impacts on either Party," which

enable and have caused resource shuffling, and therefore leakage, as discussed in Section III. *See also* Cullenward, supra 55 (documenting leakage from resource shuffling transactions).

76. In calling the violation coordinated, I am not implying that the Government of Québec had any obligation to evaluate the restrictions California law places on ARB, nor to object to any potential violation. Rather, the point is that the two governments were coordinated in their understanding of the market transformation ARB initiated.

77. The Bilateral Agreement also requires parties to uphold the integrity of their domestic public regulatory processes, but presumably this requirement is of a lesser importance compared to any related violations of state law. *See* Bilateral Agreement, *supra* note 14, at Art. 4. I am not aware of any statutory or case law that addresses whether a state government can conduct foreign affairs in a way that contradicts its own description of those affairs in a formal administrative process, but the kinds of deferential standards applied to the foreign affairs of the federal government, under Article II of the United States Constitution, would not apply here.

require discussion between the two governments.[78] Third, if ARB did not expect leakage and discussed its erroneous findings with the Québécois, who ultimately took the same view as ARB, then both governments failed to anticipate a major market impact. Finally, if ARB did not expect leakage and therefore did not discuss the matter with Québécois policymakers, then the California government unilaterally failed to anticipate the impact of a domestic regulatory change that arguably required mutual discussion.[79] Fundamentally, none of these outcomes demonstrates a successful link between complex carbon markets.

V.
LINK UNTO OTHERS: A THOUGHT EXPERIMENT

The previous two sections evaluate California's resource shuffling reforms from the perspectives of California law and the mutual requirements codified in its Bilateral Agreement with Québec. This section asks whether the protections California law imposes on ARB to evaluate prospective linking partners would have identified the appropriate risks if California were preparing to link with a jurisdiction that was amending its regulations to enable significant leakage. Using this framework, I consider whether California state law—which places both substantive and procedural restrictions on ARB's ability to link with other markets—would prohibit ARB from linking with that jurisdiction. I reach three related conclusions: first, that California's review process is unlikely to identify the relevant leakage risks, and therefore is prone to dangerous links; second, that the analytical needs in this process are highly technical, and therefore not suited to review by lawyers alone; and third, that a single review is insufficient to ensure the integrity of a dynamic and ongoing financial market.[80]

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78. *Id.*; *see also* California Air Resources Board, supra note 40 at 14 (claiming that ARB staff discussed California's 2013 market reforms "in detail" with their Québécois counterparts, referring to the internal regulatory changes that included the safe harbor approach to resource shuffling).

79. Hence, there is no fourth option: ARB could not have entered into bilateral discussions with Québec about the leakage impacts of its reforms if ARB earnestly did not expect any leakage to result.

80. To be clear, I am not suggesting here that there was anything improper

I begin with the relevant statutory framework. As reviewed previously in Section II.A, California law requires the governor to make four independent and affirmative findings prior to linking the state carbon market with other jurisdictions.[81] The California Legislature requires the governor to act in "his or her independent capacity," after receiving similarly independent legal advice from the Office of the Attorney General (OAG), in order to establish "new oversight and transparency" over any prospective market links.[82] Two of the required findings are not relevant to this example,[83] while two speak directly to the question of maintaining the integrity of linked market systems:

> (1) The jurisdiction with which the state agency proposes to link has adopted program requirements for greenhouse gas reductions, including, but not limited to, requirements for offsets, that are equivalent to or stricter than those required by [California's climate laws].
>
> . . .
>
> (3) The proposed linkage provides for enforcement of applicable laws by the state agency or by the linking jurisdiction of program requirements that are equivalent to or stricter than those required by [California's climate laws].[84]

I refer to these requirements as the "stringency" and "enforceability" findings, respectively.[85]

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with regard to the link with Québec. Rather, my goal is to illustrate how the type of analysis conducted with respect to the link with Québec would likely fail to anticipate the kinds of risks Québec actually faced when linking with California. This is a generic risk that faces any carbon market regulator that seeks to impose high standards on its own market but wishes also to link with others.

81. CAL. GOV'T CODE § 12894(f) (West 2013).

82. *Id.* (requiring independent action from the Governor); *id.* at § 12894(a)(1) (requiring the attorney general to review any proposed link for consistency with all applicable laws); *id.* at § 12894(a)(2) (declaring that the purpose of these requirements is to establish oversight and assure transparency).

83. *Id.* at § 12894(f)(2) (requiring that the State of California be able to enforce its carbon market laws against regulated entities in both jurisdictions, to the maximum extent permissible under the state and federal constitutions); *id.* at § 12894(f)(4) (requiring that the link not expose the State of California to any significant liabilities if the link were to fail).

84. *Id.* at §§ 12894(f)(1), (3).

85. That the stringency standard sets a generic goal ("equivalent to or stricter than") and specifically references only one technical area (carbon offsets)

For the purposes of illustration, let us assume that ARB wishes to link its carbon market with that of State X, a hypothetical jurisdiction that shares both the common WCI carbon market design framework and California's overall environmental target of returning to 1990 emissions levels by the year 2020. State X has a similar history of legacy coal power imports and has recently amended its treatment of imported power exactly as California has done in reality. Assume further that California has retained a strict and unmodified prohibition on resource shuffling, which ARB views as essential to keeping the environmental integrity of the program intact.[86] Regardless of whether ARB failed to appreciate the impact of the leakage reforms in State X, was misled by State X policymakers, or wished to pursue the link despite the leakage risks it either identified independently or in consultation with State X, the agency has concluded that the prospective link meets California's legal standards. As a result, ARB notifies the governor's office that it intends to link with State X's carbon market. If the process unfolds as it did with respect to the link with Québec, will additional review identify the leakage risks that the agency missed in its initial assessment?

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raises some interesting questions about the backward-looking nature of carbon market institutions. The problematic experience with carbon offsets under the Clean Development Mechanism ("CDM") led to significant controversy among experts, policymakers, and civil society. Indeed, a significant quantity of these problematic instruments has been used to satisfy compliance with the European Union's Emissions Trading System, though regulators there have restricted this option for the post-2020 trading period. *See* Cullenward & Wara, *supra* note 2, at 1460. It is commendable that emissions trading systems established after the controversy over CDM offsets have paid more attention to the environmental integrity of these instruments. But in attempting to prevent the problems of the past, California policymakers did not fully anticipate the challenges they faced as a jurisdiction that is the only state in a regional electricity transmission grid to price greenhouse gas emissions. *See id.* One wonders whether the next generation of sub-national markets will instruct agencies to monitor both offsets and resource shuffling.

86. The example still holds if California had adopted a flexible approach to resource shuffling that contained the leakage impacts of resource shuffling. *See* discussion *supra* note 62.

A. *The Review Process*

Formally, the independent review process begins with the OAG's consideration of the proposed link. In practical terms, however, it is important to note that the OAG lacks in-house technical expertise on the design and operation of carbon markets; lawyers in the OAG will actually be reviewing the technical material ARB provides concerning the proposed link with State X. This will include a report from ARB summarizing its case for the four findings it needs the governor to make,[87] informed by a public notice-and-comment process about the prospective link.[88] Should the OAG find no problems in the administrative record or in ARB's summary thereof, the governor will next make an independent assessment of the issues. Accordingly, in discussing this hypothetical example, I begin with ARB's assessment of the situation and then discuss the OAG review. For simplicity, I assume that the governor will issue the necessary findings if there are no significant concerns expressed by either ARB or the OAG. In reality, the governor's role offers one final opportunity to revisit disputed issues.

1. The Stringency Requirement

In order to assess how the review process would apply the stringency requirement to State X, I begin with ARB's analysis of the prospective link with Québec. There, ARB evaluated the stringency requirement by looking at three aspects of its prospective partner's market. First, ARB compared the legally binding targets for greenhouse gas emissions. Second, ARB evaluated the role of the cap-and-trade program in meeting the overall emissions target. Finally, ARB discussed the rules and regula-

87. *See generally* DISCUSSION OF SECTION 12894 REQUIRED FINDINGS, *supra* note 33.

88. *See generally* CAL. AIR RES. BD., PROPOSED LINKAGE OF CALIFORNIA'S CAP-AND-TRADE PROGRAM WITH THE CANADIAN PROVINCE OF QUÉBEC'S CAP-AND-TRADE PROGRAM: GENERAL SUMMARY OF COMMENTS AND PRELIMINARY AGENCY RESPONSES (2013), *available at* http://www.arb.ca.gov /cc/capandtrade /linkage/summary-comments-prelim-response.pdf (issued February 21, 2013).

tions of its prospective linking partner, comparing these provisions with their parallel requirements in the California market.[89] I discuss each finding below in the context of the link with Québec and generalize a rule that might be applied to a prospective link with State X.

First, ARB concluded that the emissions reduction goal in Québec is equivalent to, or stricter than, that of California law. Specifically, Québec has set a goal of reducing emissions to 20% below its 1990 levels by the year 2020; in contrast, California law requires only that its emissions reach 1990 levels by the year 2020.[90] Thus, the comparison is made on the basis of a headline program target. Because State X shares the same target as California, it will satisfy this criterion.

Second, ARB concluded that Québec gives its carbon market a comparable role in meeting its overall emissions reduction target. Perhaps because this particular issue is relatively inconsequential, ARB did not explore the reasoning in great depth, but rather cited the common history and standard market design resulting from participation in the WCI.[91] Thus, participation in the WCI should be sufficient in the future. Because State X also participated in the WCI, it will satisfy this criterion.

Third, ARB provided a detailed comparison of the major market design provisions in California and Québec. This included parallel citations to each market's regulations on issues including verified emissions reporting, greenhouse gases regulated in the market, government control of the total number of allowances, regulated entities' use of compliance instruments, and the use of carbon offsets from outside each market's jurisdiction.[92] No generally applicable rule can be made here, as ARB's evaluation of Québec rests on technically complex details in both programs' respective regulations. Thus, whether State X will meet this standard cannot be anticipated in advance.

Despite this ambiguity, it is worth noting that, while the com-

89. *See* DISCUSSION OF SECTION 12894 REQUIRED FINDINGS, *supra* note 33, at 3-8.

90. *Id.* at 3.

91. *Id.* at 4.

92. *See id.* at 4-8.

parisons ARB made in the case of Québec include parallel citations to the relevant regulations, none of the issues—with the single exception of carbon offsets—receives more than a few sentences' worth of analysis. ARB's report is also silent on leakage and resource shuffling concerns. Presumably this reflects the significantly lower risks of resource shuffling in Québec, which obtains most of its electricity supplies from clean hydropower. As a result, one cannot anticipate how ARB would view leakage risks in the context of a prospective linking partner—or whether this issue is a priority for agency leaders at all. Even if its failure to address this issue was justified in this case, however, ARB's formalist approach to analyzing the risks associated with linking markets raises some important concerns. Carbon markets are financial markets, not traditional regulatory structures. By design, they are decentralized instruments. Failing to provide significant economic analysis of a prospective link at this stage is a major oversight, since both the OAG and governor's office are unlikely to have the ability or capacity to do any such work independently.

In its review of ARB's findings with respect to the link with Québec, the OAG provided little additional analysis. (Again, there is little a talented lawyer can add in the absence of deep technical experience with carbon market design and operation, nor is any reason to believe that Québec's market is less strict than California's.) The OAG agreed that ARB's report offered a "well considered and well supported comparison" of the Californian and Québécois markets.[93] But while the OAG expressed general agreement with ARB's findings, it did not simply defer to the agency. It conducted an independent review of the in-state administrative record, concluding that it was "not aware of any facts asserted or arguments made in public comments in response to the proposed ARB linking regulations that provide a basis for finding in the negative on any of the four required stat-

93. Letter from Christopher S Crook to Cliff Rechtschaffen, *supra* note 34, at 3. One minor exception was to note minor differences in the way the two programs handled invalidated carbon offsets, but ultimately the OAG rightly concluded that both programs were comparable in this respect. *Id.*

utory findings."[94]

Thus, should members of the public submit credible comments in ARB's administrative process concerning leakage in State X's program, the OAG review might exert additional pressure to investigate these claims in more detail before issuing positive findings, either at the agency level or in the formal OAG review process. This potentially provides an additional layer of protection, but only to the extent that the OAG can highlight areas where experts disagree. Fundamentally, the OAG is unlikely to be prepared to adjudicate these disputes in its review. Therefore, ARB is likely to have additional leeway to pursue a link that might, when viewed in a more neutral light, raise legitimate questions about the integrity of a prospective partner jurisdiction.

To recap how California would address the stringency requirement in the future, ARB is likely to continue to wield significant influence in the decision-making process over a prospective link with State X. Despite the involvement of other government offices, ARB is the only entity with the technical expertise necessary to address complex market issues like leakage. If lawyers at the OAG thoroughly review the administrative record, they are likely to uncover any major points of disagreement between agency staff and public stakeholders. But the OAG's ability to independently evaluate any disputes is limited due to the relative lack of technical expertise available within the OAG and reliance on public stakeholders to communicate their concerns about State X's regulatory shortcomings in ARB's administrative proceedings. This suggests that in the future, if ARB wants to link with State X and downplays the associated leakage risks, the opportunity for other parts of the state government to reach and express a different conclusion will be limited.

2. The Enforceability Requirement

As with the stringency requirement, I begin with ARB's analysis of the link with Québec to anticipate how it would view the link with State X. There, ARB reviewed the Québécois government's authority to impose penalties and the environmental reg-

94. *Id.* at 7.

ulator's option to refer specific instances of abuse for prosecution.[95] Citing the generally higher penalties and expansive options for injunctive relief in Québec, ARB concluded that its Canadian counterparts enjoy "superior" enforcement powers.[96] The OAG agreed that both systems have adequate enforcement powers, finding that both regulatory structures "contain provisions dealing with fraudulent and manipulative conduct."[97] Thus, both ARB and the OAG found that the enforceability requirement was readily satisfied.

Nevertheless, it is notable that both reports were limited to looking at basic enforcement powers and options for relief. No analysis was provided as to whether the foreign jurisdiction's existing powers could, in practice, be used to deter or penalize a market actor who appears to violate one of the core market rules. This distinction is critical in the case of California's resource shuffling amendments. Even after ARB adopted its safe harbor policy, it left in place the prohibition against resource shuffling.[98] But ARB modified the definition of resource shuffling to exclude a series of previously impermissible activities.[99] In turn, those exemptions are so broad that nearly any transaction could, with the proper legal advice, be structured to fit within them.[100]

As a result, there are two ways to look at ARB's final approach to resource shuffling. Formally, ARB maintains that it has a firm and enforceable prohibition against resource shuffling. Functionally, however, the safe harbors were structured to provide extremely generous and loosely worded exemptions, with several offering near-blanket permission to engage in activities that would otherwise be considered resource shuffling under the un-

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95. *See* DISCUSSION OF SECTION 12894 REQUIRED FINDINGS, *supra* note 33, at 9-11.

96. *Id.* at 10.

97. Letter from Christopher S Crook to Cliff Rechtschaffen, *supra* note 34, at 5.

98. *See* CAL. CODE REGS. tit. 17, § 95852(b)(2) (2014).

99. *See* CAL. CODE REGS. tit. 17, § 95802(a)(338).

100. See CAL. CODE REGS. tit. 17, § 95852(b)(2)(A). For explicit criticisms of the structure and breadth of the safe harbor exemptions, *see* Letter from Danny Cullenward to Cal. Air Res. Bd., *supra* note 52, at 3-5; Cullenward & Weiskopf, *supra* note 50, at 21-26.

modified definition of that activity. Thus, once State X had adopted a similar approach to resource shuffling, ARB and the OAG might be prone to mistake the apparent prohibitions as a strong enforcement policy if they adopt a formalist approach to the review. Only by analyzing the structure of these specific regulations in significant detail could an outsider appreciate their practical function.[101] Yet to go beyond a formal review requires deep technical expertise that the OAG is unlikely to have on staff.

Thus, future application of the enforceability standard is likely to focus on questions of jurisdiction and regulatory authority. To be fair, this is an area where independent review from the OAG draws on a core area of that office's expertise, suggesting that the state review process will deliver additional safeguards in this instance. Nevertheless, the practical operation of a linked market will have as much to do with the enforcement culture and actual practices in State X as it will the written statutes and regulations.

B. *Administrative Law to the Rescue?*

California law requires that ARB, the OAG, and the governor each make four independent findings that support linking the state carbon market with a new jurisdiction. Without suggesting that any of these findings were inappropriate in the case of the link with Québec, I argue that the analysis conducted for that process would have been unlikely to anticipate technically complex concerns like resource shuffling.

In theory, California's linking process provides additional checks and balances on ARB's authority to link with other jurisdictions' markets. But in practice, only ARB has the technical capacity to evaluate the full spectrum of risks in sufficient detail. In the hypothetical scenario where California considers a link to a jurisdiction with weaker leakage provisions, ARB might very

101. Again, I am not suggesting ARB or the OAG failed to do this with respect to Québec. The point is that we know there are market implementation problems, like leakage and resource shuffling, that are unlikely to be properly identified with even the most thorough formalist analysis of the legal provisions in each system.

well be more concerned with these issues and therefore more receptive to expert advice and public comments on these points. That receptivity would only be increased if the legal requirements for linking explicitly mandated an examination of leakage, raising the threat of resource shuffling (and other types of leakage) to the level of scrutiny carbon offset standards currently enjoy. But better linking standards are of limited use. If ARB fails to identify the leakage problem in State X, it is unlikely that others in the process will do a better job, due to the technical complexity involved. Similarly, if ARB wishes to underemphasize those risks in order to pursue other goals—like working with politically important partner jurisdictions or increasing the prominence of the agency's role in national or global climate policy—then there is little hope that others involved in the administrative process will have the necessary expertise to independently address these concerns.

For the same reasons, independent legal review from the OAG, although somewhat helpful, is unlikely to uncover issues not already raised in the administrative process. If the OAG takes responsibility for reviewing the public comments and agency responses in the administrative linking process, this could provide a modest procedural safeguard. Knowing that the OAG would flag any significant public comments for review might encourage ARB to address them more seriously. On the other hand, if there were any unresolved issues in the administrative record, it is not clear the OAG would be in the best position to evaluate whether the technical claims have any merit—particularly because any agency faced with public opposition to its preferred course of action would be careful to dispute these allegations in detail. Moreover, these kinds of concerns would only arise in the OAG review if they were articulated in ARB's administrative record in the first place. Thus, to the extent this procedural safeguard is helpful, it relies on the public notice-and-comment process in California to identify practical concerns about the function of State X's market operations. But this seems somewhat speculative. I have argued in this article that the administrative process was insufficient to identify and publicly discuss the leakage implications of a purely domestic regulatory reform. As a result, I am even more skeptical that the

same process can effectively be used to monitor the performance of outside jurisdictions.

Finally, it bears repeating that the legal process in California for reviewing prospective linking partners is a one-time affair. In this sense, it resembles due diligence in contractual negotiations. Done well, it is an important pre-requisite for establishing a collaborative partnership. But even the most careful initial review is no substitute for the development of clear standards for the mutual operation of linked markets, which must remain subject to public participation, transparent oversight, and the rule of law.[102]

VI.
CONCLUSIONS

Rather than demonstrate a successful model for sub-national climate policy harmonization, the link between carbon markets in California and Québec exemplifies the difficult legal and institutional challenges facing implementation of complex policy regimes. In my view, California's domestic carbon market reforms do not minimize leakage, directly contradicting an important statutory requirement. That ARB concluded otherwise, despite the well-documented opinion of its expert economic advisers to the contrary, raises questions about the ability of public interest stakeholders to use the notice-and-comment process to sustain the integrity of carbon markets.

In turn, California's regulatory shortcomings are all the more pressing in light of the simultaneous regulatory processes that produced the link with Québec. Under the Bilateral Agreement signed by the two governments, California must discuss the expected impacts of its domestic reforms with regulators in Québec. But if ARB properly disclosed the leakage implications of its

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102. *See generally* Danny Cullenward, *How California's Carbon Market Actually Works*, 70 BULL. OF ATOMIC SCIENTISTS 35 (2014), *available at* http://thebulletin.org/2014/september/how-californias-carbon-market-actually-works7589 (criticizing the California Air Resources Board for enacting its resource shuffling safe harbor reforms without seriously addressing the leakage risks documented in its administrative record, despite procedural and substantive legal standards that required a more significant analysis).

safe harbor policy on resource shuffling to its Canadian colleagues, this would demonstrate that its position in its own administrative record was less than truthful. Presumably ARB would not withhold critical information from its market partners. However, if ARB did not disclose any risks because it did not appreciate the leakage implications of its actions, this would illustrate the failure of market regulators to anticipate a well-publicized issue that speaks directly to the integrity of carbon markets as climate policy instruments.

California's experience also offers a cautionary lesson about its ability to avoid similar problems in future market links. When state policymakers apply their own strict standards for evaluating prospective links with other jurisdictions, it is not clear that they will be able to anticipate the kinds of leakage risks that followed Québec's decision to link with California. While California law provides some important safeguards prior to affecting a link, those safeguards rely primarily on oversight from lawyers and politicians, not environmental economists. Independent legal review may very well highlight technical disputes in state administrative records for further review, but the lawyers tasked with the review are not particularly well equipped to anticipate counterproductive economic outcomes. Requiring that the review process explicitly address leakage and resource shuffling would help avoid these problems in the future; yet if carbon markets are going to work, they must be able to anticipate new challenges, not merely avoid known pitfalls.

More generally, avoiding problems like leakage and resource shuffling requires ongoing review and oversight, not a single episode of administrative due diligence. Thus, a jurisdiction that cares about controlling leakage—a prerequisite for producing real benefits for the global climate—must go beyond a formal analysis of its prospective linking partner's laws by regularly reviewing regulators' informal guidance documents, formal regulations, and enforcement regimes as they are implemented in practice. Simply relying on the existence of official prohibitions against undesirable market behavior is no guarantee of an effective financial market.

Collectively, these problems suggest that linking sub-national carbon markets will be much harder than most proponents of

this strategy suggest. With every link, the administrative complexity of the system increases; as the complexity increases, so too does the burden of effective regulatory oversight. Even in the simple case of two markets with a common design and shared history, significant challenges remain. Expanding this system to include more linked partners will only increase the risks of unintended consequences—which, due to the mutual recognition of compliance instruments, would propagate throughout the entire linked market.