Finding Common Ground on Expanding Energy Infrastructure Will Shape Future

The production, transmission and cost of energy continue to be a central issue to California residents, the business community and the state's economy. The success of California's economy, and by extension the nation's, relies on the ability of local, state and federal leaders to find common ground and determine the most efficient and equitable means of upgrading and expanding energy infrastructure. In the coming months, all stakeholders and decision makers will need to make difficult decisions in order to shape California's energy future in a way that is aligned with the state's economic growth and environmental initiatives.

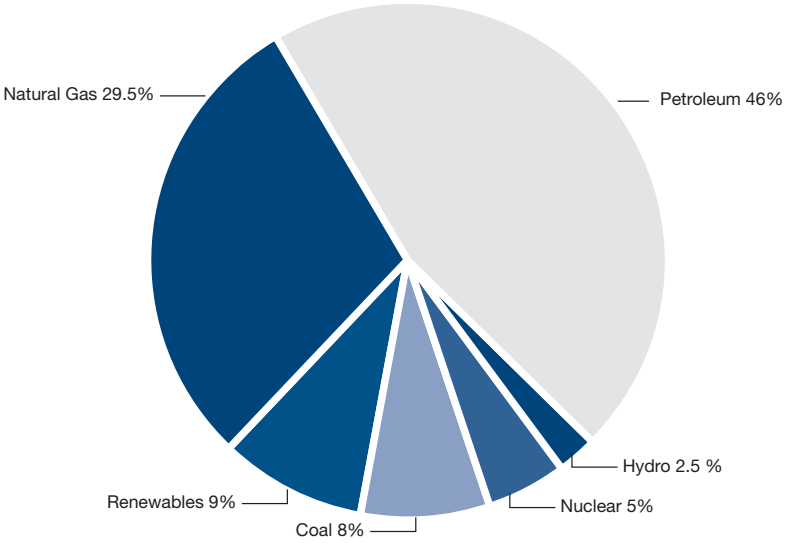
California's Electricity Outlook

Since the energy crisis of 2000-01, California has maintained a delicate balance between supply and demand, largely by relying on imported electricity from the North and Southwest and older, less efficient in-state power plants. With the demand in the North and Southwest growing, future imports are becoming more expensive and less available. Moreover, due to landmark legislation to cut the state's greenhouse gas emissions (AB 32 and SB 1368), California is limited to what types of power plants may be used to serve the current and increases in load. Although conservation, energy efficiency standards and increased energy sources have helped keep supply greater than demand, continued population and economic growth edges the state closer to an imbalance of supply and demand.

California's population grows at a rate of more than 1 percent a year, according to the Legislative Analyst's Office. According to the California Energy Commission (CEC), the state's primary energy policy and planning agency, statewide annual peak demand is projected to grow, on average, 850 megawatts (MW) per year for the next 10 years, or 1.35 percent annually. It is estimated that non-peak demand for electricity will grow at a rate of 1.2 percent to 1.5 percent through the year 2016, when California is projected to require as much as 36,915 megawatts (MW). Energy efficiency measures have helped the state offset growth thus far; however, these growing trends in demand coupled with new restrictions on the types of power used are clearly outpacing crucial infrastructure growth and replacement, causing major concern for the business community and decision makers around the state.

According to the Energy Commission's 2007 *Integrated Energy Policy Report*, more than 24,000 MW of new capacity has been licensed since 1998. However, only a little more than half (12,900 MW) has come on line. The 2005 report stated that 18 power plant proposals had been approved, but were not moving forward—mainly due to a lack of power purchase agreements needed for financing. Currently, of these 18 power plant proposals, seven have either been cancelled or had their permits expire.

California Energy Resources



Source: California Energy Commission

Aging Power Plants and Once-Through Cooling

For some time now, the state has been planning for the retirement of more than 17,000 MW of aging gas-fired generation. This retirement, however, is being compounded by an effort of the State Water Resources Control Board (SWRCB) to ban the use of once-through cooling by coastal power plants through the Clean Water Act 316. The SWRCB has called for a significant reduction and eventually, elimination of once-through cooling for electric generation power plants due to the environmental impact of entrainment of marine organisms within cooling water intake structures along with the discharge of warmer cooling water.

More than 21,000 MW of the state's generation is powered by power plants that currently use once-through cooling. This new proposed statewide policy would affect a significant amount of the generation capacity in the state.

The SWRCB has released a proposal to eliminate once-through cooling through a phased approach; however, according to the CEC, "without alternative mitigation measures, accomplishing this will require the refitting, repowering, replacement or retirement of 19 power plants, representing 40 percent of the state's generation capacity." While the regulatory process is already underway, questions still remain as to how this action combined with other legislative actions, such as SB 42 (Corbett; D-San Leandro), will affect the issue.

Although SB 42 was held in the Senate Energy, Utilities and Communications Committee in 2009, once-through cooling will likely remain an issue in the South Coast region, ultimately affecting the state's energy supply.

California will have to overcome major environmental and transmission challenges in meeting the growing energy demand for the future. This proposal, however, has caused significant concern for grid reliability. Furthermore, building new power plants in urban areas is not an easy feat considering the existing issues with permitting and siting due to local opposition. The state will have to take a close look as to whether it is ready to fill the loss of retiring power plants and those affected by once-through cooling regulation.

In light of the multiple regulations being proposed through the California Air Resources Board (ARB) Scoping Plan for greenhouse gas reductions, a comprehensive look at the costs and effects of all these regulations on the grid system is necessary.

Rate Allocation

The cost of energy use has a direct impact on a state's economy and the current worldwide economic downturn magnifies this impact. Because the state's business community plays such a vital role in fueling the overall economy, any cost shift on industry has a negative impact across all sectors.

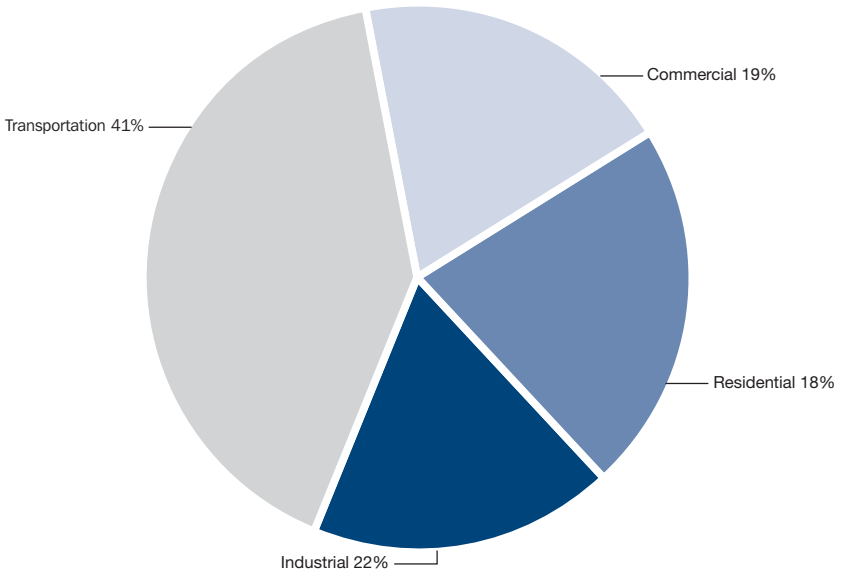
In the last decade, Californians have suffered from rising electricity prices, much of which is the result of unrecoverable costs from the energy crisis that hit the state in early 2000. Consequently, California has become one of the most expensive states in which to do business. Price increases have made it extremely difficult for a number of the state's businesses, both large and small, to manage and predict their energy costs.

Further complicating the issue is the implementation of ABX1 1 (Keeley; D-Boulder Creek), signed into law in 2001 (Chapter 4). ABX1 1 put a freeze on certain residential usage rates, prohibiting rate increases for customers in certain tier ratings (1 and 2) while allowing cost increases to the residential class of customers in all other tiers (3, 4 and 5).

Since its passage, ABX1 1 has created disparties between rates charged in Tiers 1 and 2 versus rates charged in Tiers 3, 4 and 5. The Legislature addressed such disparities by passing SB 695 (Kehoe; D-San Diego), which was signed into law by Governor Arnold Schwarzenegger on October 11, 2009 (Chapter 337). SB 695 removes the rate freeze under ABX1 1, allowing for the possibility of limited rate increases (capped at 5 percent) on all residential tiers, effective January 1, 2010.

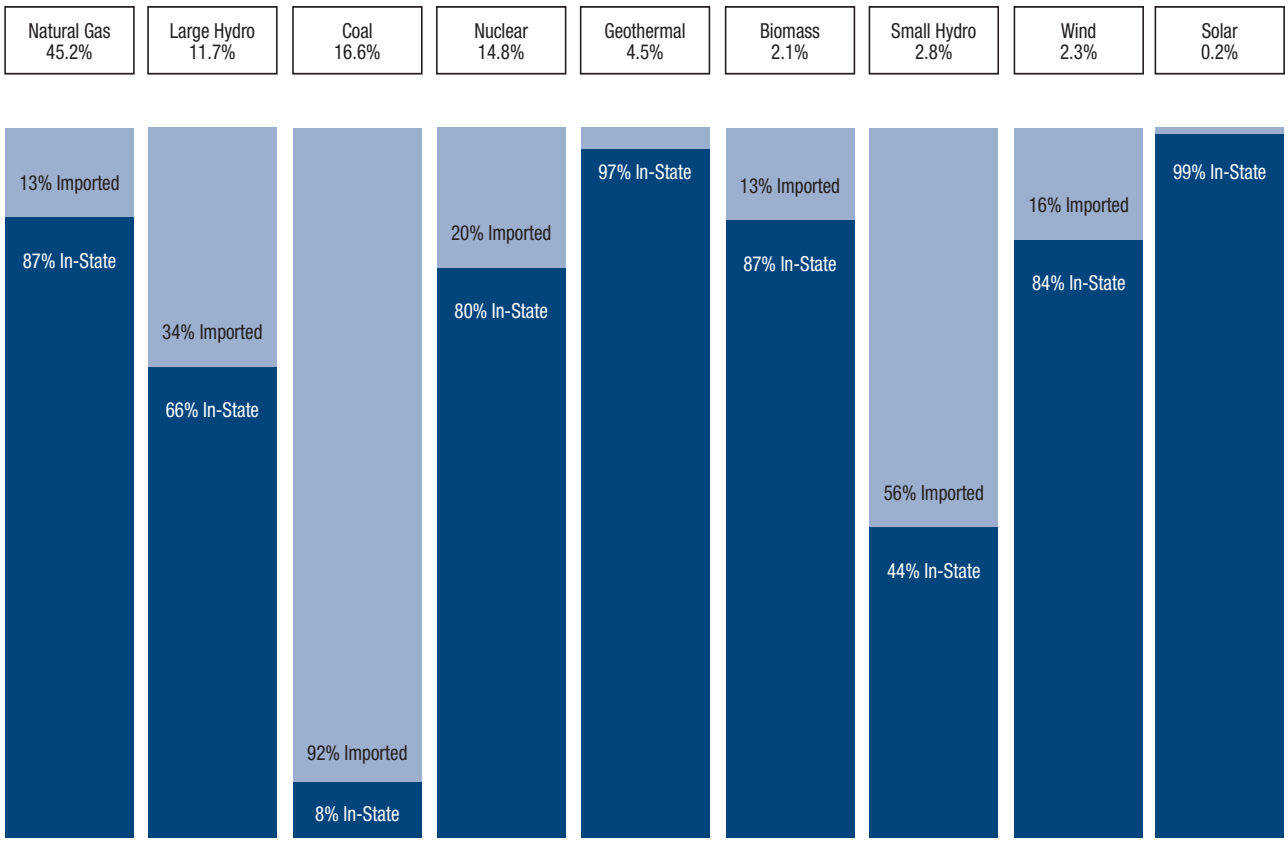
The authorized rate adjustments will have no effect on the overall level of revenues collected by each of the utilities, but will result in either increases or decreases in the monthly bill to individual residential customers, depending upon the amount of electricity they consume.

Energy Use by Sector



Source: California Energy Commission

California's Electricity Mix 2007



Source: California Energy Commission

least 33 percent of their electricity from renewable power by 2020. Legislation was introduced to codify the 33 percent mandate, but it was vetoed by the Governor.

In November 2008, however, Governor Schwarzenegger signed Executive Order S-14-08, which increased the RPS goals to 33 percent by 2020. The Governor's executive order also directs a restructuring of the process for developing specific renewable energy sites. It calls for the CEC and the Department of Fish and Game to create a "one-stop permitting process with the goal of reducing the application time for specific projects in half."

The ARB is counting on the new 33 percent renewable standard as a key strategy to meet the AB 32 greenhouse gas reduction goals. Such steps have pushed all stakeholders to look at the existing system to understand the issues that are blocking the growth of renewable energy use in California.

The California Public Utilities Commission recently released a report on the existing standard and what challenges the state must overcome to meet a 33 percent renewable mix. The report highlights six major challenges that may act as barriers to reaching such a standard.

- The magnitude of a 33 percent RPS is unprecedented.
- Transmission planning, permitting and construction require substantial lead times, which could inhibit timely delivery of renewable energy.
- The impact of integrating large amounts of intermittent renewable energy on grid reliability of the transmission system is not yet known.
- Permitting of renewable generation facilities can be complex, long and uncertain.
- The costs of renewable projects are increasing; the state needs a process to evaluate these costs and resource alternatives.
- Other project development barriers, such as financing and equipment procurement, affect the state's ability to reach a 33 percent RPS by 2020.

It is certain that the state must work to combat these challenges if California is serious about meeting its existing standard as well as the new 33 percent goal. The 2007 *Integrated Energy Policy Report* stated that the 33 percent goal is feasible if the state commits to significant investments in transmission. The 2008 *Integrated Energy Policy Report Update* states: "The priority now is to identify these obstacles to reaching that goal and determine how to overcome those obstacles."

Estimates show that the IOUs will likely hit the existing 20 percent target around 2013. If that estimate is correct,

Conceptual Plan, is broken down by area and time of year and can be found at *www.caiso.com*.

Although it is a positive step that the various agencies are working together to develop a better process, the state will need additional effort in working to develop all types of energy infrastructure, including natural gas and infrastructure for alternative fuels.

Natural Gas and Petroleum

As mentioned above, the CEC has provided guidance on how the state can better plan for electrical resources, but attention also must be given to new sources of natural gas, petroleum and the pipelines used to move these fuels. Natural gas demand is expected grow 0.07 percent a year from 2006 to 2016. Much of this demand is driven by residential and commercial use and the use of natural gas to fuel electrical power plants. Natural gas production in the United States is falling and growing economies in Canada and Mexico, the two principal sources of natural gas used in the United States, threaten to curtail imports.

With domestic production of natural gas (excluding Alaska) falling and demand growing, the United States and California must rely on new sources of natural gas. Foreign production is the most likely source of new natural gas. The most efficient and least expensive manner of getting foreign-produced natural gas to California is to liquefy the gas and transport it by ship. At its destination, the gas is then regasified and transported domestically via pipeline.

Regasification facilities are needed to convert the natural gas from liquid to gas. There are only five regasification facilities in the United States and none are on the West Coast. Again, approval for these projects relies on a myriad of state and federal agencies and is subject to the force of popular local opposition.

Policymakers should act quickly to approve the development of the liquefied natural gas (LNG) regasification facilities. Furthermore, the state requires enhanced transmission capacity to deliver natural gas to where it is needed. State planning efforts should include the development of new pipeline capacity. Local, state and federal agencies should continue their ongoing dialogue with the various commercial and public interests and determine the most suitable locations for these facilities.

Californians consumed almost 16 billion gallons of gasoline in 2006. The state is the third largest consumer in the world, behind the United States and China. According to the *2007 Integrated Energy Policy Report*, demand for gasoline and diesel is expected to increase in the state 1 to 2 percent annually. Although the various environmental mandates are urging consumers to curtail consumption, demand is still growing with population, forcing producers to look at alternatives to meet increasing demand and environmental goals.

Alternative Fuels

There is no doubt alternative fuels will play a role in strengthening California's fuel mix. The ARB has developed and approved (April 2009) a Low Carbon Fuel Standard under its AB 32 regulatory program that will be implemented in 2020. This standard has been difficult for the regulatory and stakeholder community to develop as there is still much more to learn about the various alternative fuel technologies.

It is certain that significant investment is needed to study the impacts of all the alternatives, including cost analysis and their effects on the broad economy. Furthermore, more emphasis needs to be placed on how the state will accommodate these fuels. Infrastructure development is absolutely crucial to bring these technologies to market. Although the ARB has taken the lead on the Low Carbon Fuel Standard framework, it will be important that the standard is not developed without identifying the barriers that exist today.

CalChamber Position

It is critical that California's electricity generation keeps pace with its growing population and increasing demand. The state should focus its attention on the construction of new transmission lines to sustain future economic growth and to ensure renewables are able to come on line in time to keep up with the various programs being implemented across agencies.

With the various new programs undergoing implementation in the next couple of years, California will be expected to have a far more diversified portfolio of energy sources. The state is not on track to meet these standards, however, because of the difficulty in getting projects approved for construction.

The construction of the state's energy infrastructure is vital to the economic growth of California. To ensure this demand is met, the state needs to generate more discussion regarding the construction of LNG regasification plants. Moreover, investments must be made in natural gas pipelines to more efficiently move the gas to where it is needed.

Finally, research and development in fuel technology is necessary for understanding the role of alternative fuels in enhancing the state's energy mix and reaching California's environmental goals. If the state delays growth of this much-needed infrastructure and development, California will fail to meet the demand for tomorrow.

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