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Tseming Yang

*Santa Clara University School of Law*, [tyang@scu.edu](mailto:tyang@scu.edu)

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**An Introduction to California's Greenhouse Gas Emission Trading Program**

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**Tseming Yang**  
**Professor of Law**  
**Santa Clara University Law School**  
**500 El Camino Real**  
**Santa Clara, CA 95053**  
[tyang@scu.edu](mailto:tyang@scu.edu)

1 (408) 551-6037

## **An Introduction to California's Greenhouse Gas Emission Trading Program**

By Tseming Yang<sup>1</sup>

As a global environmental problem, climate change will require a global solution. Nevertheless, the efforts of individual nations and sub-national governmental units have become increasingly important for demonstrating leadership in creating effective regulatory programs and possible solutions. California's Global Warming Solutions Act of 2006, also referred to as A.B. 32, and the associated greenhouse gas emission trading program are one set of such efforts.<sup>2</sup> With A.B. 32, the state of California has created one of the most comprehensive and complex climate change programs in the world – a legally binding set of mandates for the state government to reduce greenhouse gas (GHG) emissions to 1990 levels by the year 2020 that is implemented in part by a highly sophisticated GHG trading system. Although a number of years have already passed since A.B. 32's first enactment, the highest-profile regulatory action, the emission trading program, also referred to as a cap-and-trade system, became effective only recently.

What has been the impetus for California's climate program? The state has recognized that climate change will have far-reaching adverse impacts on the health of its population, its environment, and the state's economy. The effects include reduced water quality and supply for its residents, damage to agriculture, industry, and ecological systems, rising sea levels resulting in displaced coastal businesses and residences, and an increase in the spread of infectious diseases and other public health risks.<sup>3</sup> As the most populous state in America, the world's 9th largest economy with a nearly \$2 trillion GDP,<sup>4</sup> and the home to Silicon Valley, America's cradle of high tech innovation, California also sees a global leadership role for itself in addressing climate change. The state's economy, technology centers, financial institutions, and businesses are expected to benefit, including by early investment in the development of innovative and pioneering technologies designed to address climate change issues.<sup>5</sup>

What are A.B. 32's emission reduction goals and how will it achieve them? A.B. 32 requires that California attain 1990 levels of GHG emissions by the year 2020.<sup>6</sup> The California Air Resources Board (CARB), the primary state agency responsible for regulation air pollution,

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<sup>1</sup> Professor of Law, Santa Clara University Law School. I am grateful to Devani Adams for excellent research assistance.

<sup>2</sup> CAL. HEALTH & SAFETY CODE §§ 38500-38599 available at [http://www.leginfo.ca.gov/pub/05-06/bill/asm/ab\\_0001-0050/ab\\_32\\_bill\\_20060927\\_chaptered.pdf](http://www.leginfo.ca.gov/pub/05-06/bill/asm/ab_0001-0050/ab_32_bill_20060927_chaptered.pdf).

<sup>3</sup> *Id.* at §§ 38501(a)-(b).

<sup>4</sup> *Top Countries Ranked by its Gross Domestic Product, California's World Ranking*, CALIFORNIA DEPARTMENT OF FINANCE, [http://www.dof.ca.gov/html/fs\\_data/latestecondata/FS\\_Misc.htm](http://www.dof.ca.gov/html/fs_data/latestecondata/FS_Misc.htm) (last visited June 9, 2013).

<sup>5</sup> CAL. HEALTH & SAFETY CODE § 38501(e).

<sup>6</sup> *Id.* at § 38550.

determined the corresponding numeric emission level to be 427 million metric tons of carbon dioxide equivalent of GHG emissions.<sup>7</sup> The 2020 GHG cap represents a 16% reduction from a business-as-usual emission scenario, which would have been 507 million metric tons of carbon dioxide equivalent.<sup>8</sup> The responsibility for achieving the emission reduction target has been delegated primarily to CARB.<sup>9</sup> Together with the Public Utilities Commission, A.B. 32 requires CARB to cooperate with stakeholders in the business community and civil society and ensure that implementation: (1) minimizes cost and maximizes benefits for California's economy; (2) improves and modernizes California's energy infrastructure; (3) maintains electric system reliability; (4) maximizes environmental and economic co-benefits, and (5) complements state efforts to improve air quality.<sup>10</sup>

Accordingly, CARB promulgated regulations requiring the reporting and verification of GHG emissions by the largest industrial sources. This will allow future changes in emission levels to be properly tracked. CARB was also charged with developing "discrete early actions to reduce greenhouse gases," which resulted in the identification of "nine discrete early action measures [related to] landfills, motor vehicle fuels, refrigerants in cars, tire pressure, port operations . . . and reduction of high [global warming potential] gases in consumer products" that became enforceable by January 1, 2010.<sup>11</sup> Since 2007, CARB has also convened an Advisory Committee to advise it on environmental justice issues related to A.B. 32 implementation as well as an Economic and Technology Advancement Advisory Committee "to provide recommendations for technologies, research, and GHG emission reduction measures."<sup>12</sup>

One of A.B. 32's most important mandates to CARB was preparation of a scoping plan for "achieving maximum technologically feasible and cost-effective reductions in greenhouse gas emissions by 2020."<sup>13</sup> The plan, adopted in 2008, provides "the outline for actions to reduce greenhouse gases in California" and indicates how "emission reductions will be achieved from significant greenhouse gas sources via regulations, market mechanisms, and other

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<sup>7</sup> California Environmental Protection Agency News Release, Air Resources Board, *Air Board passes two major building blocks in state's effort to fight global warming*, December 6, 2007 available at <http://www.arb.ca.gov/newsrel/nr120607.htm>. CALIFORNIA AIR RESOURCES BOARD, *Climate Change Scoping Plan: A Framework for Change 5* (2008), available at [http://www.arb.ca.gov/cc/scopingplan/document/adopted\\_scoping\\_plan.pdf](http://www.arb.ca.gov/cc/scopingplan/document/adopted_scoping_plan.pdf).

<sup>8</sup> CALIFORNIA AIR RESOURCES BOARD, *Supplement to AB 32 Scoping Plan 11* (2011), available at [http://www.arb.ca.gov/cc/scopingplan/document/final\\_supplement\\_to\\_sp\\_fed.pdf](http://www.arb.ca.gov/cc/scopingplan/document/final_supplement_to_sp_fed.pdf).

<sup>9</sup> CAL. HEALTH & SAFETY CODE § 38510.

<sup>10</sup> *Id.* at § 38561.

<sup>11</sup> ASSEMBLY 32: GLOBAL WARMING SOLUTIONS ACT, <http://www.arb.ca.gov/cc/ab32/ab32.htm> (last visited June 9, 2013).

<sup>12</sup> *Id.*

<sup>13</sup> CAL. HEALTH & SAFETY CODE § 38561.

action.”<sup>14</sup> The plan is due for an update in 2013 to ensure that California is on track to reach its 2020 goals.<sup>15</sup>

The scoping plan sets out several key strategies vital to reducing California’s carbon footprint. The focus is on increased energy efficiency and emission reductions from: (1) the cap-and-trade program; (2) transportation; (3) electricity and energy; (4) industry; (5) high global warming potential gases, e.g., refrigerants; (6) forestry; (7) agriculture; and (8) waste and recycling.<sup>16</sup> Each of these strategies employs a range of regulatory approaches to reduce emissions in the near-term and long-term. For example, the transportation policy initiative will reduce vehicle GHGs by 30% by 2016, with further reductions in 2017, and a 10% decrease by 2020 of carbon intensive vehicle fuels through a low-carbon fuel standard. It also creates efficiency in the movement of goods by regulating delivery and heavy-duty trucks. Moreover, this measure incorporates the “Sustainable Communities and Climate Protection Act of 2008.” This legislation, also referred to as SB 375, directs CARB to set regional targets to reduce emissions through “changes in the way we [California’s communities] build, plan and develop our cities through better land-use planning.”<sup>17</sup> SB 375 ensures that local governments are also involved in setting regional targets for GHG reductions.

Most national and international attention has focused on California’s cap-and-trade program for GHGs, formally established in 2011. Applicable from January 1, 2012 to December 31, 2020, the program creates a “system of market-based declining annual aggregate emission limits” that covers major sources of emissions such as refineries, power plants, industrial facilities, and transportation fuels.<sup>18</sup> Under the system, “allowances, which are tradable permits equal to the emissions allowed under the cap,” are distributed by CARB to GHG sources. In turn, the GHG sources must surrender an appropriate number of “allowances and offsets equal to their emissions at the end of each compliance period.”<sup>19</sup> As the overall enforceable emissions cap declines, the statewide emissions will eventually reach the 2020 target.

What is the scope of the carbon cap? The cap-and-trade program currently covers stationary sources of emissions at or above 25,000 metric tons of carbon dioxide equivalent per year. That includes large industrial facilities and electricity generators and importers, about 350 businesses representing approximately 85% of California’s GHG emissions. While the program

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<sup>14</sup> ASSEMBLY 32: GLOBAL WARMING SOLUTIONS ACT, <http://www.arb.ca.gov/cc/ab32/ab32.htm> (last visited June 9, 2013).

<sup>15</sup> AB 32 SCOPING PLAN, <http://www.arb.ca.gov/cc/scopingplan/scopingplan.htm> (last visited June 9, 2013).

<sup>16</sup> CALIFORNIA AIR RESOURCES BOARD, *Facts about California’s Climate Plan 1* [http://www.arb.ca.gov/cc/cleanenergy/clean\\_fs2.pdf](http://www.arb.ca.gov/cc/cleanenergy/clean_fs2.pdf).

<sup>17</sup> *Id.*

<sup>18</sup> *Id.*

<sup>19</sup> *Id.*

began to operate in 2012, however, requirements to comply with emission limits became mandatory for these sources only in 2013. Starting in 2015, smaller sources will also be covered through the coverage of upstream fuel providers, including distributors of transportation fuels and residential and commercial natural gas.<sup>20</sup>

In addition to setting a statewide limit, the program “establishes a price signal needed to drive long-term investment in cleaner fuels and more efficient use of energy . . . [while also providing] covered entities the flexibility to seek out and implement the lowest-cost options to reduce emissions.”<sup>21</sup> Over the 2013 to 2020 time period, the carbon cap declines by 2% from the 2012 forecasted GHG emission level for the year 2013, by another 2% for 2014, and then about 3% annually between 2015 and 2020.<sup>22</sup>

How do the program’s allowances and offset credits work? For large industrial facilities, allowances are provided initially for free, though in later stages of the program allowances must be bought at auctions. In contrast, electric utilities are provided free allowances to benefit ratepayers, i.e. power consumers. Allowances for each industrial sector are set at “about 90 percent of average emissions, based on a benchmark that rewards efficient facilities.”<sup>23</sup> For electric utilities, allowances are set at 90% of average emissions based on recent data. In addition to regular allowances, offset credits may also be used to fulfill up to 8% of a facility’s emission compliance obligations. Such offset credits can be generated by GHG emission reductions or carbon sequestration projects involving forestry, urban forestry, elimination of methane from manure, and destruction of ozone-depleting substances.<sup>24</sup> Offset projects are subject to rigorous independent verification requirements and must be located within the United States, though international offset projects are anticipated in the future.

What are the program’s reporting, verification, and compliance mechanisms? Covered industries are required to report GHG emissions annually and register with CARB for the emission trading market. Reported emissions are verified by independent third-party entities. Each compliance period is 2 or 3 years (2013-2014, 2015-2017, and 2018-2020), though allowances sufficient for 30% of the previous year’s emissions must be surrendered annually. In the event of an allowance shortfall, a 300% allowance penalty applies.<sup>25</sup>

Finally, in addition to ordinary allowance trading, CARB permits banking of allowances to control costs. Banking allows unused emission allowances to be retained between compliance

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<sup>20</sup> CALIFORNIA AIR RESOURCES BOARD, *Overview of ARB Emissions Trading Program 1* (2011), [http://www.arb.ca.gov/newsrel/2011/cap\\_trade\\_overview.pdf](http://www.arb.ca.gov/newsrel/2011/cap_trade_overview.pdf).

<sup>21</sup> *Id.*

<sup>22</sup> *Id.*

<sup>23</sup> *Id.* at 2.

<sup>24</sup> *Id.*

<sup>25</sup> *Id.*

periods for use or trade at a later time. CARB also maintains a strategic reserve of allowances that are sold at set prices. This strategic reserve, making up about a total of 120 million allowances, or about 4% of the total emissions until 2020, can currently be purchased by program participants at \$40/ton, \$45/ton, and \$50/ton, with up to 40 million allowances available at each of the three price points. The reserve allocations thus serve as a soft ceiling on the market, should prices rise too quickly too high. However, the price of these reserve allowances will be raised over the course of the program. The most recent auction was held in June 2013 and made allowances designated for the 2013 compliance year available. The settlement price was \$14.00 per allowance.<sup>26</sup>

Recognizing the global nature of the problem, in April 2013, CARB announced a plan to link California's cap-and-trade program with the cap-and-trade program of the province of Quebec, one of Canada's largest provinces, beginning January 1, 2014.<sup>27</sup> Such linkage will essentially accept each other's allowance instruments in satisfaction of program compliance obligations and thus enable allowance trading across the two systems.

In addition to engaging its sub-national counterparts in Quebec, California is also engaged in sharing its experiences and in-cooperation dialogues with regulators and officials in many other parts of the world. Most recently, California Governor Jerry Brown used a trade mission to China to conclude memoranda of understanding with Guangdong Province and China's Ministry of Environmental Protection regarding low carbon development and environmental protection issues.<sup>28</sup> While these cooperative efforts are still new and in the early stages of development, they offer important opportunities for accelerating international understanding and cooperation on climate change-related matters.

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<sup>26</sup> AUCTION INFORMATION, <http://www.arb.ca.gov/cc/capandtrade/auction/auction.htm#june2013> (last visited June 9, 2013).

<sup>27</sup> See LINKAGE <http://www.arb.ca.gov/cc/capandtrade/linkage/linkage.htm> (last visited June 9, 2013); and see CARB approves linking California's cap-and-trade program with Quebec's, April 19, 2013, PLATTS, available at <http://www.platts.com/RSSFeedDetailedNews/RSSFeed/ElectricPower/21969801> (last visited June 9, 2013).

<sup>28</sup> OFFICE OF GOVERNOR EDMUND G. BROWN JR., *Governor Brown Commits to Expanding Cooperation on Trade, Investment and Climate Change with China's Largest Provincial Economy*, April 15, 2013, <http://www.gov.ca.gov/news.php?id=17999> (last visited June 9, 2013).