

California's "Magic" Number: Nine Goals for 2020 and Where We May Go From There

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INTRODUCTION

Environmental lawyers are familiar with aspirational, technology-forcing goals set into law. The federal Clean Water Act amendments of 1972 called for the elimination of the "discharge of pollutants into the navigable waters" by 1985, and the federal Clean Air Act amendments of 1970 sought to set and achieve national ambient air quality standards by 1975.¹ While neither law achieved its ambitious goals, they set our nation firmly on a course toward cleaner water and air.

California is no stranger to legislating aspirational goals tied to future dates. Most recently, it seems to have found some magic in the year 2020, which is the state's target for achieving an unusually large number of cutting-edge, nation-leading goals, ranging from significant reductions in greenhouse gas (GHG) emissions and trash diversion from landfills, to urban water use reductions and the use of e-books in college classrooms.

This article explores nine goals California hopes to achieve by 2020, briefly describing each goal and considering two questions: (1) how likely is it that the state will achieve its goal, and (2) what might come next?

CALIFORNIA DREAMING: NINE GOALS FOR 2020

California is the nation's most populous state, with a population of 38 million (approximately 12% of the nation's population), which is expected to increase to approximately 43 to 46 million (approximately 14% of the nation) by 2020.² With size comes complexity, but that has not deterred California from pushing the environmental envelope, and adopting innovative approaches and ambitious goals. Rather, its size and audacity attracts the nation's attention, and often drives national policy.

What is California doing today that will shape what it will look like in 2020? The state has set the following nine goals aimed at substantively transforming California by 2020.

A. AB 32: Reduce GHG Emissions to 1990 Levels

The California Global Warming Solutions Act of 2006 (otherwise known as AB 32) requires California to return to 1990 levels of GHG emissions by 2020.³



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Meeting AB 32's target will mean emitting even fewer GHGs per capita than the state did in 1990, because the state's population will have grown by approximately 48% from 1990 to 2020, from 29.7 million to approximately 44.1 million residents.⁴ The California Air Resources Board (ARB) has responsibility for implementing AB 32.⁵ AB 32 establishes a nation-leading comprehensive program of regulatory and market mechanisms, including a cap and trade program, to achieve real, quantifiable, cost-effective reductions of GHGs. The cap and trade program sets declining annual limits on sources responsible for 85% of California's GHG emissions, which are intended to drive long-term investment toward cleaner fuels and more efficient use of energy.⁶

Outlook for Success: Likely. ARB's Scoping Plan to implement AB 32 and the cap and trade program continues to survive legal challenges, from allegations of CEQA deficiencies in the adoption of the AB 32 Scoping Plan in 2008 (subsequently corrected without endangering any AB 32 programs),⁷ to challenges to the constitutionality of the cap and trade program, which were recently rejected by the Sacramento Superior Court.⁸ ARB also prevailed in a challenge to the offset credit provisions of the cap and trade regulations in *Citizens Climate Lobby v. ARB*, which currently is pending on appeal before the First District Court of Appeal.⁹

Barring legal derailment, Mary Nichols, ARB's Chairman, says, "We are clearly on track to reach our 2020 goals and we are ahead of schedule. We are not declaring victory yet, but we are on a good trajectory."¹⁰ Given that trajectory, Chairman Nichols says that "AB 32 very

clearly does not end in 2020. The 2013 Scoping Plan, currently out in draft form, includes a discussion on post-2020 actions. The state is responsible to do everything feasible to continue reduction of GHGs.¹¹

Looking past 2020: Look for progress toward further GHG reductions, tied to a date (or dates) between 2020 and 2050 (with 2050 as an outside date because that is the date identified in former Governor Schwarzenegger's Executive Order S-3-05, which calls for an 80% reduction in GHG emissions from 1990 levels by 2050).¹² In fact, ARB recently released its "Proposed First Update to the Climate Change Scoping Plan" (Scoping Plan Update), which focuses on the 2050 goal of reducing GHG emissions to 80% below 1990 levels by 2050, and calls for a "mid-term" target in between 2020 and 2050.¹³ Notably, the Scoping Plan Update calculates that [e]missions from 2020 to 2050 will have to decline at more than twice the rate of that which is needed to reach the 2020 statewide emissions limit" in order to achieve the 2050 goal.¹⁴

B. Reduce Carbon Intensity of Transportation Fuels by 10%

The Low Carbon Fuel Standard (LCFS) seeks to reduce the carbon intensity (CI) of California's transportation fuels by at least 10% by 2020.¹⁵ CI is defined as "the amount of lifecycle greenhouse gas emissions, per unit of energy of fuel delivered, expressed in grams of carbon dioxide per megajoule."¹⁶ The goal of the LCFS is to reduce the state's total GHG emissions from transportation fuels by diversifying the sources of those fuels to include a greater proportion of less carbon-intensive fuels.

To achieve the goal of diversifying fuel sources, the LCFS encourages investment in low-carbon ethanol, biodiesel, renewable diesel and biogas, along with natural gas and alternative vehicle technologies. The LCFS focuses on reducing GHG emissions associated with the complete lifecycle of transportation fuels used in California.¹⁷ The lifecycle of a fuel includes the emissions associated with producing, transporting, distributing, and using the fuel. The LCFS program requires each regulated party to ensure that the overall CI score for its fuel pool meets the annual CI target for a given year.¹⁸ Reductions in excess of that required for one type of fuel (e.g., diesel) can be used to offset insufficient reductions in another fuel (e.g., gasoline).¹⁹

Outlook for Success: Too early to tell. The market may not produce enough biofuel with lower CIs to fulfill demand. Also, outstanding legal issues remain. Like AB 32, the LCFS has survived several legal challenges, at least so far. In *Rocky Mountain Farmers Union v. Corey*, the Ninth Circuit reversed a district court order that had found the LCFS violated the dormant commerce clause

of the U.S. Constitution, and remanded the case back to the district court for further proceedings.²⁰ Although the Ninth Circuit rejected the *Rocky Mountain* plaintiffs' request for rehearing en banc, plaintiffs have petitioned the United States Supreme Court for certiorari. And in *Poet, LLC v. California Air Resources Board*, the Fifth Appellate District ruled that, despite legal errors, such as failing to respond to numerous public comments and omitting documents from the rulemaking file, the state was permitted to proceed with implementation of the LCFS.²¹

ARB believes the LCFS is on track, barring future legal roadblocks. Dave Clegern, Public Information Officer at ARB, says, "We are well on the way to reaching the 10% carbon reduction goal by 2020. LCFS is currently working as designed."²² Clegern adds, "We are seeing a broadening choice of fuel pathways for Californians. Where initially there were 25-30 approved pathways, now there are over 130 available pathways."²³ "Fuel pathway" is a term used to provide a detailed, quantitative description of a fuel production process that sums all GHG emissions from the entire fuel life cycle, with the pathway's CI being its lifecycle (or "well-to-wheels") GHG emissions total. Each supply chain category from source to product is considered a fuel pathway with inherent characteristics of CI and GHG.

Looking past 2020: Continuation of the LCFS program post-2020 will hinge on the effect its implementation has on both the fuel market and regulated parties in California and on ARB's success at rebuffing legal challenges. It remains to be seen whether the mandate to use lower CI biofuels will be extended, or whether a self-sustaining biofuels market will be developed.

C. 33% Renewable Portfolio Standard

California's Renewable Portfolio Standard (RPS) requires that by 2013, 20% of electricity sold by the state's investor-owned utilities (IOUs) be from renewable sources (solar, wind, etc.), with follow-on goals of 25% by 2016, and 33% by 2020—establishing the highest RPS goal in the nation.²⁴ Furthermore, AB 327 makes clear that the 33% goal is a floor, not a ceiling, leaving open the possibility that the state's IOUs could achieve a RPS greater than 33%.²⁵

The RPS standard is highly ambitious. The magnitude of the infrastructure build-out alone required to reach the RPS is daunting. Initially, the CPUC estimated that reaching these goals would require seven new major transmission lines to transmit approximately 15,900 megawatts (MW) at a cost of \$6.4 billion.²⁶ In addition, developing RPS-qualified generation posed significant development challenges, including but not limited to site control, permitting, and developer inexperience. Implementation would also require resolution of complex

issues throughout the systems for power generation and transmission, including (1) transmission grid reliability and integration; (2) the increasing cost of renewable generation; and (3) a paradigm shift in procurement and transmission planning. Achieving the 33% RPS could be accomplished only with careful transmission and resource planning.²⁷

Outlook for Success: Likely. Despite these challenges, the CPUC reports that “California is on track to meet its interim requirement of 25% renewables by 2016, and is well-positioned to meet 33% by 2020.”²⁸ Office of Planning and Research Director Ken Alex notes that, due to the addition of so many smaller (10 to 20 MW) systems coming online, fewer transmission upgrades have been required, with greater than anticipated distributed generation, making attainment of the 33% RPS goals by 2020 more than possible, but even probable.²⁹ “We are very optimistic,” says Director Alex. “We are well on our way to reaching the 33% and may well be able to go beyond 33%.”³⁰

Looking past 2020: Look for increased integration of renewable sources into the electrical grid, with the possibility of increasing the proportion of renewable resources beyond 33%. The level California may set for its RPS goals past 2020 remains unclear, although a recent study by E3 funded by the Los Angeles Department of Water and Power (LADWP), Pacific Gas & Electric (PG&E), Sacramento Municipal Utility District (SMUD), San Diego Gas & Electric (SDG&E), and Southern California Edison (SCE), explored a number of questions posed by the utilities based on the operational challenges associated with achieving a 50% RPS in California by 2030.³¹

D. 1.3 Gigawatts of Energy Storage

On October 17, 2013, the CPUC adopted an order establishing a first-in-the-nation target for the state’s three IOUs—SDG&E, SCE, and PG&E—to procure 1.3 gigawatts (GW) of energy storage by 2020.³² SCE and PG&E each have a 580 MW procurement target, and SDG&E has a 165 MW target.³³ The order seeks to use energy storage as one of many mechanisms for optimizing the electricity transmission grid, integrating renewable energy, and reducing GHG emissions.³⁴

The order divides the types of energy storage to be procured into three broad categories: (1) transmission-connected storage (e.g., storage connected to a utility-scale renewable energy facility); (2) distribution-connected storage (e.g., storage integrated into a substation); and (3) “behind-the-meter” or customer-connected storage (e.g., storage in electric vehicles).³⁵ The order sets procurement targets for 2014, 2016, 2018, and 2020, and directs the IOUs to file their 2014 procurement applications by March 1, 2014.³⁶ For

example, the 2014 targets for SCE and PG&E are 50 MW of transmission-connected storage, 30 MW of distribution-connected storage, and 10 MW of customer-connected storage.³⁷

Outlook for Success: Too early to tell. The ink on the CPUC’s order is still fresh, so it is too early to gauge how likely the state is to meet its 1.3 GW target by 2020. “We are hopeful and that is why the CPUC set the target,” says Melicia Charles, advisor to Commissioner Peterman (the lead commissioner on the order), “but there is flexibility built into the target.”³⁸ For example, the IOUs have discretion to shift MWs between transmission and distribution storage grid domains as needed subject to certain conditions.³⁹ It is also worth noting that storage procurement is already happening, so the IOUs are not starting at zero. “Ideally, what the CPUC would like to see is stimulation of the energy storage marketplace,” says Charles. “It would great if after 2020 that there would be no need for state program and that energy storage would be cost-effective. But CPUC will check in to see if that is the case.”⁴⁰

Looking past 2020: Expect further efforts, as necessary, to stimulate the market for energy storage.

E. Smart Grid Vision for 2020

In 2009, the state passed SB 17, making it state policy to “modernize the state’s electrical transmission and distribution system” to create a “smart grid” that, among other things, would provide electricity managers and users with better information and tools to adjust generation, usage, and transmission to meet energy usage patterns.⁴¹ The law required each electrical corporation to develop and submit a 10-year smart grid deployment plan to the CPUC for approval by July 1, 2011, and requires the CPUC to report annually on progress toward implementing the smart grid.⁴²

The CPUC defines a “smart grid” as being “characterized by the ability to use real-time information to anticipate, detect, and respond to system problems.”⁴³ The CPUC has identified a set of 19 metrics to gauge smart grid development by the IOUs.⁴⁴ The “smart grid” encompasses a wide range of technological and policy improvements, with a major element being the installation of “smart meters” that can communicate electricity usage information in real time to both the utility and the customer, and the development of policies to address customer concerns about data privacy.⁴⁵ For example, SDG&E is piloting “home area network” devices to promote energy conservation, which allow customers to identify ways to conserve energy by connecting to smart meters using a smart phone or tablet.⁴⁶

Outlook for Success: Uneven progress throughout the state makes full accomplishment of the goal unlikely by 2020. The California Energy Commission (CEC) has been doing research on the smart grid for a number of years. According to Michael Gravely, Deputy Division Chief for Research and Development with the CEC, “there was a perception that the smart grid was the product that we wanted to shoot for.”⁴⁷ It is now also clear that the smart grid is necessary to meet many other state goals for the integration of distributed and intermittent electricity sources, such as the goal for 12,000 MW of rooftop solar by 2020 and for 33% RPS by 2020.⁴⁸ While the state may not achieve success on all of its smart grid goals—in particular, publicly owned utilities are trailing the IOUs in smart grid implementation—by 2020, it is likely that it will achieve significant transformation of the system by that date.

Looking past 2020: As the “smart grid” is more fully deployed throughout the state, tools that allow electricity customers to manage the amount and timing of their electricity usage will likely be available on a much broader scale.

F. Zero Net Energy Residential And Commercial Construction

More efficient use of energy in new commercial and residential construction is a central goal for the state. In 2007, the CEC and CPUC adopted energy goals for new residential construction to meet “zero net energy” (ZNE) standards by 2020, and for new commercial construction to meet ZNE by 2030.⁴⁹ In 2012, Governor Brown issued an executive order that 50% of existing state buildings be ZNE by 2025, with a ZNE goal for all new or renovated state buildings and major renovations beginning design after 2025.⁵⁰

In broad terms, ZNE means that new buildings use a combination of improved efficiency and distributed renewable generation to meet 100% of their annual energy need. In practice, the definition of what constitutes a ZNE building continues to be developed. The CEC and the CPUC are collaborating to “refine and finalize a specific definition for meeting future ZNE Code as well as ways to provide a ‘common sense’ definition to the marketplace.”⁵¹

Outlook for Success: Too early to tell. ZNE residential construction is possible, and the CEC and CPUC are currently developing a Draft Residential ZNE Action Plan to make ZNE residential construction by 2020 a reality.⁵² This Draft Action Plan seeks to first create market demand for ZNE homes and ultimately produce Title 24 building standards that require ZNE for new residential construction.⁵³ Beyond the market demand challenge, a practical challenge for achieving ZNE homes will be the operation of the building by its residents, although

technology used to implement the smart grid may make it easier for all electricity users—be they residential, commercial, industrial, or public—to manage and react to information about energy use.⁵⁴

Looking past 2020: Under existing executive order and statute, ZNE state buildings after 2025, and ZNE commercial buildings by 2030.

G. Reduce Urban Water Demand by 20%

In 2009, then-Governor Schwarzenegger signed the Water Conservation Act, which requires urban per capita water use to be reduced by 20% by 2020, with an interim reduction of 10% by 2015.⁵⁵ The per capita reduction is measured cumulatively, so the failure of one urban water supplier to achieve the goal can be offset by reductions above 20% by another, so long as the cumulative reduction is 20%.⁵⁶ While no supplier is required to achieve greater than 20% reductions, a water supplier not in compliance with the goals will not be eligible for water grants or loans awarded or administered by the state.⁵⁷

The California Department of Water Resources (DWR) is charged with monitoring and reporting on the state’s progress to the 20% goal, and must report to the Legislature by December 31, 2016 on progress made.⁵⁸ Urban water suppliers established and reported baseline per capita water use in their 2010 Urban Water Management Plans (UWMPs).⁵⁹ Water suppliers must submit UWMPs in 2015, and may update their 2020 targets at that time.⁶⁰ Based on suppliers’ 2010 UWMPs, DWR established the statewide baseline for urban water use at 198 gallons per capita per day (gpcd).⁶¹ Accordingly, the state must reduce urban use to approximately 158 gpcd by 2020.

Outlook for Success: It is unclear at this point whether the state will meet its targets. As with the implementation of the “smart grid” discussed above, it is likely that progress toward the goal will be uneven throughout the state, which could make full accomplishment of the goal unlikely. The current drought gripping California could galvanize further reductions, however, which could make achieving the 2020 goal more likely, especially if temporary mandatory water use reductions put into place to respond to the drought are made permanent.

Looking past 2020: California continues to pursue a multi-faceted approach to water resource management, and water use efficiency will continue to play a major role. The California Water Action Plan, jointly released by the California Natural Resources Agency, Department of Food and Agriculture, and Environmental Protection Agency, calls for a multi-faceted approach to meeting three broad objectives: more reliable water supplies, restoration of important habitat and species, and a

more resilient, sustainably managed water resources system.⁶² The first action discussed by the plan is to “make conservation a California way of life,” and includes, among other ideas, “consideration of expanding the 20 percent by 2020 targets by holding total urban water consumption at 2000 levels until 2030”⁶³

H. 75% Reduction in Landfill Use by 2020. Through Trash Recycling, Composting, or Source Reduction

In 2011, Assembly Bill 341 (AB 341) set the ambitious policy goal of reducing annual landfill use by 75% by 2020, through recycling, composting, or source reduction of solid waste.⁶⁴ Although AB 341 did not change existing requirements for cities and counties, the law calls for the state and the Department of Resources Recycling and Recovery (CalRecycle) to take a statewide approach to decreasing California’s reliance on landfills, rather than focusing primarily on local diversion.⁶⁵

Outlook for Success: Too early to tell. While CalRecycle continues to refine and develop existing programs and many of these efforts set the stage for reducing annual landfill use by 75% by 2020, the success of this initiative will depend on the ability of local jurisdictions to implement similar methods locally.

In October 2013, CalRecycle published an update on the statewide strategy, incorporating waste management recommendations that meet integrated environmental, energy, and economic policy objectives.⁶⁶ The update provided a progress report as a collection of recommendations and a summary of stakeholder comments. “The progress we’ve made to this point was greatly informed by the workshops we held and the comments we received over the last year from local jurisdictions, the waste and recycling industry, and other interested parties,” CalRecycle Communications Director Mark Oldfield said.⁶⁷ “We’re grateful for their input, and look forward to continuing these partnerships as we move forward in this ambitious endeavor.”⁶⁸

CalRecycle’s report to the Legislature identifying strategies to achieve the statewide goal is expected in early 2014.⁶⁹

Looking past 2020: Continuing efforts at the state and local levels to decrease reliance on landfills through the use of technology and strategies for the reduction of waste.

I. Digital Textbooks by 2020

In 2010, California passed legislation requiring that any textbook offered for sale “at the University of California, the California State University, the California Community Colleges, or a private postsecondary educational institution in the state” be offered for sale

in an electronic format “to the extent practicable.”⁷⁰ The goal behind the law was to reduce the cost of textbooks for college students.⁷¹ Transitioning students from paper to digital textbooks may have other ancillary environmental benefits, such as GHG, energy, and physical storage-related savings derived from the shift. Some commentators, however, have voiced concerns that moving from paper to digital textbooks may have a net negative environmental effect, depending on the type of device used to read the digital textbook and how that device is disposed of at the end of its useful life.⁷²

Outlook for Success: Likely. It appears that the market has nearly, if not completely, met California’s goal. According to Sanford Forte, Executive Director of the California Open Source Textbook Project, “In a way, the goal is already accomplished. Most publishers have already converted their content to a digital platform, and attach services to that content.”⁷³ For example, e-textbook provider CourseSmart claims to provide “access to over 90% of core higher education titles used today . . . as eTextbooks”⁷⁴ And open source providers, like Connexions, also offer digital textbooks and courseware for download.⁷⁵

Although it appears likely that California will meet its goal of making textbooks digitally available, Forte thinks they may not achieve the expected cost savings because “the cost for supporting the massive infrastructure to support digital textbooks will be transferred from the cost of buying paper textbooks.”⁷⁶ However, that does not mean that moving to digital textbooks lacks value to students. Forte sees “huge potential for using digitization of learning” in at least two ways: (1) to pair with advances in how we learn to help students learn more quickly and effectively, and (2) to make higher education more broadly available.⁷⁷

Looking past 2020: Using digital textbooks to implement advanced learning techniques.

CONCLUSION: 2020 AND BEYOND

California will look different in 2020, not only because of its burgeoning population, but also due to the actions taken to implement the many ambitious goals the state has set for itself to address the energy and water needs of that population. As summarized in Table 1, below, by 2020, California very well may lead the nation in energy efficiency and GHG emission reduction, with substantial GHG reductions and a 33% RPS. And even if the state does not reduce urban water use by 20%, fully implement the smart grid, or procure 1.3 GW of energy storage, its efforts toward those goals will still shape the future of the state in important ways.

Looking ahead, it is not yet clear how the state may proceed to continue to advance its goals, especially with respect to energy generation and transmission, and GHG reduction. Jon Wellingshoff, new partner at Stoel Rives LLP and former Chairman of the Federal Energy Regulatory Commission, thinks that a broader focus on market development may bear fruit. He notes, "California has always been ambitious in its energy goals, but I believe those goals could be realized even faster and with less cost to consumers if there was a greater focus crafting retail and wholesale energy market

structures in a manner that better reflects the goals the state wishes to achieve."⁷⁸

One thing is clear: the year 2020 caught the imagination of many different policymakers. With 2020 only six years away, legislators will soon be pinning their sights on another future target. Will 2030 will be California's next "magic" number, or maybe 2035, or even 2050? It remains to be seen whether the state will again focus as much attention on a single moment in time as it has with 2020.

TABLE 1. CALIFORNIA'S NINE GOALS FOR 2020

	Goal	Outlook by 2020?	Looking past 2020
1	AB 32: 1990 GHG levels	Likely	Additional GHG reductions tied to some date between 2020 and 2050
2	Low Carbon Fuel Standard—10% carbon reduction in transportation fuels	Too early to tell	LCFS program survival post-2020 will hinge on the effect its implementation has on both the fuel market and regulated parties in California
3	33% Renewable Portfolio Standard	Likely	Increased use of renewables above 33%
4	1.3 GW energy storage	Too early to tell	Additional efforts to stimulate the energy storage market
5	Smart grid	Uneven progress—success statewide unlikely	Customer energy management at a broader scale
6	Zero net energy residential buildings	Too early to tell	Zero net energy commercial buildings by 2030
7	20% reduction in urban water demand	Uneven progress—success statewide unlikely	Development of alternative water supply sources
8	75% trash recycling, composting, or source reduction	Too early to tell	Continuing to decrease reliance on landfills with the use of technology and strategy
9	Digital textbooks	Likely	Using digital textbooks to implement advanced learning techniques

ENDNOTES

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