

# Reducing Greenhouse Gas Emissions from Vehicle Miles Traveled: Integrating the California Environmental Quality Act with the California Global Warming Solutions Act<sup>\*</sup>

Joanna D. Malaczynski<sup>+</sup>  
Timothy P. Duane<sup>++</sup>

*The California Global Warming Solutions Act of 2006 (AB 32) commits California to reduce its greenhouse gas (GHG) emissions to 1990 levels by 2020. The transportation sector is the top GHG emitter in California, contributing roughly 40 percent of all California emissions. Poor fuel efficiency and high vehicle miles traveled (VMT) are primary contributors to transportation sector GHG emissions. Meeting California's GHG emissions reduction goals requires reductions in both per-mile emissions and vehicle miles traveled. Fuel efficiency has been addressed historically by federal Corporate Average Fuel Economy (CAFE) standards, and California has passed its own legislation regulating GHG emissions from vehicles. Vehicle*

---

Copyright © 2009 by the Regents of the University of California.

<sup>\*</sup> The authors would like to acknowledge important feedback we have received on previous versions of this article from the members of the Donald Bren School of Environmental Science and Management faculty at the University of California, Santa Barbara; Professors Patrick Parenteau and Craig Pease and members of the L.L.M. Seminar at Vermont Law School; Rachel Katz and Connie Best at Pacific Forest Trust; Professor Daniel Press and other members of the Department of Environmental Studies faculty at the University of California, Santa Cruz; and Jennifer Martin and Christie Henke of Ecology Law Quarterly. All errors are the responsibility of the authors.

<sup>+</sup> M.L.A. Candidate, Department of Landscape Architecture and Environmental Planning, University of California, Berkeley; B.A. Economics, University of Michigan, 1999; J.D., University of Michigan Law School, 2001; Contact: joannadm@berkeley.edu; 202 Wurster Hall MC 2000, Berkeley, CA 94720-2000 or joannadm@yahoo.com.

<sup>++</sup> Associate Professor of Energy and Resources, City and Regional Planning, Landscape Architecture and Environmental Planning, University of California, Berkeley and Associate Professor of Law, Vermont Law School; A.B., Stanford University, 1982; M.S., Stanford University, 1983; Ph.D., Stanford University, 1989; J.D., University of California, Berkeley (Boalt Hall), 2006; Contact: duane@berkeley.edu; 202 Wurster Hall MC 2000, Berkeley, CA 94720-2000 or tduane@vermontlaw.edu.

*miles traveled, however, have historically not received legislative attention, and have been growing at a much faster rate than population or the economy. There is consequently a “VMT gap” in the current regulatory structure for GHG emissions reductions envisioned under AB 32. This Article addresses how AB 32’s developing market-based GHG emissions reduction policy, allowing for carbon offsets, could interact with implementation of the California Environmental Quality Act (CEQA) to support emissions reductions from transportation-related land use projects. Allowing carbon offsets for CEQA land use projects requires the California Air Resources Board (CARB) to acknowledge that the degree of GHG mitigation required for transportation-related land use projects is discretionary under the CEQA process; otherwise, CARB would face the legal conundrum of allowing industry to claim offset credits for mitigation considered compulsory under a separate legal statute. Carbon offsets for CEQA mitigation should be recognized as being additional to emissions reductions that would otherwise take place without offset investment dollars. This is because significant land use changes are necessary to meet California’s long-term GHG reduction goals and it should be a legal priority to facilitate these changes. This outcome would be most consistent with the existing CEQA regime and would increase incentives and funding available to implement GHG emissions reductions from land use-related projects. Further, we recommend that a regional transportation authority (also known as a Metropolitan Planning Organization or MPO)—the same agency charged with modeling the impacts of future development plans on GHG emissions under recent legislation designed to address vehicle miles traveled (under SB 375)—facilitate quality offset projects and coordinate offset investment dollars for CEQA mitigation. We argue that such a carbon offset program under AB 32 will prove to be more significant than SB 375 in addressing vehicle miles traveled by promoting increased investments in transportation-related land use projects.*

Introduction.....	73
I. The Role of Vehicle Miles Traveled in Greenhouse Gas Emissions.....	78
II. Land Use Regulation in California.....	82
III. AB 32—California Global Warming Solutions Act of 2006 .....	85
IV. Market-Based Mechanism for AB 32.....	87
A. Cap and Trade Structure .....	89
B. Experiences with Cap and Trade .....	90
C. Carbon Offsetting .....	93
1. Advantages of Offsets.....	95
2. Challenges of Offsets.....	96
V. Including Land Use and Transportation in AB 32.....	104
A. San Bernardino County Settlement.....	104
B. ConocoPhillips Settlement.....	108
C. Subsequent Litigation and Settlements .....	110

VI. Carbon Offsets for CEQA Greenhouse Gas Emission Mitigation Projects .....	112
A. Legal Additionality and Land Use Offsets .....	114
B. Policy Grounds for Allowing Additionality for CEQA Mitigation Projects.....	120
C. Legal Additionality and SB 375.....	122
VII. Structuring a Carbon Offsetting Framework for CEQA.....	122
A. Lessons from Wetlands Mitigation Banking .....	123
B. A Model Structure: The Kyoto Protocol CDM.....	125
C. Additionality Review under CEQA vs. Kyoto.....	128
VIII. Encouraging Offsets for Land Use Projects .....	130
Conclusion .....	133

## INTRODUCTION

The California Global Warming Solutions Act of 2006, also known as AB 32,<sup>1</sup> commits California to reduce its greenhouse gas (GHG) emissions to 1990 levels by 2020.<sup>2</sup> The transportation sector is the top GHG emitter in California, contributing roughly 40 percent of all California emissions.<sup>3</sup> Poor fuel efficiency<sup>4</sup> and high vehicle miles traveled (VMT) are primary contributors to transportation sector GHG emissions.<sup>5</sup> Meeting California's GHG emissions reduction goals therefore requires reductions in both per-mile GHG emissions and VMT. Fuel efficiency has been addressed historically by federal Corporate Average Fuel Economy (CAFE) standards,<sup>6</sup> and California has passed its own legislation regulating GHG emissions from vehicles.<sup>7</sup> Vehicle miles traveled, however, have historically not received legislative attention, and have been

---

1. CAL. HEALTH & SAFETY CODE §§ 38,500–38,599 (West 2008).

2. *Id.* § 38,550. Further, the Schwarzenegger administration set a target to reduce GHG emissions by 80 percent by 2050. Cal. Exec. Order No. S-3-05 (June 1, 2005), <http://gov.ca.gov/executive-order/1861/>.

3. CAL. AIR RES. BD., DRAFT CALIFORNIA GREENHOUSE GAS INVENTORY 1, 3 (Nov. 19, 2007), available at [http://www.arb.ca.gov/cc/inventory/data/tables/rpt\\_Inventory\\_IPCC\\_Sum\\_2007-11-19.pdf](http://www.arb.ca.gov/cc/inventory/data/tables/rpt_Inventory_IPCC_Sum_2007-11-19.pdf) (listing transportation emissions as 181 million metric tons of CO<sub>2</sub> equivalents out of 479.4 net California emissions included in inventory for 2004).

4. CAL. AIR RES. BD., TECHNICAL ASSESSMENT: COMPARISON OF GREENHOUSE GAS REDUCTIONS UNDER CAFE STANDARDS AND CARB REGULATIONS ADOPTED PURSUANT TO AB 1493 9 (2008) [hereinafter TECHNICAL ASSESSMENT] (estimating that 44 percent of vehicle emissions reductions can be achieved in California by 2020 from full planned implementation California's fuel economy policies).

5. DRAFT CALIFORNIA GREENHOUSE GAS INVENTORY, *supra* note 3, at 1 (listing road transportation emissions to be 171.506 million metric tons of CO<sub>2</sub> equivalents out of a total of 181 million metric tons of CO<sub>2</sub> equivalents in the transportation sector for 2004).

6. See Energy Policy and Conservation Act, 49 U.S.C. §§ 32,901–32,919 (2006).

7. See CAL. HEALTH & SAFETY CODE § 43,018.5.

growing at a much faster rate than population or the economy.<sup>8</sup> There is consequently a “VMT gap” in the current regulatory structure for GHG emissions reductions envisioned under AB 32.

The details of the execution of AB 32—including who will be regulated and how—have been left to the discretion of the California Air Resources Board (CARB or “the Board”),<sup>9</sup> which developed its Scoping Plan in 2008<sup>10</sup> and must have an effective regulatory scheme in place by 2012.<sup>11</sup> In the interim, CARB and other regulators have issued both recommendations and mandates foreshadowing how AB 32 implementation may address the role of vehicle miles traveled.<sup>12</sup>

Three recent developments have particularly shaped the future of emissions policy with respect to vehicle miles traveled: (1) consideration of GHG emissions under the California Environmental Quality Act of 1970 (CEQA),<sup>13</sup> (2) SB 375;<sup>14</sup> and (3) CARB’s Scoping Plan for AB 32.<sup>15</sup> First, a series of actions initiated by the California Attorney General’s Office were settled in 2007 that establish the important precedent that land use planning and

8. CAL. ENERGY COMM’N, THE ROLE OF LAND USE IN MEETING CALIFORNIA’S ENERGY AND CLIMATE CHANGE GOALS: FINAL STAFF REPORT 9 (2007) (citing CAL. DEP’T OF FIN., RACE/ETHNIC POPULATION WITH AGE AND SEX DETAIL, 1970–2004 (1998); U.S. FED. HIGHWAY AUTH., HIGHWAY STATISTICS 1975–2004 (2005)).

9. CAL. HEALTH & SAFETY CODE § 38510.

10. See California Air Resources Board, AB 32 Scoping Plan Background, <http://www.arb.ca.gov/cc/scopingplan/scopingplan.htm> (last visited Feb. 18, 2009).

11. CAL. HEALTH & SAFETY CODE § 38,562(c).

12. See, e.g., CAL. AIR RES. BD., CLIMATE CHANGE DRAFT SCOPING PLAN DISCUSSION DRAFT (2008), available at <http://www.arb.ca.gov/cc/scopingplan/document/draftscopingplan.pdf> [hereinafter DRAFT SCOPING PLAN] and CAL. AIR RES. BD., CLIMATE CHANGE DRAFT SCOPING PLAN DISCUSSION DRAFT APPENDICES (2008), available at <http://www.arb.ca.gov/cc/scopingplan/document/draftscopingplanappendices.pdf>. See also CAL. AIR RES. BD., ATTACHMENT A: REGULATION FOR THE MANDATORY REPORTING OF GREENHOUSE GAS EMISSIONS (SECOND 15-DAY MODIFIED REGULATORY LANGUAGE FOR PUBLIC COMMENT) (June 30, 2008), available at <http://www.arb.ca.gov/regact/2007/ghg2007/ghgattachment1.pdf>; GOVERNOR’S OFFICE OF PLANNING & RESEARCH, CEQA AND CLIMATE CHANGE: ADDRESSING CLIMATE CHANGE THROUGH CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA) REVIEW (2008); Settlement Agreement, State v. San Bernardino County, No. CIVSS 700329 (San Bernardino County Super. Ct., Aug. 28, 2007), available at [http://ag.ca.gov/cms\\_pdfs/press/2007-08-21\\_San\\_Bernardino\\_settlement\\_agreement.pdf](http://ag.ca.gov/cms_pdfs/press/2007-08-21_San_Bernardino_settlement_agreement.pdf) (dealing with reducing GHG emissions from diesel trucks); ConocoPhillips and California Attorney General Settlement Agreement, Sept. 10, 2007, [http://ag.ca.gov/cms\\_pdfs/press/N1466\\_CoCoSettlementAgreement.pdf](http://ag.ca.gov/cms_pdfs/press/N1466_CoCoSettlementAgreement.pdf) [hereinafter ConocoPhillips Settlement] (addressing mitigation efforts for emissions from a new refinery).

13. CAL. PUB. RES. CODE § 21,000–21,177 (West 2008).

14. S. 375, Gen. Assem., 2007–2008 Reg. Sess. (Cal. 2008) (to be codified in scattered sections of the CAL. GOV’T CODE and at CAL. PUB. RES. CODE § 21,155).

15. CAL. AIR RES. BD., CLIMATE CHANGE PROPOSED SCOPING PLAN: A FRAMEWORK FOR CHANGE (2008) [hereinafter SCOPING PLAN] and APPENDICES A–J, VOLUMES I–III (2008), available at <http://www.arb.ca.gov/cc/scopingplan/document/scopingplandocument.htm>. Both the Scoping Plan and Appendices were approved in December 2008. California Air Resources Board Resolution 08-47 (December 11, 2008), available at [http://www.arb.ca.gov/cc/scopingplan/document/final\\_sp\\_resolution.pdf](http://www.arb.ca.gov/cc/scopingplan/document/final_sp_resolution.pdf).

development projects under CEQA require mitigation of GHG emissions.<sup>16</sup> However, the extent of mitigation required under CEQA is yet unknown,<sup>17</sup> and cities, counties and other local agencies are currently examining potential best practices for emissions mitigation from land use.<sup>18</sup> In addition, the State Legislature tasked the California Governor's Office of Planning and Research (OPR) to issue final guidelines on the matter by January 2010, after adoption and certification of these guidelines by CARB.<sup>19</sup> This interim time period is therefore critical for establishing the role of land use in GHG emissions reduction measures.

Secondly, the California Legislature recently acknowledged the critical role of land use and transportation planning in the state's climate change efforts with the passage of SB 375, a regional transportation and land use planning statute intended to curb vehicle miles traveled. In the preamble of SB 375, the legislature stated that "[w]ithout improved land use and transportation policy, California will not be able to achieve the goals of AB 32."<sup>20</sup> However, the complex SB 375 legislation, which has been widely touted as the key to linking GHG emissions reductions to land use and transportation planning, does not require any mandatory changes in land use or transportation investment to achieve the GHG reduction goals of AB 32. As Governor Schwarzenegger noted in his signing statement, SB 375 "approaches the task with incentives rather than top-down regulatory mandates."<sup>21</sup>

Moreover, despite the incentives offered under SB 375, public agencies will continue to struggle to finance and execute mass transit and other VMT-reducing, transportation-related land use projects.<sup>22</sup> This is because SB 375

---

16. See, e.g., Settlement Agreement, *State v. San Bernardino County*, *supra* note 12; ConocoPhillips Settlement, *supra* note 12.

17. The exception is the strict set of criteria for projects under SB 375, as discussed further below.

18. See, e.g., Ellen Hanak, Lousie Bedsworth, Sarah Swanbeck & Joanna Malaczynski, *Climate Policy at the Local Level: A Survey of California's Cities and Counties*, 2008 PUB. POL'Y INST. OF CAL. 31-32, 37, available at <http://www.ppic.org/main/publication.asp?i=849> (a survey of California local governments finding, in part, that local governments need and are looking for greater state guidance on appropriate land use policies to address climate change).

19. CAL. PUB. RES. CODE § 21,083.05 (West 2008).

20. S. 375, § 1(c), Gen. Assem., 2007-2008 Reg. Sess. (Cal. 2008) (to be codified in scattered sections of the CAL. GOV'T CODE and at CAL. PUB. RES. CODE § 21,155).

21. Arnold Schwarzenegger, Signing Statement for SB 375 (Sept. 30, 2008), [http://gov.ca.gov/pdf/press/SB375\\_Steinberg\\_Signing\\_Message.pdf](http://gov.ca.gov/pdf/press/SB375_Steinberg_Signing_Message.pdf).

22. According to a 2008 nationwide survey of transportation agencies, 90 percent are having financial difficulties expanding service to meet their rising ridership demand. AM. PUB. TRANSP. ASS'N, RISING FUEL COSTS: IMPACTS ON TRANSIT RIDERSHIP AND AGENCY OPERATIONS: SURVEY RESULTS 6 (2008), [http://www.apta.com/research/info/online/documents/fuel\\_survey\\_0809.pdf](http://www.apta.com/research/info/online/documents/fuel_survey_0809.pdf). See also League of California Cities, *Bill for More Infill, Transit Oriented Development, Railroad Grade Crossings and County Roads Goes to Governor*, June 27, 2008, <http://www.cacities.org/index.jsp?zone=locc&previewStory=27310> (stating that the volume of grant applications from local governments for transit oriented development projects and infill infrastructure exceeded available state funding by fourfold during the 2007-08 fiscal year).

does not generate any *new* funding for transportation-related land use projects in California.

Finally, CARB has not given significant attention to vehicle miles traveled in its emissions reductions framework under AB 32. CARB announced in its October 2008 Scoping Plan that less than 3 percent of its emissions reductions goals will be allotted to regional transportation/land use planning.<sup>23</sup> Transportation-related land use projects are also likely to remain outside the direct regulation of CARB under AB 32 as local governments guard their control over such land use regulations. CARB has instead focused its attention on reducing emissions from stationary sources of pollution, which are anticipated to meet 85 percent of its emissions reduction goals by 2020.<sup>24</sup> CARB will set a cap on emissions from these sources, and sources will be allowed to trade emission permits amongst each other to meet the targets in a regional cap-and-trade market.<sup>25</sup>

AB 32 can still serve as a powerful medium to change land use and transportation patterns, however, even without direct regulation from CARB, and in addition to what is offered by SB 375 and existing CEQA policy. This is made possible by CARB's anticipated carbon offset market, which we expect to flourish as a result of CARB's decision to allow the trading of carbon permits for polluters subject to AB 32 regulation.<sup>26</sup> CARB plans to allow 49 percent of all capped emissions reductions to potentially come from carbon offsets, representing approximately 40 percent of California's emissions reduction targets for 2020.<sup>27</sup>

This Article directly addresses how AB 32's developing market-based GHG emissions reduction policy could interact with CEQA to support emissions reductions from transportation-related land use projects. We believe that a carbon offset program under AB 32 may prove to be more significant than SB 375 in addressing vehicle miles traveled.<sup>28</sup>

---

23. CARB's SCOPING PLAN sets a GHG reduction target of only five million tons for transportation. SCOPING PLAN, *supra* note 15, at ES-5. This is an increase from the two million ton target set in a previous draft. *Id.* According to Fulton et al., land use changes are expected to account for eighteen million tons (12 percent) of the GHG emissions reductions necessary to achieve the AB 32 goals. WILLIAM FULTON, JESS DANIELS, & AARON ENGSTROM, WHITE PAPER: INTEGRATING LAND USE INTO A MARKET-BASED IMPLEMENTATION SYSTEM FOR AB 32 ii (2008).

24. SCOPING PLAN, *supra* note 15, at 32.

25. *Id.* at 16, 21, 32.

26. *Id.* at 30.

27. *Id.* at 37.

28. The importance of relying on non-SB 375 measures to achieve VMT and GHG reductions through transportation-related land use changes is recognized in CARB's SCOPING PLAN under AB 32, which establishes a target GHG reduction of five million metric tons of CO<sub>2</sub> equivalent (MMTCO<sub>2</sub>e) from the land use sector—but assumes that none of those reductions will be due to SB 375 itself. SCOPING PLAN, *supra* note 15, at 17 n.16. Also, comments by CARB Chair Mary Nichols and CARB General Counsel Ellen Peter at the annual Environmental Law Conference at Yosemite of the California State Bar in October 2008 confirm that no SB 375-related GHG reductions are included in the Scoping Plan's "target" of five million tons of GHG reductions from land use changes. Mary D. Nichols, Chair,

Carbon offsets are defined in CARB's Scoping Plan as emissions reductions from programs that are outside the scope of CARB's direct regulation and not as a result of government incentives,<sup>29</sup> such as SB 375. We argue that emitters regulated under AB 32 should be allowed to receive offset emissions credits in return for investments in transportation-related land use mitigation projects required by CEQA. Allowing offset investment dollars to flow into CEQA mitigation would significantly expand the emissions reduction potential of transportation-related land use projects. This would especially be the case for projects designed to lower VMT.

Allowing carbon offsets for CEQA land use projects requires CARB to acknowledge that the degree of GHG mitigation required for transportation-related land use projects is discretionary under the CEQA process; otherwise, CARB would face the legal conundrum of allowing industry to claim offset credits for mitigation considered compulsory under a separate legal statute. Carbon offsets for CEQA mitigation should be recognized as being additional (within established confines explained more fully below) to emissions reductions that would otherwise take place without offset investment dollars. This outcome would be most consistent with the existing CEQA regime, and would increase incentives and funding available to implement GHG emissions reductions from land use-related projects. Further, we recommend that a regional transportation authority (also known as a Metropolitan Planning Organization or MPO)—the same agency charged with modeling the impacts of future development plans on GHG emissions under SB 375 and allocating state and federal transportation funds—act as a facilitator to identify quality offset projects and coordinate offset investment dollars for CEQA mitigation. This same agency would advise in the emissions mitigation process under CEQA.

Participation of an MPO in this process is critical for several reasons. The MPO is best prepared to coordinate transportation-related land use planning and emissions mitigation because such projects generally cross jurisdictional boundaries.<sup>30</sup> In addition, by coordinating offset investment dollars from a variety of sources, an MPO would be able to coordinate transportation-related land use projects more effectively, which are frequently large-scale and require significant financial resources to be successful in the long run. Moreover, an MPO could be a gatekeeper of quality emissions reductions projects and increase certainty regarding the additionality and financial value of carbon offset credits in a statewide cap-and-trade system.

---

California Resources Board, Keynote Remarks at the Environmental Law Conference at Yosemite (Oct. 18, 2008); Ellen Peter, CARB, Panel Comments at the Environmental Law Conference at Yosemite (Oct. 17, 2008).

29. SCOPING PLAN, *supra* note 15, at 68–69.

30. TERRY MOORE, PAUL THORSNES & BRUCE APPELYARD, THE TRANSPORTATION/LAND USE CONNECTION 220 (2007).

The details of our proposed CEQA/AB 32 mechanism, as well as the existing institutional experiences and structures in support of this mechanism, are set forth in the parts below. Part I discusses the role of vehicle miles traveled in GHG emissions. Part II outlines CEQA, which regulates land use decisions by state and local governments in California. Part III introduces the California Global Warming Solutions Act of 2006 (AB 32). Part IV discusses the likely role of market-based mechanisms under AB 32, including cap-and-trade theory, experiences with cap-and-trade, and carbon offsets. Part V covers recent initiatives to link land use and transportation to AB 32. Part VI proposes that carbon offsets under AB 32 be available for CEQA GHG emissions projects, including both the legal grounds and policy reasons for allowing CEQA mitigation projects to qualify for carbon offsets. Part VII proposes a methodology for structuring a carbon offset framework for CEQA. We conclude by discussing how to encourage offsets for land use projects as well as how to ensure that they yield genuine reductions in GHG emissions.

#### I. THE ROLE OF VEHICLE MILES TRAVELED IN GREENHOUSE GAS EMISSIONS

The transportation industry is the largest GHG emitter in California. It accounts for 41 percent of all emissions in the state.<sup>31</sup> Of this, the majority of emissions occur from a combination of cars, sport utility vehicles (SUVs), vans, and light and medium duty trucks.<sup>32</sup> CARB estimates that every two hundred thousand passenger cars produce one million metric tons of carbon dioxide per year.<sup>33</sup>

Greenhouse gas emissions from transportation result from a multiplicative combination of vehicle emissions per mile and vehicle miles traveled. Vehicle emissions per mile are determined both by the combustion efficiency of the vehicle (which is highly correlated with its fuel efficiency),<sup>34</sup> as well as the GHG intensity of its fuel source. In California, the Pavley Bill (AB 1493,

---

31. CAL. ENVTL. PROTECTION AGENCY, CLIMATE ACTION TEAM REPORT TO GOVERNOR SCHWARZENEGGER AND THE LEGISLATURE 10 (2006). CARB estimates this figure to be 38 percent, up from 35 percent in 1990. Press Release, Cal. Air Res. Bd., Air Board Passes Two Major Building Blocks in State's Effort to Fight Global Warming (Dec. 6, 2007), <http://www.arb.ca.gov/lispub/rss/displaypost.php?pno=944>.

32. ECON. & TECH. ADVANCEMENT ADVISORY COMM., FINAL REPORT: TECHNOLOGIES AND POLICIES TO CONSIDER FOR REDUCING GREENHOUSE GAS EMISSIONS IN CALIFORNIA 3-1 (2008), <http://www.arb.ca.gov/cc/etaac/ETAACFinalReport2-11-08.pdf> (citing 2004 CARB INVENTORY OF GREENHOUSE GAS EMISSIONS BY TRANSPORTATION MODE).

33. Press Release, *supra* note 31.

34. Technical Assessment, *supra* note 4, at 9 (estimating that full implementation of the Pavley Bill, which regulates vehicle emission rates, can reduce new vehicle emissions 44 percent by 2020). Note that fuel efficiency is not the only determinant of emission rates, however; California has emphasized that a range of technological interventions can reduce GHG emissions that are not directly correlated with fuel economy, such as addressing evaporative emissions when fueling. *See* Green Mountain Chrysler Plymouth Dodge Jeep v. Crombie, 508 F. Supp. 2d 295, 375 (D. Vt. 2007); Central Valley Chrysler-Jeep, Inc. v. Goldstene, 529 F. Supp. 2d 1151 (E.D. Cal. 2007).

passed into law in 2002)<sup>35</sup> regulates the GHG emission rates of vehicles sold in California and therefore indirectly regulates automobile fuel efficiency.<sup>36</sup> California is also addressing the greenhouse gas emission intensity of fuel sources.<sup>37</sup> Vehicle miles traveled, however, are not directly subject to either state or federal regulation.<sup>38</sup> This Article addresses the potential to reduce

---

35. CAL. HEALTH & SAFETY CODE § 43,018.5 (West 2008).

36. The implementation of AB 1493 has become the subject of national litigation because EPA initially delayed, and ultimately denied, California the right to enforce higher fuel economy standards than those set by EPA. *See* 73 Fed. Reg. 12,156 (Mar. 8, 2008). Litigants challenging AB 1493 implementation (including adoption of the CARB standards by other states under section 209 of the Clean Air Act) argued that the CARB standard is effectively a fuel economy standard that is preempted by the CAFE standards established under the federal Energy Policy Conservation Act of 1975, Pub. L. No. 94-163, 89 Stat. 871 (1975) (current version at 49 U.S.C. §§ 32,901–32,919 (2006)). The claim that the CAFE standards preclude EPA from regulating greenhouse gases under the Clean Air Act was rejected by the U.S. Supreme Court in April 2007. *Massachusetts v. EPA*, 549 U.S. 497, 531–32 (2007). The narrower issue of whether implementation of California's AB 1493 regulations under section 209 of the Clean Air Act would be preempted by the CAFE standards was also rejected by both the Federal District Court of Vermont in *Green Mountain Chrysler v. Crombie*, 508 F. Supp. 2d 295, 398 (D. Vt. 2007), and the Federal District Court for the Eastern District of California in *Central Valley Chrysler-Jeep v. Goldstene*, 529 F. Supp. 2d 1151, 1173 (E.D. Cal. 2007). However, these cases were decided before the adoption of the Energy Independence and Security Act of 2007, Pub. L. No. 110-140, 121 Stat. 1492 (codified as amended at 42 U.S.C. and 49 U.S.C.), which establishes new CAFE standards. EPA Administrator Stephen Johnson claimed in his official letter rejecting California's request for a waiver under section 209 of the Clean Air Act that he did not rely on this legislative change in the CAFE standards in making his decision. 73 Fed. Reg. 12,156 (Mar. 8, 2008). However, he previously linked his denial of California's request to these new federal fuel economy standards in his statements announcing the denial in December 2007. Press Release, EPA, America Receives a National Solution for Vehicle Greenhouse Gas Emissions (Dec. 19, 2007), available at <http://yosemite.epa.gov/opa/admpress.nsf/eebfaebc1afd883d85257355005afd19/41b4663d8d3807c5852573b6008141e5!OpenDocument> (stating that the national fuel economy standards will more effectively address global warming than individual state efforts). *See also* Zachary Coile, Bob Egelko & Matthew Yi, *EPA Blocks California Bid to Limit Greenhouse Gases From Cars*, S.F. CHRON., Dec. 20, 2007, at A1, available at <http://www.sfgate.com/cgi-bin/article.cgi?file=/c/a/2007/12/20/MN55U1JD6.DTL> (quoting Johnson saying the new standards make state laws unnecessary). President Obama has since directed the EPA Administrator to review its denial of the California request for a section 209 waiver to implement the AB 1493 regulations, which were first adopted by CARB on September 24, 2004. Memorandum from President Barack Obama to the Administrator of the Environmental Protection Agency, January 26, 2009, available at [http://www.whitehouse.gov/the\\_press\\_office/Presidential\\_Memorandum\\_EPA\\_Waiver](http://www.whitehouse.gov/the_press_office/Presidential_Memorandum_EPA_Waiver).

37. *See* Cal. Exec. Order No. S-01-07 (Jan. 18, 2007), <http://gov.ca.gov/index.php?/executive-order/5172> (calling for a reduction in fuel carbon intensity of 10 percent by 2020, and adoption of a low carbon fuel standard). A low carbon fuel standard is also one of the Discrete Early Action Measures identified by CARB to be implemented by January 1, 2010, pursuant to AB 32, CAL HEALTH & SAFETY CODE § 38,560.5. CAL. AIR RES. BD., EXPANDED LIST OF EARLY ACTION MEASURES TO REDUCE GREENHOUSE GAS EMISSIONS IN CALIFORNIA RECOMMENDED FOR BOARD CONSIDERATION 11 (2007), available at [http://www.arb.ca.gov/cc/cea/meetings/ea\\_final\\_report.pdf](http://www.arb.ca.gov/cc/cea/meetings/ea_final_report.pdf). California has also prepared an alternative fuels plan pursuant to AB 1007. *See* CAL. AIR RES. BD. & CAL. ENERGY COMM'N, STATE ALTERNATIVE FUELS PLAN (2007).

38. SB 375 (discussed *infra* notes 67–72 and accompanying text discussing how the bill affects VMT) is likely to promote patterns of development and transportation system investment that will reduce VMT, but it is unclear how successful it will be. *See generally* S. 375, Gen. Assem., 2007–2008 Reg. Sess. (Cal. 2008) (to be codified in scattered sections of the CAL. GOV'T CODE and at CAL. PUB. RES. CODE § 21,155).

vehicle miles traveled through the complementary strategy of creating an offset market for transportation-related land use projects. Such an approach will make it more likely that SB 375's promise will be met.

California must reduce its annual GHG emissions by 169 million metric tons of carbon dioxide from the "business as usual" scenario to meet its emissions targets for 2020.<sup>39</sup> This is approximately the equivalent of removing 33.8 million cars from the road<sup>40</sup> (nearly one car for every Californian).<sup>41</sup> Alongside this current challenge, vehicle miles traveled are increasing at a rate of 3 percent annually in California, outpacing population growth rate for the state by nearly 50 percent.<sup>42</sup> Moreover, a recent study reports that the rising rate of vehicle miles traveled nationwide will eclipse legislative efforts to reduce corporate average fuel economy and fuel carbon content standards; vehicle miles traveled nationally are projected to rise to 160 percent of 2005 levels by 2030.<sup>43</sup>

Vehicle miles traveled are strongly driven by land use practices. Therefore, better local and regional land use decisions could significantly decrease emissions from the transportation sector.<sup>44</sup> Land use strongly influences transportation choices, including how far, how frequently, and by which mode we travel.<sup>45</sup> Several interrelated factors influence driving behavior—relative proximity to urbanized areas, density, mixed-use buildings, access to alternative transit infrastructure, the scale of landscape and building

---

39. DRAFT SCOPING PLAN, *supra* note 12, at 11.

40. This is derived from the CARB estimate that two hundred thousand cars produce one million metric tons of CO<sub>2</sub> per year. Press Release, *supra* note 31. Thus, 169 million metric tons is comparable to 33.8 million cars.

41. California's population in 2006 was approximately 36.5 million. U.S. Census Bureau, State and County QuickFacts: California, <http://quickfacts.census.gov/qfd/states/06000.html> (last visited Nov. 28, 2008).

42. CAL. ENERGY COMM'N, *supra* note 8, at 9 (citing STATE OF CALIFORNIA, DEP'T OF FINANCE, RACE/ETHNIC POPULATION WITH AGE AND SEX DETAIL, 1970–2004 (1998) and U.S. GOV'T, FED. HIGHWAY AUTH., HIGHWAY STATISTICS 1975–2004 (2005)).

43. REID EWING ET AL., GROWING COOLER: THE EVIDENCE ON URBAN DEVELOPMENT AND CLIMATE CHANGE 13 (2007), <http://sgusa.convio.net/site/DocServer/GrowingCooler9-18-07small.pdf?docID=4061>.

44. A nationwide report states that modest land use changes (building new developments at thirteen dwelling units per acre and increasing existing density to nine dwelling units per acre, from a current average density of 7.6 units per acre) could reduce vehicle miles traveled by 30 percent nationwide, leading to a 7 to 10 percent reduction in total U.S. transportation-related carbon dioxide emissions. *Id.* at 19, 21.

45. According to the National Household Travel Survey, 87 percent of daily trips are made by personal vehicle. Forty-five percent of trips are made for personal reasons such as errands, 27 percent for recreational purposes, and 15 percent for work commutes. BUREAU OF TRANSP. STATISTICS, U.S. DEP'T OF TRANSP., HIGHLIGHTS OF THE NATIONAL HOUSEHOLD TRAVEL SURVEY 2 (2003), *available at* [http://www.bts.gov/publications/highlights\\_of\\_the\\_2001\\_national\\_household\\_travel\\_survey/pdf/entire.pdf](http://www.bts.gov/publications/highlights_of_the_2001_national_household_travel_survey/pdf/entire.pdf).

elements, as well as the nature of the landscape and building design.<sup>46</sup> Addressing these factors together can lead to significant reductions in VMT.

The California Energy Commission acknowledged in a recent report that density and accessibility to job centers are significant drivers of automobile use.<sup>47</sup> Dispersed, lower-density, and homogeneous land use patterns encourage longer and more frequent car trips.<sup>48</sup> Such land use patterns create distances from point to point that are frequently out of the pedestrian's reach.<sup>49</sup> On the other hand, higher density, mixed-use communities allow pedestrians to reach a greater diversity of places without a vehicle.<sup>50</sup> Such communities encourage walking, biking, and make public transportation affordable and convenient.<sup>51</sup>

Higher density, mixed-use communities therefore appear to make mass transit infrastructure more financially feasible by increasing the number of potential riders within walking distance of a transit stop. Convenience is not the only factor connecting density and the effectiveness of public transit. Higher density generally correlates with higher transit ridership,<sup>52</sup> likely because it allows for more frequent service at lower cost, which increases the viability of public transit as a modal choice.

Further, having an accessible mass transit system in a given area discourages individuals from using automobiles. According to a study by the San Francisco Bay Area Metropolitan Transportation Commission, people living a half a mile or less from a rail or ferry station were four times as likely

---

46. Interview with Elizabeth Deakin, Professor of City and Regional Planning, U.C. Berkeley, in Berkeley, Cal. (Feb. 8, 2008). See also ELIZABETH DEAKIN, SUSTAINABLE DEVELOPMENT & SUSTAINABLE TRANSPORTATION: STRATEGIES FOR ECONOMIC PROSPERITY, ENVIRONMENTAL QUALITY, & EQUITY, U.C. BERKELEY INST. OF URBAN & REG'L DEV. 8 (identifying compact development, mixed use development, higher development densities, and transit, pedestrian, bike friendly development land use strategies to manage demand for transportation).

47. CAL. ENERGY COMM'N, *supra* note 8, at 4 (stating that "increasing a community or development's density and accessibility to job centers are the two most strongly correlated factors for reducing vehicle miles traveled through design").

48. Todd Litman, *Land Use Impacts on Transport*, Victoria Transport Policy Institute, at 13 (November 5, 2008), available at <http://www.vtpi.org/landtravel.pdf> (summarizing various literature on trip generation and trip length from land use).

49. A quarter-mile radius is considered within a pedestrian's reach. REID EWING, SMART GROWTH NETWORK, PEDESTRIAN- AND TRANSIT-FRIENDLY DESIGN: A PRIMER FOR SMART GROWTH 5 (1999), available at [http://www.epa.gov/dced/pdf/ptfd\\_primer.pdf](http://www.epa.gov/dced/pdf/ptfd_primer.pdf).

50. Robert Cervero suggests that the "3-Ds"—density, diversity, and design—are most conducive to increasing transit usage. See ROBERT CERVERO, THE TRANSIT METROPOLIS: A GLOBAL INQUIRY 72 (1998). As discussed above, increased density alone is insufficient to shift mode choice, despite a strong statistical correlation between density and transit usage. See generally PETER NEWMAN & JEFFREY KENWORTHY, SUSTAINABILITY AND CITIES: OVERCOMING AUTOMOBILE DEPENDENCE (1999) (discussing the relationship between density and modal choice). Price incentives (e.g., through high gasoline taxes, parking fees, and subsidized transit) also play an important role, while finer-grained urban design features can make transit use more attractive. See *id.*

51. Litman, *supra* note 48, at 13.

52. See ROBERT A. JOHNSTON & RAJU CEERLA, UNIV. OF CAL. TRANSP. CENTER, EFFECTS OF LAND USE INTENSIFICATION AND AUTO PRICING POLICIES ON REGIONAL TRAVEL, EMISSIONS, AND FUEL USE 6–10 (1995), available at <http://www.uctc.net/papers/269.pdf>.

to use it than all others, and ten times as likely to use public transit if they were also working within a half mile of public transit.<sup>53</sup> Moreover, these individuals were twice as likely to walk for short trips (up to one mile) than all others.<sup>54</sup> And a comprehensive mass transit system uses significantly less energy than an automobile-dependent system.<sup>55</sup>

Building and landscape design can also encourage walkability, bike riding, and mass transit. Walkability, for example, requires creating a human-scale environment with pathways, landscape, and indoor-outdoor interface that is pleasing, safe, and convenient for pedestrian use.<sup>56</sup> Similarly, an appropriate environment can also be created for biking.<sup>57</sup>

The creation of high-density, mixed-use, pedestrian and bike-friendly communities with mass transit infrastructure is a matter of land use policy. All of these factors influence vehicle miles traveled, and therefore land use policy is an important conduit for reducing vehicle miles traveled and resulting GHG emissions.

## II. LAND USE REGULATION IN CALIFORNIA

Land use decisions made by California state and local government officials are subject to the regulatory regime of the California Environmental Quality Act.<sup>58</sup> CEQA affects private developers and public agencies that wish to make a significant impact on the landscape, whether through new construction, long-term development plans, or other means. Although it directly regulates public agencies only, CEQA's reach extends to the conduct of private parties who seek public approval or funding, or require any sort of public agency participation in a given project.<sup>59</sup> The majority of land use changes must be reviewed by the municipality or county in which they take place, and therefore must conform to CEQA.<sup>60</sup>

---

53. METROPOLITAN TRANSPORTATION COMMISSION, CHARACTERISTICS OF RAIL AND FERRY STATION AREA RESIDENTS IN THE SAN FRANCISCO BAY AREA: EVIDENCE FROM THE 2000 BAY AREA TRAVEL SURVEY, VOLUME I 1 (2006), available at [http://www.mtc.ca.gov/planning/smart\\_growth/stars/Executive\\_Summary\\_BATS2000\\_Station\\_Area\\_Residents\\_Study.pdf](http://www.mtc.ca.gov/planning/smart_growth/stars/Executive_Summary_BATS2000_Station_Area_Residents_Study.pdf).

54. *Id.* at 2.

55. Lyndsey Layton, *Study Lists Mass Transit Benefits: A Trip Uses Half the Fuel of One in Private Car, Industry Reports*, WASH. POST, July 17, 2002, at B05, available at <http://www.washingtonpost.com/ac2/wp-dyn?pagename=article&node=&contentId=A16228-2002Jul16&notFound=true>.

56. See generally MARIELA ALFONZO ET AL., THE RELATIONSHIP OF NEIGHBORHOOD BUILT ENVIRONMENT FEATURES AND WALKING (2006), available at <http://www.uctc.net/papers/782.pdf>.

57. For an example of bike-friendly design, see City of Portland Office of Transportation, Bicycle Master Plan, (adopted May 1, 1996), available at <http://www.portlandonline.com/transportation/index.cfm?c=34812&a=71843>.

58. CAL. PUB. RES. CODE § 21000–21177 (West 2008).

59. Guidelines for Implementation of the California Environmental Quality Act, CAL CODE REGS. tit 14, § 15002(c) (2008); see also *Friends of Mammoth v. Bd. of Supervisors*, 8 Cal. 3d 247 (1972).

60. See Hanak, Bedsworth, Swanbeck & Malaczynski, *supra* note 18, at 4 (noting that land use is a “quintessential area of local government authority” and that local governments engage in CEQA

CEQA requires that an Environmental Impact Report (EIR) be created for proposed land use changes and development projects that could have significant adverse effects on the environment.<sup>61</sup> An EIR is created by or on behalf of the controlling public agency (generally a city or county), known as the lead agency.<sup>62</sup> The lead agency is required to document significant adverse impacts on the environment of the proposed project, and offer alternatives to the proposal in the EIR.<sup>63</sup> In addition, the lead agency must offer a plan for mitigating the significant effects of the documented environmental impacts of the proposal.<sup>64</sup>

In the past, the impact of GHG emissions has not been a significant consideration in the EIR process. This changed, however, when the California Attorney General's office challenged several EIRs in 2007, arguing that the passage of AB 32 created an obligation under CEQA to mitigate GHG emissions from proposed land use projects. Further, the California Legislature recently passed SB 375.<sup>65</sup> SB 375 is a complex and voluminous regional planning bill that has been widely touted as the key to linking GHG emissions reductions to land use and transportation planning.<sup>66</sup> Most significantly, SB 375 has obligated CARB to establish GHG emission reduction targets for each

---

review of specific land use project documents). For example, 80 percent of the costs of CEQA Environmental Impact Reports for local governments was spent on private projects in 1990. San Francisco Planning and Urban Research Association, *Fixing the California Environmental Quality Act*, SPUR Policy Report (November 6, 2005), at 5, available at <http://www.spur.org/documents/20060201-CEQA3.pdf>.

61. CAL. PUB. RES. CODE § 21157. If a proposed project will not have a significant impact on the environment, the Lead Agency must prepare a Negative Declaration documenting lack of significant environmental impact. CAL CODE REGS. tit 14, § 15070. In addition, certain projects are categorically excluded from CEQA review, including agricultural housing, affordable housing, and residential infill, to the extent these meet particular requirements. *See* CAL CODE REGS. tit 14, §§ 15,193–15,195.

SB 375 creates additional exemptions for a specific set of projects meeting a more complex set of criteria, but those exemptions apply primarily to whether or not those projects will need to (1) analyze a sub-set of environmental impacts associated with GHG emissions and air quality; (2) consider a range of lower-density residential alternatives; and/or (3) conduct new or additional analysis of project impacts when similar analysis was conducted under an EIR or as part of a SCS or APS. S. 375, §§ 14, 15, Gen. Assem., 2007–2008 Reg. Sess. (Cal. 2008) (to be codified in scattered sections of the CAL. GOV'T CODE and at CAL. PUB. RES. CODE § 21,155).

62. CAL. PUB. RES. CODE § 21082.1. CEQA allows public agencies to contract out the preparation of the Environmental Impact Report (EIR) to a third party. *Id.* In practical terms, any private party whose land use proposal is subject to public agency review frequently funds the consultant who prepares the EIR for the proposal.

63. *See* CEQA § 21082.2. SB 375 would exempt some projects from analyzing lower-density residential alternatives under CEQA. S. 375 §§ 14, 15.

64. Guidelines for Implementation of the California Environmental Quality Act, CAL CODE REGS. tit 14, § 15126.6 (2008).

65. S. 375, Gen. Assem., 2007–2008 Reg. Sess. (Cal. 2008) (to be codified in scattered sections of the CAL. GOV'T CODE and at CAL. PUB. RES. CODE § 21155).

66. Felicity Barringer, *California Moves on Bill to Curb Sprawl and Emissions*, N.Y. TIMES, August 28, 2008, at A12, available at <http://www.nytimes.com/2008/08/29/us/29sprawl.html> (describing SB 375 as “the nation’s most comprehensive effort to reduce sprawl,” thereby reducing GHG emissions).

of the state's eighteen Metropolitan Planning Organizations (MPOs),<sup>67</sup> but it gives neither CARB nor the MPOs any authority to *require* local land use plans or transportation investment decisions to achieve those targets. More specifically, the statute: (1) establishes a framework for estimating the GHG emissions associated with a "baseline" of business as usual for each MPO region in the state; (2) authorizes the California Air Resources Board to allocate GHG emissions reductions targets to each of California's eighteen MPOs;<sup>68</sup> (3) establishes a framework for the regions to develop a Sustainable Communities Strategy ("SCS") or an Alternative Planning Strategy ("APS") to meet those targets;<sup>69</sup> (4) by incorporating the SCS or APS into the regional transportation plan, effectively shifts the allocation of state and federal transportation funds toward projects that help to meet the regional GHG emissions reductions target established by CARB; and (5) exempts from further regulatory review for a specified set of impacts under CEQA a range of transportation and land use projects authorized under the SCS or APS.<sup>70</sup>

The combined effect of the Attorney General's lawsuits and SB 375's alteration of CEQA requirements for a subset of projects are discussed in Part III. Understanding how these activities are shaping land use and how AB 32

---

67. S. 375 § 4. CARB is required to "provide each affected region with GHG emission reduction targets for the automobile and light truck sector for 2020 and 2035" by no later than September 30, 2010. A "Regional Targets Advisory Committee" is to be appointed by January 31, 2009 and the advisory committee is to transmit its recommendations for methods to CARB by September 30, 2009. *Id.*

68. These MPOs are generally Councils of Government ("COGs"), but with no direct land use regulatory authority. The MPOs therefore have no authority to mandate changes in local land use plans or regulations. Paul G. Lewis & Mary Sprague, *Federal Transportation Policy and the Role of Metropolitan Transportation Planning Organizations*, 1997 PUB. POL'Y INST. OF CAL. 22 n.5, 35-37, available at <http://www.ppic.org/main/publication.asp?i=81> (discussing regulatory and jurisdictional structure of COGs/MPOs); *id.* at 116, 133 (discussing lack of land use authority of MPO's with respect to local governments).

69. However, it is unclear what the consequences would be for failing to adopt an SCS or APS approved by CARB.

70. See generally S. 375, Gen. Assem., 2007-2008 Reg. Sess. (Cal. 2008) (to be codified in scattered sections of the CAL. GOV'T CODE and at CAL. PUB. RES. CODE § 21155). SB 375 also (1) modifies the procedures and timing for revision of local government Housing Elements in their General Plans, including significant changes to the obligations associated with providing emergency shelters and affordable housing in accordance with state and regional housing goals; and (2) modifies the procedures for enforcing those state and regional housing goals through judicial review and authority to modify local zoning and development ordinances unless the local government has made specific findings regarding its inability to meet its allocated share of state and regional housing goals. A detailed analysis of SB 375 is beyond the scope of this Article. We focus here on how SB 375 will establish modeling protocols to test the GHG emissions impacts associated with the SCS or APS approaches and how CEQA exemptions (or the narrower scope of CEQA review in terms of both impacts and alternatives) under SB 375 may affect the legal conditions under which transportation-related land use projects may generate GHG offsets within the broader GHG reduction framework of the Global Warming Solutions Act of 2006 (AB 32). AB 32's structure is discussed in Part III of this Article, while the mechanisms for linking land use and transportation offsets to the AB 32 structure are discussed in Parts IV-VI.

could be implemented to reduce vehicle miles traveled first requires an understanding of the developments surrounding AB 32 itself.

III. AB 32—CALIFORNIA GLOBAL WARMING SOLUTIONS ACT OF 2006

The California Global Warming Solutions Act of 2006 (AB 32)<sup>71</sup> requires California to reduce GHG emissions to 1990 levels by 2020.<sup>72</sup> Further, by Executive Order, Governor Schwarzenegger mandated a statewide GHG emission reduction to 80 percent below 1990 levels by 2050.<sup>73</sup> Both targets have become part of California's emissions reduction policies.<sup>74</sup>

AB 32 does not specify the means by which greenhouse emissions are to be reduced going forward. It delegates that task to CARB, and suggests methodologies that should be considered. CARB is tasked with a twofold decision-making process to determine the shape of GHG regulation in California.<sup>75</sup> First, California must catalog its GHG emissions to determine the 1990 baseline levels (which are the targeted emissions levels for 2020). It must then use some regulatory mechanism to limit emissions.<sup>76</sup>

Pursuant to AB 32, CARB recently defined the 1990 baseline emissions for California to be 427 million metric tons of carbon dioxide equivalents.<sup>77</sup> CARB must now decide which entities will be subject to AB 32 and what regulation methodology will be used to enforce the statute.<sup>78</sup>

CARB has suggested that it plans to regulate GHG emissions from stationary sources only. The Board announced mandatory emissions reporting requirements for approximately the top eight hundred stationary sources of

---

71. CAL. HEALTH & SAFETY CODE §§ 38,500–38,599 (West 2008).

72. *Id.* § 38,550.

73. Cal. Exec. Order No. S-3-05 (June 1, 2005), <http://gov.ca.gov/executive-order/1861/>.

74. Governor Schwarzenegger reaffirmed the 2050 targets as being integral to California's GHG emission reduction plan in a statement relating to the Pavley Bill, stating that "California's vehicle GHG standards are part of a carefully designed, comprehensive program to fight climate change through 2050." Press Release, Office of the Governor, Governor Schwarzenegger Issues Statement After U.S. EPA Rejects California's Tailpipe Emissions Waiver Request (Dec. 19, 2007), *available at* <http://gov.ca.gov/press-release/8353/>.

75. Global Warming Solutions Act, A. 32, Gen. Assembly, 2005–2006 Reg. Sess. § 38,510 (Cal. 2006) (codified at CAL. HEALTH & SAFETY CODE § 38500). CARB has taken on its role by conducting a series of public hearings and workshops, leading various taskforce sessions, and announcing early action items for GHG reduction measures. *See* Cal. Air Res. Bd., Climate Change, <http://www.arb.ca.gov/cc/cc.htm> (last visited Nov. 27, 2008) (listing implementation actions for AB 32). The Board has also internally appointed and receives advice from two committees: The Economic and Technology Advancement Advisory Committee (ETAAC) and the Environmental Justice Advisory Committee (EJAC). Both committees were created pursuant to mandate under AB 32. *Id.*

76. California Health & Safety Code section 38,550 requires the inventory, while section 38,560 requires regulation to meet the target.

77. Press Release, *supra* note 31.

78. The Board must address both the sectors that will be covered and, through the establishment of jurisdictional thresholds of emissions that will be regulated under AB 32, determine which entities are subject to regulation. *See* California Air Resources Board Website, <http://www.arb.ca.gov/cc/cc.htm>, for a series of documents summarizing the Board's process under AB 32.

GHG emissions, which make up 94 percent of the GHG emissions from the industry sector.<sup>79</sup> These will be phased in starting in 2009.<sup>80</sup> The Board specifically declined to include mobile sources in its emission reporting requirements,<sup>81</sup> suggesting that it does not plan to regulate the transportation sector directly via AB 32.<sup>82</sup>

Further, CARB issued in October 2008 a Scoping Plan outlining its intended execution of AB 32.<sup>83</sup> The Plan was approved by CARB in December 2008.<sup>84</sup> The plan aims for approximately 30 percent reductions from the business-as-usual scenario in 2020, or approximately 15 percent below current levels.<sup>85</sup> After 2020, CARB intends to reduce emissions by 80 percent from 1990 levels by 2050.<sup>86</sup>

The Scoping Plan aims for GHG reductions of 169 million metric tons of CO<sub>2</sub> equivalents (MMTCO<sub>2</sub>E) compared to the business-as-usual scenario for 2020. CARB allocated 146.7 MMTCO<sub>2</sub>E to capped sectors (87 percent of the target), and all capped sectors are included in a planned regional cap-and-trade program, as discussed in Part IV.<sup>87</sup>

CARB also set regional transportation-related land use GHG reduction targets of 5 MMTCO<sub>2</sub>e for 2020.<sup>88</sup> This target does not include the SB 375

---

79. Press Release, *supra* note 31. Tracking emissions will be integral in understanding the major sources of emissions, and in understanding feasible reduction levels. It will help California identify the likely impacts of emissions and changes to emission levels over time. It is also a potential means of identifying communities subject to higher rates of pollution levels than others. Environmental justice advocates are concerned that reductions in GHG emissions will occur in ways that will disproportionately affect some communities. Adrienne Bloch, Communities for a Better Environment & Alice Kaswan, University of San Francisco, Panel Comments at the 2008 Environmental Law Conference at Yosemite (October 17, 2008). There is no “hot spot” effect associated with GHG emissions, but reductions in GHG emissions are correlated with reductions in other emissions that have health effects. *Id.* The spatial pattern of GHG emissions reductions is therefore correlated with a spatial pattern of reductions in other emissions that may disproportionately affect some communities. *Id.*

80. *Id.*

81. CAL. CODE REGS. tit. 17, §§ 95,100–95,133 (2008). The California legislature previously established a reporting regime for GHG emissions by creating the California Climate Action Registry (CCAR). See CAL. HEALTH & SAFETY CODE § 42,800 (West 2006) (repealed 2007 by CAL. HEALTH & SAFETY CODE § 42,871). The Registry is a non-profit organization and its legislative purpose is to help “organizations . . . establish greenhouse gas emissions baselines and register emissions results.” *Id.* § 42801(e). This organization will likely manage the process of tracking and reporting GHG emissions in California.

82. However, the Market Advisory Committee recommended that CARB regulate both large and medium size stationary emitters as well as the transportation sector. MARKET ADVISORY COMM., RECOMMENDATIONS FOR DESIGNING A GREENHOUSE GAS CAP-AND-TRADE SYSTEM FOR CALIFORNIA 35 (2007), available at [http://www.climatechange.ca.gov/publications/market\\_advisory\\_committee/2007-06-29\\_MAC\\_FINAL\\_REPORT.PDF](http://www.climatechange.ca.gov/publications/market_advisory_committee/2007-06-29_MAC_FINAL_REPORT.PDF).

83. SCOPING PLAN, *supra* note 15, at ES-1.

84. Climate Change Scoping Plan, California Air Resources Board Resolution 08-47 (December 11, 2008), available at [http://www.arb.ca.gov/cc/scopingplan/document/final\\_sp\\_resolution.pdf](http://www.arb.ca.gov/cc/scopingplan/document/final_sp_resolution.pdf).

85. SCOPING PLAN, *supra* note 15, at ES-1.

86. *Id.* at ES-2.

87. *Id.* at 16, 17, 21, 32.

88. *Id.* at ES-5, 17.

regional targets, which will be determined at a later date.<sup>89</sup> Effectively, the Scoping Plan assumes that SB 375 will make no contribution toward meeting AB 32 goals by 2020. CARB recommended 2020 targets for local governments at 15 percent below current levels for their communities and internal operations,<sup>90</sup> stressing that transportation-related land use reductions will be “necessary” and “essential” to meet CARB’s long term targets for the year 2050.<sup>91</sup>

Neither SB 375 nor CARB’s current policies for AB 32 preclude AB 32 from *indirectly* influencing GHG emissions associated with VMT and land use patterns affecting the transportation sector.<sup>92</sup> Opportunities for such influence are made possible by the market-based cap-and-trade mechanism discussed for AB 32 by policy makers, which would allow private industry to funnel investment funds into emission reduction projects by other parties (possibly including the transportation and land use sectors) to meet AB 32 emission targets.<sup>93</sup> Such an approach would complement SB 375 by allocating greater financial resources toward implementation of the Sustainable Communities Plans developed under SB 375. Moreover, incorporating transportation-related land use projects into the AB 32 cap-and-trade system would greatly facilitate meeting CARB’s modest target of a five million ton reduction through land use changes<sup>94</sup> and recommended goal of 15 percent reductions for local governments.<sup>95</sup>

#### IV. MARKET-BASED MECHANISM FOR AB 32

Discussions surrounding the proper implementation of AB 32 have largely focused on a suitable market-based mechanism (i.e. cap-and-trade),<sup>96</sup> although

---

89. *Id.* at 17 n.16.

90. SCOPING PLAN, *supra* note 15, at ES-5, 27.

91. *Id.* at ES-12, 19–20.

92. CARB is considering the option of issuing carbon allowances to cities and counties, which would have the effect of regulating emissions from land use. A primary proponent of this idea is Daniel Sperling, Director of the Institute of Transportation Studies at UC Davis and a member of CARB. *See* Daniel Sperling, Cal. Air Res. Bd., Address at the Berkeley Energy Symposium, Morning Break-Out Session: Transportation Sector Solutions (Mar. 7, 2008). Further, Mary Nichols, Chair of CARB, mentioned this option as a possibility in addressing a group of city and county representatives in March 2008. Mary Nichols, Address at The Local Government Commission & the California Attorney General’s Office meeting, CEQA and Climate Change: The Critical Role of Local Government (Mar. 20, 2008).

93. *See* SCOPING PLAN, *supra* note 15, at 16, 21, 32.

94. *Id.* at ES-5.

95. *Id.*

96. *See* California Air Resources Board Website, <http://www.arb.ca.gov/cc/capandtrade/capandtrade.htm> (last visited Feb. 19, 2009) (providing extensive documentation of the CARB approach to market-based mechanisms). Despite its potential to have far-ranging impacts on GHG emissions, however, GHG-related taxes have not received much discussion among policy makers. Instead, CARB’s policy emphasis has been on developing a cap-and-trade “market-based mechanism,” rather than taxes on energy use or other proxies for GHG emissions. Some reviewers of this Article suggested that we

it is recognized that a combination of policies is necessary to regulate GHG emissions effectively.<sup>97</sup> Interest in a market-based mechanism has received much attention for several reasons. Governor Schwarzenegger is encouraging a market-based approach and California EPA's Secretary Linda Adams appointed a Market Advisory Committee (MAC) to make recommendations on the "design of a market-based compliance program" for AB 32.<sup>98</sup> The Market Advisory Committee recommended a cap-and-trade system—i.e., issuing a limited amount of permits to emit greenhouse gases (the "cap") and then allowing exchanges of emissions permits (the "trade") among emitters.<sup>99</sup> In addition, CARB's own Economic and Technology Advancement Advisory Committee, created pursuant to AB 32, has issued a final discussion report identifying cap and trade as an advantageous means of addressing California's GHG reduction targets under AB 32.<sup>100</sup> Further, AB 32 directs CARB to look at other GHG emission regimes for guidance, and a significant number of these include cap and trade.<sup>101</sup>

The Scoping Plan announced CARB's intention to include all capped sectors under AB 32 in the cap-and-trade program, constituting 85 percent of its GHG emissions reductions targets for 2020.<sup>102</sup> CARB recommends the following phasing of industries into the cap-and-trade program:

---

should discuss the merits of carbon taxes and similar policy instruments in further detail, but they are simply not under serious consideration by CARB for AB 32 implementation. We have therefore focused on how a cap-and-trade system could incorporate VMT-reducing strategies that could affect transportation-related land use projects that would otherwise not be likely to go forward without such a system.

97. See, e.g., DRAFT SCOPING PLAN, *supra* note 12, at 13. Alternative regulatory approaches are often characterized either as (1) "command-and-control" (utilizing the "stick" of regulatory enforcement by a centralized authority, where mandates are established and penalties imposed for non-compliance) or "incentives-based" (relying primarily on the "carrot" of economic incentives to encourage emissions reductions). See generally WILLIAM J. BAUMOL & WALLACE E. OATES, *THE THEORY OF ENVIRONMENTAL POLICY: EXTERNALITIES, PUBLIC OUTLAYS, AND THE QUALITY OF LIFE* (1975); LEONARD ORTOLANO, *ENVIRONMENTAL REGULATION AND IMPACT ASSESSMENT* 93 (1997). Despite such textbook distinctions, however, all law-based regulatory systems (including incentives-based systems that rely more on "carrot" than "stick") require regulatory oversight by central authorities, which establish target emissions levels and/or tax rates, monitor emissions to determine whether those targets have been achieved, and collect taxes and/or impose penalties for non-compliance. The success of a cap-and-trade system, in fact, depends on a shared belief that violating the cap has consequences that make the tradeable permits or allowances to emit valuable. The very existence of the property rights in tradeable permits or allowances is therefore dependent on possible use of the "stick." The "market" in such permits or allowances is a creation of and depends upon a strong regulatory system with monitoring capacity and strict enforcement authority.

98. Cal. Exec. Order No. S-20-06 (Oct. 18, 2006), <http://gov.ca.gov/executive-order/4484>.

99. MARKET ADVISORY COMM., *supra* note 82, at 5–6.

100. ECON. & TECH. ADVANCEMENT ADVISORY COMM., *supra* note 32, at 1-4.

101. CAL. HEALTH & SAFETY CODE § 338561(c) (West 2006). Examples include the European system, the Regional Greenhouse Gas Initiative, the Kyoto Clean Development Mechanism, and proposals for the Western Climate Initiative and the Midwest Greenhouse Gas Reduction Accord.

102. SCOPING PLAN, *supra* note 15, at 16, 21, 32.

- Phase 1 (2012): electricity generation and large industrial facilities of 25,000 MMTCO<sub>2</sub>E per year;
- Phase 2 (2015): all upstream industrial fuel combustion with emissions at or below 25,000 metric tons; all commercial or residential fuel combustion where the fuel enters commerce; all transportation fuel combustion where fuel enters commerce.<sup>103</sup>

CARB has been in discussion with other western states and Canadian provinces that also favor a cap-and-trade program, and it intends to participate in a western regional carbon cap-and-trade market.<sup>104</sup>

#### A. *Cap and Trade Structure*

In a cap-and-trade system, a regulating agency issues a permit allowing the emission of greenhouse gases, but restricts the emissions quantity allotted to each emitter. Emitters are subsequently allowed to trade emission allotments if they plan to emit an amount different from their permit. For example, company *A* may not need all of its emissions allotments because it can inexpensively reduce emissions. Company *B*, on the other hand, may be struggling to meet its emissions requirements. Company *B* may then purchase excess emissions allotments from company *A*. The total level of emissions across both companies remains the same, although company *B* is emitting more than company *A*.

Cap and trade is generally considered to be a more economically efficient approach to regulation than a technology-mandating approach.<sup>105</sup> By creating a market for excess emissions allotments, there is an incentive for companies to have excess emissions allotments to sell. That is, an incentive exists for each company to lower GHG emissions to target levels—and potentially beyond—because they will be compensated for their efforts in the emissions trading market. A cap-and-trade system also “avoids the danger of having government or other centralized decision-makers choose specific technologies,” and instead leaves the market to determine the most efficient products and technologies to reduce emissions.<sup>106</sup>

---

103. *Id.* at 31.

104. *Id.* at 16, 21, 32. The Western Climate Initiative (WCI) is still in its early development, however, so the manner in which the AB 32 cap-and-trade regime may be integrated with a broader regional effort through WCI is unclear.

105. See generally BAUMOL, *supra* note 97; ORTOLANO, *supra* note 97, at 239; T.H. TIETENBERG, EMISSIONS TRADING: PRINCIPLES AND PRACTICE 1 (Resources for the Future 2d ed. 2006) (1985). This general conclusion may not apply in all circumstances, however, so we are not advocating such an approach as the best under all circumstances. As we note below, there are a number of institutional conditions that must be met to have effective cap-and-trade regimes.

106. See ECON. & TECH. ADVANCEMENT ADVISORY COMM., *supra* note 32, at 1-4. Of course, the regulatory system determines the structure in which the market operates—if structured well, regulatory policy (with consideration of a wide range of non-market factors) determines the end goals of policy while the market determines the means of achieving the policy goals.

In theory, the total costs of emissions reductions can be minimized by a cap-and-trade system (assuming low transactions costs).<sup>107</sup> In the example of companies *A* and *B* above, the costs of emissions reductions to company *A* are much lower than the costs of reductions to company *B*. In the absence of a market (i.e., if both company *A* and company *B* have to achieve the same level of emissions reductions), company *B* would incur higher costs to meet its requirements, thereby increasing the overall costs of the same level of reductions to society. Cap and trade addresses this problem.

However, cap and trade must be complemented by other regulatory policies to be successful. Cap and trade fails to deal with all of the market imperfections related to climate change issues.<sup>108</sup> An emissions market alone is therefore unlikely to spur all of the innovation necessary to meet California's GHG emission reduction goals.<sup>109</sup>

### *B. Experiences with Cap and Trade*

The cap-and-trade system has been utilized both in the United States and abroad in several different scenarios. In the United States, most of our experience in cap and trade comes from the acid rain cap-and-trade market.<sup>110</sup> The acid rain market is viewed as having been fairly successful by most

---

107. Emissions charges or taxes also offer cost-minimization advantages, but they have the disadvantage of requiring very accurate information about production costs in order to set the emissions charges or taxes at a level that will achieve a specified level of emissions reductions. In contrast, the cap-and-trade system should generally achieve a targeted level of emissions reduction specified by the "cap" in a cost-effective manner.

108. ECON. & TECH. ADVANCEMENT ADVISORY COMM., *supra* note 32, at 1-4.

109. *Id.* There is some debate about this point, however. Whether technological innovation will occur in response to a cap-and-trade system depends on other aspects of industry structure. It may work in the electric utility industry under some regulatory arrangements, for example, but not for the transportation sector or land use. See Margaret Taylor et al., *The Role of Technological Innovation in Meeting California's Greenhouse Gas Emissions Targets*, in MANAGING GREENHOUSE GAS EMISSIONS IN CALIFORNIA (California Climate Change Center at U.C. Berkeley 2006), available at [http://calclimate.berkeley.edu/3\\_Innovation\\_and\\_Policy.pdf](http://calclimate.berkeley.edu/3_Innovation_and_Policy.pdf).

110. Two regional market-based efforts have also been formulated to address GHG emissions. The Regional Greenhouse Gas Initiative (RGGI) is a conglomeration of northeastern states organizing a cap-and-trade system for carbon emissions in the electricity sector. See Regional Greenhouse Gas Initiative, Welcome, <http://www.rggi.org/about.htm> (last accessed Nov. 28, 2008). The Western Climate Initiative (WCI) is a cooperative of northwestern states and Canadian provinces, which also seeks to organize itself around a cap-and-trade carbon system. See Western Climate Initiative, [http://www.westernclimateinitiative.org/About\\_WCI.cfm](http://www.westernclimateinitiative.org/About_WCI.cfm) (last accessed Nov. 28, 2008). Both organizations are in their incipency, but RGGI is much further along in establishing a viable, operating cap-and-trade system for the electricity sector. RGGI auctioned its first carbon emission permits in September 2008, and all of its members have agreed to have implementation regulations in place for an operating cap-and-trade system by January 2009. Regional Greenhouse Gas Initiative, History, <http://www.rggi.org/about/history> (last accessed Nov. 28, 2008). The WCI is much more diffuse and is not focused yet on either particular sources of emissions or particular regulatory policies.

economists (although it has been deemed unsuccessful by some ecologists).<sup>111</sup> A significant portion of the success of the acid rain market resulted from close monitoring of sulfur dioxide emissions by the U.S. Environmental Protection Agency (EPA). Special monitoring equipment was installed at all regulated facilities, which allowed for transparent accounting for the individual emissions of each regulated entity with respect to the emissions cap. The EPA was then able to tighten the emissions cap over time based on its understanding of monitored emissions.<sup>112</sup>

The ability to monitor emissions and understand emissions levels is extremely important to the success of a cap-and-trade system. The United States was able to accomplish this for acid rain in part because sulfur dioxide emissions are dominated by, and the regulatory program was generally limited to, the electricity sector.<sup>113</sup> Tracking GHG emissions, on the other hand, is a potentially much larger task because there are many more entities and industrial sources producing significant amounts of greenhouse gases.<sup>114</sup> Further, GHG emissions sources are both stationary and mobile, adding to the complexity of monitoring emissions. As discussed in Part III above, however, it appears that CARB will not directly regulate all of these entities under AB 32,<sup>115</sup> but will focus, at least initially, on approximately the top eight hundred emitters in the state, thereby limiting the number of entities it will need to track for emissions reporting requirements.<sup>116</sup>

---

111. See NICHOLAS STERN, *THE ECONOMICS OF CLIMATE CHANGE: THE STERN REVIEW* 371 (2007) (citing DALLAS BURTRAW, *RES. FOR THE FUTURE, COST SAVINGS SANS ALLOWANCE TRADES? EVALUATING THE SO<sub>2</sub> EMISSIONS TRADING PROGRAM TO DATE* (1996)). Indeed, the actual documented emissions of sulfur dioxide under the cap were less than the allowable emissions. *Tax or Trade*, *ECONOMIST* (February 14, 2002), available at [http://www.economia.unimi.it/users/fiorio/tea/biem/2008\\_09/readings/5\\_Extern/EC20020214TaxOrTrade.pdf](http://www.economia.unimi.it/users/fiorio/tea/biem/2008_09/readings/5_Extern/EC20020214TaxOrTrade.pdf) (“America’s scheme to trade sulphur dioxide emissions, in order to reduce acid rain, has done better than its initial target at less than half the anticipated cost.”). The benefits achieved under the cap-and-trade regime are typically overstated for the acid rain program, however, because national emissions levels had already been reduced by about 25 percent from 1980 by the time the Clean Air Act Amendments of 1990 were adopted. Industrial restructuring and fuel-switching had therefore already achieved about half of the targeted 50 percent reduction from 1980 levels before cap-and-trade was adopted—making achievement of the target emissions levels much easier. See GARY C. BRYNER, *BLUE SKIES, GREEN POLITICS: THE CLEAN AIR ACT OF 1990 AND ITS IMPLEMENTATION* (2d ed. 1995) (discussing the politics, structure, and implementation of the 1990 Clean Air Act Amendments). In contrast, GHG emissions are generally higher now than 1990 levels and are continuing to increase throughout the world. INT’L ENERGY AGENCY, *CO<sub>2</sub> EMISSIONS FROM FUEL COMBUSTION: 1971–2005 IL.74* (2007 ed.).

112. See Ruth Greenspan Bell, *Market Failure*, ENV’T L FORUM, March/April 2006 (noting the need for transparency in the accounting process and the key features necessary for successful implementation).

113. See BRYNER, *supra* note 111.

114. See Bell, *supra* note 112, at 30–31.

115. SCOPING PLAN, *supra* note 15, at 32. Note that mobile sources will be regulated directly through AB 1493, however, in terms of tailpipe emissions. See *supra* notes 38–39 and accompanying text regarding AB 1493 tailpipe emission regulations.

116. DRAFT SCOPING PLAN, *supra* note 12, at 69. Further, CARB reiterated in the Draft Scoping Plan that capped sectors include “electricity, transportation fuels, natural gas, and large industrial

The importance of tracking emissions is illustrated in part by the European Union's experience with cap and trade. The EU introduced a cap-and-trade market in 2005 for various sources of stationary GHG emissions; this market crashed in 2006 because European regulators were unable to use accurate information about emissions levels to set an appropriate cap. The cap was initially set too high, and emissions permit prices plummeted once participants realized that too many emissions permits were allocated and supply significantly exceeded demand.<sup>117</sup>

The European market was created to assist European countries in meeting their emissions commitments under a much larger international agreement, the Kyoto Protocol.<sup>118</sup> The Kyoto Protocol is an international treaty under the United Nations Framework Convention on Climate Change (UNFCCC). The Kyoto Protocol includes a cap-and-trade regime, which requires developed countries to reduce GHG emissions at least 5 percent lower than 1990 levels by 2012; individual countries must also meet target levels specific to each member country.<sup>119</sup> To meet emissions reduction requirements, the Kyoto Protocol allows developed countries to invest in emissions reducing and carbon sequestration projects in developing countries under the Clean Development Mechanism (CDM) provision.<sup>120</sup> Developed countries may also implement such projects in another developed country under the Joint Implementation (JI) provision.<sup>121</sup> These provisions allow member countries to count their efforts in other countries toward their emissions reductions commitments under the Kyoto Protocol.

The Kyoto Protocol creates a complex international market-based mechanism for regulating GHG emissions. It has been criticized as being too

---

sources," all of which could potentially participate in the cap-and-trade program. *Id.* at 17. Emissions from other sources have yet to be addressed. In particular, accounting for emissions generated by the electricity sector outside of California is being approached in parallel by the California Energy Commission (CEC) and the California Public Utilities Commission (CPUC) through a complex array of policies designed to decrease imports from coal-fired generators, increase production from renewable energy sources for the California market, and increase the end-use efficiency of electricity consumption. How such policies are coordinated both within California and across the Western Climate Initiative may determine whether any genuine reductions in GHG emissions are achieved. See JIM B. BUSHNELL, THE IMPLEMENTATION OF CALIFORNIA AB 32 AND ITS IMPACT ON WHOLESALE ELECTRICITY MARKETS, UNIVERSITY OF CALIFORNIA ENERGY INSTITUTE (2007).

117. Timothy Garner, *A U.S. Carbon Market Could Learn From Europe: IETA*, REUTERS, Apr. 19, 2007, <http://www.ieta.org/ieta/www/pages/index.php?IdSiteTree=1387>. Permits were also not allowed to carry over from the first phase of the program to the second phase of the program, which diminished their value as the first phase came to an end. See European Union Website, Emissions Trading Scheme Description, [http://ec.europa.eu/environment/climat/emission/index\\_en.htm](http://ec.europa.eu/environment/climat/emission/index_en.htm) (last visited Feb. 19, 2009).

118. Press Release, EUROPA, Questions & Answers on Emissions Trading and National Allocation Plans (Mar. 8, 2005), available at <http://europa.eu/rapid/pressReleasesAction.do?reference=MEMO/05/84&format=HTML&aged=1&language=EN&guiLanguage=en>.

119. Kyoto Protocol to the United Nations Framework Convention on Climate Change, art. 3, Dec. 11, 1997, 37 I.L.M. 22 [hereinafter Kyoto Protocol].

120. *Id.* at art. 12.

121. *Id.* at art. 6.

complex to be enforceable and as having weak criteria for establishing offset credits.<sup>122</sup> The CDM and JI provisions largely rely on the domestic monitoring and enforcement resources of host countries. The ability of individual countries to maintain the integrity of the system becomes particularly dubious in CDM projects, where monitoring and enforcement fall into the hands of frequently under-resourced and under-developed regulatory agencies typical of developing countries.<sup>123</sup>

The Kyoto Protocol has therefore opened the door to another framework for GHG emission reductions—the carbon offset project. Both CDM and JI allow countries to offset their emissions with projects other than their own internal emissions reductions projects. This concept has been imported into the United States and translated into domestic discussions of emissions reductions.<sup>124</sup> In California, carbon offsetting is being discussed as an option for allowing private emitters to meet their reduction goals under AB 32.<sup>125</sup>

### C. Carbon Offsetting

Governor Schwarzenegger's Market Advisory Committee recommended that offsets or "credit for emissions reductions... not covered" by cap and trade be allowed under AB 32.<sup>126</sup> This definition is fairly broad, and is understood to

122. For a scathing critique of CDM implementation, see LORI POTTINGER, INT'L RIVERS NETWORK, *BAD DEAL FOR THE PLANET: WHY CARBON OFFSETS AREN'T WORKING . . . AND HOW TO CREATE A FAIR GLOBAL CLIMATE ACCORD* (2008). See also Michael Wara, *Is the Global Carbon Market Working?*, 445 NATURE 595 (Feb. 8, 2007); MICHAEL W. WARA & DAVID G. VICTOR, STANFORD UNIV. PROGRAM ON ENERGY AND SUSTAINABLE DEV., *A REALISTIC POLICY ON INTERNATIONAL CARBON OFFSETS* (2008).

123. Bell, *supra* note 112. Over one thousand projects were listed on the UNFCCC registry for the Kyoto Protocol's Clean Development Mechanism as of November 28, 2008. The sheer volume of activity further suggests the difficulty of monitoring compliance. See <http://cdm.unfccc.int/Statistics/index.html> (last visited Nov. 28, 2008). The Executive Board, which administers CDM projects, appears to rely in part on the monitoring reports prepared by independent certifying entities to ensure that CDM projects are meeting GHG reduction goals. See U.N. Framework Convention on Climate Change, *Decision 17/CP.7: Modalities and Procedures for a Clean Development Mechanism as Defined in Article 12 of the Kyoto Protocol* ¶ 38, FCCC/CP/2001/13/Add.2 (Nov. 10, 2001) [hereinafter *Modalities and Procedures*], available at <http://unfccc.int/resource/docs/cop7/13a02.pdf>.

124. Carbon offsetting has been an active part in Europe's cap-and-trade system. It is also integral to the Regional Greenhouse Gas Initiative (RGGI) in the northeastern United States and it has been discussed by states engaged in the Western Climate Initiative. See generally Regional Greenhouse Gas Initiative, *Welcome*, <http://www.rggi.org/> (last visited Nov. 28, 2008); Western Climate Initiative, <http://www.westernclimateinitiative.org/> (last visited Nov. 28, 2008). Both the European system and RGGI limit the role of carbon offsets in meeting program goals in an effort to address concerns about whether or not offsets represent genuine reductions in GHG emissions or "additional" GHG sequestration. The European system has strict criteria for qualifying offsets. See European Union's Website, *Emission Trading Scheme, Linking Joint Implementation and Clean Development Mechanism*, [http://ec.europa.eu/environment/climat/emission/linking\\_en.htm](http://ec.europa.eu/environment/climat/emission/linking_en.htm) (last visited Feb. 19, 2009); RGGI allows only 10 percent of the total target to be met through offsets. Regional Greenhouse Gas Initiative, *Offsets*, <http://www.rggi.org/offsets> (last visited Nov. 28, 2008).

125. SCOPING PLAN, *supra* note 15, at 37.

126. MARKET ADVISORY COMM., *supra* note 82, at 61–62.

mean an investment project designed to reduce atmospheric carbon dioxide levels by either reducing GHG emissions or sequestering carbon from the atmosphere.<sup>127</sup> CARB further refined this definition to include emissions reduction programs that do not stem from regulation, the emissions cap, or are not “undertaken as a result of government incentive programs.”<sup>128</sup>

The estimated carbon emissions savings from the offset project would be credited to the emitter’s permitted emissions levels. CARB originally suggested limiting the number of tradeable offsets for each firm to 10 percent of its emissions reductions obligation.<sup>129</sup> This would help prevent companies from avoiding the responsibility to reduce internal emissions. However, CARB has now proposed allowing 49 percent of all capped emissions reductions to come from carbon offsets, which represents approximately 40 percent of AB 32’s emission reduction targets for 2020.<sup>130</sup>

Offset projects are external to the direct business operations of the emitter. For example, rather than redesigning its industrial process for brick production, Company *ABC* may invest in a wind farm. The energy from that wind farm may not feed back directly into *ABC*’s brick production process, yet it would still count toward meeting its GHG emission limits under a regulatory regime allowing offsets (as long as the benefits of the wind farm are not otherwise counted by others toward meeting their emission objectives).<sup>131</sup>

Offset projects are attractive when it is more economical to invest in the offset than to lower internal greenhouse emissions directly. If it will cost Company *ABC* \$20 per ton to reduce emissions internally, but \$15 per ton to invest in an offset project, Company *ABC* will likely choose the offset project.

---

127. The ETAAC also recommends carbon offsets. ECON. & TECH. ADVANCEMENT ADVISORY COMM., *supra* note 32, at 9-5.

128. SCOPING PLAN, *supra* note 15, at 68.

129. DRAFT SCOPING PLAN, *supra* note 12, at 19. This matches the limit placed by RGGI on offsets as a total fraction of overall GHG emissions reductions obligations. We also recommend a 10 percent cap on offset credits.

130. See SCOPING PLAN, *supra* note 15, at 37 (stating that “the use of offsets and allowances from other systems are limited to no more than 49 percent of the required reduction of emissions,” under cap and trade, or approximately 40 percent of all emissions reductions targeted under the Scoping Plan). This is a dramatic increase and could lead to an increased risk that “paper” reductions in GHG emissions will not be matched by verifiable reductions. We recommend a 10 percent cap on offset credits until more experience is gained to demonstrate both the additionality and verifiability of offset credits.

131. This illustration shows the complexity of GHG emission policy when it is pursued through parallel regulatory initiatives: in California, policies by the CEC and CPUC (in particular, those designed to implement the state’s ambitious Renewable Portfolio Standard (RPS) to increase the share of electricity production from renewable energy sources) will allocate economic incentives toward such wind farms even in the absence of offset payments under the AB 32 structure. Counting a wind farm as “offsetting” carbon emissions when the wind farm would have been built anyway (in the absence of any offset payments, due to other policies) would double-count the benefits of building the wind farm. The overall reduction in GHG emissions called for under AB 32 would therefore less likely be reached. This Article does not address linkages between AB 32 and the electricity sector, which are complex. See BUSHNELL, *supra* note 116, for an introduction to the key issues.

Offsets are also an alternative to purchasing emissions allotments from other emitters in a cap-and-trade system.

### 1. *Advantages of Offsets*

Carbon offsets offer the benefit of dispersing investment into projects that would not otherwise be funded by the sourcing party. Within a cap-and-trade system, carbon offsets allow for the redistribution of money into much needed and effective GHG emissions reduction projects.

Offsets can also be a means of harvesting the low-hanging fruit when it comes to GHG emissions. Emitters will likely look for the most bang for the buck in their offset investments, but many low-cost GHG reduction strategies will remain unpursued if they are not within the verifiable control of parties facing emissions restrictions.<sup>132</sup> As a result, offsets have the potential to be a very effective means of reducing significant volumes of emissions in the short to medium time frame at relatively low cost.

In the long run, offsets have the potential to fund much needed emissions reduction projects that currently have high barriers to their execution. As long as the emitter finds it cost efficient to invest in a project as an offset in a cap-and-trade regulatory regime, the project can move forward. Therefore the structure of the cap-and-trade regime will dictate the economic incentives to engage in any given offset project.<sup>133</sup>

Because the transportation sector is such a predominant contributor to GHG emissions, and because VMT will not be directly regulated under AB 32,

---

132. This issue has affected the pursuit of energy efficiency projects, such as when the economic interests of commercial builders (who face the up-front costs of energy efficiency investments, but not the energy costs of failing to make such investments) diverge from their tenants (who must pay energy costs that could justify investment in energy efficiency measures, but who will not own those efficiency devices as tenants).

133. Even in the absence of compulsory regulation, carbon offsetting has become a cultural trend in recent years, especially in California. Many companies are taking advantage of voluntary carbon offsetting. Google, for example, announced plans to go “carbon neutral.” Although some portion of its strategy comes from energy use reductions in both its products and operations, a significant proportion will come from carbon offsets, including livestock GHG emissions management projects in Brazil and Mexico. See Google, Powering a Clean Energy Revolution, <http://www.google.com/corporate/green/energy/reducing.html> (last accessed Nov. 28, 2008). PG&E is also becoming an active carbon offsetter, as well as a clearinghouse for carbon offsets, by allowing its customers to pay additional dollars for sourcing their gas and electricity from alternative energy. See PG&E, About ClimateSmart, <http://www.pge.com/myhome/environment/whatyoucando/climatesmart/climatesmartabout/index.shtml> (last visited Nov. 28, 2008). Due to the voluntary character of the offset market, however, serious concerns have been raised about whether offset payments are actually achieving GHG emissions reductions. The Federal Trade Commission (FTC) has initiated an investigation into the carbon offset market for this reason. See Louise Story, *F.T.C. Asks if Carbon-Offset Money is Well Spent*, N.Y. TIMES, Jan. 9, 2008, [http://www.nytimes.com/2008/01/09/business/09offsets.html?\\_r=2&adxnnl=1&oref=slogin&ref=business&adxnnlx=1227906398-kcBV+miZBYNQOqhCEOP4Fw](http://www.nytimes.com/2008/01/09/business/09offsets.html?_r=2&adxnnl=1&oref=slogin&ref=business&adxnnlx=1227906398-kcBV+miZBYNQOqhCEOP4Fw); FTC Guides for the Use of Environmental Marketing Claims, 16 C.F.R. §§ 260.1–260.8 (2008); Guides for the Use of Environmental Marketing Claims, Carbon Offsets and Renewable Energy Certificates, Public Workshop, 72 Fed. Reg. 66,094–66,097 (Nov. 27, 2007).

it would be advantageous to allow carbon offsets for land use projects designed to reduce vehicle miles traveled.<sup>134</sup> This is true even in light of the new incentives under SB 375 to reduce VMT. Allowing coordination between CEQA and AB 32 would encourage the flow of funding into better land use and transportation infrastructure projects, as discussed in further detail in Part VII, below. Increased funding for such projects will increase the likelihood of achieving land use patterns and transportation system improvements that will fulfill the ambitious promise of SB 375 for truly sustainable communities.

## 2. *Challenges of Offsets*

Carbon offsets pose a unique set of challenges for GHG regulation, however. Offset projects do not enjoy a long regulatory history, and are riddled with quality control issues. Offsets should therefore be limited in quantity; otherwise they could become a never-ending alternative to actually reducing GHG emissions internally for a given regulated business. In addition, certain emitting facilities or sectors may gravitate toward offsets much more significantly than others, resulting in geographic or sector-specific emission “hot spots.” This concern has been raised by the environmental justice community in particular, which advocates against certain impoverished regions of the state bearing the bulk of California emissions.<sup>135</sup>

Further, offsets can become the deflating tear in the tires of a healthy cap-and-trade system unless they actually have the desired effect of reducing GHG emissions. There is great uncertainty surrounding this question. It is already difficult to account for baseline emission levels. It is an additional challenge to gauge whether an offset project is actually reducing emissions below that baseline. The former problem requires that GHG emissions levels be well monitored, recorded, and understood. The latter requires a rigorous monitoring and accounting system, as well as an effective review and approval process to guide the quality of offset projects. CARB stated in its Scoping Plan that any offsets under AB 32 must be subject to review under a relevant offset methodology or protocol designed to maintain the integrity of the offset.<sup>136</sup>

The Kyoto Protocol is the primary precedent for gauging the quality of offset projects. It presumes that an offset has the capacity to reduce GHG

---

134. SCOPING PLAN, *supra* note 17, at 13 (identifying distribution of emissions by sector, including transportation sector); *id.* at 17 (summarizing all GHG measures under AB 32); *id.* at 20. AB 32 implementation assumes that tailpipe emission from mobile sources are regulated under AB 1493, while the carbon content of mobile source fuels will be regulated under other legislation and regulation. *Cf. supra* notes 38–39. SCOPING PLAN at 13 (identifying Pavley Bill (i.e., AB 1493) and Low Carbon Fuel Standards as recommended GHG reduction measures for transportation sector).

135. MARKET ADVISORY COMM., *supra* note 82, at 8.

136. SCOPING PLAN, *supra* note 15, at 110, 68 (citing CAL. HEALTH AND SAFETY CODE § 38,571). CARB is also considering linking into the Kyoto Protocol, underscoring the importance of the Kyoto Protocol as a benchmark standard for carbon offsets. *Id.* at 38.

emissions below baseline levels only if the proposed offset is an investment other than, or “additional” to, that which would otherwise be made in the absence of a regulatory regime.<sup>137</sup> As a check against this presumption of “additionality,” the Protocol assumes that a project is *not* additional if it is the only legal alternative course of conduct in the presence of cap and trade.<sup>138</sup>

The Kyoto protocol requires a multi-pronged analysis for determining additionality—i.e., whether the project would occur in the absence of a cap-and-trade regime—and therefore whether the project has the capacity to reduce GHG emissions below baseline levels. The potential offsetter must illustrate to the reporting body either (1) that the project is less economically or financially attractive than an existing legal alternative,<sup>139</sup> or (2) that investment or technological barriers exist<sup>140</sup> that would prevent the project from going forward absent a CDM regime.<sup>141</sup> Further, under the Kyoto Protocol, the proposed offset project must be different from the prevailing industry methods, technologies, and conduct.<sup>142</sup>

The Executive Board of the Kyoto Protocol Clean Development Mechanism generally reviews offsets, and theoretically offers one of the most rigorous offset review standards on a project-by-project basis (rather than through a system where an entire class of projects would be approved by type, without any case-by-case review of specific projects seeking to qualify for offsets).<sup>143</sup>

---

137. The Kyoto Protocol requires that reductions in emissions be “additional to any that would occur in the absence of the certified project activity.” Kyoto Protocol art. 12.5(c).

138. *Id.*

139. Economic/financial cost analysis is used to document that the project does not generate any income beyond CDM-related income. An alternative to cost analysis is investment comparison analysis, by which the proposed project is compared to alternatives via an accepted comparison analysis, such as net present value, or cost/benefit ratio, among others. The third form of analysis is a benchmark analysis, which compares the proposed project and its alternatives to show that the proposed project does not meet a financial benchmark that would otherwise trigger the will to invest in the project. The benchmark may be based on government bond figures, private investment analysis, or a company internal benchmark. U.N. Framework Convention on Climate Change, *Methodological Tool: Tool for the Demonstration and Assessment of Additionality*, at 6, EB 39 (Aug. 26, 2008), available at [http://cdm.unfccc.int/methodologies/PAmethodologies/AdditionalityTools/Additionality\\_tool.pdf](http://cdm.unfccc.int/methodologies/PAmethodologies/AdditionalityTools/Additionality_tool.pdf) [hereinafter *Additionality Tool*].

140. If a project does not prove to be robust under an investment analysis, it may still qualify for additionality via an alternative barrier analysis. The barrier analysis allows an offsetter to show that barriers exist that “prevent the implementation” of the proposed project and “do not prevent the implementation of at least one of the alternatives.” These barriers may include investment barriers, technological barriers, “prevailing practice” barriers (the activity is “first of its kind”), and others. *Id.* at 8–9.

141. *Id.* at 4.

142. *Id.* at 8–9.

143. See UNFCCC/CCNUCC Executive Board Report 37, Annex 3 (Version 13) Procedures for the Submission and Consideration of a Proposed New Methodology ¶¶1–4, available at [http://cdm.unfccc.int/Reference/Procedures/meth\\_proc02\\_v13.pdf](http://cdm.unfccc.int/Reference/Procedures/meth_proc02_v13.pdf) (describing the case-by-case methodology review available under CDM). Despite the purported rigor of the CDM review process, however, the actual review process has been criticized as being implemented without much rigor—only

A project submitted under Kyoto's CDM may also propose a new baseline or monitoring methodology. This new proposal may then become the basis of an approved methodology to be used by other similar project applicants in the future, essentially creating a CDM project "type" that may become the reference for similar project proposals.<sup>144</sup>

We believe that CDM projects under the Kyoto Protocol will be influential precedent in California for carbon offsets under AB 32.<sup>145</sup> Therefore, we discuss here significant developments in Kyoto CDM related to transit/land use carbon offsets.

In 2007, the CDM approved a project for Bus Rapid Transit (BRT) in Bogota, Columbia.<sup>146</sup> This project was designed to reduce emissions through the following: (1) a new, fuel efficient bus fleet, (2) increased bus capacity, (3) designated bus lanes, (4) GPS bus fleet control, (5) passenger travel mode shift to buses, and (6) fare pre-payment systems.<sup>147</sup> The project proposal—known as the Project Design Document (PDD)—used the continuation of the current bus transit system as the project baseline.<sup>148</sup> The PDD established additionality by showing that the baseline was a feasible legal alternative, and by reasoning that the project could not be implemented without CDM assistance.<sup>149</sup> The PDD considered four alternatives as potential baselines, including the business-as-usual scenario, centralizing the bus system, installing rail mass transit, and implementing the project without CDM assistance.<sup>150</sup> The baseline alternatives examined within this PDD are now integrated into the Approved Baseline Methodology for future BRT projects seeking CDM approval as offsets.<sup>151</sup>

---

59 projects had been rejected while 948 projects had been approved by the Executive Board as of March 1, 2008. See POTTINGER, *supra* note 122, at 11.

144. *Modalities and Procedures*, *supra* note 123, at ¶ 38.

145. A California Climate Action Registry staff member publicly acknowledged that CCAR looks to Kyoto CDM for guidance on carbon offsets. Rachel Tornek, CCAR, Panel Discussion at California Air Resources Board Local Government Operations Protocol Public Workshop (July 10, 2008). Further, CARB anticipates potentially joining its future cap-and-trade scheme to the Kyoto Protocol, and therefore has a vested interest in maintaining policies that are consistent with Kyoto CDM policy. See SCOPING PLAN, *supra* note 15, at 113–115.

146. Compare GRÜTTER CONSULTING, BRT BOGOTÁ, COLOMBIA: TRANS MILENIO PHASE II-IV, CLEAN DEVELOPMENT MECHANISM PROJECT DESIGN DOCUMENT (2006), available at <http://cdm.unfccc.int/UserManagement/FileStorage/E6LUMUUAQA83IUZAPO9XWBMS6BTSAB> [hereinafter BOGOTÁ DESIGN DOCUMENT] and GRÜTTER CONSULTING, MONITORING REPORT: BRT BOGOTÁ, COLOMBIA: TRANS MILENIO PHASE II-IV, MONITORING PERIOD 1/1/2006–31/12/2006 (2007), available at <http://cdm.unfccc.int/UserManagement/FileStorage/I7IQ1F14RTWSFYBHIEYBPU1DFQB8JY> with U.N. FRAMEWORK CONVENTION ON CLIMATE CHANGE, APPROVED BASELINE METHODOLOGY 0031: BASELINE METHODOLOGY FOR BUS RAPID TRANSIT PROJECTS (2006), available at [http://cdm.unfccc.int/EB/025/eb25\\_repan01.pdf](http://cdm.unfccc.int/EB/025/eb25_repan01.pdf) [hereinafter BASELINE METHODOLOGY AM 0031].

147. BOGOTÁ DESIGN DOCUMENT, *supra* note 146, at 7.

148. *Id.*

149. *Id.* at 15–27.

150. *Id.* at 7.

151. BASELINE METHODOLOGY AM 0031, *supra* note 146, at 3. This methodology applies only to BRT projects where an existing bus transit system is in place. It is not applicable to proposed BRT

Recently, a land use development project designed to reduce vehicle miles traveled was proposed as a Kyoto-CDM project. The project, known as the Nanchang Transit Oriented Development (TOD) Project, China, was rejected under Kyoto's CDM due to flaws in quantification methodologies and failure of the specific project to meet the additionality requirement.<sup>152</sup>

The project proposed a methodology for calculating GHG emissions reductions from carbon offset land use projects, relying in part on the methodology developed in the Bogota BRT Project.<sup>153</sup> The proposed project methodology identified four of the five factors known to influence vehicle miles traveled, as discussed in Part I, including density, mixed land use, pedestrian-oriented design, and access to transit.<sup>154</sup>

The proposed TOD project applied the business-as-usual development scenario as the project baseline, which was based on the existing planning documents and development methodologies.<sup>155</sup> The proposal also used a neighboring site, characterized by the business-as-usual scenario, as a control group to calculate baseline emissions.<sup>156</sup> The expected emissions from the proposed project were calculated as well.<sup>157</sup>

The project proposed monitoring emissions reductions through a survey of the project site and the comparison site over time.<sup>158</sup> Surveys are to be conducted every two years, starting with the conclusion of year one after project implementation.<sup>159</sup> The proposed project considered the obstacles of implementation of the TOD project without CDM assistance to determine

---

projects where no public transit is currently in place. Presumably, this is because the identified baseline for this project is the preexisting bus transit system. Further, the proponents of the methodology presumably had no incentive to define an appropriate methodology for all BRT or mass transit projects because this would have been outside of the scope of their own project. The scope of this methodology is therefore quite narrow. By allowing parties to develop generalized methodologies based on their own project proposals, however, the UNFCCC may be proliferating methodologies that differ from those that would otherwise be created for a series of categorically similar projects.

152. See U.N. FRAMEWORK CONVENTION ON CLIMATE CHANGE, PROPOSED NEW BASELINE AND MONITORING METHODOLOGIES: METHODOLOGY FOR TRANSPORT EFFICIENT DEVELOPMENT (2008), available at <http://cdm.unfccc.int/methodologies/PAmethodologies/publicview.html?OpenRound=24&cases=B> [hereinafter METHODOLOGY FOR TRANSPORT EFFICIENT DEVELOPMENT].

153. *Id.* at 2.

154. *Id.* The project also identifies "car use restrictions" measures as influencing VMT. *Id.*

155. U.N. FRAMEWORK CONVENTION ON CLIMATE CHANGE, CLEAN DEV'T MECHANISM PROJECT DESIGN DOCUMENT FORM: NANCHANG TOD PROJECT, CHINA 9, 11 (2008), available at <http://cdm.unfccc.int/methodologies/PAmethodologies/publicview.html?OpenRound=24&cases=B>.

156. *Id.* at 14. The control group meets the following comparability requirements under CDM: (1) it is in the same metropolitan area, (2) it is sufficiently isolated from the project site to avoid cross-influence, (3) it represents the business as usual development patterns, (4) population and land use profiles are similar, and (5) it has similar transportation service characteristics.

157. *Id.*

158. See METHODOLOGY FOR TRANSPORT EFFICIENT DEVELOPMENT, *supra* note 152, at 25 (discussing the survey).

159. *Id.*

additionality.<sup>160</sup> Three primary barriers of implementation identified for the project were as follows:<sup>161</sup>

- financial/investment barriers to execution—the mass transit and mixed use/high density elements of the project are perceived to be of lower financial value than the business-as-usual scenario;
- prevailing practice barriers—there are very few other TOD projects in China and only one other TOD project in Nanchang; and
- lack of know how for implementation of TOD project—local agencies do not have reasonable familiarity with TOD and TOD implementation.

These obstacles were described as preventing the obtainment of the estimated emissions reductions from the business-as-usual scenario for this TOD project.<sup>162</sup>

In rejecting the project methodology, the Methodology Panel reasoned that the control group, a site within the same metropolitan area, was not reasonable because the applicants did not demonstrate that it was sufficiently similar to the project site (for example, it was of a longer distance to the city center).<sup>163</sup> The monitoring methodology, a survey to determine travel patterns from the project site and a control group, was deemed too narrow as well.<sup>164</sup> The Board recommended a regional survey in conjunction with the control group survey to monitor the project's performance relative to the rest of the region.<sup>165</sup>

In rejecting the project based on the doctrine of additionality, the Methodology Panel stated that the project did not qualify as additional because it was funded fully by a public agency<sup>166</sup>—the Land Development and Reforms Commission.<sup>167</sup> Public funding suggested that the project was a pre-existing public policy that would not qualify for CDM funding.<sup>168</sup>

The additionality issue brought up by the proposed TOD project in China is important to the discussion of transportation/land use carbon offsets in California. Land use projects that are particularly difficult to execute because of financial and political barriers to implementation are often initiated by local

---

160. *Id.* at 9.

161. *Id.* at 11–12.

162. *Id.* at 12.

163. U.N. FRAMEWORK CONVENTION ON CLIMATE CHANGE, PROPOSED NEW METHODOLOGY NM 0279 ver. 01, at 2 (2008), available at [http://cdm.unfccc.int/UserManagement/FileStorage/CDMWF\\_DE9OD37T30PXS6N2A1XTGY5OBV2PXX](http://cdm.unfccc.int/UserManagement/FileStorage/CDMWF_DE9OD37T30PXS6N2A1XTGY5OBV2PXX).

164. *Id.*

165. *Id.*

166. *Id.* at 3.

167. U.N. FRAMEWORK CONVENTION ON CLIMATE CHANGE, PROPOSED NEW METHODOLOGY NM 0279 Expert Form ver. 3 (2006), available at [http://cdm.unfccc.int/methodologies/PAmethodologies/publicview.html?meth\\_ref=NM0279](http://cdm.unfccc.int/methodologies/PAmethodologies/publicview.html?meth_ref=NM0279).

168. U.N. FRAMEWORK CONVENTION ON CLIMATE CHANGE, FINAL PANEL RECOMMENDATION TO THE EXECUTIVE BOARD, at 3, available at [http://cdm.unfccc.int/UserManagement/FileStorage/CDMWF\\_0IUFC6ZQCBGQI930XPQL44B06H3RF0](http://cdm.unfccc.int/UserManagement/FileStorage/CDMWF_0IUFC6ZQCBGQI930XPQL44B06H3RF0).

redevelopment agencies in California, which are public entities created by statute.<sup>169</sup> Redevelopment agencies have jurisdiction to initiate urban development in “economically blighted” conditions, which have been interpreted to include a number of potential land conditions deemed otherwise undesirable to private investors.<sup>170</sup> Allowing carbon offsets for land use redevelopment projects might be desirable in California, because it would encourage projects that are a challenge to implement by the private market without public intervention. This is a point of further consideration for California policy makers in referring to Kyoto CDM in the future.

Kyoto Protocol CDM precedents, such as the Botoga BRT project or the proposed Nanchang TOD project, create a category of projects that will likely be influential in California in the future. In addition to these case-by-case precedents, the UNFCCC has started to issue opinions over time on how specific project types can meet the Kyoto Protocol additionality standard.<sup>171</sup> These opinions begin to suggest that certain categories of offset projects are better suited than others, and will generally be acceptable as legitimate offsets under this regime. The same principle is likely to be true for California—as individual offset projects are approved under the Kyoto CDM framework, precedents are established regarding what types of offset projects are likely to be approved under California’s regulatory regime.

This evolution is an alternative to the Kyoto Protocol’s original case-by-case approach, and is similar to what CARB’s Economic and Technical Advancement Advisory Committee (ETAAC) calls a “standards-based” approach, in which certain categories of offset projects are presumed to be of good quality. ETAAC recommends that California adopt a standards-based approach because this “reduces transaction costs as well as increases predictability, both of which encourage early action, innovation, and clear price signals.”<sup>172</sup> Governor Schwarzenegger’s Market Advisory Committee agrees, stating that the costs and administrative complexity of a case-by-case approach

---

169. Cal. Health & Safety Code §§ 33,000–33,018 (West 2008). Redevelopment agencies are local government agencies. *Id.* § 33120.

170. *Id.* § 33,320.1. For an extensive discussion on “economic blight” as defined by statute, and the application of the term by California redevelopment agencies, see Michael Dardia, *Subsidizing Redevelopment in California*, PUB. POL’Y INST. OF CAL. (1998), available at [http://www.ppic.org/content/pubs/report/R\\_298MDR.pdf](http://www.ppic.org/content/pubs/report/R_298MDR.pdf).

171. See, e.g., *Modalities and Procedures*, *supra* note 123 (addressing small scale projects, especially renewable energy and energy efficiency projects); U.N. Framework Convention on Climate Change, *Decision 19/CP.9: Modalities and Procedures for a Afforestation and Reforestation Project Activities Under the Clean Development Mechanism in the First Commitment Period of the Kyoto Protocol*, FCCC/CP/2003/6/Add.2 (Dec. 12, 2003), available at <http://unfccc.int/resource/docs/cop9/06a02.pdf> (addressing afforestation and reforestation projects that increase net carbon stocks in a given area) [hereinafter *Decision 19/CP.9*]. See also U.N. Framework Convention on Climate Change, CDM Executive Board Meetings, <http://cdm.unfccc.int/EB/index.html> (last accessed Nov. 28, 2008).

172. ECON. & TECH. ADVANCEMENT ADVISORY COMM., *supra* note 32, at 9-5.

should be avoided.<sup>173</sup> The MAC recommends that California create a list of projects that should count toward offsets today, such as categories of projects accepted by the northeast Regional Greenhouse Gas Initiative (RGGI),<sup>174</sup> and allow petitions for others.

California has already taken steps to define categories of potentially legitimate offset projects. The California Climate Action Registry (CCAR) has set forth protocols for voluntary offset projects in the forest sector, for emissions reductions related to installing gas collection and combustion systems on landfills, and for manure biogas capture and combustion systems for livestock.<sup>175</sup> The forest sector protocols have taken on a level of regulatory authority because they were adopted by CARB.<sup>176</sup> Because of the presumption of effectiveness, forestry projects under the CCAR need only meet an additionality test that is a much looser standard than the general case-by-case additionality standard of the Kyoto Protocol.<sup>177</sup> A forestation project qualifies for additionality in California under the CCAR/CARB standards so long as there has been no existing forest on the relevant land area for the last ten years and existing law does not make forestation compulsory.<sup>178</sup> For conservation

---

173. MARKET ADVISORY COMM., *supra* note 82, at 63.

174. *Id.* RGGI allows carbon offsetting for methane capture from landfills, afforestation, energy efficiency improvements in the building sector, avoidance of methane emissions from agricultural, and emission reductions in sulfur hexafluoride. REGIONAL GREENHOUSE GAS INITIATIVE, MODEL RULE: PART XX CO<sub>2</sub> BUDGET TRADING PROGRAM 104–105 (2007), available at [http://www.rggi.org/docs/model\\_rule\\_corrected\\_1\\_5\\_07.pdf](http://www.rggi.org/docs/model_rule_corrected_1_5_07.pdf).

175. See California Climate Action Registry, Project Protocols, <http://www.climateregistry.org/tools/protocols/project-protocols.html> (last accessed Nov. 29, 2008). The California Climate Action Registry has also already set forth emissions reporting protocols for particular industries, including the cement industry, as well as the utility/power industries. See California Climate Action Registry, Industry Specific Protocols, <http://www.climateregistry.org/tools/protocols/industry-specific-protocols.html> (last accessed Nov. 29, 2008).

176. CAL. AIR RES. BD., SUMMARY OF BOARD MEETING: OCTOBER 25 & 26, 2007 6, available at <http://www.arb.ca.gov/board/ms/2007/ms102507.pdf>.

177. As previously discussed, the Kyoto Protocol has also issued a categorical standard for forestry CDM projects; however, this standard does not include forest conservation projects. See *Decision 19/CP.9*, *supra* note 171 and accompanying text (addressing afforestation and reforestation projects that increase net carbon stocks in a given area). The Kyoto forestry standard is even looser than California's forestry protocol for afforestation projects, which at least requires legal additionality. See CAL. CLIMATE ACTION REGISTRY, FOREST PROJECT PROTOCOL 24 (2007), available at <http://www.climateregistry.org/tools/protocols/project-protocols/forests.html> [hereinafter FOREST PROJECT PROTOCOL]. The Protocol is currently being updated. See <http://www.climateregistry.org/tools/protocols/project-protocols/forests/forest-protocol-updates.html> (last visited Feb. 28, 2009).

178. FOREST PROJECT PROTOCOL, *supra* note 177, at 26. We believe both the CCAR Forest Project Protocol and the Kyoto Protocol's categorical standard for forestry CDM projects should be strengthened to a higher additionality standard, however, akin to the general additionality standard called for in the general Kyoto Protocol CDM standard. Our concern reflects our evaluation of the forestry projects that have qualified for offset credits so far under the CCAR standard: while those projects clearly have greater conservation protections (typically through conservation easements) and management plans that will lead to greater carbon sequestration than "business as usual," the management plans typically result in *less* carbon sequestration in the near-term than existing levels of carbon sequestration on the forested lands generating the offset credit. This peculiar and counter-

projects, additionality is established if, but for the conservation measures, the forested land would be converted to other uses.<sup>179</sup>

---

intuitive result is due to the fact that the vast bulk of the credits are generated by *avoiding* timber harvesting in accordance with a “baseline” that would dramatically increase timber harvest levels (and therefore dramatically reduce carbon sequestration) compared with recent historic management practices on these lands. The “baseline” case is predicated on an assumption that landowners would “optimize” economic returns from the land by maximizing the economic value of commodity production through timber harvest. The resulting “baseline” projection of carbon sequestration benefits associated with the alternative management plan therefore shows a spike in carbon sequestration credits in the early years of the project—not because the forested lands are sequestering more carbon, but because they are not *releasing* as much carbon as the “baseline” model assumptions projected. A project could therefore release carbon in the early years of the projected management period yet still generate carbon offset credits—which, in turn, could be used to reduce the GHG emission reduction obligations of other entities. The net result of such a management regime, however, would actually be an *increase* in GHG emissions compared to 1990 levels. It is therefore arguable whether or not projects otherwise required to reduce current emissions should be allowed to “offset” their failure to make such reductions with offset credits based on such accounting. *See id.*; *see also* Van Eck Forest Project Documents, <https://thereserve1.apx.com/mymodule/ProjectDoc/EditProjectDoc.asp?id1=101> (last visited Feb. 19, 2009); Garcia River Forest Project Documents, <https://thereserve1.apx.com/mymodule/ProjectDoc/EditProjectDoc.asp?id1=102> (last visited Feb. 19, 2009). Together, these two projects are credited with over 100,000 metric tons of CO<sub>2</sub> equivalent on an annual basis compared to the “baseline.”

179. FOREST PROJECT PROTOCOL, *supra* note 177, at 28. Forest conservation is likely to be more attractive as an investment than reforestation because of the lower costs of maintenance versus complete replanting. *Cf.* ENVTL. LAW INST., MITIGATION OF IMPACTS TO FISH AND WILDLIFE HABITAT: ESTIMATING COSTS AND IDENTIFYING OPPORTUNITIES 16 (2007), *available at* [http://www.elistore.org/reports\\_detail.asp?ID=11248](http://www.elistore.org/reports_detail.asp?ID=11248) (discussing the difference in costs of wetland restoration and wetland creation as it relates to mitigation banking under section 404 of the Clean Water Act).

Additionality of forest conservation projects is problematic, however, for several reasons. Private parties are likely to select lands for conservation that are at a lower risk of deforestation. Lands that are more likely to be deforested are likely to face greater financial and political obstacles; therefore they will appear less attractive to conservation investors. A resolution to this problem may be to assign probabilities of deforestation to each parcel of land, and to then base the market value of the conservation offset on this probability. Another solution may be to presume that an acre of conserved forested land is worth a fraction of an acre of reforested land. This approach has been taken in the market for the preservation and restoration of wetlands under section 404 of the Clean Water Act. *See id.* at 16.

An additional issue with forest conservation projects is that they do not guarantee that a diverted forest development project will not be carried out on another unsuspecting piece of forest instead. Interview with William Stewart, Cooperative Extension Specialist, Univ. of Cal. Berkeley Dep’t of Env’tl. Sci., Policy & Mgmt, in Berkeley, Cal. (Mar. 7, 2008). A solution to this problem may be to secure preservation of larger tracts of land, rather than focusing on individual parcels. *Id.* Securing net benefits from forestry projects depends ultimately upon net decreases in timber consumption, however, to avoid the “leakage” issue of shifting timber harvest to other regions—which could then eliminate any benefits associated with increase carbon sequestration in California by increasing carbon emissions and decreasing carbon sequestration in other regions.

The wide range of concerns about verifying the additionality of offset credits generated through altered forestry practices recently led the European Union to reject inclusion of such credits in its tradeable permit scheme. Instead, the E.U. has indicated that “state-backed funding” of forestry projects would be a more reliable way to ensure improved forest management while transferring investments toward those who undertake such forestry efforts. James Kanter, *Amid Proliferating Markets, E.U. Officials Draw Line on Forest Credits*, N.Y. TIMES, Oct. 22, 2008, <http://greeninc.blogs.nytimes.com/2008/10/22/amid-proliferating-markets-eu-officials-draw-line-on-forest-credits>. For a summary of questions and answers about the European Union’s decision regarding forestry offset projects, see Press Release, EUROPA, Questions and Answers on Deforestation and

Because of ETAAC's and MAC's recommendations, it is likely that a standards-based approach will be adopted in California for offset projects under AB 32. The transportation and land use sectors could benefit from inclusion as offset categories, with some guidance on additionality. This is discussed in greater detail in Part VI.

#### V. INCLUDING LAND USE AND TRANSPORTATION IN AB 32

As discussed in Part III, the California Attorney General's office has taken steps to tie land use to AB 32 through CEQA. Those efforts have now been followed by legislative action through SB 97<sup>180</sup> and SB 375<sup>181</sup> to explicitly link CEQA to AB 32. Since the passage of AB 32, California Attorney General Jerry Brown has successfully linked CEQA to AB 32 by litigating against public and private entities to assess GHG emissions in the EIR process.<sup>182</sup> In two separate monumental settlements, Brown secured the involvement of AB 32 in CEQA in 2007. Under the first settlement, San Bernardino County agreed to assess and mitigate its GHG emissions in its General Plan, which runs through the year 2025.<sup>183</sup> In the second settlement, ConocoPhillips agreed to mitigate GHG emissions from its new planned hydrogen facility in Contra Costa County.<sup>184</sup>

##### A. *San Bernardino County Settlement*

San Bernardino County has the largest land area of any county in the United States, encompassing over twenty thousand square miles. The county

---

Forest Regulation (Oct. 17 2008), available at <http://europa.eu/rapid/pressReleasesAction.do?reference=Memo/08/632/>.

180. S. 97, Gen. Assem., 2005–2006 Reg. Sess. (Cal. 2008) (codified at CAL. PUB. RES. CODE §§ 21083.05, 21097).

181. S. 375, Gen. Assem., 2007–2008 Reg. Sess. (Cal. 2008) (to be codified in scattered sections of the CAL. GOV'T CODE and at CAL. PUB. RES. CODE § 21155).

182. The California Attorney General has submitted formal comments under CEQA related to AB 32 GHG emissions reductions to several counties, including San Bernardino, San Diego, Sacramento, Orange, Merced, Kern, Fresno, San Joaquin, Contra Costa, and Yuba, and the cities of Richmond and San Jose. The Attorney General has also "questioned housing developments in San Jose and in Yuba County, as well as regional transportation plans in Fresno, Sacramento, San Diego and Kern counties." Samantha Young, *California Attorney General Strikes Deal on Global Warming Case*, SAN JOSE MERCURY NEWS, Aug. 21, 2007. Some California cities and counties are taking action under AB 32 independently, including the cities of Los Angeles, San Francisco, Sonoma, Santa Monica, Berkeley, Palo Alto, Chula Vista, Modesto and Healdsburg, as well as Marin County. Press Release, Office of the Attorney Gen., Cal. Dep't of Justice, Brown Announces Landmark Global Warming Settlement (Aug. 21, 2007), available at <http://ag.ca.gov/newsalerts/release.php?id=1453>. The AG had filed over forty comment letters and reached seven settlements on the matter as of mid-October 2008. Janill L. Richards, California Deputy Attorney General, Panel Comments at the Environmental Law Conference at Yosemite (Oct. 18, 2008). Richards noted in her presentation that the AG filed the first comment letter on the issue in March 2006—which preceded AB 32's adoption later that same year. *Id.*

183. See Settlement Agreement, *State v. San Bernardino County*, *supra* note 12.

184. See ConocoPhillips Settlement, *supra* note 12.

exceeded federal air quality standards for more than one quarter of the days in 2002. In addition, county residents generated 10.35 trips per day per household, and 84 percent of these were by car.<sup>185</sup> In comparison, the Institute of Transportation Engineers estimates an average of 9.6 trips per day from single-family homes and 6.7 trips per day from apartments nationwide.<sup>186</sup> Because of its contribution to GHG emissions—largely due to land use practices that result in high vehicle miles traveled—San Bernardino County’s lack of mitigation planning was targeted by the Attorney General’s office.<sup>187</sup>

The Attorney General challenged the county’s general plan under CEQA because the plan failed to mitigate its impact on GHG emissions. The Attorney General’s office stated that the “County itself contributes very significantly to [its high levels of GHG emissions and poor air quality] with a very large rate of trips per day per resident and an abysmally low rate of transit use.”<sup>188</sup> The Attorney General pointed out that the county’s general plan ran through the year 2025, and therefore would have to act upon the emissions reductions targets set forth by AB 32 for the year 2020.<sup>189</sup>

The Attorney General’s office further alleged that the county’s environmental impact report lacked the requisite “disclosure and analysis regarding whether expected air emissions from [county] projects will result in significant impacts on air quality and human health,” that instead of this analysis the EIR contained “a conclusory finding of significance,” and that this lack of analysis “constituted a prejudicial abuse of discretion” under CEQA.<sup>190</sup>

San Bernardino County conceded responsibility under AB 32 and CEQA to mitigate GHG emissions, and settled with the Attorney General.<sup>191</sup> The county agreed to catalog its current, baseline GHG emissions, and determine emissions projections going forward.<sup>192</sup> The county must set a target for and develop measures to reduce GHG emissions as a result of its land use decisions and internal operations.<sup>193</sup> The settlement requires the county to inventory its

---

185. See Petition for Writ of Mandate at 6, *State v. County of San Bernardino*, No. CIVSS 700329 (San Bernardino County Super. Ct., May 4, 2007), available at [http://ag.ca.gov/globalwarming/pdf/SanBernardino\\_complaint.pdf](http://ag.ca.gov/globalwarming/pdf/SanBernardino_complaint.pdf).

186. INST. OF TRANSP. ENG’RS, TRIP GENERATION (7th ed. 2003) (Single family homes are ITE code 210 and Apartments are ITE code 220).

187. See Letter from Bill Lockyer, Cal. Attorney Gen., to James Squire, County of San Bernardino (Oct. 23, 2006), available at [http://ag.ca.gov/globalwarming/pdf/comments\\_San\\_Bernardino\\_GP.pdf](http://ag.ca.gov/globalwarming/pdf/comments_San_Bernardino_GP.pdf) (containing comments of the attorney general regarding the San Bernardino County General Plan Revision, Draft Environmental Impact Report).

188. *Id.*

189. *Id.*

190. Petition for Writ of Mandate, *supra* note 185, at 9–10.

191. Settlement Agreement, *State v. San Bernardino County*, *supra* note 12, at 1.

192. *Id.* at 2.

193. *Id.* San Bernardino County has issued a public statement since the settlement, which includes several county-wide initiatives to reduce GHG emissions, including offering a voluntary San Bernardino County Green Building Program, pursuit of LEED certification on county buildings for new building construction and building renovations, fee waivers of building permit fees for installation of alternate

1990 emissions, which is the reduction target for AB 32.<sup>194</sup> Therefore, the settlement suggests that 1990 levels at least be considered in CEQA review.

It is unclear from the settlement what magnitude of environmental impacts from carbon emissions will generally trigger the need for mitigation under CEQA.<sup>195</sup> As a result of this uncertainty and in response to the San Bernardino County settlement, the California legislature passed SB 97 in 2007. This law requires the California Governor's Office of Planning and Research to establish guidelines for AB 32 GHG mitigation strategies under CEQA by January 1, 2010.<sup>196</sup>

It remains to be determined how public agencies will respond to AB 32 requirements and SB 375's opportunities under CEQA. The Center for Biological Diversity suggests that municipal governments need to have clearly established responsibility to quantifiably reduce GHG emissions to their 1990 levels.<sup>197</sup> According to the Center, the burden should be placed on developers and city project management to show, through the EIR process, that they will

---

power generation and power efficiency technologies, addition of a new hybrid fleet to county vehicles, solar powered highway message boards, and a solar/natural gas hybrid generation plant. Press Release, San Bernardino County, Biane Unveils "Green County San Bernardino" Programs, *available at* [http://www.sbcounty.gov/greencountysb/content/press\\_releases/20070827\\_bosd2\\_green\\_county.pdf](http://www.sbcounty.gov/greencountysb/content/press_releases/20070827_bosd2_green_county.pdf).

194. Settlement Agreement, *State v. San Bernardino County*, *supra* note 12, at 3.

195. Morrison & Foerster, *United States: Landmark CEQA/Climate Change Settlement*, Aug. 24, 2007, *available at* <http://www.mondaq.com/article.asp?articleid=51686>.

196. *See* CAL. PUB. RES. CODE §§ 21083.05 (West 2008). SB 97 also specifically exempts a series of large transportation projects funded under the Highway Safety, Traffic Reduction, Air Quality and Port Security Bond Act of 2006, as well as the Disaster Preparedness and Flood Prevention Bond Act of 2006 (except for projects initiated under these acts after January 1, 2010). *Id.* § 21097. SB 97 therefore actually constrains the reach of the Attorney General's CEQA settlements while delaying any regulatory recognition of the need to evaluate and mitigate GHG emissions effects through the Environmental Impact Report review process for a number of significant projects that might otherwise have been subject to CEQA litigation. Exempting these projects from such CEQA review for GHG emissions was so important to Republicans in the state legislature that they delayed approval of the entire state budget until this was resolved via SB 97.

SB 375 also contains important exemptions for transportation projects that have previously been approved by either the voters through approval of transportation bonds or the California Transportation Commission. The Governor has indicated that there is ambiguity in SB 375, however, regarding which transportation projects may be exempt from CEQA analysis of GHG emissions. He stated in his signing statement for SB 375 that "follow-up legislation is needed to provide clarity of the requirement that projected impacts to the SHS [State Highway System] by previously approved and new projects are required to mitigate for SHS impacts. Apparent inconsistency between this bill and current mitigation requirements provide broad potential for litigation that will hamper project delivery . . . ." Arnold Schwarzenegger, Signing Statement for SB 375 (Sept. 30, 2008), [http://gov.ca.gov/pdf/press/SB375\\_Steinberg\\_Signing\\_Message.pdf](http://gov.ca.gov/pdf/press/SB375_Steinberg_Signing_Message.pdf).

197. Siegel, Kassie, et al., *Combating Global Warming through the California Environmental Quality Act*, CAL. LAND USE LAW & POL'Y REP. 6 (Oct. 2007). The Center suggests a hierarchy for municipal agencies in dealing with GHG reductions. For example, with regard to energy use, agencies should first reduce energy use, then employ renewable resources, and third, offset the remainder. *Id.* The Center has been one of the most active litigants on GHG consideration via CEQA, so its suggestions may play a particularly important role in the scope of CEQA settlements.

obtain certain levels of mitigation based on the scale of each project and its projected GHG emissions.<sup>198</sup>

Further, the California Air Pollution Control Officers Association (CAPCOA) has recommended a threshold of 900 MMTCO<sub>2</sub>E per year, which would apply to projects of around 50 dwelling units or more than about 35,000 square feet of commercial office space.<sup>199</sup> Practicing CEQA attorneys in California were doubtful at a recent conference that such an approach will survive judicial scrutiny, however, in light of past CEQA precedents regarding “cumulatively considerable” effects.<sup>200</sup>

OPR could provide guidance for specific land use requirements to target 1990 emissions levels, and then require municipalities or developers to meet them in the EIR process. A toolbox of suggested mitigation actions could also be provided, from which developers or municipalities can choose to take action to reduce greenhouse emissions.<sup>201</sup> OPR released a Technical Advisory in June 2008 to provide preliminary guidance and to seek public comment on alternative approaches.<sup>202</sup> The Technical Advisory states that OPR will require local governments to identify and evaluate GHG emissions through the CEQA process, but it does not resolve a number of critical issues necessary to resolve the current tension between the San Bernardino County CEQA settlement and AB 32’s ambitious goals. In particular, it does not establish what the “threshold of significance” is for GHG emissions in CEQA review—which is the key to determining what mitigation obligations local governments will face for such

198. *See id.* at 4.

199. CAL. AIR POLLUTION CONTROL OFFICERS ASS’N, CEQA AND CLIMATE CHANGE: EVALUATING AND ADDRESSING GREENHOUSE GAS EMISSIONS FROM PROJECTS SUBJECT TO THE CALIFORNIA ENVIRONMENTAL QUALITY ACT 43–44 (2008), available at <http://www.capcoa.org/ceqa/CAPCOA%20White%20Paper%20-%20CEQA%20and%20Climate%20Change.pdf>.

200. *Id.* Because “cumulatively considerable” effects are by definition related to the cumulative—rather than project-by-project—effect of the emissions, all sources of emissions contribute to the cumulative effect. It is therefore difficult to rationalize a threshold of significance associated with individual project emissions, since the individual project’s level of emissions is not the basis for causing the “cumulatively considerable” effect. The CAPCOA proposal is based primarily on considerations of scope (i.e., capturing most of the GHG emissions associated with projects going through CEQA review) and efficiency (i.e., trying to minimize the costs of conducting such CEQA analysis and mitigating the effects of relatively small projects). *Id.* However, establishment of such a threshold could also lead project proponents to design projects so as to avoid the application of the CEQA mitigation requirements for GHGs (i.e., by designing projects that emit just under the nine hundred ton threshold).

201. The California Attorney General’s office issued a list of potential mitigation projects under CEQA to reduce GHG emissions. The items on the list generally fall under one of three categories: (1) transportation and urban development; (2) conservation and energy efficiency; and (3) land preservation and maintenance. *See* CAL. DEP’T OF JUSTICE, OFFICE OF THE ATTORNEY GEN., THE CALIFORNIA ENVIRONMENTAL QUALITY ACT: ADDRESSING GLOBAL WARMING IMPACTS AT THE LOCAL AGENCY LEVEL 2008, available at [http://ag.ca.gov/globalwarming/pdf/GW\\_mitigation\\_measures.pdf](http://ag.ca.gov/globalwarming/pdf/GW_mitigation_measures.pdf). The Center for Biological Diversity has made similar suggestions. *See* Siegel, *supra* note 197, at 6–7.

202. *See* CAL. GOVERNOR’S OFFICE OF PLANNING AND RESEARCH, TECHNICAL ADVISORY: CEQA AND CLIMATE CHANGE: ADDRESSING CLIMATE CHANGE THROUGH CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA) REVIEW, 2008, available at <http://opr.ca.gov/ceqa/pdfs/june08-ceqa.pdf> [hereinafter OPR TECHNICAL ADVISORY].

emissions under CEQA. OPR has requested assistance from CARB to “recommend a method for setting a threshold of significance for GHG emissions.”<sup>203</sup> OPR projects that it will issue formal CEQA guidelines in accordance with SB 97 ahead of schedule—sometime between January and June 2009.<sup>204</sup>

### B. ConocoPhillips Settlement

The Attorney General’s settlement with ConocoPhillips is equally monumental in the AB 32/CEQA connection. The settlement specifically opens the door for investments into land use by private parties as a way of meeting AB 32 requirements via carbon offsetting.

In September 2007, the California Attorney General’s office came to an agreement with ConocoPhillips, by which ConocoPhillips agreed to offset GHG emissions for a planned hydrogen facility and also agreed to certain mitigation measures for the operation of the hydrogen facility.<sup>205</sup> ConocoPhillips had prepared an EIR in conjunction with its permit application to Contra Costa County to build a hydrogen facility. The county certified the EIR; however, the California Attorney General’s intervened via an appeals process, claiming that the EIR did not adequately address carbon emissions from the project under AB 32.<sup>206</sup>

The emissions from the proposed project would primarily come from a new hydrogen plant ConocoPhillips planned to build to meet demands by the EPA and CARB to provide a greater amount of cleaner-burning fuels from its Rodeo facility in Contra Costa County. According to the EIR, the ConocoPhillips project would initially result in an additional 500,000 metric tons of CO<sub>2</sub> per year (increasing to 1.25 million metric tons of CO<sub>2</sub> once the hydrogen plant operates at full capacity).<sup>207</sup>

ConocoPhillips settled with the Attorney General’s Office, agreeing to mitigate and offset these emissions. Most notably, ConocoPhillips agreed to (1) provide \$7 million to a Bay Area Air Quality Management District fund for carbon offsets (to be created), (2) provide \$200,000 to the Audubon Society for restoration of wetlands in the San Pablo Bay, for purposes of carbon sequestration, (3) provide \$2.8 million to California Wildlife ReLeaf for

---

203. *Id.* at 8.

204. *Id.* at 9. SB 375 also requires CARB to propose a methodology for allocating GHG emissions reduction targets to MPOs between 2009 and 2010, so these two efforts will need to be coordinated by CARB, OPR, and the Resources Agency. The final OPR proposal for CEQA Guidelines will therefore be released before any regional targets have been established by CARB under SB 375 (regional targets must be provided to MPOs by September 30, 2010). CAL. GOVT. CODE § 65080 (West 2008).

205. ConocoPhillips Settlement, *supra* note 12.

206. *Id.*

207. *Id.*

reforestation projects, estimated to sequester 1.5 million metric tons of CO<sub>2</sub> over the lifetime of the forest.<sup>208</sup>

Each of these three investments takes the form of a carbon offset project. Indeed, under the agreement, ConocoPhillips reserved the right to apply for offset credits for these actions under AB 32 once the law comes into effect.<sup>209</sup> Moreover, though they are not transportation related, they all involve investment in land use to offset emissions from a stationary industrial emissions source—a hydrogen plant operator—that is subject to mandatory GHG emissions reporting requirements (and will therefore most likely be regulated) under AB 32.<sup>210</sup>

---

208. ConocoPhillips also agreed to (1) close its Santa Maria Refinery, registered with the California Climate Registry to emit seventy thousand tons of CO<sub>2</sub> per year; (2) undertake an energy efficiency audit of its Rodeo refinery in Contra Costa County and (3) undertake a carbon emissions audit of all of its California facilities. *Id.*

As of March 14, 2008, one metric ton of carbon was trading for \$5.25 on the Chicago Climate Exchange. See Chicago Climate Exchange Homepage, <http://www.chicagoclimatex.com/> (last accessed Nov. 30, 2008). The combined investment into the Air District and Audubon Society funds would be worth 1.4 million tons of carbon on the open market, slightly more than one year of full capacity emissions of the new hydrogen facility. The reforestation project will potentially sequester another 1.5 million tons of carbon. Therefore, ConocoPhillips's combined responsibility under this settlement agreement is to offset approximately two years of emissions at full capacity. This assumes that the Chicago Climate Exchange carbon price is an adequate yardstick of the likely carbon sequestration potential of ConocoPhillips's sequestration obligations.

In the absence of stricter guidelines regarding mitigation requirements under CEQA, other industrial emitters are likely to utilize these figures as precedent in determining their own future obligations for mitigating their emissions under CEQA. Assuming a typical refinery can be expected to operate for twenty years, the ConocoPhillips settlement suggests a commitment to offset approximately 10 percent (two of the twenty years) of a new refinery's emissions over its lifespan. See Clay A. Boyce, M. Andrew Crews & Robin Ritter, *Time for a New Hydrogen Plant?*, HYDROCARBON ENG'G, Feb. 2004, available at [http://www.cbi.com/about/articles/CBI\\_HydrocarbonEngineering\\_Feb04.pdf](http://www.cbi.com/about/articles/CBI_HydrocarbonEngineering_Feb04.pdf) (discussing refineries constructed twenty years ago as being generally outdated).

The significance of a 10 percent emissions reduction commitment varies based on the relative point of comparison. For example, 10 percent over twenty years appears to be a particularly small commitment considering that California must collectively reduce GHG emissions by 11 percent from 2004 levels to meet its 1990 targets in the next twelve years. The energy sector, if taken in isolation, would need to reduce emissions by 5.4 percent over twelve years (CARB quantified California's emissions in 2004 to be approximately 480 million metric tons of carbon dioxide equivalents, compared to 427 million metric tons in 1990; for the energy sector, 2004 emissions were 166 million metric tons and 1990 emissions were 157 million metric tons). CAL. AIR RES. BD., DRAFT CALIFORNIA GREENHOUSE GAS INVENTORY 1 (2007), available at [http://www.arb.ca.gov/cc/inventory/data/tables/rpt\\_Inventory\\_IPCC\\_Sum\\_2007-11-19.pdf](http://www.arb.ca.gov/cc/inventory/data/tables/rpt_Inventory_IPCC_Sum_2007-11-19.pdf). The ConocoPhillips reductions under this CEQA settlement are therefore relatively comparable to the average GHG emissions reductions required of the energy sector under AB 32.

Emission reductions in the range of 5 to 10 percent seem to be the approximate scale of mitigation called for in the energy sector under AB 32. It makes an enormous difference, however, if a 5 or 10 percent reduction is required. The marginal cost of achieving the second 5 percent reduction (moving from 5 to 10 percent total reduction) is likely to be much greater than that required to achieve the first 5 percent reduction.

209. ConocoPhillips Settlement, *supra* note 12.

210. CAL. AIR RES. BD., ATTACHMENT B TO RESOLUTION 07-54: STAFF'S SUGGESTED MODIFICATIONS TO THE ORIGINALLY PROPOSED REGULATION ORDER RELEASED OCTOBER 19, 2007,

The ConocoPhillips Agreement is highly significant in paving the way for integrating offset projects under AB 32 with those under CEQA. If ConocoPhillips is able to obtain offset credits under AB 32 for these actions in the future, then this suggests that additionality can be achieved for purposes of AB 32 offsetting even when the offset action derives from a legal obligation under CEQA, which is a separate legal statute.

ConocoPhillips acknowledged a separate legal obligation to offset its carbon emissions under CEQA by settling with the Attorney General's Office. Yet, at least under this agreement, the company retained its right to claim credit for these offsets under AB 32. It remains to be determined whether CARB will allow ConocoPhillips to claim offset credits for this settlement. As discussed in Part VI below, the key to allowing such a claim may be resolution of a legal conundrum regarding additionality.

### C. *Subsequent Litigation and Settlements*

Neither the Attorney General nor other parties have waited for OPR and the California Resources Agency to issue new CEQA guidelines under SB 97; litigation and threats of litigation under CEQA have continued since the summer 2007 settlements and SB 97's passage. Moreover, a number of trial courts have grappled with CEQA obligations to mitigate GHGs. The AG's office had issued more than forty comment letters on CEQA documents for their failure adequately to address GHG emissions and negotiated seven settlement agreements through mid-October 2008.<sup>211</sup> No state appellate decisions had been issued on the matter as of the same date.<sup>212</sup> The courts are therefore still developing CEQA law regarding these obligations.<sup>213</sup>

The most significant new development since the 2007 settlements and SB 97 is a 2008 Settlement Agreement between the City of Stockton, the Sierra Club, and the state Attorney General. Settled on September 10, 2008, it is modeled on the San Bernardino settlement—but it goes far beyond the San Bernardino settlement by including specific elements of a Climate Action Plan

---

REGULATION FOR THE MANDATORY REPORTING OF GREENHOUSE GAS EMISSIONS A-27 (2007), available at [http://www.arb.ca.gov/regact/2007/ghg2007/attachbres07\\_54.pdf](http://www.arb.ca.gov/regact/2007/ghg2007/attachbres07_54.pdf).

211. Janill L. Richards, California Deputy Attorney General, Panel Comments at the Environmental Law Conference at Yosemite (Oct. 18, 2008).

212. James Moose, Panel Comments at the Environmental Law Conference at Yosemite (Oct. 18, 2008). See also Arnold & Porter, Climate Change Litigation in the U.S., <http://www.climatecasechart.com> (last accessed Nov. 30, 2008).

213. The San Bernardino County case is the only case to date in which the Attorney General actually filed suit; all other interventions have been handled through CEQA comment letters or interventions in other parties' litigation. See Office of the Attorney General Website, California Environmental Quality Act, <http://ag.ca.gov/globalwarming/ceqa.php> (last visited Feb. 19, 2009) (summarizing the AG's actions on these matters).

that shall be implemented by the City of Stockton.<sup>214</sup> Moreover, the settlement suggests that AB 32 (and, since it had not yet been signed into law when the settlement was reached, SB 375) could be the basis for establishing quantifiable GHG reduction targets for land use authorities as well as requiring specific transportation-related land use projects to achieve those targets. In relationship to GHG reduction targets, the Settlement Agreement states that:

Targets shall be set in accordance with reduction targets in AB 32, other state laws, or applicable local or regional enactments addressing GHG emissions, and with Air Resources Board regulations and strategies adopted to carry out AB 32, if any, including any local or regional targets for GHG reductions adopted pursuant to state laws.<sup>215</sup>

Moreover, the Settlement Agreement links the overall GHG emission reduction targets to transportation-related land use projects by specifically requiring a reduction in VMT growth:

The Climate Action Plan shall include the following measures related to GHG inventories and GHG reduction strategies:.... A goal to reduce per capita vehicle miles traveled [] attributable to activities in Stockton... such that the rate of growth of VMT during the General Plan's time frame does not exceed the rate of population growth during that time.<sup>216</sup>

Finally, those GHG and VMT targets are linked to specific quantifiable actions to produce VMT-reducing infill development rather than more VMT-intensive development on the urban fringe. For example, the city must include plans for projects that:

Require at least 4400 units of Stockton's new housing growth to be located in Greater Downtown Stockton... with the goal of approving 3000 of these units by 2020. Require at least an additional 14,000 of Stockton's new housing units to be located within the City limits as they exist on the Effective Date.<sup>217</sup>

Stockton's land use projects must also be linked to viable transit service.<sup>218</sup>

This language, linking GHG reduction targets to VMT reduction targets to specific quantifiable measures of transit-oriented infill development patterns, coupled with a wide range of other specific actions that Stockton has agreed to undertake, raises the bar on the potential mitigation requirements that local land use decision makers may face under CEQA. For some, this represents a major step forward toward establishing quantifiable GHG reduction obligations under

---

214. Settlement Agreement between City of Stockton, Sierra Club, & California Attorney General § 3b, 4 (September 10, 2008), available at [http://ag.ca.gov/cms\\_attachments/press/pdfs/n1608\\_stockton\\_agreement.pdf](http://ag.ca.gov/cms_attachments/press/pdfs/n1608_stockton_agreement.pdf). The Sierra Club filed the original Petition for Writ of Mandate in San Joaquin County Superior Court on January 10, 2008 (Case No. CV 034405) following the December 11, 2007 adoption of the Stockton 2035 General Plan. See *id.*

215. *Id.*

216. *Id.* at § 3(c).

217. *Id.* at §§ 6(a), 6(b).

218. *Id.* at §§ 5, 7.

CEQA; for others, it is a step backward that would dramatically diminish the discretion of local authorities under CEQA. Like the San Bernardino and ConocoPhillips settlements of 2007, however, the Stockton settlement establishes an important reference point for what may be expected of local governments.<sup>219</sup>

#### VI. CARBON OFFSETS FOR CEQA GREENHOUSE GAS EMISSION MITIGATION PROJECTS

AB 32 and CEQA create opportunities for significant cross-industry and public-private partnerships for carbon offset projects. Under AB 32, industrial entities will likely be obligated to mitigate or offset GHG emissions. Developers and municipal agencies will also need to mitigate GHG emissions under CEQA. It is possible to pool the resources of entities subject to these separate legal regimes to create higher quality transportation-related land use mitigation projects.<sup>220</sup> A company subject to the emissions requirements of AB 32 may have the incentive to fund a CEQA mitigation project if that project will count as a carbon offset under AB 32. Such increased funding, in turn, should increase the likelihood of implementing the Sustainable Communities Strategies developed under SB 375 to achieve the GHG emission reduction targets assigned to each MPO by CARB.<sup>221</sup>

Land use projects that reduce vehicle miles traveled will be especially effective in meeting AB 32's emission reduction goals. As the legislature found in SB 375, land use patterns have a tremendous impact on VMT, and therefore on GHG emissions in California.<sup>222</sup> Researchers and policy makers alike have

---

219. Both the Sierra Club and the Attorney General involved professional planners in the settlement negotiations, which allowed for the development of much more specific substantive requirements of the City of Stockton. The relationship between planners and attorneys in the development of future settlements may now follow that model—where the substantive knowledge of planners is married to the procedural requirements of San Bernardino.

220. Linking CEQA and AB 32 will require some deliberate coordination on the part of CARB and the Office of Planning and Research (OPR). Strong coordination between the two agencies is highly desirable as OPR must set CEQA mitigation requirements for GHG emissions under SB 97 by January 1, 2010. CAL. PUB. RES. CODE § 21083.05 (West 2008).

221. There is otherwise no compulsory mechanism for changing local land use or transportation plans or regulations to implement these projects. As Bill Higgins of the League of California Cities has noted, many local governments will be unable to approve transit-oriented mixed-use projects that would otherwise further the goals of SB 375 and AB 32 unless improvements can be funded to improve non-transportation infrastructure (e.g., sewers, water, parks). Additional funding therefore must enter the system to implement SB 375 successfully. Bill Higgins, League of California Cities, Panel Comments at the Environmental Law Conference at Yosemite (Oct. 19, 2008).

222. In the words of the Legislature, “[w]ithout improved land use and transportation policy, California will not be able to achieve the goals of AB 32.” S. 375, §1(c), Gen. Assem., 2007–2008 Reg. Sess. (Cal. 2008) (to be codified in scattered sections of the CAL. GOV'T CODE and at CAL. PUB. RES. CODE § 21155).

acknowledged a correlation between good land use decisions and decreases in VMT, as discussed in Part I.<sup>223</sup>

Therefore, offsets for appropriate transportation-related land use projects should be included in a potential cap-and-trade regime in California. Some form of additionality standard would need to be met, however, to assure that these offsets are of sufficient quality. Transportation-related land use offset investments must constitute more than what is being done today in the business-as-usual or baseline scenario.<sup>224</sup>

The financial feasibility of transit infrastructure projects<sup>225</sup> is a prime consideration when establishing a transportation-related land use additionality test.<sup>226</sup> It is also the primary argument for allowing the use of carbon offsets for transportation-related land use projects. Large funding investments need to be made to build transit infrastructure. At the high end, for example, a proposal to extend 16.3 miles of Bay Area Rapid Transit (BART) infrastructure in the San Francisco Bay Area from Fremont to Santa Clara estimated infrastructure costs of a stunning \$4.7 billion (\$288 million per mile).<sup>227</sup> And operational costs compete with the cost of infrastructure. The estimated annual cost of operating BART from Fremont to Santa Clara is \$75 million.<sup>228</sup> Carbon offsets create

223. As noted above, increasing density alone is not sufficient to reduce GHG emissions. The spatial and economic links between land use changes (including density, diversity, and design) and mode choice alternatives (e.g., auto, transit, bike, walking) are complex and still the subject of much debate. We defer discussion of development of a detailed additionality test. Here we focus on the legal conditions necessary to establish a viable system for incorporating land use and transportation projects into the market. The framework established under SB 375 for modeling the GHG impacts of alternative land use and transportation systems will develop the technical tools and analytic capabilities necessary to estimate the GHG effects of transportation-related land use projects. SB 375 § 2, CAL. GOV'T CODE § 14522.1 (West 2008) requires the CARB to maintain guidelines for travel demand models that will then be the basis for modeling the GHG emissions impacts (required under SB 375 § 4, CAL. GOV'T CODE § 55080(b)(2)(G)) associated with the adoption of a sustainable communities strategy required under CAL. GOV'T CODE § 55080(b)(2). The same modeling conventions would be used under CAL. GOV'T CODE § 55080(b)(2)(H) to develop an alternative planning strategy if the sustainable communities strategy does not meet the regional GHG emissions reductions targets assigned by CARB to each MPO under SB 375.

224. Determining the "baseline" condition, as demonstrated through implementation of the CCAR Forestry Protocols, is not a trivial task. It is basic economics that increasing land costs increase densities for infill projects, for example, but they also increase pressure for more distant greenfield development that increases VMT and GHG emissions. It is also unclear how SB 375 may change the "baseline:" is it with or without the adopted SCS or APS?

225. One of the greatest obstacles to mass transit projects is lack of funding. Interview with Doug Johnson, S.F. Bay Area Metro. Transp. Comm'n, in Oakland, Cal. (Oct. 2, 2007).

226. Financial feasibility played a strong role in securing the Bogotá BRT project under the Kyoto CDM additionality test. See BOGOTÁ DESIGN DOCUMENT, *supra* note 146, at 12.

227. Gary Richards, *BART Chugs Along, for Now: VTA Allocates \$185 Million in Hopes of Future Funding*, SAN JOSE MERCURY NEWS, Dec. 15, 2006, available at [http://www.mercurynews.com/ci\\_4846546](http://www.mercurynews.com/ci_4846546). For comparison, the estimated costs of a proposed 800-mile high speed rail system from the San Francisco Bay Area through the Central Valley to Los Angeles would be around \$40 billion (\$50 million per mile). California High Speed Rail Authority, Financing California's High-Speed Train System, [http://www.cahighspeedrail.ca.gov/news/FUNDING\\_lr.pdf](http://www.cahighspeedrail.ca.gov/news/FUNDING_lr.pdf) (last accessed Nov. 30, 2008).

228. Richards, *supra* note 227.

tremendous opportunity to pool private resources toward such VMT-reducing projects.<sup>229</sup>

Whether these projects can meet the legal additionality standard for carbon offsets remains ambiguous due to the evolving status of CEQA and new considerations raised by SB 375. Legal additionality, as developed by the Kyoto Protocol and adopted by the CCAR, requires that a project be executed independent of any legal obligation to do so. CARB may decide that transportation-related land use projects are legitimate only if they are additional to any GHG mitigation already required under CEQA or additional to what is targeted for under SB 375.

It is imperative that OPR and CARB resolve the uncertainty surrounding how to determine additionality. Uncertainty is likely to diminish interest in and pursuit of transportation-related land use offset projects. Failure to pursue such projects will increase the cost and decrease the likelihood of achieving the goals of AB 32.

#### A. *Legal Additionality and Land Use Offsets*

Additionality is the primary legal challenge to linking carbon offsets under AB 32 to CEQA. It is highly likely that CARB will adopt some standards-based additionality test for carbon offsets, as discussed in Part III.C.2. However, CEQA throws a wrench in the equation, because the existing additionality precedents—including the Kyoto Protocol and California’s own Forestry Protocols—require that a project be *generated independent of some existing legal obligation* in order to qualify as a carbon offset. It is therefore uncertain whether carbon offsetting of land use projects will be treated as additional in California, because GHG mitigation may be legally required under CEQA as a result of the Attorney General’s settlements and SB 97. The question remains to what extent agencies subject to CEQA have an existing legal requirement to mitigate, and therefore are barred from using offset funding for, transportation-related land use mitigation projects because they fail the additionality requirement.<sup>230</sup> This question is illustrated in Figure 1 below.

---

229. Our use of this BART illustration does not represent an endorsement of the BART extension proposal. Indeed, \$4.7 billion could possibly achieve much greater increases in transit ridership and reductions in GHG emissions if spent instead on other projects. In a properly operating offset market, however, the economic value of the GHG reductions would make cost-effective many projects that would otherwise go unfunded (assuming that those projects receiving offset payments achieve GHG emission reductions for less cost than achieving the same level of GHG reductions at a more expensive stationary source regulated under AB 32).

230. As discussed in Part IV, additionality as originally defined by the Kyoto Protocol requires that CDM offset projects originate outside of an existing legal obligation. Determining whether CEQA creates an existing legal obligation (even in the absence of AB 32) to reduce emissions for additionality purposes may also determine whether CEQA offset projects will qualify under the Kyoto Protocol, if California ever wishes to link its cap-and-trade scheme to this international trading system. (We assume that SB 375 imposes no new or separate legal obligations to reduce GHGs through transportation-related

The escape hatch in this conundrum requires two legal conditions. First, the requirement imposed under CEQA to mitigate greenhouse gases must be treated as being *as a result of* the passage of AB 32, rather than an independent CEQA requirement.<sup>231</sup> As such, the obligation to mitigate GHG emissions under CEQA should not be considered a pre-existing legal obligation for purposes of determining whether carbon offsetting projects are additional under AB 32.<sup>232</sup> Second, mitigation of GHG emissions *below* 1990 levels is clearly discretionary under AB 32,<sup>233</sup> so any mitigation efforts required under CEQA that result in emissions reductions below 1990 levels should also be treated as discretionary for additionality purposes.

As to the first condition, that the requirement imposed under CEQA to mitigate greenhouse gases must be treated as being *as a result of* the passage of AB 32, and not a *pre-existing* legal obligation under CEQA: the strongest argument is that the Legislature had never established and no party had ever agreed before the passage of AB 32 to a legal obligation to address GHG emissions under CEQA. As OPR has stated in its Technical Advisory,

While AB 32 did not amend CEQA to require new analytic processes to account for the environmental impacts of GHG emissions from projects subject to CEQA, it does acknowledge that such emissions cause significant adverse impacts to human health and the environment. Senate Bill 97, enacted in 2007, amends the CEQA statute to clearly establish that GHG emissions and the effects of GHG emissions are appropriate subjects for CEQA analysis.<sup>234</sup>

---

land use projects, since its structure is incentives-based. SB 375 raises complicated issues, however, in relationship to legal additionality that we are not able to analyze here.)

231. We want to distinguish between two conditions under which this conclusion may or may not be valid: (1) *given* the passage of AB 32, is the obligation to mitigate the impacts of GHG emissions a *result of* AB 32 or *independent of* AB 32?, versus (2) in the *absence* of AB 32, would there be a CEQA obligation to mitigate the impacts of GHG emissions independent of AB 32's existence? Our position is that there would be a CEQA obligation to mitigate GHG emissions even if AB 32 did not exist—but, *given* its passage (and the reliance of the Attorney General on AB 32's existence in determining that there was an obligation under CEQA to mitigate the impacts of GHG emissions), the CEQA obligation now exists as a *result of* AB 32—making CEQA mitigation “additional” in accordance with the legal additionality criteria employed under the Kyoto CDM system for establishing offsets.

232. Similarly, ConocoPhillips arguably was meeting its regulatory obligations to CARB and EPA in proposing the hydrogen facility in Contra Costa County. The agreement to mitigate and offset this new facility suggests that the Attorney General's Office and/or ConocoPhillips believe that AB 32 has created a new obligation to offset emissions even for actions taken to meet other regulatory requirements.

233. See CAL. HEALTH & SAFETY CODE § 38550 (West 2008) (mandating that GHG emissions be reduced to 1990 levels).

234. OPR TECHNICAL ADVISORY, *supra* note 202, at 3. OPR subsequently issued draft guidelines, proposing to amend fourteen sections of the CEQA Guidelines to comport with its Technical Advisory. See CAL. GOVERNOR'S OFFICE OF PLANNING AND RESEARCH, PRELIMINARY DRAFT CEQA GUIDELINE AMENDMENTS FOR GREENHOUSE GAS EMISSIONS v (January 2009), available at <http://opr.ca.gov/index.php?a=ceqa/index.html>.

The Legislative declaration in AB 32 was therefore a key element in the Attorney General's ability to negotiate the San Bernardino County and ConocoPhillips settlements in the summer of 2007. There was not an independent obligation under CEQA before AB 32.

It will also be necessary for regulators to determine that mitigation of GHG emissions *below* 1990 levels is discretionary under AB 32, and therefore any mitigation efforts required under CEQA resulting in emissions reductions below 1990 levels should also be treated as discretionary for additionality purposes. This should not be a difficult determination because it is unclear whether AB 32 even requires CEQA mitigation down to 1990 levels. Neither the San Bernardino nor the ConocoPhillips CEQA settlements explicitly require this, and SB 97 does not obligate OPR to adopt CEQA guidelines requiring mitigation down to 1990 levels. And while SB 375 calls for CARB to set regional GHG emission reduction targets,<sup>235</sup> those targets appear to be non-mandatory.<sup>236</sup> Therefore, any level of GHG emissions reductions below the business-as-usual levels that otherwise would have occurred in the absence of the mitigation measure (unless otherwise required under AB 32 or some other non-CEQA legal obligation) could therefore conceivably qualify as "additional" and qualify for offset treatment.

This situation is summarized in Figure 1—the darker area above the 1990 threshold, but below business-as-usual levels, would qualify as additional for carbon offset purposes.

**Figure 1. CEQA and Potential Additionality in Light of AB 32**

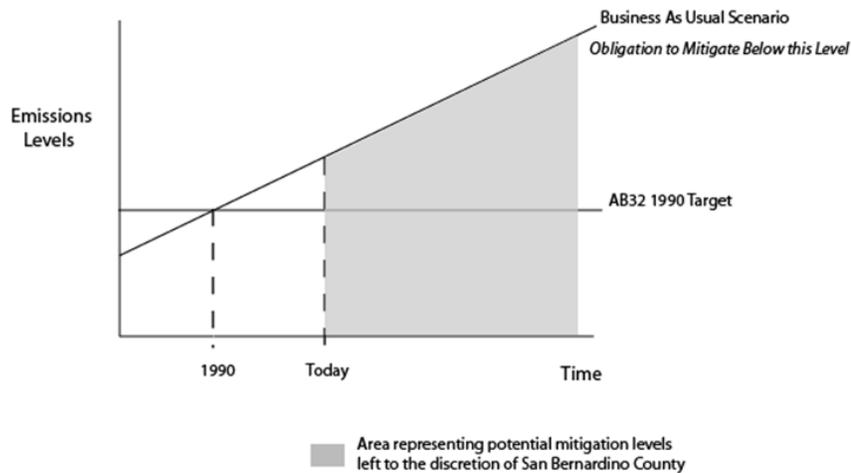


235. S. 375, Gen. Assem., 2007–2008 Reg. Sess. (Cal. 2008) (to be codified in scattered sections of the CAL. GOV'T CODE and at CAL. PUB. RES. CODE § 21,155). California Government Code section 65,080 outlines the regional target-setting process.

236. This is a conclusion based on first impression; we have not been able to analyze SB 375 in detail.

The San Bernardino County settlement serves as useful precedent to explore this issue because it informs the likely obligations of local governments under CEQA for GHG mitigation. The settlement requires the county to assess the current business-as-usual emissions, as well as projected future emissions from its general plan (i.e. the business-as-usual scenario).<sup>237</sup> The county must also establish a “target for the reduction of those sources of emissions reasonably attributable to the County’s discretionary land use decisions.”<sup>238</sup> The settlement does not dictate what this target should be, although it suggests that San Bernardino County at least consider its 1990 emissions levels. Ultimately, however, San Bernardino County’s “reduction targets [and] how it achieves them” are for the county to decide.<sup>239</sup> This suggests that *all* GHG reductions undertaken by the county below the business-as-usual emissions levels may be discretionary for additionality purposes under CEQA (even those above the 1990 level). Figure 2 illustrates the possible mitigation levels at the county’s discretion.

**Figure 2. CEQA and Additionality in Light of AB 32—San Bernardino County Settlement**



Moreover, the settlement acknowledges that the relationship between AB 32 and land use regulation under CEQA remains undefined. Pursuant to the settlement, the county is obligated only to meet the potential future requirements of AB 32, and any mitigation the county chooses above and

237. Settlement Agreement, *State v. San Bernardino County*, *supra* note 12, at 3.

238. *Id.*

239. Attorney General Jerry Brown, *Window is Closing Fast on Climate Change: Scientists Say the Next Two to Three Years are Critical*, CAL. COUNTIES (Jan./Feb. 2008) at 17, available at [http://ag.ca.gov/globalwarming/pdf/CSAC\\_Article\\_Jan2008.pdf](http://ag.ca.gov/globalwarming/pdf/CSAC_Article_Jan2008.pdf).

beyond these requirements is deemed discretionary.<sup>240</sup> Because it does not appear that AB 32 will directly regulate land use decisions, the settlement in effect makes the nature of GHG mitigation under CEQA discretionary for San Bernardino County.

Similarly, since AB 32 will likely not directly regulate land use, it creates a discretionary power under CEQA (rather than a legal obligation) to determine the appropriate mitigation levels of greenhouse gases.<sup>241</sup> This is in the spirit of the CEQA Guidelines, which state that CEQA is “intended to be used in conjunction with discretionary powers granted to public agencies by other laws.”<sup>242</sup> These discretionary powers authorize public agencies to “mitigate or avoid significant effects on the environment.”<sup>243</sup>

Current CEQA guidelines regarding appropriate mitigation levels and significant environmental impacts are very broad.<sup>244</sup> The guidelines explain that significance may be a matter of circumstance, and “may vary with the setting.”<sup>245</sup> The existing CEQA framework is designed to address land use projects on a case-by-case basis, and does not proscribe a specific rule legally

---

240. Settlement Agreement, *State v. San Bernardino County*, *supra* note 12, at 3.

241. The CARB staff recently stated that “CEQA provides a mechanism that is independent of AB 32 through which lead agencies can begin immediately to reduce the climate change-related impacts of projects that come before them.” California Air Resources Board, Preliminary Draft Staff Proposal, Recommended Approaches for Setting Interim Significance Thresholds for Greenhouse Gases under the California Environmental Quality Act, at 4 (Oct. 24, 2008). This statement suggests that the CARB may view such obligations as (1) independent of AB 32, and (2) discretionary (“can” rather than “must” or “shall” suggests discretion on the part of the lead agency). In addition, some ambiguity remains whether CARB currently has the authority to regulate transportation-related land use under AB 32. The Pavley Bill, which regulates emissions from transportation, specifically excludes any sort of regulation by the Board of practices influencing vehicle miles traveled. ASSEMBLY BILL 1493, 2001–2002 Reg. Sess., Legislative Counsel’s Digest at 2, codified at CAL. HEALTH & SAFETY CODE §§ 42,8823, 43,018.5, available at <http://www.calcleancars.org/ab1493.pdf> (“This bill would prohibit the state board from imposing a mandatory trip reduction measure or land use restriction.”). AB 32 references the Pavley Bill, stating that the “state board shall implement alternative regulations to control mobile sources” of emissions if the Pavley Bill does not “remain in effect.” CAL. HEALTH & SAFETY CODE § 38,590 (West 2008). Arguably, this suggests that AB 32 is subservient to the Pavley Bill. A Senate committee hearing on this topic in mid-2006 discussed deferring to the Pavley Bill unless it fails to be implemented or California fails to achieve a reasonable level of emissions from the transportation sector. *California Global Warming Solutions Act of 2006: Greenhouse Gases, Hearing on A.B. 32 Before the S. Comm. On Env’tl. Quality*, 2005–2006 Reg. Session (Cal. 2006), available at <http://www.assembly.ca.gov/acs/acframeset2text.htm>.

242. Guidelines for Implementation of the California Environmental Quality Act, CAL CODE REGS. tit 14, § 15040(a) (2008).

243. *Id.* at § 15040(c).

244. OPR has sought recommendations from CARB regarding significance thresholds for CEQA mitigation for greenhouse gasses under SB 97, OPR TECHNICAL ADVISORY, *supra* note 202, at 8, and CARB issued its Preliminary Staff Proposal on October 24, 2008. See CAL. AIR RES. BD. PRELIMINARY STAFF PROPOSAL: RECOMMENDED APPROACHES FOR SETTING INTERIM SIGNIFICANCE THRESHOLDS FOR GREENHOUSE GASES UNDER THE CALIFORNIA ENVIRONMENTAL QUALITY ACT (October 24, 2008), available at [http://www.opr.ca.gov/ceqa/pdfs/Prelim\\_Draft\\_Staff\\_Proposal\\_10-24-08.pdf](http://www.opr.ca.gov/ceqa/pdfs/Prelim_Draft_Staff_Proposal_10-24-08.pdf). Cf. *infra* note 246.

245. CAL CODE REGS. tit 14, § 15064(b).

obligating certain levels of mitigation. Determining significant environmental impact and appropriate mitigation under CEQA is a matter of agency discretion (and judicial interpretation), and neither the San Bernardino County settlement nor the Technical Advisory issued by OPR pursuant to SB 97 suggest otherwise.<sup>246</sup> Therefore, imposing a specific rule onto this system for carbon offsetting would probably not be practical or executable.<sup>247</sup>

In addition, CEQA gives agencies the power to mitigate adverse environmental impacts but does not grant any agency subject to it “new powers independent of the powers granted to the agency by other laws.”<sup>248</sup> In the case of GHG emissions, AB 32 does not provide any land use related powers to agencies subject to CEQA to reduce GHG emissions. If AB 32 does not grant agencies additional legal power under CEQA, then no new legal obligation should be created for purposes of determining additionality. Further, under SB 97, OPR will create guidelines for mitigating greenhouse gases under CEQA.<sup>249</sup> These guidelines could conceivably create a legal requirement to mitigate under AB 32 (either below baseline levels or below 1990 levels), but that requirement should treat any emissions reductions that are not otherwise directly required under AB 32 as discretionary under CEQA for purposes of determining additionality.<sup>250</sup> Otherwise, land use and transportation projects

---

246. See OPR TECHNICAL ADVISORY, *supra* note 202; Settlement Agreement, *State v. San Bernardino County*, *supra* note 12. A significant effect is generally not defined under CEQA, but significance thresholds for particular types of impacts have developed through time as a matter of agency discretion and litigation.

247. An overall emissions reduction target tied to the overall requirements of AB 32 (estimated to be about an 11 percent reduction) would be reasonable, however. This would be analogous to meeting an ambient air quality standard for air pollutants under the Clean Air Act; CEQA analysis typically treats compliance with such standards as satisfying the requirement that projects not cause significant adverse impacts. Failing to meet a regulatory standard under the CAA would clearly cause a significant adverse impact, however, requiring mitigation under standard CEQA practice. CAL. CODE REGS. tit. 14 § 15065(a)(1) (2008) requires “mandatory findings of significance” if “[t]he project has the potential to: substantially degrade the quality of the environment . . . .” Section 15065(a)(4) requires mandatory findings of significance if “[t]he environmental effects of a project will cause substantial adverse effects on human beings, either directly or indirectly.” All criteria air pollutants under the federal Clean Air Act have been determined to cause adverse effects satisfying both subsections 15065(a)(1) and 15065(a)(4), so non-compliance is a significant effect. One could therefore treat AB 32’s overall emissions reduction goals as analogous to a threshold of significance under CEQA—any emissions reductions beyond the overall percentage reductions required under AB 32 would be “additional” and therefore eligible for offset credit. However, this approach seems inappropriate if CARB implements AB 32 in a manner that explicitly excludes such obligations for land use and transportation projects. In that case, the threshold of significance could be either existing or baseline GHG emission levels.

248. Guidelines for Implementation of the California Environmental Quality Act, CAL CODE REGS. tit 14, § 15,040(b) (2008).

249. Cal. Pub. Res. Code § 21,083.05 (West 2008) (The Office of Planning and research (OPR) “shall prepare, develop, and transmit to the Resources Agency guidelines for the mitigation of greenhouse gas emissions” and the Resources Agency shall “certify and adopt guidelines prepared and developed” by OPR).

250. The OPR Technical Advisory does not suggest a strong inclination by OPR to issue heavy-handed guidelines that would preclude additionality; the advisory proscribes that agencies follow the

will not qualify to be treated as offsets eligible to receive investments from emission sources that are directly regulated under AB 32 or any international regime.

Ironically, the likely result of treating such projects as obligatory rather than discretionary under CEQA would be a reduction in the financial feasibility of implementing them. Without legal additionality, carbon offset dollars would not be available to fund CEQA emissions mitigation. Equipped with less funding, local governments will be more likely to make findings of overriding consideration and allow “significant” GHG emissions to avoid the costs of committing to land use and transportation projects that mitigate those emissions.<sup>251</sup> Potential emissions mitigation projects should therefore be treated as discretionary under CEQA to arm local agencies responsible for transportation-related land use decisions with the necessary financing options to execute these projects.

*B. Policy Grounds for Allowing Additionality for CEQA Mitigation Projects*

In addition to the legal grounds, several policy reasons suggest that allowing offsets for CEQA mitigation projects would be the preferred outcome. First, it will provide another source of funding for local government initiatives created to address GHG emissions; second, it will encourage more ambitious mitigation plans; third, it will avoid distorting investment away from transportation-related land use projects that may be more cost effective at reducing emissions than other potential uses of offsets; and finally, it will avoid the consequence of limited investment interest that would come whenever there

---

existing case-by-case CEQA mechanisms in reviewing the environmental impact of GHG emissions. *See generally* OPR TECHNICAL ADVISORY, *supra* note 202, at 5–6. Alternatively, if OPR establishes certain mitigation requirements under CEQA, then investment projects that go above and beyond CEQA requirements may be a good fit for carbon offset credits under AB 32. For example, if CEQA should in the future require that all new large-scale housing developments apportion 5 percent of the project cost to mass transit projects, then a financial investment beyond this 5 percent should be able to claim the remainder in carbon offsets.

251. CEQA allows agencies to approve land use projects in spite of significant environmental impact, under certain circumstances. CEQA requires lead agencies to weigh the economic, legal, social, technological, and other benefits of a proposed project against its environmental effects. Guidelines for Implementation of the California Environmental Quality Act, CAL CODE REGS. tit 14, § 15093(a) (2008). If one or more of these specific benefits outweigh the environmental effects, the effects may be treated as acceptable. These benefits must be documented in a statement of overriding considerations. *Id.* § 15093(b). In addition, lead agencies may approve a project with significant environmental impact so long as they document that economic, legal, social, technological, or other considerations make mitigation infeasible. *Id.* § 15091(a)(3). It is possible that some lead agencies may opt to avoid certain levels of emissions mitigation by claiming infeasibility or overriding considerations. Carbon offsets could reduce the probability of this occurring, by offering a funding source to address environmental impacts that are particularly burdensome for lead agencies to mitigate. Ironically, then, treating GHG emission reductions under CEQA as discretionary will tend to reduce the avoidance of such reductions due to discretionary use of the “overriding considerations” safety valve that cities and counties often use to avoid CEQA mitigation.

was uncertainty whether a project would achieve GHG mitigation goals *beyond* the 1990 baseline.

Granting additionality to offset projects for all levels of CEQA mitigation (below and above 1990 baseline levels) will provide lead agencies with more sources of funding for mitigation projects. Many lead agencies are local governments that have significant influence over transportation-related land use policy because they control local land use planning and zoning, and they are intimately involved with the land use challenges facing local communities. Some have already made their own initiatives in response to AB 32.<sup>252</sup> Carbon offset funding would stimulate much needed GHG reducing projects in the land use/transportation sector.

A generous additionality standard will also encourage more ambitious GHG mitigation plans. If a local government knows that it can obtain funding from AB 32 carbon offsetters to reduce emissions, it is likely to have more ambitious goals and expand its regulatory reach. If a local government is uncertain or believes that such funding will not be available, its emission reduction goals are likely to be less ambitious.

Further, if all CEQA mitigation projects are not treated equal for purposes of additionality, then this would in effect impose a higher standard for CEQA offsets than any other type of offset program. A higher additionality standard on CEQA could potentially distort investment away from land use related offsets. The economic consequences of such a distortion are worthy of consideration, and could be a particular problem if investments into GHG reduction measures face decreasing marginal returns (which is likely), and transportation-related investments have a comparable rate of return on investment to other types of offset projects. If CEQA projects only qualify for offset projects that reduce emissions below 1990 levels (while other non-land use offset projects do not face this restraint), then investment dollars will legally be forced to flow first to other offset programs with potentially higher costs of emissions reductions. With respect to transportation-related land use, some of the lowest hanging fruit—and some of the most important fruit—will remain unpicked.<sup>253</sup>

For these reasons, allowing carbon offsets for CEQA mitigation projects without legal additionality restrictions is likely to be the most effective approach to minimizing the costs of achieving AB 32's goals.

---

252. See Press Release, Office of the Attorney Gen., Cal. Dep't of Justice, *Brown Announces Landmark Global Warming Settlement* (Aug. 21, 2007), available at <http://ag.ca.gov/newsalerts/release.php?id=1453>.

253. Land use and transportation investments set the structure for decades of future energy use, so there is also an important path-dependency argument in favor of ensuring that land use and transportation investments are pursued. Light bulbs, appliances, and vehicles turn over in years or a couple of decades, so any failure to invest in the most energy-efficient options in those sectors can be remedied relatively soon compared to land use and transportation.

*C. Legal Additionality and SB 375*

SB 375 raises legal additionality concerns similar to CEQA. Local governments are not legally committed to conform to SB 375's land use and transportation planning goals. However, it is unclear whether their cooperation precludes them from generating carbon offsets from conforming projects. CARB has pronounced that projects "undertaken as a result of government incentive programs" do not qualify as carbon offsets.<sup>254</sup> Therefore, if CARB determined SB 375 to be a "government incentive program" due to the connection between funding and conformance with the SCS, it would be fair to assume that projects funded under SB 375 would not also qualify for carbon offsets. However, it remains unclear whether offsets would be available for local planning activities that are consistent with, but do not receive funding through, SB 375. We focus in this paper on CEQA, but note that we recommend that VMT-reducing projects consistent with SB 375, but not directly funded through SB 375, should qualify for carbon offsets, for the same reasons we support liberal coverage under CEQA.

## VII. STRUCTURING A CARBON OFFSETTING FRAMEWORK FOR CEQA

Integrating carbon offsets into CEQA will require some modification of the current CEQA EIR process. We recommend that MPOs, which have particular expertise in regional transportation planning, serve as a facilitators and authorizing bodies of both the offset investment market for transportation-related land use projects, as well as the facilitator for the CEQA EIR process. MPOs are best prepared to coordinate transportation-related land use planning and emissions mitigation because transportation-related land use challenges generally cross jurisdictional boundaries.<sup>255</sup>

Many of the mechanisms that would facilitate integration of such a structure already exist in the current land use regime under CEQA, and would serve as a basis for integrating carbon offsets into CEQA mitigation. Under CEQA, a non-governmental entity may actually propose and carry out the project.<sup>256</sup> The lead agency is responsible for the supervision and approval of the proposed land use project.<sup>257</sup> This agency approves the EIR for projects in which significant impacts on the environment are anticipated.<sup>258</sup> This report is filed with OPR. In some instances, another agency may be responsible for execution of the project as well, and has discretionary authority over the EIR

---

254. SCOPING PLAN, *supra* note 15, at 68.

255. MOORE, *supra* note 30, at 220 (discussing regional-level of transportation planning).

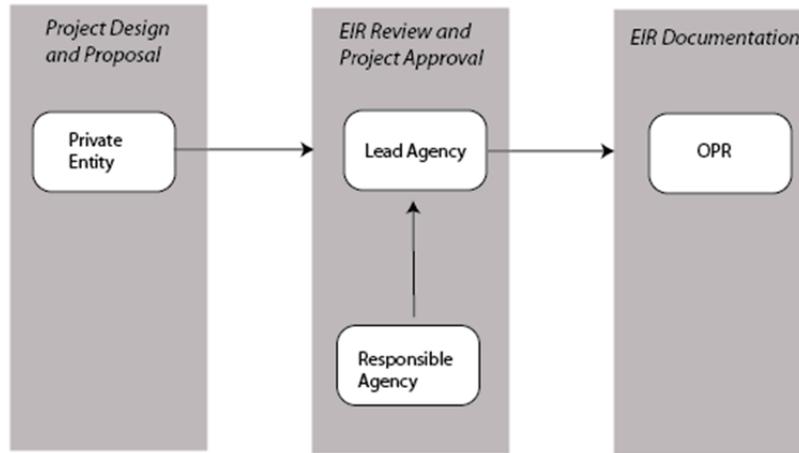
256. See Guidelines for Implementation of the California Environmental Quality Act, CAL CODE REGS. tit 14, § 15051(b).

257. CEQA, CAL. PUB. RES. CODE § 21067 (West 2008).

258. *Id.* § 21080.1.

process.<sup>259</sup> This agency is subservient to the lead agency, and is known as the responsible agency.<sup>260</sup> Responsible agencies tend to have limited jurisdictions (e.g., an air pollution control district), while lead agencies are chosen for their general jurisdictions over a project.<sup>261</sup> Figure 3 summarizes this relationship.

**Figure 3. CEQA EIR Process**



It would be particularly useful to delegate the task of identifying needed land use investments for offset projects to some independent agency, which could then serve as a responsible agency in the EIR process. Allotting such coordination responsibility has been done to some extent in an existing market-based regime called wetland mitigation banking, which is sufficiently similar to carbon offsetting to deserve review. This is discussed in Subpart A below.

Further, the Kyoto Protocol CDM model offers insight into structuring a carbon offset administrative process in California, and is discussed in Subpart B. Moreover, key components of Kyoto CDM additionality are similar to the CEQA EIR process and could serve as a basis for CEQA mitigation carbon offset review; this is discussed in Subpart C.

#### A. *Lessons from Wetlands Mitigation Banking*

Mitigation banking is a regulatory scheme developed by the U.S. Army Corps of Engineers under the Clean Water Act to address the decline of wetlands as a result of development.<sup>262</sup> In its most basic form, a developer who

259. CAL CODE REGS. tit 14, § 15381.

260. *Id.* § 15050.

261. *Id.* § 15051(b)(1).

262. *See* Clean Water Act, 33 U.S.C. § 1344 (2006).

will adversely impact wetland habitat may purchase credits from a mitigation bank toward the creation of wetlands somewhere else to offset its own development activities. The bank takes over the legal and financial responsibility for the quality of the mitigation credits.<sup>263</sup> The bank must invest the proceeds of its sale of credits into a certified wetland mitigation program.<sup>264</sup> In California, mitigation banking generally includes the pooling of resources with one bank to fund a large-scale wetland restoration project;<sup>265</sup> all banks must be registered with the California Department of Fish and Game.<sup>266</sup> Mitigation banking is seen as a means to “consolidate financial resources, planning, and [technical] expertise” to preserve wetlands.<sup>267</sup>

In some instances of mitigation banking, an administrator—usually a non-profit entity or a state or local government agency—seeks out and recommends offset projects for funding.<sup>268</sup> The administrator will often structure the geographical scope of a mitigation bank across a watershed or similar ecohydrological unit in managing wetlands mitigation.<sup>269</sup>

This third-party administrator concept could apply to the transportation-related land use offset project. The appropriate administrator for carbon offsets could be the Metropolitan Planning Organization (MPO) that is also charged with responsibility for developing the SCS under SB 375.<sup>270</sup> For example, in the San Francisco Bay Area, the Metropolitan Transportation Commission (MTC) serves the metropolitan transportation planning function, and could potentially be a suitable agency to administer offset projects.<sup>271</sup> On a smaller

---

263. Leonard Shabman & Paul Scodari, *The Future of Wetlands Mitigation Banking*, CHOICES, 1st Quarter 2005, available at <http://www.choicesmagazine.org/2005-1/environment/2005-1-13.htm>.

264. The U.S. EPA adopted a new Final Rule for Compensatory Mitigation for Losses of Aquatic Resources (which govern wetland mitigation banks) on April 10, 2008. 40 C.F.R. Pt. 230 (2008); 19,594 Fed. Reg. Vol. 73, No. 70.

265. CAL. DEP'T OF FISH & GAME, REPORT TO THE LEGISLATURE: CALIFORNIA WETLAND MITIGATION BANKING 3-4 (2005), available at <http://www.dfg.ca.gov/habcon/conplan/mitbank/Wetlands%20Bank%20Leg%20Report%202005.pdf>.

266. *Id.* at 6-7. The Department of Fish and Game establishes reporting requirements for banks when they are created so that the Department can satisfy its reporting requirements to the legislature pursuant to CAL. FISH & GAME CODE § 1851 (West 2008).

267. *Id.* at 4.

268. PAUL SCODARI & LEONARD SHABMAN, U.S. ARMY CORPS OF ENG'RS, REVIEW AND ANALYSIS OF IN LIEU FEE MITIGATION IN THE CWA SECTION 404 PERMIT PROGRAM 8 (2000), available at [http://www.iwr.usace.army.mil/inside/products/pub/iwrreports/TWRReport\\_ILF\\_Nov00.pdf](http://www.iwr.usace.army.mil/inside/products/pub/iwrreports/TWRReport_ILF_Nov00.pdf).

269. *Id.* at 23.

270. SB 375 calls for each “transportation planning agency” to “prepare and adopt a regional transportation plan.” That plan must then include “a sustainable communities strategy prepared by each metropolitan planning organization.” SB 375, 2008 Cal. Legis. Serv. Ch. 728 (West) (to be codified in scattered sections of the CAL. GOV'T CODE and at CAL. PUB. RES. CODE § 21155).

271. This banking role is already being considered by at least one California agency. The South Coast Air Quality Management District is considering creating a regional carbon offset bank, the SoCal Climate Solutions Exchange. This program would feed into existing California Climate Action Registry Protocols for carbon offsets and GHG emissions. S. COAST AIR QUALITY MGMT. DIST., WHITE PAPER: SOCAL CLIMATE SOLUTIONS EXCHANGE 2008, available at <http://www.aqmd.gov/hb/attachments/2008/June/080637B.doc>.

scale, MTC's jurisdiction is divided into superdistricts, roughly akin to local commute sheds, or areas in which local residents circulate and execute daily vehicle trips. Identifying transportation-related land use offset projects on the local commute shed level may be an effective way of identifying needed offset projects and targeting vehicle miles traveled on a local scale.<sup>272</sup> As a result, an agency such as MTC may be particularly suited for this task, and could potentially be integrated into the EIR process as a responsible agency in coordinating transportation-related land use carbon offsets.<sup>273</sup>

Mitigation banking for wetlands is also informative for integrating offset oversight responsibility into CEQA. However, it does not address the broader mechanism for administration and approval of carbon offsets under AB 32, and how this mechanism would link back to CEQA and the Responsible Agency.

### B. A Model Structure: The Kyoto Protocol CDM

The Kyoto Protocol offers a model for offset project administration, which informs what could be done in California. The Kyoto Protocol has not only precedential value, but it also has the added benefit of conforming what could be done in California to this international standard. Designing an offset program that meets Kyoto Protocol standards is of particular importance if California wishes to link into this or other international offset trading systems in the future.<sup>274</sup>

The Kyoto CDM process can be distilled into four prongs: (1) project design/proposal, (2) independent certification, (3) review/approval, and (4)

---

272. This level of administration would require a permanent funding source. A partial solution to this may be to allot a small percentage of offset investment dollars from each project to an offset administration fund. This configuration is being used under the Kyoto Protocol Clean Development Mechanism to fund expenses related to the administration of the CDM. Under the Kyoto Protocol, 2 percent of proceeds from certified emissions reductions activities under the Clean Development Mechanism go to a UNFCCC registry to fund administration of the CDM program, as well as to fund projects in developing countries for adaptation to climate change. Farhana Yamin, *The International Rules on the Kyoto Mechanisms*, in CLIMATE CHANGE AND CARBON MARKETS: A HANDBOOK OF EMISSION REDUCTION MECHANISMS 1, 30 (Farhana Yamin ed., 2005).

273. CARB could also delegate the task of approving and monitoring land-use related offset projects to the California Climate Action Registry (CCAR), which already had assumed this role with respect to the forest sector even before CARB was assigned responsibility for implementing AB 32. We have some serious reservations, however, about the quality of the offsets that may qualify under the existing California forest sector protocol due to the weakness of the additionality analysis compared to the Kyoto Protocol's general project analysis. Compare FOREST PROJECT PROTOCOL, *supra* note 177, with *Modalities and Procedures*, *supra* note 123. The Protocol is currently being updated, which may address some of our concerns. Whether developed by CARB or the CCAR, transportation-related land use offset projects should be required to meet the more rigorous standard of the Kyoto Protocol in order to ensure genuine GHG emission reductions are achieved.

274. Meeting the Kyoto Protocol standard may also create opportunities for international offset trades under a post-2012 successor to the Kyoto Protocol if the United States ratifies such a treaty (such trades are not presently allowed under the Kyoto Protocol because the United States has not ratified the treaty).

emissions credit issuance. Each of these is carried out by a separate entity as a quality control mechanism. The CDM independent certification process also includes a project monitoring requirement, which is an essential step in assessing the actual effectiveness of the project post-implementation.<sup>275</sup>

The project applicant under the CDM, known as a project participant, is responsible for submitting a project design proposal as well as a proposed monitoring plan for the project.<sup>276</sup> An independent certifier, known as a designated operational entity, validates the design proposal and subsequently verifies the appropriate execution of the monitoring plan.<sup>277</sup> This validation includes the actual accounting for monitored reductions of greenhouse gases as a result of the CDM project. The administrative body for CDM, known as the executive board, reviews and accepts projects. The executive board relies on the reports of the designated operational entity both to register and accept the CDM project, and later to issue GHG reduction credits based on the project's monitored success over a pre-determined time frame.<sup>278</sup> Based on the independent certifier's monitoring report, the executive board authorizes the CDM Registry to issue certified emissions reductions credits to the project participant.<sup>279</sup>

Figure 4 illustrates this process, as well as the parties involved.

---

275. See Kyoto Protocol Decision 3/CMP.1, Modalities and Procedures for a Clean Development Mechanism, FCCC/KP/CMP/2005/8/Add.1 (March 30, 2006) ¶ 37(e), available at <http://cdm.unfccc.int/Reference/COPMOP/08a01.pdf#page=6>. Post-project monitoring has also proven to be an essential step in assessing the effectiveness of mitigation projects in the wetland banking context under section 404 of the Clean Water Act. Lisa G. Berry Engler, Compensatory Wetland Mitigation in North Carolina: Evaluating the Ecosystem Enhancement Program 32 (2005) (unpublished M.S. thesis, Duke University), available at [www.nicholas.duke.edu/wetland/mp/Berry05.pdf](http://www.nicholas.duke.edu/wetland/mp/Berry05.pdf). See also PAUL MINKIN & RUTH LADD, U.S. ARMY CORPS OF ENG'RS, SUCCESS OF CORPS-REQUIRED WETLAND MITIGATION IN NEW ENGLAND 1, 18, 21 (2003), available at <http://www.mitigationactionplan.gov/USACE%20New%20England%20District%20Mitigation%20Study.pdf> (identifying significant quality issues with wetland mitigation projects and attributing this in part to lack of sufficient monitoring).

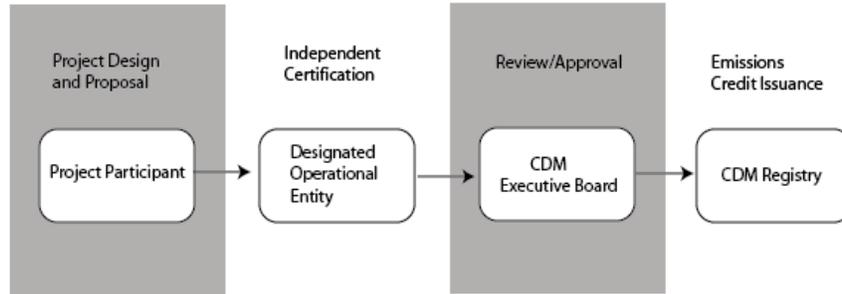
276. *Modalities and Procedures*, supra note 123, at 34, 38.

277. *Id.* at 31.

278. Yamin, supra note 272, at 31–33.

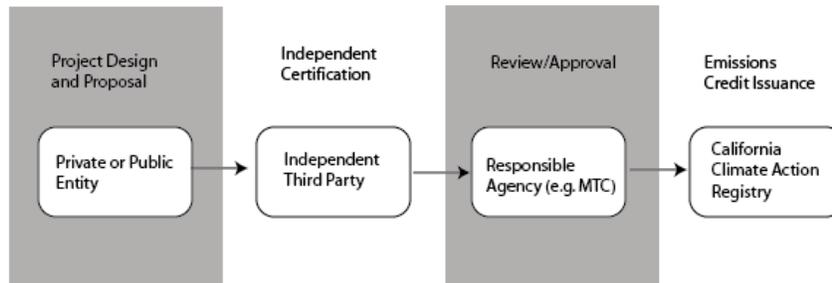
279. See U.N. Framework Convention on Climate Change, Project Cycle of the Clean Development Mechanism, [http://unfccc.int/files/meetings/workshops/other\\_meetings/application/pdf/howard.pdf](http://unfccc.int/files/meetings/workshops/other_meetings/application/pdf/howard.pdf) (last accessed Nov. 30, 2008); *Modalities and Procedures*, supra note 123, at 40–41.

**Figure 4. Project Authorization Process under Kyoto CDM**



Kyoto CDM includes in the project approval process an independent certification element, as well as an emissions reduction registration element, which are not part of the CEQA EIR process. These processes could be incorporated into both the AB 32 and CEQA offset mechanisms by having an independent certifier verify the project design and monitoring proposals. The CCAR could take on the role of issuing offset certificates for the project. Alternatively, certification could occur through the SCS development process under SB 375 (e.g., a project that is identified as a Transit Priority Project, or TPP, under an approved SCS would qualify for offsets). Finally, the responsible agency under CEQA could assume the role of the executive board in review/approval of the offset. This configuration is illustrated in Figure 5.

**Figure 5. Proposed Project Authorization Process under AB 32, Linked to CEQA**



We propose this Kyoto-based model as a framework for integrating the evaluation of transportation-related land use carbon offsets into the existing CEQA process. Under this rubric, the responsible agency becomes the link between the proposed AB 32 offset approval process and the environmental impact review process under CEQA. Further, this framework suggests how

California may structure its carbon offset mechanisms under AB 32 more generally.<sup>280</sup>

C. *Additionality Review under CEQA vs. Kyoto*

Additionality review could be incorporated into the existing environmental impact review process to account for projects relying on carbon offset investment dollars. The process of evaluating projects under CDM's Project Design Documents (PDDs) is similar to the alternatives review found in EIRs under CEQA already. They differ, however, in important respects.

First, CDM only requires that environmental impact be considered with respect to the project proposal and arguably the baseline.<sup>281</sup> In contrast, CEQA review requires some consideration of the environmental impact of all feasible alternatives.<sup>282</sup> CEQA Guidelines explain that the listed alternatives must "focus on alternatives to the project or its location which are capable of avoiding or substantially lessening any significant [environmental] effects of the project."<sup>283</sup>

Second, while both the CDM PDD and CEQA EIR processes require that parties discuss project feasibility, the analysis under CDM is much more extensive. As discussed in Part III, feasibility of the proposed project and its alternatives determine additionality. CEQA, on the other hand, requires that alternatives considered but rejected as infeasible be documented in the EIR for purposes of transparency. However, feasibility of alternatives does not determine whether the proposed project should ultimately be authorized.<sup>284</sup>

Moreover, CEQA requires that feasibility be considered with respect to project mitigation—the lead agency may conclude that economic, legal, social, technological, or other feasibility considerations make mitigation of environmental impacts of the project infeasible.<sup>285</sup> Although this analysis applies to the proposed project, and not its alternatives, the considerations included in this analysis are similar to the additionality considerations of the Kyoto Protocol for CDM project development documents. These similarities pave the way for incorporating considerations of additionality into the CEQA EIR process. Figure 6 compares the CDM PDD and CEQA EIR requirements.

---

280. The Environmental Impact Statement (EIS) review process under the National Environmental Policy Act (NEPA) could also be modified along these lines to evaluate similar projects at the federal level that may qualify for offsets under either Kyoto (if the United States were to ratify the treaty) or its successor under the UNFCCC.

281. Modalities and Procedures for a Clean Development Mechanism, *supra* note 275, at ¶¶ 37(c), 44.

282. CEQA requires that the "no project alternative" or a baseline always be considered. Guidelines for Implementation of the California Environmental Quality Act, CAL CODE REGS. tit 14, §§ 15125(a), 15126.6(e) (2008).

283. *Id.* § 15126.6(b).

284. *Id.* § 15126.6(c).

285. *Id.* § 15091(3).

**Figure 6. Comparison of CDM PDD and CEQA EIR Requirements**

	CDM PDD		CEQA EIR	
	Feasibility Review	Env't'l Impact Review	Feasibility Review	Env't'l Impact Review
<b>Baseline</b>	Yes	Yes	Limited	Yes
<b>Proposed Project</b>	Yes	Yes	Limited	Yes
<b>Alternatives</b>	Yes	No	Limited	Yes

Figure 7 compares the considerations explicitly listed under CDM and CEQA that may determine project feasibility. CDM feasibility focuses on alternatives analysis, while CEQA feasibility includes both the feasibility of alternatives as well as the feasibility of mitigating significant environmental impact of the proposed project.

**Figure 7. Feasibility Comparison of PDD & EIR Considerations**

	CDM PDD <sup>286</sup>	CEQA EIR <sup>287</sup>
<b>Regulatory limitations</b>	Alternatives	Alternatives & Mitigation
<b>Economic/financial</b>	Alternatives	Alternatives & Mitigation
<b>Investment barriers</b>	Alternatives	
<b>Technical barriers</b>	Alternatives	Mitigation
<b>Prevailing practice barriers</b>	Alternatives	Mitigation (i.e. social barriers)
<b>Site suitability/access</b>		Alternatives
<b>Availability of infrastructure</b>		Alternatives

These similarities suggest that the CEQA EIR process already contains common elements to the CDM PDD process.<sup>288</sup> As a result, bridging the gap

286. *Additionality Tool*, *supra* note 139, at 4–11.

287. Alternatives feasibility, CAL CODE REGS. tit 14, § 15126.6(f)(1), and mitigation feasibility, *id.* § 15091.

between EIR review and additionality review may be less daunting than it could be in the absence of an existing project review regime.<sup>289</sup> This is especially true given the passage of SB 375, which will establish new modeling protocols and assumptions through the SCS development process for comparing transportation-related land use projects to a “baseline” scenario to quantify additionality.<sup>290</sup>

#### VIII. ENCOURAGING OFFSETS FOR LAND USE PROJECTS

Establishing a legal framework for carbon offsets does not guarantee interest in the framework. Encouraging companies to take advantage of offset opportunities under CEQA would require addressing the risks associated with the transaction to potential carbon offsetters. The United States’s experience with mitigation banking informs this issue.

Two predominant risks discourage the use of mitigation banking. The first is the cost and uncertainty related to obtaining the certification of the mitigation or offset project under a regulatory administration. The second is associated with the uncertainty of how much demand for mitigation or offset projects—and therefore carbon offset funding—exists for potential projects.<sup>291</sup>

Certification uncertainty can be overcome with a transparent approval process, which involves both buyer and seller from the start. In a successful mitigation banking transaction, for example, the buyer and seller of credits have met and informally discussed with the regulatory agency whether the proposed transaction will qualify as an offset. Further, the buyer and seller

---

288. As identified in Figure 7, investment barriers are not an explicit feasibility consideration under CEQA EIR review, although economic/financial barriers arguably encompass investment barrier considerations under CEQA. The financial/investment barriers associated with transportation-related projects are arguably the most prominent barriers to project execution, and therefore deserve a prominent role in any CEQA additionality standard.

289. The existence of a comprehensive environmental review process under CEQA—which has been criticized as costly in terms of getting projects approved in the state—therefore actually facilitates integration of California projects into any international offset credit system. Jurisdictions without an existing review process will need to develop similar review processes to demonstrate additionality, so California and other jurisdictions with CEQA-style impact assessment procedures have an administrative advantage in developing verifiable offset projects.

290. SB 375 requires important changes to the modeling protocols used by regional transportation agencies that should make it easier to calculate the GHG emissions associated with alternative transportation-related land use projects. Ann Notthoff, Natural Resources Defense Council, Panel Comments at the Environmental Law Conference at Yosemite (Oct. 19, 2008). Moreover, the SCS development process will ensure a publicly transparent opportunity for the modeling assumptions underlying those GHG emissions calculations to be critiqued and developed for improved verifiability. Nonetheless, the issue of what a region’s “baseline” GHG emissions—and the impact of the SCS—will remain fraught with high levels of uncertainty and opportunities for gaming in order to develop regional plans that appear to meet CARB’s regional targets (but may not be able to meet them in practice).

291. LEONARD SHABMAN & PAUL SCODARI, RESOURCES FOR THE FUTURE, PAST, PRESENT AND FUTURE OF WETLANDS CREDIT SALES 15–16 (2004), available at <http://www.rff.org/Documents/RFF-DP-04-48.pdf>.

exchange some moneys before regulatory approval to finance and secure the transaction for the seller.<sup>292</sup>

Uncertainty related to the demand for mitigation projects arises when a mitigation bank has difficulty securing funding from a sufficient amount of offsetters to engage in a substantial mitigation project. It is frequently the case that one mitigation bank will need to apply offset contributions from a variety of sources to generate enough income for a suitably-sized mitigation project.<sup>293</sup> Similarly, in the case of carbon offsets, it may be advantageous to pool resources from a variety of offsetters into one transportation-related land use project. Securing such funding will therefore face the same demand side uncertainty issues faced by mitigation bankers.

The problem of demand side uncertainty becomes particularly pervasive with mitigation banking because of administrative uncertainty and time lag in the process related to the determination of whether an offsetter may use a mitigation bank.<sup>294</sup> Pursuant to section 404 of the Clean Water Act, the regulated entity—generally a developer—must minimize the environmental impact of its conduct on site before it can take advantage of a mitigation bank.<sup>295</sup> It takes some administrative time and effort to determine what level of on-site mitigation is sufficient before a mitigation bank can get involved. Uncertainty has also historically existed regarding what constitutes sufficient on-site mitigation.<sup>296</sup>

This level of uncertainty could carry over to the carbon offsets example if CARB decides that CEQA mitigation is obligatory and therefore does not count toward carbon offsetting. It would then be an administrative challenge to separate out what constitutes CEQA or non-additional mitigation. Streamlining the additionality standard so that it is fairly transparent to all parties involved will encourage carbon offsetting. However, SB 375 implementation could

---

292. *Id.* at 14.

293. SCODARI, *supra* note 268, at 3 (discussing high up-front capital costs of developing mitigation banks).

294. SHABMAN, *supra* note 291, at 8–13.

295. See 40 C.F.R. § 230.10(a) (2008) (requiring that a permit cannot be issued under section 404 “if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences”). This is sometimes called the “Least Environmentally Damaging Practicable Alternative” requirement. Mitigation can therefore only be approved if there is no other alternative (e.g., relocating the development, changing its design) with less environmental impact.

296. This uncertainty is coupled with increasing uncertainty about the scope of federal jurisdiction over wetlands regulation under section 404 of the Clean Water Act in the wake of several complex and confusing decisions by the U.S. Supreme Court on the matter. See *Rapanos v. United States*, 547 U.S. 715 (2006); *Solid Waste Agency v. U.S. Army Corps of Eng’rs*, 531 U.S. 159 (2001); Mark Latham, *Rapanos v. United States: Significant Nexus or Significant Confusion? The Failure of the Supreme Court to Clearly Define the Scope of Federal Wetland Jurisdiction*, in *THE SUPREME COURT AND THE CLEAN WATER ACT: FIVE ESSAYS* 6-21 (2007), available at <http://www.vjel.org/books/pdf/PUBS10004.pdf> (discussing the uncertainty created by the *Rapanos* court regarding which rules should apply to determine federal regulatory jurisdiction under the Clean Water Act).

establish a large and relatively certain level of demand for offsets under AB 32. Both AB 32 offset markets and SB 375 implementation should be structured to address this uncertainty if CARB wants transportation-related land use projects to play a major role in achieving the goals of both AB 32 and SB 375.

Offset project demand uncertainty has also been addressed in the mitigation context through a form of mitigation banking known as the credit resale program. Within this program, the mitigation bank is a government agency,<sup>297</sup> and the agency secures the mitigation credits and resells them in a competitive bidding process. The agency is also responsible for predicting the demand for credits and generally maintaining the credit market. The advantage of this approach is that an agency coordinates the process of obtaining offset funding from a variety of sources. Individual offsetters, on the other hand, may not have the incentives or the resources to coordinate their investments to complete larger-scale offset projects. The agency approach is meant to remedy this coordination obstacle. An MPO such as the Bay Area's MTC may be the appropriate conduit of such coordination with respect to offset projects.<sup>298</sup>

---

297. In contrast, in what is called a fee-based mitigation banking program, the seller of the credits is usually an independent private third party—also known as a commercial wetland mitigation bank. As the EPA notes, "Mitigation banks are a form of 'third-party' compensatory mitigation, in which the responsibility for compensatory mitigation implementation and success is assumed by a party other than the permittee. This transfer of liability has been a very attractive feature for Section 404 permit-holders, who would otherwise be responsible for the design, construction, monitoring, ecological success, and long-term protection of the site." U.S. Env'tl. Prot. Agency, Mitigation Factsheet, <http://www.epa.gov/owow/wetlands/facts/fact16.html> (last visited Feb. 20, 2009).

298. The idea of accepting cash donations in return for offset credits may also be worth investigating, so long as the funded projects are of high quality and meet additionality standards. Such donations could prove particularly useful to municipalities such as Berkeley with ambitious climate change plans that are looking for funding sources to execute those plans. A regional entity facilitating CEQA carbon offset projects may be suited to channel donation funding into appropriate carbon offset projects. The Army Corps of Engineers has approved offsets based on cash donations to ongoing mitigation projects led by NGOs and governmental agencies. See SHABMAN, *supra* note 291, at 27. The Water Resources Development Act (WRDA) of 2007 identifies mitigation banking as the preferred mechanism for offsetting unavoidable wetland impacts associated with Corps Civil Works projects. U.S. Env'tl. Prot. Agency, Mitigation Banking Factsheet, <http://www.epa.gov/owow/wetlands/facts/fact16.html> (last visited Feb. 20, 2009). However, donations receive criticism because they circumscribe the offset market, and have historically been subject to a less rigorous quality review. See SHABMAN, *supra* note 291, at 27. Addressing these issues with respect to carbon offsets would become important if cash donations are allowed.

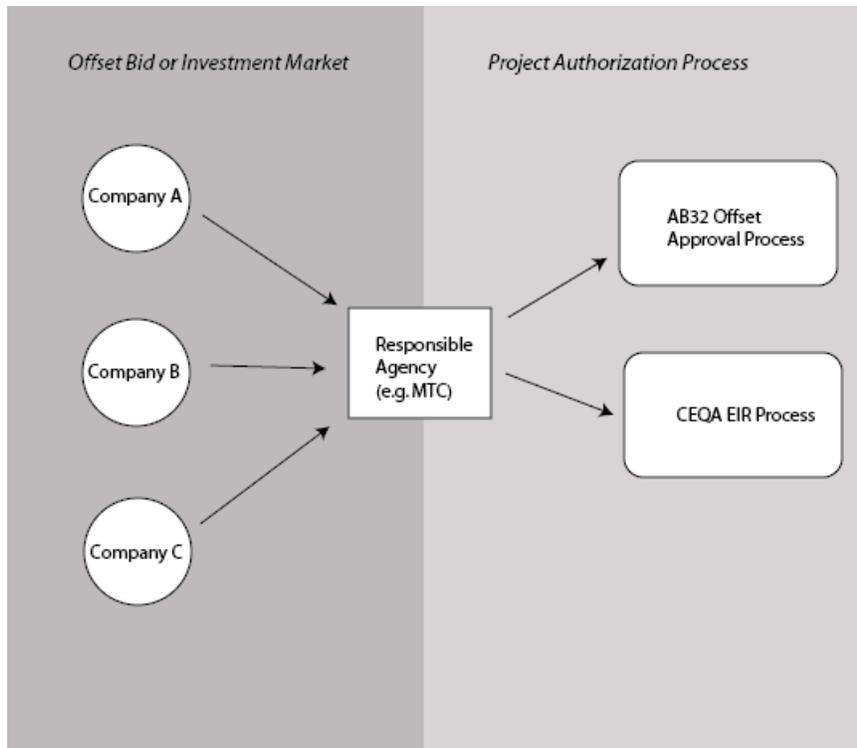
**Figure 8. Offset Market Relationship to Project Authorization**

Figure 8 suggests how an MPO, serving both as a responsible agency under CEQA as well as the approving agency of regional transportation-related carbon offset projects, could pool offset investments for purposes of a large-scale transportation-related land use project.

Figure 8 summarizes a functional carbon offset process for transportation-related land use projects. An MPO familiar with cross-jurisdictional transit issues and informed by the transportation needs of local jurisdictions serves as the central facilitator. The agency participates in the EIR process to determine the mitigation goals of a given transportation-related land use project. The agency also engages with potential carbon offsetters subject to emissions regulations under AB 32. The agency pools carbon offset investment dollars for the transportation-related land use mitigation project. The agency also authorizes the carbon offset project based on its emissions reductions. These reductions are documented in the EIR process.

#### CONCLUSION

The AB 32 climate action regime has stimulated widespread interest in reducing GHG emissions associated with land use decisions. As noted by SB 375, land use changes related to the transportation sector could significantly

impact the state's emissions—and will be necessary if California is to achieve the goals set in AB 32—because vehicle miles traveled are such a high contributor to greenhouse gases in California. Reductions in VMT are largely beyond the reach of existing policy measures designed to reduce GHG emissions from mobile sources, including AB 1493 (covering vehicle emissions) and Executive Order S-01-07 (covering the carbon content of fuels). Although the significance of the transportation sector's contributions to global warming is recognized by policy makers in California, AB 32 is not likely to be a direct mechanism for regulating emissions from vehicle miles traveled in the transportation sector. SB 375 begins to bridge the VMT gap in GHG regulation, but it is likely to reach only a small subset of land use changes that could more cost-effectively ensure AB 32 success. A more direct institutional structure for investing in VMT-reducing transportation-related land use projects is therefore necessary to bridge the VMT gap.

Carbon offsets, as part of a broader cap-and-trade, market-based mechanism under AB 32, could be used to generate significant additional investments in transportation-related land use projects as well as to create strong economic incentives for improved land use decision making by private developers, local governments, and state agencies. This is especially important because of the significant funding needs of transportation-related land use projects. Reallocating existing funds through SB 375 is not likely to be sufficient; we also need to draw *additional* investment into VMT reduction from other funding sources. Development of a GHG offset market for transportation-related land use projects could be the key to generate such increased investment.

The initial conditions for the development of such a GHG offset market in California have been set by the passage of AB 32 in 2006, the Attorney General's settlements of CEQA litigation with San Bernadino County and ConocoPhillips in 2007, and the passage of SB 97. SB 375 will have some effect on VMT-related GHG emissions, but it needs a complementary offset mechanism incorporating transportation-related land use projects for its goals to be fully realized. This Article demonstrates how AB 32 and SB 375 can be coordinated with CEQA to link land use-related projects to achievement of AB 32's goals, perhaps through OPR's CEQA Guidelines under SB 97.

Experiences in wetland mitigation banking demonstrate both the opportunities and challenges of structuring a viable, high-quality offset program.<sup>299</sup> Offset implementation experience under the Kyoto Protocol's Joint Implementation and Clean Development Mechanism suggest that California's

---

299. Development and implementation of a carbon offset protocol for the Forestry Sector in California also demonstrates the challenges and opportunities of crafting an effective offset program. *Cf. supra* notes 175–179 and accompanying text.

offset policies (e.g., those in place under the state's Forestry Protocol) can be strengthened considerably to demonstrate additionality more rigorously. This is necessary if California is to effectively achieve the GHG emission reduction goals of AB 32 and SB 375.

Modification of existing land use patterns and transportation systems cannot be handled only through SB 375 if AB 32's goals are to be met at least cost. Structuring a mechanism to link AB 32 to CEQA to generate verifiable transportation-related, land use offsets is therefore essential to minimize the economic costs of meeting California's emissions reduction targets and to address the primary causes of GHG emissions.

To establish such a mechanism, the nature of the CEQA obligation to mitigate GHG emissions must be characterized legally as *due to* AB 32 and *discretionary* beyond any regulatory requirements otherwise required directly by CARB in implementing AB 32. This subtle legal distinction is necessary to ensure that CEQA mitigation is not treated as a separate legal obligation that prevents it from passing the additionality test established under the Kyoto Protocol CDM procedures. The CEQA process can then be harnessed, with minor modifications, to link transportation-related land use projects to offset banking systems. This, in turn, will generate new investment and better land use planning and regulation to increase the effectiveness of CEQA in its ability to meet both AB 32 and SB 375's goals.

The result will be a reduction in the cost of AB 32 implementation as well as a wide range of other social and environmental benefits from transportation-related land use improvements. We therefore urge CARB, OPR, and the Resources Agency to take our analysis into consideration as they develop implementation policy under AB 32, SB 97, and SB 375.

