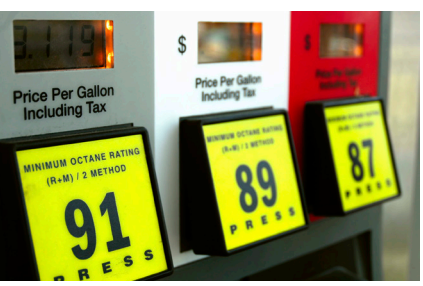
CARE Californians for Affordable & Reliable Energy

# GETTING STRAIGHT A'S FOR CALIFORNIA:

## THE CARE COALITION'S POST-2020 ENERGY AND CLIMATE PLATFORM




## INTRODUCTION

Governor Brown will soon propose a far-reaching update to California's existing energy and climate change policies. This will build upon the half dozen new laws related to renewable and alternative energy adopted at the end of the most recent legislative session[1] and the dozens of greenhouse gas (GHG) regulatory mandates already enacted. The update will include new emission reduction goals for the period after the AB 32 targets have been achieved in 2020, including goals for 2030 and 2050. It is critically important that, in the development of these second generation policies, California's leaders are clear about why we are enacting these goals and requirements, and what we are truly trying to accomplish, and at what cost. Having a clear purpose will keep policies focused and ensure the best chance of success with the least chance for unintended consequences.

Californians for Affordable and Reliable Energy (CARE) is a broad-based coalition supported by the California Business Roundtable, small businesses, community groups, local officials, local business organizations, statewide associations, and energy consumers that are calling on policy-makers to ensure that we have a responsible energy plan that protects our state's economy. After extensive research and policy analysis, we offer a set of criteria, outlined below, as our platform to evaluate and help guide policymakers in successful development and implementation of the second generation climate change policies. Future policies should satisfy these criteria in order to have a chance of making meaningful progress on global climate change. Most importantly, we must ensure that the devastating economic impacts from past energy decisions, such as the 1990s energy deregulation effort, are never repeated and that California efforts result in a model that other jurisdictions will be willing to follow.

## THE NEED FOR AN ENERGY AND CLIMATE PLATFORM

To achieve meaningful reductions of climate change emissions, other states and countries must join the effort. With less than 1% (and falling) of global emissions coming from California, GHG reductions in California are not enough. But California can set an example for others to follow if we demonstrate strategies to achieve emission reductions in a manner that also carefully addresses real world impacts on jobs and our economy.

The California Air Resources Board's 2014 Scoping Plan Update, the Governor's Office of Planning and Research "California @ 50 Million" report, the Sustainable Freight Strategy, and many other climate change proposals under development will have real and far-reaching impacts across all business sectors including goods movement, agriculture, transportation fuels, housing and power generation. Strategies could include mandates on industry sectors, local and regional land use planning, and technology incentives.

***These new policies will be layered on top of the statutes and regulations related to energy and climate that have been implemented over the last several years.*** While many of the existing statutes and regulations may have made sense in isolation, the cumulative impacts have increased costs and lead to other unintended negative consequences. This is a major challenge for California's businesses, particularly those who are struggling to manage other legislatively mandated increases in business, labor, regulatory and tax costs. The existing climate change and energy programs that are now being implemented across many different agencies are extensive:

## EXISTING ELECTRICITY MANDATES

- SBX1 2 – 33% Renewable Portfolio Standard
- Once-Through Cooling (OTC) Policy
- CA Emission Performance Standards – SB 1368
- Mandatory GHG Reporting Regulation (MRR)
- Transmission Access Charge (TAC)
- California Solar Initiative (CSI)
- New Solar Homes Partnership (NSHP)
- Solar Incentive Program – SB 1
- Self-Generation Incentive Program (SGIP)
- Feed in Tariffs (FIT)
- Renewable Auction Mechanism (RAM)
- Net Energy Metering (NEM) – AB 920
- Energy Efficiency – AB 2021
- Waste Heat and Carbon Emissions Reduction Act – AB 1613, AB 2791
- Resource Adequacy – AB 380
- Transmission Corridors – SB 1059
- Energy Storage – AB 2514
- Smart Grid Deployment – SB 17
- AB 32 Administrative Fee
- Distributed Generation Goals

## EXISTING GHG EMISSION REDUCTION MEASURES

- AB 1493 – sets fleet average GHG standards for new passenger vehicles
- Diesel Anti-Idling
- Tire Pressure Program
- Goods Movement (Drayage Trucks)
- Ship Electrification
- Reduction of Refrigerant Emissions from Non-Professional Services
- SF6 Limits in Non-Utility and Non-Semiconductor Applications
- High GWP Reduction in Semiconductor Manufacturing
- Global Warming Potential Use in Consumer Products
- Refrigerant Management Program
- SF6 Emission Reductions from Gas Insulated Switchgear
- Landfill Methane
- Low Carbon Fuel Standard
- Heavy-Duty Vehicle Aerodynamic Efficiency
- Medium- and Heavy-Duty Vehicle Hybridization
- Alternative Cement and Concrete Strategies
- Alternative Asphalt Strategies
- Alternative Fuel and Fleet Strategies
- Alternative Employee Commuting Strategies
- Renewable Energy Generation
- LED Roadway Lighting
- Facility Efficiency and Energy Conservation
- Forest Practices
- Urban Forestry
- Forest Legacy
- Vegetation Management Program (VMP)
- California Forest Improvement Program
- Other Forest Sector Programs
- End Use Water Conservation & Efficiency
- Appliance Energy Efficiency Standards
- Building Energy Efficiency Standards
- Comprehensive Publicly Owned Utility Customer Energy Efficiency Programs
- Green Buildings – LEED
- Green Buildings – Distributed Generation
- Green Buildings – Existing State Buildings Retro Commissioning
- Right-size the State Fleet
- High-Performance Schools
- California Solar Initiative
- California Solar Initiative – Thermal Program (Solar Water Heating)
- Investor-Owned Utilities Energy Efficiency Programs
- Renewables Portfolio Standard
- Statewide Recycling
- Fertilizer Research and Education Program
- Fuel Quality and Standards
- SB 375

These current programs represent an aggressive effort to reduce greenhouse gas emissions. ***They do not include the myriad of existing laws and programs already in place to assure clean air, water and other environmental benefits.*** The state's GHG emission levels are on track to decline to 1990 levels (as outlined in AB 32), despite population growth and some economic recovery. It is important to keep these existing programs and strong progress in mind, so that stakeholders of all types understand that we are already leading the nation and experiencing benefits from all of our environmental regulatory programs.

Many of the policies listed above will continue to be in effect to reduce carbon emissions in the years after 2020 while other policies will be proposed to meet potential new targets. We are concerned, however, that there has not been a comprehensive process to analyze the effectiveness of each of the existing policies and determine their costs versus benefits. The result is that new policies will be adopted on top of these existing programs without adequate scrutiny. Many independent experts have cautioned that officials need to better address issues of governance, including transparency and cost analysis. Such analysis would help inform future policy-making, and assist in the desire to create a strong model that can be replicated outside our state borders.

The non-partisan Little Hoover Commission wrote in an October 2014 report:

> "We are deeply concerned that insufficient attention has been paid to this [cost] issue. Despite the Commission's request in 2012 and in subsequent inquiries, Californians still lack the measuring tools to evaluate the full costs of implementing the renewable portfolio standard simultaneously with other major energy policy goals. Given the positive record of California relating to affordable electricity through energy efficiency, we are disappointed that the cost side of the equation has received inadequate or incomplete attention."[2]

In order to create successful climate policy moving forward, we recommend careful consideration be given to cost impacts and funding mechanisms for proposed new programs on top of the existing regulatory framework. The criteria outlined in this paper are common-sense conditions for crafting new policies to achieve our climate goals and protect the California economy. Both outcomes are necessary to encourage other jurisdictions to follow our lead and achieve meaningful reductions in global climate emissions.

## THE CARE COALITION'S 5 A'S

The following five principles are those we believe should inform the decision-making process for developing the new state climate change goals and the implementation and evaluation of the new climate and energy programs. These CARE Coalition criteria, which we call the 5 A's, are as follows:

### 1. AFFORDABLE ENERGY

**New programs must be affordable, ensure economic competitiveness and avoid disproportionate impacts on low-income and disadvantaged communities.**

Energy affordability must be a central priority in developing new programs. Affordability impacts individual businesses and families, as well as the larger issue of economic competitiveness compared to California's neighbors. According to Navigant Consulting, "The price of California energy and electricity across all sectors combined (residential, commercial, industrial, and transportation) is notably higher than comparable prices in the neighboring states of Arizona, Nevada, Oregon, and Washington as well as the U.S. average." And moving forward, "the cost of providing electricity service to California ratepayers is projected to increase at a more significant pace compared to historical rate increases."[3] Furthermore, with a robust climate change program already in place in California, any new policies must consider the cumulative cost impacts on the economy and the ability of California businesses to remain economically competitive. Energy costs are layered on top of many other burdens: California businesses on average pay 19% higher in operating costs per job than the rest of the country.[4] This includes costs such as worker's compensation, healthcare and liability insurance, corporate income tax, business licenses and fees among others.

To attract jobs and business, and to bolster California's weak homeownership rate, climate and energy goals must work in concert with the economic goals of the state. Studies also indicate that higher energy costs have a disproportionate impact on low-income communities who already suffer high unemployment due to a lack of middle class jobs. Affordable energy should be the foundation of any energy and climate policy. Unaffordable energy for California's citizens and businesses is ultimately, in the long run, unsustainable, even if it is enacted using the language of sustainability. And businesses need certainty more than anything in dealing with rising costs and overlapping regulations.

## 2. ACHIEVABLE GOALS

**California's energy and climate laws must be technologically feasible, fact-based, scientific, and transparent in the purpose and execution of the program. Too often, programs are developed without appropriate investigation of their feasibility.**

Ambitious goals and regulatory mandates can drive development of new technologies and solutions, but we must be reasonable in assessing what pathways are available and whether the requirements can realistically be achieved. The purpose of each program must be clear. Is it intended as an example for the rest of the world? Is it to develop technology for the future? Is it to reduce conventional pollutants or address environmental inequalities?

Already we have seen challenges with the technology development for the Low Carbon Fuel Standard, and everyone is impatiently waiting for R&D breakthroughs on energy storage, which would help address many of the difficulties involved in incorporating renewable resources into the electricity grid.

Because of the inherent challenge of predicting the future and because there is no way we can understand the technology and options that will be available decades from now, we encourage the state's decision-makers to focus on near term energy and climate programs. Crafting strategies for 2020 and 2030 will be far more productive and relevant than attempting to anticipate requirements that would be appropriate for 2050.

## 3. ACCOUNTABILITY FOR REGULATORS

**New programs must be crafted through a transparent legislative process, and they must include benchmarks for measuring success during implementation and determining if modifications are needed.**

Any new post 2020 goals and requirements must be transparent and vetted through a legislative process. Policies this vital to California's economy should not be determined by executive order, bureaucratic directive or budget trailer bills. Furthermore, proper oversight of new programs must be written into the law. Contrary to the vague purposes of many current laws, second generation laws and regulations should be drafted with more specificity and subjected to rigorous legislative oversight, and contain specific reporting requirements. The programs need to be measured against their specific stated goals—both for the environment and other objectives such as serving as a model or driving new technology. To ensure that policies and regulations are meeting those goals, programs should contain triggers for new action and/or sunset provisions that will require program reauthorization and/or modification.

New programs must also contain bright lines of authority that determine the role of the state agencies, regional agencies, local governments and other governmental bodies. And the initial design of new programs must be done in a way that pays full regard to structural considerations in California's energy

landscape.There is often little evidence of systematic coordination between the many entities which have a role in California's energy policymaking such as CARB, CAISO, CPUC and the CEC. But coordination and collaboration is needed to ensure effective and efficient implementation.

***The 1990s energy deregulation debacle taught us important lessons about careful implementation of critical program changes.*** In that case, as today, California had admirable goals and reasonable legislation, but very poor implementation, headlined by an ill-advised divorcing of the supply and demand sides of the energy market. This ultimately led to a disaster and great (and understandable) skepticism from the public concerning any new energy policy innovations.[5]

## 4. ALIGNMENT WITH OTHER JURISDICTIONS

**Because California cannot "go it alone," new climate policies must be crafted to work in coordination with other jurisdictions. Leakage of businesses (including their jobs and emissions) from California is counter-productive in the fight to reduce greenhouse gas emissions, so new mandates should avoid putting the state at a competitive disadvantage, and make stringent requirements contingent on similar action from outside the state.**

California has already enacted more climate laws than any other U.S. jurisdiction. To ensure that California benefits from the early adoption and action, and prevents additional "leakage" of emissions to jurisdictions without robust climate policies, California should make any new requirements conditional on similar action from other jurisdictions. And any new programs should be scalable, meaning they can still be realistically implemented when other jurisdictions join California. As an example, the Low Carbon Fuel Standard runs into problems of scarcity for certain low carbon components if the program were to be replicated on a larger scale beyond California. In contrast, our RPS program could be more scalable than it is now, due to the state's decision to limit qualifying renewable resources to "in-state" sources. This has created challenges for the California Independent System Operator (CAISO)—managing intermittent sources of renewable power is easier to do when the state can send and receive renewable power across state lines to coordinate with other geographies that have different weather patterns, and peak sun for solar at different hours.

With more room for cross-state policy harmonization, California can work toward synchronization that will result in far greater environmental benefits on a global scale. To date, many concerns about leakage of emissions (allegedly reduced in California) to other jurisdictions, have come to fruition, indicating substantial uncertainty about the viability of the cap-and-trade strategy as currently constituted.[6] We can do better in protecting against this outcome as the state drafts the next round of energy and climate related requirements

## 5. ACCOMMODATION TO MEET CHANGING ECONOMIC, ENVIRONMENTAL AND INFRASTRUCTURE CHALLENGES

**California's climate change policies may create long term requirements for the state. It is impossible to anticipate all of the changing dynamics in technology, climate modeling, economic conditions, or national or worldwide climate action. For that reason, second generation climate change policies must be crafted in a way that allows flexibility to meet changing conditions in the future.**

Despite all the best science, it is still not possible to predict with certainty the timing and manifestations of climate change in California. Moreover, we cannot fully anticipate the tools that will or will not be available to help confront those challenges. For these reasons programs must be designed to meet their stated goals while allowing flexibility to accommodate unanticipated changes in policy, modeling and technology situations.

Furthermore, the new climate and energy laws must recognize that state revenues are limited. We need to make careful choices about how to spend our limited resources in a way that efficiently reaches our stated goals and aligns with our overall community priorities. Climate programs and budget requirements must be consistent with the other demands on state and private resources. If we are smart and use careful cost-benefit analysis to guide decisions, we can pursue environmental goals while still accommodating other state and community priorities.

Ultimately this means that California needs a well-balanced economy and growing middle class jobs to support critical areas such as education, health care, homeownership, public safety and transportation. Robust economic growth is what will provide sufficient resources to fund the state's environmental programs and address climate change impacts.

## PASSING THE ENERGY AND CLIMATE TEST: HOW CALIFORNIA CAN GET STRAIGHT A'S

# 1. AFFORDABLE ENERGY

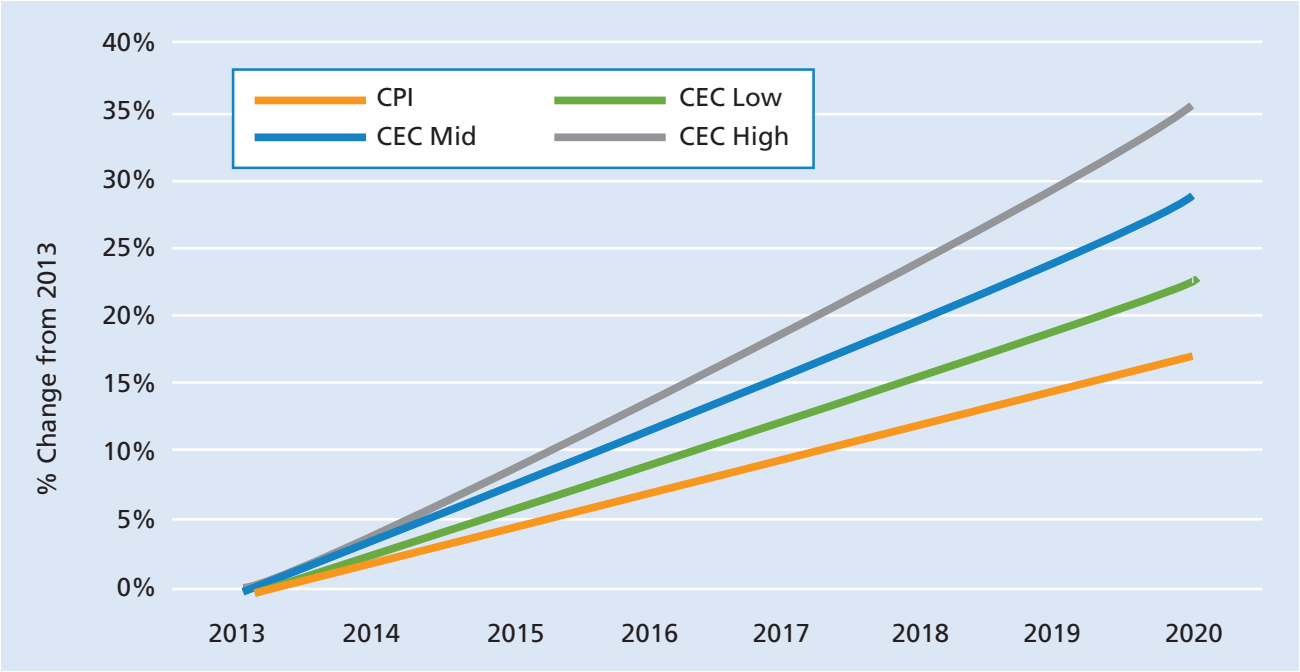
Affordable energy should be the centerpiece of any energy strategy for California. We must reframe the discussion around energy to embrace the understanding that unaffordable energy is unsustainable energy, even if it wears a "sustainable" mantle.

The forthcoming transformation of California's electricity sector, if not done in a way that provides full transparency and consideration of impacts to consumers and businesses, threatens to create a crisis of affordability. And that affordability applies throughout the California energy ecosystem—from fuels, to natural gas, to electricity. For example, while hard data is scarce (which is, in and of itself, a problem), one recent independent estimate found that California's renewable and distributed energy programs already cost in the range of $4-5 billion annually, which works out to almost $400 per California household.[7]

As a recent UC Davis study shows, there are three primary drivers of California's future electricity prices: (1) The price of natural gas, (2) The price of $CO_2$ emission allowances in California's market, and (3) The price of meeting California's 33% RPS goal.[8] Of these three factors, one has been traditionally highly unstable—the price of natural gas. While current natural gas prices are historically low, there is no guarantee they will remain low in the future. The other two factors are highly policy dependent and thus very uncertain. This combination of market and policy uncertainties creates enormous challenges for California businesses. California policymakers should seek to limit this uncertainty through crafting transparent policies with thorough evaluation of the implications for California's businesses and workers.

As the UC Davis report notes, "Recent research suggests that the original 20% RPS had a negligible impact on prices; however results from the GHG Calculator indicate that achieving the 33% RPS may be more costly."[9] The GHG calculator anticipates cost increases of 3.5-6.3% per year from 2008-2020—at a time in which most U.S. energy prices are flat or falling due to the availability of low-cost natural gas, this puts California firms at a substantial competitive disadvantage.[10] These calculations were done before the shutdown of the SONGS power plant, and it is not yet clear what will be done to replace this power supply. Additionally, the Once-Through Cooling regulations affected 19 different power plants in the state and have led to the retirement of several facilities.

Figure 1. **Forecasted Average Electricity Rate Increases Compared to CPI**[11]



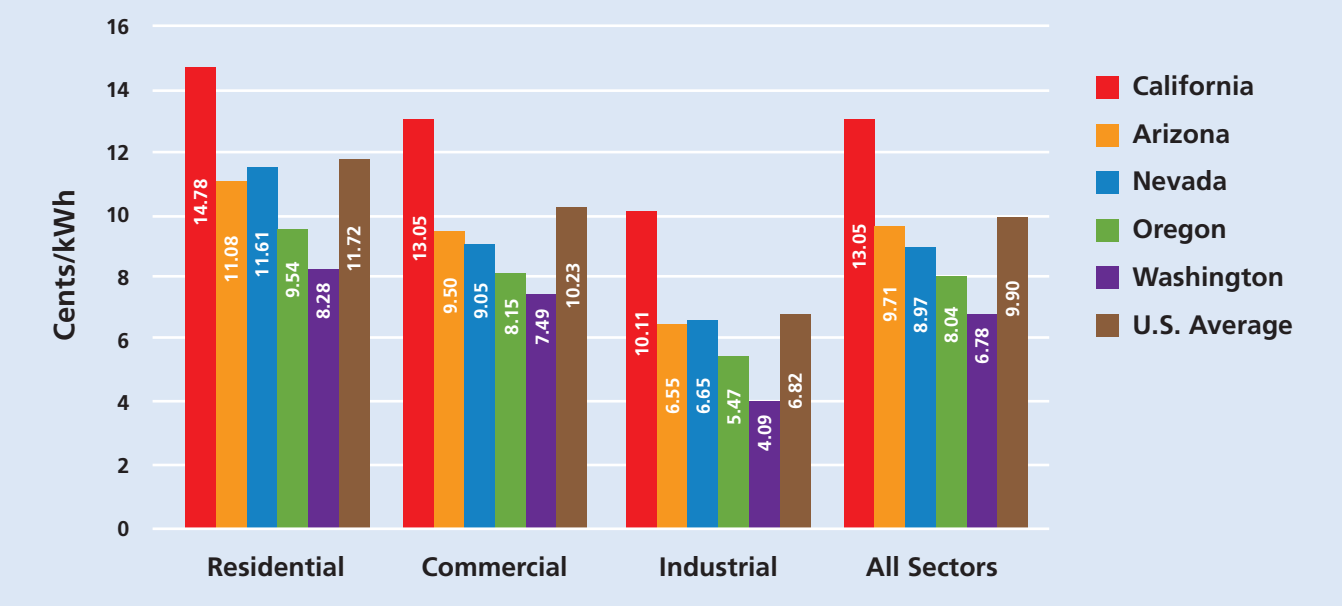

California has already witnessed an exodus of energy-intensive firms[12], and policy uncertainty promises to worsen the problem. Furthermore, because California businesses already heavily subsidize residential utility rates (paying higher rates despite being cheaper for utilities to serve), the disadvantage to California businesses is compounded.[13] While California officials have made much of the state's energy efficiency revolution (the so-called "Rosenfeld Curve"), which in theory should reduce prices for California businesses, the gains, while real, have been overhyped. As a recent Stanford University study showed, almost 80% of the reduction in energy usage in California is not actually attributable to policy, and instead to structural factors of the changing California economy.[14] Energy intensive firms such as manufacturing companies often provide exactly the sort of middle class jobs disappearing from California. Creating a more energy-friendly environment for manufacturing can help bridge the gap between California's two economies—a wealthy one on the coast and a more economically challenged one inland.

Between 1990 and 2012, California lost a staggering 40% of its manufacturing jobs (more than 842,000)[15] during a time at which the population grew by more than 25%. We need to do everything possible to reverse this decline. Partially as a result, a new calculation by the Census Bureau that takes into account cost of living, tax credits and other items, finds that California has the highest poverty in the nation.[16]

In addition, California's policy goal of having all new homes "zero net energy" (ZNE) by 2020 has not taken into account the impact of this policy on housing affordability. The cost of ZNE will add another $45,000 - $60,000 to the cost of a single-family home and will price many potential homebuyers out of the market. This is especially impactful on those individuals and families seeking affordable, entry-level housing.

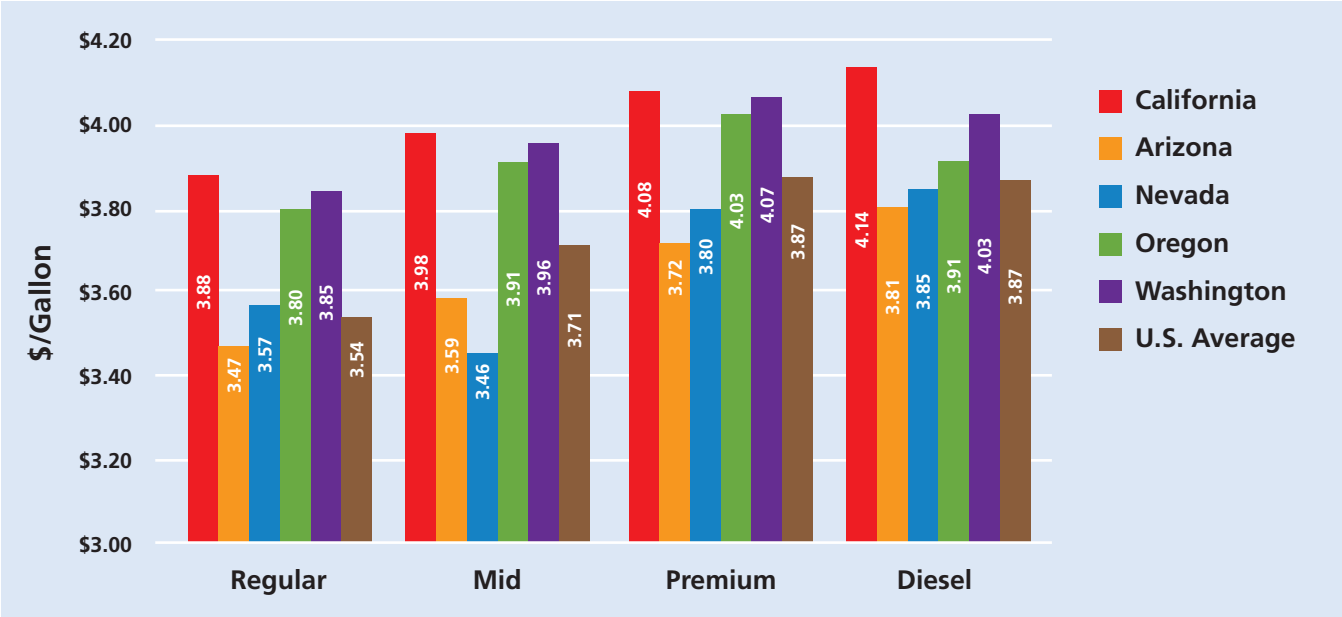
According to a recent report from Navigant Consulting, California energy policies have already created a competitive disadvantage for California businesses. The prices of California energy and electricity across all sectors combined (residential, commercial, industrial, and transportation) are notably higher than comparable prices in neighboring states or U.S. averages.[17] Further, many long-term procurement contracts for renewables were signed at rates far above those of today, which will continue to create higher prices for years to come and contribute to California's non-competitive energy prices.

Figure 2. **2011 Average Retail Electricity Price**




Source: U.S. Dept. of Energy - Energy Information Administration. 2011 Average Retail Electricity Price for Bundled and Unbundled Customers.

Figure 3. **Gasoline Prices – July 2013**




Source: American Automobile Association. *AAA Gauge Fuel Report. National Average Prices*. August 2013. Note: The disparity in gasoline prices is not a result of the LCFS currently.

Of course, California's energy cost increases are not just limited to electricity. Current policies promise to lead to substantially higher gasoline and diesel costs in California once cap-and-trade goes into full effect. Given that transportation fuel prices in the state are already the highest in the lower forty-eight states due to both fuel blends and taxes, this is a cause for concern. California's economic competitiveness declines as our transportation fuel costs rise relative to our competitors. With this in mind, and the fact that energy costs are a burden for many middle and lower income families, sixteen members of the Democratic Assembly Caucus, the majority of them from the Black and Latino Caucuses, called for a rethink on cap-and-trade's fuels policy. Given that the regulatory action could raise costs from 15-40 cents per gallon, their worries are not unwarranted, even though current prices are lower. As they correctly point out the expansion of cap-and-trade would result in "hurting the most vulnerable members of our communities."[18]

As noted in the California Energy Commission's 2014 Integrated Energy Policy Report (IEPR) Update, gasoline consumption, although declining, is still the dominant fuel driving our economy and way of life. Affordability for petroleum fuels must remain a priority in order to protect our economy. The IEPR states:

> "California's transportation system is a core element of the state's way of life and economic vitality. The state's vast system of roadways and freeways enable Californians to commute from home to work, take children to school, and relax and rejuvenate when vacationing along the coastline or in the mountains. The freight transport system is a core element of the economy, the eighth largest in the world. It enables goods and products to move from the ports of Los Angeles and Oakland throughout regional metropolitan centers in Los Angeles, the San Francisco Bay Area, San Diego, Sacramento, and the San Joaquin Valley. In the Central Valley, a dynamic transportation system is critical to getting crops from fields to processing and packing centers and then to markets in California, the United States, and around the world. Billions of dollars of goods are transported via California's transportation network. This enormous on-road transportation system includes 170,000 miles of highways and major roadways, more than 26 million passenger vehicles and light trucks, and more than 1 million medium- and heavy-duty transport trucks."[19]

While new technology is being developed and alternate options introduced, we cannot ignore the importance of energy affordability for the state's businesses and families that depend on California's transportation system.

California needs to avoid having a short-term "win" by implementing an energy policy that will only satisfy the expectations of some environmentalists, but would encompass a long term loss by creating less reliable and more expensive energy that doesn't do as much as possible to lower emissions or create a model that could be exported to other jurisdictions. This could result in a backlash leading to the undoing of many of California's ambitious efforts.

Clearly we need policies that can be implemented in an economically sustainable way.[20] We must avoid complementary policies that add layers of burdens and requirements and costs, but don't actually add new value or make the programs more effective. Harvard environmental economist Robert Stavins discussed the limitations of layering multiple policies:

> "When complementary policies impose incremental requirements on emission sources already covered by cap-and-trade, these policies fail to generate net emission reductions, but raise the costs of achieving emission targets by requiring more costly actions than would otherwise happen under cap-and-trade."[21]

California's energy and climate policies should be crafted in a way that promotes middle class job creation and expansion. Economic reports consistently indicate that California is undergoing a two-tiered economic recovery differing by coastal versus inland regions,[22] and also with job growth in high wage and low wage sectors, but lagging numbers in middle class jobs.[23] According the Employment Development Department, green jobs account for only 3.4% of California's total wage and salary employment.[24] Ultimately these jobs, no matter how attractive, cannot make up for a hollowed-out middle class. Affordable energy and a thriving economy are the best approach for encouraging robust middle class job creation.

## 2. ACHIEVABLE GOALS

California has set admirable goals for environmental and economic leadership. Many of these, with appropriate effort and careful implementation, will be achievable. Others, such as the Low Carbon Fuel Standard, which was predicated on the development of technologies that have not yet manifested themselves commercially, need revisiting. Similar problems exist for energy storage mandates currently being placed on utilities. The technology is in the early stages of testing and cannot be considered as a reliable solution for reliable power in the near term.

Furthermore, California's current regulatory policies regarding what constitutes a "clean" source of energy are often unpredictable, and reflect regulatory attempts to pick winners and losers. This means that some low emission energy options are left on the side lines due to political reasons. A prime example of this is found in California's ambitious renewables goal (33% by 2020), which arbitrarily excludes some low and zero carbon technologies.

For example, rooftop solar does not count toward that 33%, nor does already existing large-scale hydroelectricity, which is a reliable baseload source of clean power, nor does nuclear energy, despite essentially contributing no carbon emissions. In fact, in 2011, large hydro and nuclear made up more than 1/3 of the state's entire in-state generation mix, and these are both forms of essentially zero carbon electricity. With the unplanned retirement of SONGS and the devastating low rainfall year of 2013, that number fell substantially in 2013, but the question remains—if the focus of California's energy policy, and in particular its RPS is really carbon, why not count both of these toward a low-carbon RPS target of 33%? The decision not to count these resources suggests that California's energy policy in this regard is more designed to curry favor with constituencies who favor only certain types of low-carbon power rather than a serious focus on low and zero carbon energy. If the goal is carbon-free energy, a 50% standard, to say nothing of a 33% one, has already been achieved. If the goal is picking favored technologies of particular constituencies—even if they are more costly and less reliable forms of zero carbon energy—then and only then is the current strategy one that makes sense.

Figure 4. **2013 Total System Power in Gigawatt Hours**

| Fuel Type | California In-State Generation (GWh) | Percent of California In-State Generation | Northwest Imports (GWh) | Southwest Imports (GWh) | California Power Mix (GWh) | Percent California Power Mix |
|---|---|---|---|---|---|---|
| Coal | 1,018 | 0.51% | 812 | 21,363 | 23,193 | 7.82% |
| Large Hydro | 20,754 | 10.39% | 96 | 2,159 | 23,009 | 7.76% |
| Natural Gas | 120,863 | 60.50% | 1,241 | 9,319 | 131,423 | 44.31% |
| Nuclear | 17,860 | 8.94% | 0 | 8,357 | 26,217 | 8.84% |
| Oil | 38 | 0.02% | 0 | 0 | 38 | 0.01% |
| Other | 14 | 0.01% | 0 | 0 | 14 | 0.00% |
| Renewables | 39,236 | 19.64% | 13,187 | 3,256 | 55,679 | 18.77% |
| Biomass | 6,423 | 3.21% | 1,485 | 21 | 7,929 | 2.67% |
| Geothermal | 12,485 | 6.25% | 212 | 495 | 13,192 | 4.45% |
| Small Hydro | 3,343 | 1.67% | 470 | 0 | 3,813 | 1.29% |
| Solar | 4,291 | 2.15% | 58 | 1,040 | 5,389 | 1.82% |
| Wind | 12,694 | 6.35% | 10,962 | 1,700 | 25,356 | 8.55% |
| Unspecified Sources of Power | N/A | N/A | 19,750 | 17,305 | 37,055 | 12.49% |
| Total | 199,783 | 100.0% | 35,086 | 61,759 | 296,628 | 100.0% |

Source: QFER and SB 1305 Reporting Requirements. In-state generation is reported generation from units 1 MW and larger. Michael.Nyberg@energy.ca.gov. Data as of September 25, 2014. Total system power is defined as the annual total energy requirement for all load serving entites with end-use loads in Calfornia, including self-generation supply for combined heat and power, and other non-utility served loads from power plants that are 1 megawatt and larger in nameplate capacity.

Most critically, in the aim of achievability, the focus needs to be more on short-term strategies than guestimates about 2050 alternatives. While 2050 discussions can be useful for setting long-term goals, businesses need to understand how to get there from here. Therefore 2020 and 2030 goals must be the primary focus of work in California. California cannot dictate responsible legislative requirements now for 2050 in an environment which will be transformed, both from a policy and technology perspective, into something very different than what we can foresee today. Instead, the focus should be on crafting much nearer-term legislation through a transparent process that carefully balances both environmental and economic goals.

## 3. ACCOUNTABILITY FOR REGULATORS

In addition to issues of affordability and achievability, California's current energy policy also suffers from a deficit of accountability, particularly at the regulatory level. Energy legislation and regulations must be developed in a fully transparent manner, thoroughly debated in the legislature and then subject to continual legislative oversight. It is a lack of such continual legislative oversight that has enabled the growth of sometimes duplicative or even conflicting policies that are being implemented independently at a variety of regulatory agencies. It's important that programs aren't sidetracked to try to accomplish alternate goals than their original intention. For instance, programs and requirements aimed at reducing greenhouse gas emissions shouldn't be used to fight criteria pollutants, which are addressed more effectively through the already extensive California regulatory structure for these pollutants.

When there is confusion over which regulator has authority over a particular policy area, there is no accountability, and the recent turbulence in California's energy leadership has only served to highlight the risks of this structure to businesses. California's energy policymaking bodies are not currently structured to give clear lines of authority. As a Hoover Institution study noted:

> "No single law, regulatory decision, or document describes all policies and programs seeking to develop renewable power in the states, much less the many linkages (or lack thereof) among them. No plan for the state's long-term renewable industry has been developed to bridge the many gaps between planning, procurement, and permitting at the federal, state, and local levels."[25]

For example in the demand response sector, the CPUC, CAISO, and the CEC are all working in different proceedings.[26] Each agency has its own assumptions and own goals, and these can be in conflict.

A study for the CPUC's Division of Ratepayer Advocate, aptly titled "The Renewable Jungle," highlights no less than eleven different renewables programs in California. The chart below, originally produced for that study, shows an unruly amalgamation of various programs and mandates with overlapping structures and authorities.[27] There is no single unified plan, structure, or document that bridges these gaps, nor is there a roadmap for California's renewables future. There is no one place that business can go for answers.

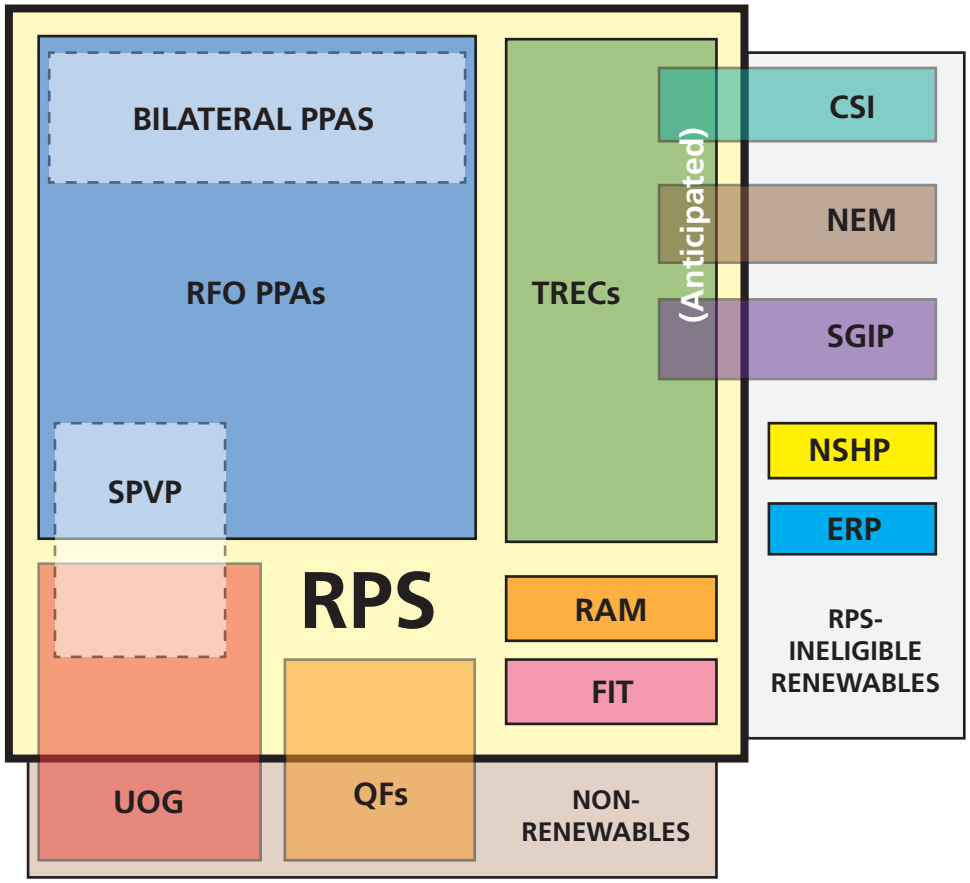
The need for reform has been recognized by the agencies themselves. As the California Air Resources Board noted in 2014:

> "No single party or agency has complete responsibility for the energy sector ... a reworked and comprehensive State program will be required that addresses all affected energy entities and is specifically designed to ensure that the proposed emissions are achieved."[28]

Or, as the Governor's OPR Report of 2013 noted:

> "[I]t is imperative that the state have a robust process for coordinating implementation. Increased collaboration, joint planning, and integration across agencies and goals will be required."[29]

Figure 5. **The Renewable Jungle: California's Renewable Energy Programs**[30]




Note: Program boxes not to scale

| | |
|---|---|
| CSI | California Solar Initiative |
| ERP | Emerging Renewables Program |
| FIT | Feed-in Tariff |
| NEM | Net Energy Metering |
| NSHP | New Solar Homes Partnership |
| PPA | Power Purchase Agreement |
| QFs | Qualifying Facilities |
| RAM | Renewables Auction Mechanism |
| RFO | Request for Offers |
| RPS | Renewable Portfolio Standards |
| SGIP | Small Generator Incentive Program |
| SPVP | Solar Photovoltaic Program |
| TRECs | Tradable Renewable Energy Credits |
| UOG | Utility Owned Generation |

Furthermore with no formalized interagency process for collaboration, the current system is designed to lack accountability. While informal interagency collaboration has absolutely improved over the last several years, including the advent of a principals group representing the major regulatory agencies to discuss policy, such collaboration is still *ad hoc*, not transparent and not structured. The principals group has done some admirable and much-needed work on integration, but the number of players at the table needs to be expanded and the process further formalized if California is to get maximum benefit from their work.

A unified energy agency would be ideal for California, but in lieu of that, a more formalized meeting of principals could provide a working blueprint for forward movement. In the meantime, we recommend the use of joint proceedings that would be binding on each agency as a way to address the problem of insufficient coordination. We also believe that any such coordinating council should have a full-time representative from the Governor's Office of Business and Economic Development to provide information on the economic impacts of these policies for business, and to ensure that energy and climate policies will in fact provide the prosperity necessary to fund important state programs and infrastructure upgrades.

Another key element that would improve regulator accountability would be moving from a tax increase model as exemplified by the current cap-and-trade system to a revenue-neutral tax shift model. Right now, California's carbon revenues are a being used to benefit projects ranging from high-speed rail to affordable housing. California's cap-and-trade revenue is expected to be between $12 and $45 billion by 2020, and yet there is little accountability on how this money is spent. We believe that voters will have the greatest acceptance of California's climate policies if they understand that they are directly tied and being used to actually affect climate change, rather than to simply boost the revenues of the state, for activities that are often only loosely related to climate. Therefore, revenue neutrality should be a key feature of California's climate policy, whether done through a refund or through a revenue-neutral carbon tax shift. Voters and businesses will increasingly understand that cap-and-trade is a tax—and this will be particularly evident when cap-and-trade pricing on gasoline takes effect in 2016.

# 4. ALIGNMENT WITH OTHER JURISDICTIONS

California is used to thinking of itself, not entirely without reason, as an 800-pound gorilla among the U.S. states. But in the context of global emissions California's significance is much smaller. Our state is responsible for less than 1% of global carbon emissions (0.9% to be exact) a number that will get lower each year. For that reason, California should remember its goal is not ultimately just to reduce emissions but to create a model for others, and therefore the state should strongly consider making new requirements conditional on action by others outside California.

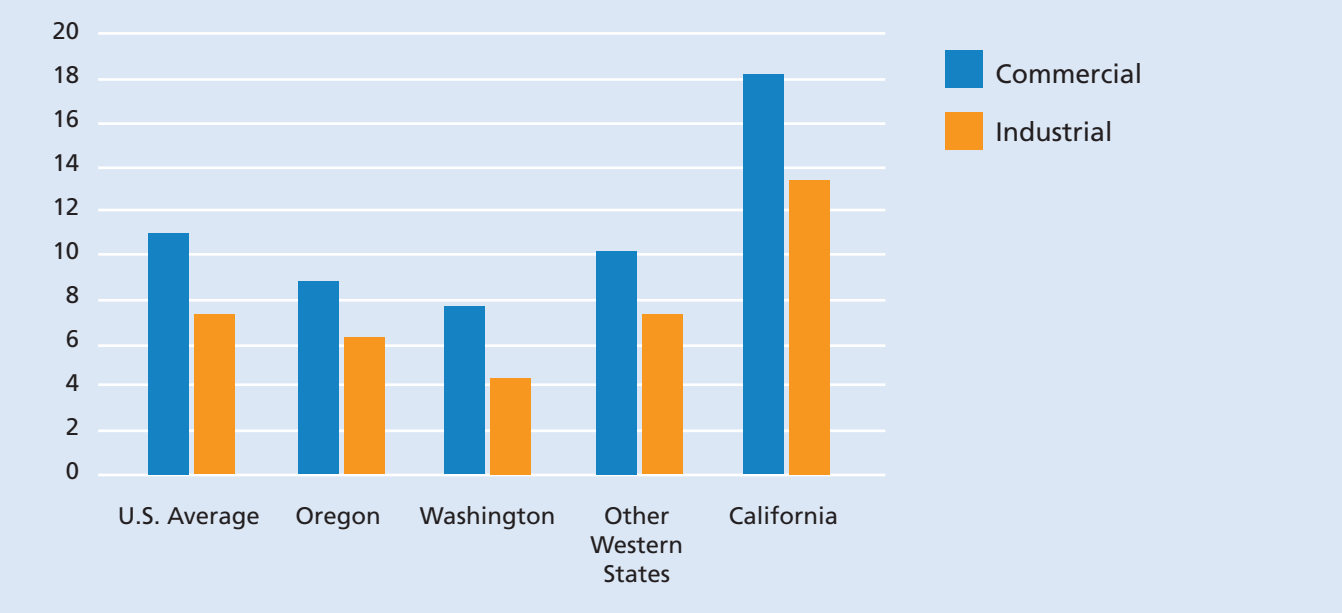
California has many non-binding agreements with other jurisdictions, but we cannot unilaterally control what these foreign governments do to combat climate change. Given the experience with the Western Climate Initiative where other states did not participate as expected, we should be cautious in making assumptions about what other governments say they will enforce. California should avoid unilateral commitments to long term targets without binding commitments from major emitting political entities. California only had 0.36 billion tons of $CO_2$ emissions in 2012 out of a total of 39.7 billion tons of global $CO_2$ emissions.[31] According to a just-released MIT Climate and Energy outlook, if developed countries meet their Copenhagen and Kyoto pledges, developing countries will account for 85% of global $CO_2$ emissions by 2050. Global emissions will rise more than 75% from current levels[32] and even if they were not reduced at all, California's emissions will be such a small part of global emissions as to hardly be worth mentioning. Our state's leadership needs to recognize that it cannot by itself make a substantial dent in global carbon emissions, even if it achieves all of its aggressive energy and climate goals.

In addressing the issues of energy and climate, California cannot be an army of one. This is far different than the traditional pollutants where the benefits of controls in California are felt in California. It is admirable to wish to lead, but if nobody is following you, it is time to re-assess the direction of your leadership. As Governor Brown himself has observed, "California can't do it alone."[33] Rather, a strong California policy with the support of the business community is the best approach for California in developing a climate and energy policy that operates from the strength of consent and consensus—one that can be durable amidst the shifting currents of politics.

We want California in a position of demonstrating leadership and direction, and to do so our policies must include protections for our businesses and consumers at home in that other jurisdictions must follow suit before our own stringent policies attain the force of law. The policies must be scalable so that they can in fact serve as templates that others can adopt. We need to be clear on our goal of inspiring global action, and evaluate and adjust depending on whether others are following.

California already has the nation's highest overall utility rates in the 48 contiguous states according the most recent data, which creates a competitive disadvantage for California businesses. These rates are double those of its neighbors in Oregon and Washington.[34]

Figure 6. **Commercial and Industrial Electricity Prices in California Vs. Other States (August 2014 Data)**




Commercial and industrial customers help subsidize residential rates in California—and the expensive energy policies mean that overall energy costs are much higher than competing states. This is a real job-killer and a competitive disadvantage for California.[35] Energy-intensive manufacturers have moved away from the state. Also important, but less visible are the energy-intensive companies California will not attract because of its uncompetitive rates. An industrial customer in California pays more than three times as much more for its electricity than does one in Washington. That is a powerful disincentive for industry to expand in, or relocate to, California.

While California has joined with Washington, Oregon, and British Columbia in a recently-announced climate pact, Washington and Oregon's implementation of key commitments under this pact is uncertain. And in any case, they start with a huge competitive advantage over California on pricing. One should also remember the ill-fated Western Climate Initiative (WCI) launched in 2008, which included Arizona, Montana, Manitoba, New Mexico, Ontario, Quebec and Utah.[36] Of these states and provinces, only California and Quebec persevered through the entire process. Governor Brown himself recognized the necessity of further coordination when he said, "This is the initiation of a very important agreement on the West Coast, but it's got to spread east."[37]

The problem is not just with Oregon and Washington, but with all of our Western neighbors. Tesla's decision to locate its new giga-factory in Northern Nevada, rather than in California, should be a wake-up call for the state. By its selection of a Northern Nevada location just a four-hour drive from its California headquarters, Tesla clearly showed that it wanted its factory to be in proximity to its leadership. But some have concluded that the Nevada selection also showed that California is still often uncompetitive for major manufacturing businesses. Tesla's decision represents 6,500 high quality middle class jobs that will not be coming to California. The factory is also expected to result in 3,000 temporary construction jobs and 15,000 indirect jobs in Nevada.

Unfortunately, it is not just our energy policies that matter for businesses: California has the nation's highest marginal income tax, while Nevada has no income tax at all. Additionally, California's housing costs are among the highest in the nation. Overall, the jobs that won't be coming to California because of rising energy and business costs are exactly the types of blue-collar manufacturing jobs that have been leaving California in droves—jobs essential for maintaining California's middle class. Some of these negatives are subjective—but energy costs are easily transparent to a potential new business.

We must recognize that California's most important contribution to the global effort to reduce carbon emissions and fight climate change is through our world class research and development capabilities and the launching of revolutionary companies that can solve sustainable problems worldwide. But these businesses, like all others, need predictable rules and clear guidelines in order to thrive. We should make sure that they are expanding not just their "high-end" jobs in this state, but also their middle class ones.

Therefore California's energy policy needs to maintain an appropriate modesty, one that sets an example without declaring a unilateral competitive surrender to jurisdictions with less aggressive climate goals.

# 5. ACCOMMODATION TO MEET CHANGING ECONOMIC, ENVIRONMENTAL AND INFRASTRUCTURE CHALLENGES

California's climate policies can be crafted with both near and long term aims, but they must preserve flexibility to respond to changes that arise over time and to coordinate appropriately with other jurisdictions that do or don't follow suit. The state needs the ability to address multiple priorities, not just GHG ones, and this will require available resources and programs that don't place unrealistic limits on our economy. The smartest move is to put the state in the strongest possible economic position in order to deal with unforeseen issues and be able to fund our multiple priorities—environment included.

Much of the substantial role for addressing climate change can only take place in the context of a growing economy.[38] By enabling regulations that are friendly to economic growth, we can simultaneously have more revenue to combat climate change and to deal with its impacts.[39]

Currently, California has a "wall of debt" largely in the form of unfunded pension liabilities, which is not counted in official figures and is not visible to California's public. One recent study showed this debt at almost $800 billion, by far the highest of any state.[40] California must tackle this debt and manage its resources responsibly to ensure that it has the money available to properly address its energy and climate priorities.

A brief example will illustrate how important the health of California's economy is to tackling the state's climate challenges. California's gross state product in 2013 was approximately $2.05 trillion of which, according to the non-partisan Tax Foundation, approximately $220 billion was spent on state and local government, representing slightly more than 11% of the total.[41] If California's economy grows at 2% per year until 2050, the state economy will approximately double, and taxes, at 11% of the total, will double with them to $440 billion. However, if, through appropriate regulation and economic dynamism, the State of California grows at 4%, the California economy and state revenue collection will more than quadruple, adding more than $200 billion in additional tax revenue over the lower growth scenario in one year alone. Over the course of the decades of growth, this will add literally trillions of dollars to the California government coffers—any amount of which could be used to address climate change. But if we don't grow, we won't have that money available for climate, energy or any of our other priorities.

As the Intergovernmental Panel on Climate Change (IPCC) acknowledged, poor countries are far more vulnerable than rich ones to climate change. Bangladesh is vulnerable not just because it is a very low-lying country, but because it is a very poor one. Meanwhile, the Netherlands, much of which lies below sea level already, has used its wealth to adapt to climate changes. Therefore, California's climate policy must make sure it does not "kill the golden goose" by strangling California's economy. In a world of climate change, it is far better to be the Netherlands than Bangladesh.

If California wants to be best prepared for climate change, if it wants to spend billions on research, technology development, adaptation, resilience and other defense mechanisms, the only way to do that is to have a dynamic, unshackled economy.

## CONCLUSIONS: KEY PRINCIPLES FOR CALIFORNIA'S CLIMATE LEADERSHIP

California's decision to be a global leader on climate change is admirable. However, given the state of California's economy, which is still struggling in many ways, there must be room for balance. For ten years running, California has been ranked the least-friendly state for business[42] and it is, by some important measures, the state with the highest poverty in the nation. Many of California's businesses and workers are suffering. Although the recession meant reduced emissions due to reduced economic activity, we certainly don't want our climate policy to be one of economic downturn. And we definitely do not want to replicate the EU experience, which included extensive mandates, cap-and-trade, and broad renewables subsidies in a style similar to those being undertaken in California. However, we worry that we are in danger of such an approach if we do not modify our strategy. As noted energy policy scholar Robert Bryce observed:

> "Between 2005 and late 2013, the average price of residential electricity in the EU rose by 55 percent, and industrial electric rates jumped by 26 percent. The average U.S. household now pays 12 cents per kilowatt-hour—about a third of what the same amount of electricity costs in Germany. European steelmakers now pay twice as much for their electricity as do U.S. manufacturers."[43]

Furthermore, Germany, which was the most aggressive proponent of the EU's subsidize and regulate model, actually saw their carbon emissions increase, as a result of poor planning and a switch away from dependable low-carbon baseload power that forced the country to rely on higher-carbon sources of energy to keep the lights on. California is currently running the same risks. In fact, it is instructive that our 2013 emissions were up significantly over 2012, largely due to the closure of SONGS and the poor performance of large hydro, neither of which count as "renewable" under California RPS policies.

It is not a question of whether California should endorse clean energy—everyone wants a green economy. But California needs to build an economy that is green and powerful—not just green. And we need other jurisdictions out there that compete with California's workers and businesses to follow suit. We need to be clear about our goal to create a model for other jurisdictions to follow, and to design policies that will be appealing enough to others to actually achieve that.

A responsible post 2020 climate policy would prioritize the "5 As" outlined in this paper and take seriously the following points of caution:

1. California's best weapon against climate change is a strong economy. A strong economy can spend more on both local climate adaptation efforts and global climate mitigation policies.

2. Climate change is an important priority for California voters, but it is only one priority: our spending in this area should be balanced so that it does not crowd out other California priorities such as education, health care, and a strong middle class.

3. Californians will be more enthusiastic about a climate change agenda and expenditures that are transparent, predictable, and produced by a clear legislative process with continuing legislative oversight.

4. California must acknowledge that with the state's emissions contributing such a small (and shrinking) part of the global share, our most effective approach on climate strategy must take place with a global perspective—and that the state cannot play by a totally separate rulebook than the rest of the world.

As the Little Hoover Commission writes:

> "Without more commitment to addressing this set of issues this veil of fiscal ignorance could undermine California's reputation for environmental stewardship and weaken efforts to implement similar policies nationwide and beyond. We all will be much better off if we have a steely-eyed review of the costs so that the benefits can be fully seen and understood."[44]

In the late 1990s, California experimented with electricity deregulation, entering into markets that, like today's climate markets, were opaque and unpredictable. Reliable baseload power was scarce, something that will increasingly be true in the RPS-heavy California. The result was an economic disaster, a gubernatorial recall, and years of legislative chaos as the state sought to sort out the mess. We need to learn from California's history and ensure that our energy policy does not, under a different guise, repeat the mistakes of the 1990s. Instead, with appropriate regulatory accountability, and a focus on both environmental AND economic sustainability, California can show the path forward for energy and climate leadership in the 21st century.

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