

Energy Infrastructure Upgrade/Expansion Critical for State's Economy to Grow

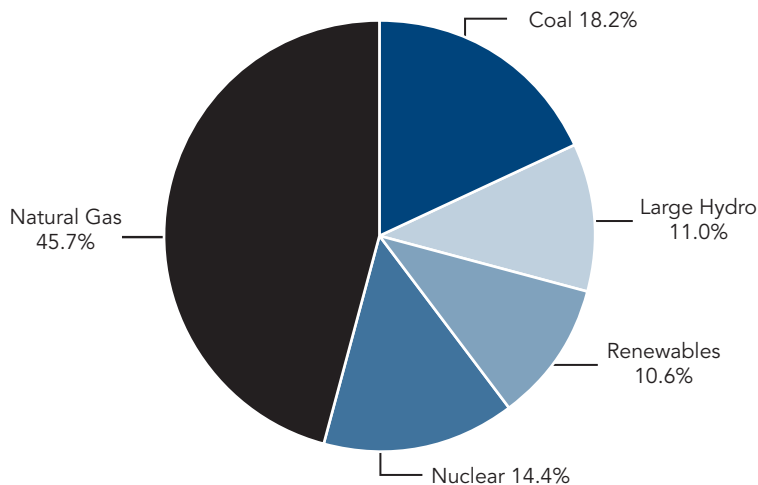
The production, transmission and cost of energy continue to be a central issue to California residents, the business community and the state's economy. The success of California's economy, and by extension the nation's, relies on the ability of local, state and federal leaders to find common ground and determine the most efficient and equitable means of upgrading and expanding energy infrastructure.

As California pursues its goal to address climate change by reducing greenhouse gas emissions, the driving force for the state's energy policies continues to be maintaining a reliable, efficient and affordable energy system that is aligned with the state's economic growth and environmental initiatives. Although the economic downturn has reduced energy demand in the short-term, demand is expected to grow over time as the economy recovers. It is important that in making key energy decisions, policy makers and stakeholders be flexible enough to respond to future fluctuations in the economy in a way that enables the state to continue to develop and adopt energy policies and technologies that are critical for long-term reliability and economic growth.

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 Energy Generation Mix



Source: California Energy Commission (2008)

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, electricity consumption is projected to grow at a rate of 1.2 percent per year from 2010–2018, with peak demand growing at an average annual rate of 1.3 percent over the same period. The current forecast is lower than the CEC had estimated in a previous report, primarily due to lower-than-expected economic growth in both the near- and long-term, as well as increased expectations of savings from energy efficiency.

According to the Energy Commission's *2009 Integrated Energy Policy Report*, more than 24,000 megawatts (MW) of new capacity has been licensed since 1998. Only 15,220 MW has come on line, however. The 2009 report states that the Energy Commission has a historic high level of more than 30 proposed projects under review, totaling more than 12,000 MW, many of which are large solar thermal power plants that present new and challenging environmental impacts that must be considered.

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. On May 4, 2010, the State Water Resources Control Board adopted its statewide once-through cooling (OTC) policy, which later was approved by the Office of Administrative Law on September 27, 2010.

The policy sets uniform, technology-based standards to implement federal Clean Water Act 316(b). The goal is to significantly reduce the OTC process through various retrofitting upgrades with the intention of ultimately phasing out the OTC process altogether. The policy calls for a significant reduction of the OTC process for electric generation power plants by requiring that the location, design, construction and capacity of cooling water intake structures reflect best technology available for minimizing environmental impacts of entrainment of marine organisms within cooling water intake structures along with the discharge of warmer water.

Cost to Power Plants

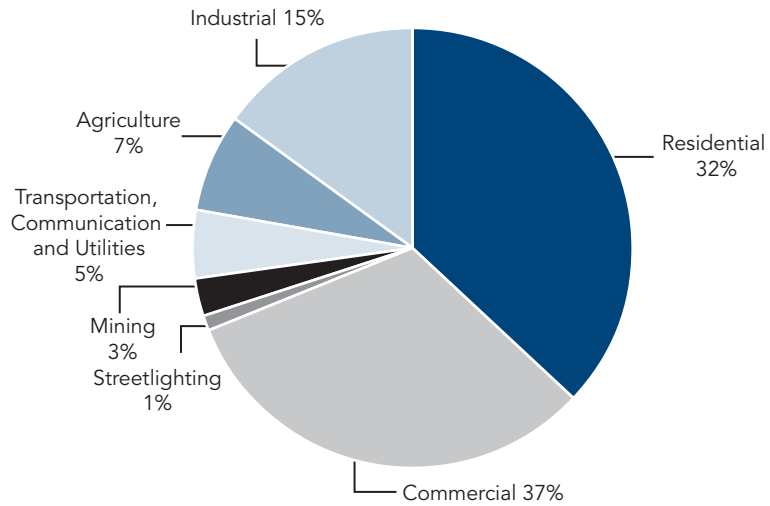
The OTC policy applies to 19 existing power plants, including two nuclear plants. The policy gives the owner or operator of a power plant the ability to pick either best available technology or a mix-match of alternative technologies to meet the power plant's OTC reduction.

An example of best available technology that can be utilized to achieve the policy's goals is the installation of a closed-cycle wet cooling system, such as cooling towers. Alternatively, a mix-match technology approach encompasses the installation of specialized screening technology that is useful to prevent entrainment of marine organisms.

Overall, regardless of a power plant's method of choice, both technologies necessary to adhere to the OTC policy ultimately will cost power plants millions of dollars.

The owner or operator of a power plant has until April 1,

Electricity Consumption by Sector (Gigawatt-Hours)



Source: California Energy Commission (2008)

2011 to submit its plan to the state water board, outlining the measures it will take to meet the OTC reduction policy. Afterwards, inter-agency representatives, including representatives from the state water board and the California Independent System Operator (CAISO) will meet to discuss each of the plans submitted by the power plants and will assess the implementation schedule for each plant. For the most part, a power plant's implementation schedule for the OTC policy is tied to the renewal of its National Pollutant Discharge Elimination System (NPDES) permit.

Aside from reviewing the plan for each power plant, the inter-agency representatives have the option of amending implementation dates if deemed necessary for grid reliability purposes.

The two nuclear plants, San Onofre and Diablo Canyon, will require a special study by an independent third party overseen by a review committee overseen by the state water board to evaluate appropriate requirements for the nuclear-fueled power plants. Within three years after the policy's effective date, the review committee shall report to the state water board on the ability of the nuclear plants to achieve compliance, as well as the cost of compliance and potential environmental impacts.

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, the rising electricity costs have made California one of the most expensive states in which to do business. Price increases have made it extremely difficult for a number of 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 disparities 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 price adjustments in the monthly bill to individual residential customers, depending upon the amount of electricity they consume.

As more costly energy alternatives come to the market, along with the various low-income assistance programs already in place, it remains to be seen who will bear the cost burden and the extent of that cost on California businesses.

In the 2006 legislative session, Governor Schwarzenegger signed AB 2951 (Goldberg; D-Los Angeles; Chapter 866), which requires public agencies to be subject to the same electricity charges as non-public users. The legislation also protects the ability of public agency utilities to equitably apportion the costs of their facilities among both public and private customers.

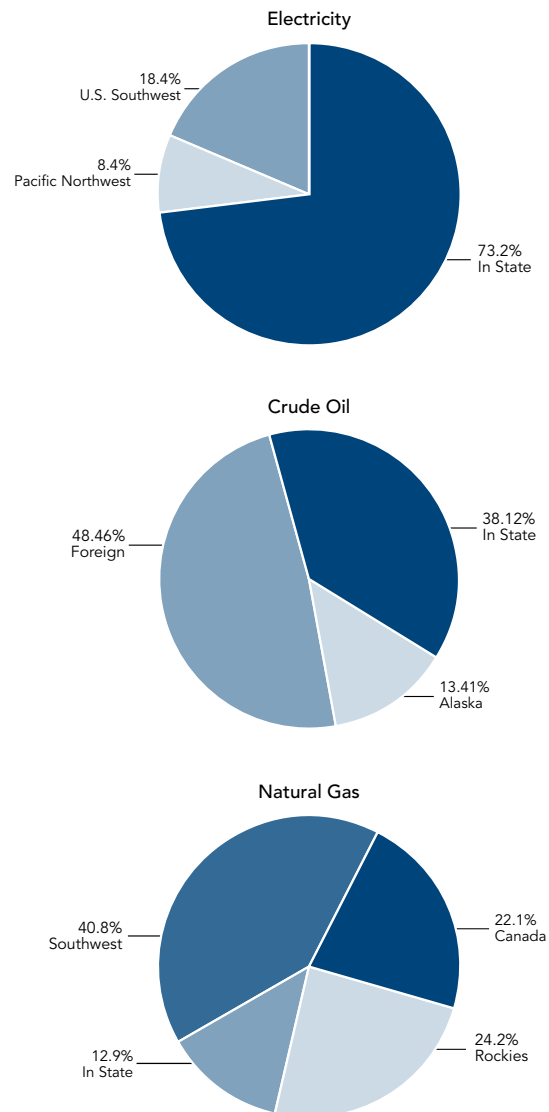
California should continue to prevent the inequitable allocation of cost onto businesses and ratepayers. In order for California to maintain a thriving business climate, electricity rates must be reasonable and affordable.

Renewable Portfolio Standard

As decision makers continue to look at solutions to ensure the state's energy supply keeps pace with demand, they also are interested in ways to keep the state on track in terms of renewable development. Unlike many other states, California is pursuing multiple aggressive environmental and energy targets.

Existing law required California's investor-owned utilities (IOUs) to supply an increasing portion of their energy mix from renewable energy sources so that 20 percent of their portfolio was renewable by December 31, 2010. This

California Energy Sources



Source: California Energy Commission

mandate currently applies only to the IOUs. Municipal utilities are not required by law to meet the 20 percent goal, although many are starting to procure renewable contracts to reduce their environmental footprint.

According to 2009 numbers, the three largest IOUs collectively had a renewable mix of 15 percent. With the December 2010 deadline past, estimates show that the IOUs will likely hit the existing 20 percent target around 2013. If they do not meet the deadline, penalties will begin accruing in 2013.

Given the increasing concern over greenhouse gas emissions and their impact on the environment, legislators and regulators also are looking to strengthen the state's renewable portfolio standard (RPS) law so that the utilities

California Total System Generation (Gigawatt-Hours)

Fuel Type	In-State	Northwest Imports	Southwest Imports	Total Energy System
Coal	3,977	8,581	43,271	55,829
Large Hydro	21,040	9,334	3,359	33,733
Natural Gas	122,216	2,939	15,060	140,215
Nuclear	32,482	747	11,039	44,268
Renewables	28,804	2,344	1,384	32,532
Biomass	5,720	654	3	6,377
Geothermal	12,907	0	755	13,662
Small Hydro	3,729	674	13	4,415
Solar	724	0	22	746
Wind	5,724	1,016	591	7,331
TOTAL	208,519	23,945	74,113	306,577

Sources: Energy Information Agency, Energy Commission Quarterly Fuels and Energy Report Database, SB 1305 Reporting Requirements

would have to procure at least 33 percent of their electricity from renewable power by 2020.

Legislation was again introduced in 2010 to codify the 33 percent mandate in statute but SB 722 (Simitian; D-Palo Alto) failed passage in the Legislature, missing the August 31 midnight deadline for action. SB 722 faced challenges from a variety of stakeholders, including environmentalists, utilities and clean tech companies.

As with the 2009 legislation vetoed by Governor Schwarzenegger, SB 14 (Simitian; D-Palo Alto), some of the most contentious issues surrounding SB 722 included caps on the amount of renewable energy that could be brought in from outside the state, and the percentage of Renewable Energy Credits (RECs) utilities could procure to meet the 33 percent target. SB 722 restricted RECs to no more than 10 percent.

Also a big issue was Governor Schwarzenegger's push to streamline the permitting and siting of renewable power projects in the state, as proposed in AB 1012 (V. Manuel Pérez; D-Coachella). The Governor felt strongly about transmission and siting reform and made it clear he would not sign an RPS bill without these reforms. AB 1012 was viewed as a companion to SB 722 and like SB 722, also failed passage.

The Legislature's failed attempt to pass RPS legislation in 2010 resulted in the Air Resources Board's (ARB) move to adopt a 33 percent Renewable Energy Standard (RES) as authorized under Executive Order S-21-09. On September 23, 2010, the ARB voted unanimously to implement the 33 percent RES.

The RES regulation generally is supported by environmental groups, health advocates and utilities, but some power companies have expressed concerns that the rule would allow the state to impose tens of millions of dollars in penalties for failing to meet the standard:

The California Public Utilities Commission (PUC) 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. Although major issues associated with meeting the larger target exist, the *2009 Integrated Energy Policy Report* recommends that the state pursue the codification of the 33 percent renewable target. In order to effectively meet the targeted goals, however, major investments in transmission must be made. Additionally, the state needs to accelerate the permitting of renewable energy infrastructure and facilities in California.

Implementation of Renewable Energy Standard May Be Challenged

The ARB is counting on the new 33 percent renewable standard as a key strategy to meet its AB 32 greenhouse gas reduction goals. Although the ARB acted under the Governor's Executive Order, implementation of the RES may be challenged from a variety of sources, including stakeholders that would prefer to see RES/RPS codified in statute and who challenge ARB's overall authority to implement RES in the first place.

On September 20, 2010, Senate President Pro Tempore Darrell Steinberg (D-Sacramento) and Assembly Speaker John A. Pérez (D-Los Angeles) sent a joint letter to ARB Chairman Mary Nichols, calling on ARB to delay approval of the RES because it "may be beyond the scope of CARB's regulatory authority." Stated in the letter was that the RES would create economic uncertainty and establish a duplicative state bureaucracy.

The letter even recommended that the Legislature defund ARB staff positions assigned to implement the

RES. Despite the letter, ARB proceeded with approving the RES and it remains unclear whether any legislation will be proposed in 2011 to potentially impede implementation of the RES.

Changes in the executive policy could affect the RES. Unlike the RPS, which is codified in statute, the RES remains an ARB regulation. If the RES is significantly weakened or eliminated, such an action may be challenged as having a significant adverse impact under the California Environmental Quality Act (CEQA) by causing an increase in greenhouse gas emissions.

Renewable Energy Credits

One tool available to meet the RPS standard is the use of Renewable Energy Credits (RECs). RECs are tradable commodities that represent proof that 1 MW of electricity was generated by a renewable energy source. For example, a utility facing an RPS obligation, but short of local renewable generation capacity within its service area, might no longer have to import renewable electricity from distant locations. Instead, that utility could purchase local conventionally generated electricity and supplement it with the purchase of RECs from elsewhere.

RECs are used to provide electricity providers with some compliance flexibility when the state is far behind in meeting its energy infrastructure needs. The current RPS program limits the use of RECs and places restrictions on how electricity providers can use RECs to meet their RPS obligations; however, the RES recently adopted by the ARB allows for an unlimited use of “unbundled” or “tradable” RECs for compliance purposes. Although the renewable standard calls for an unlimited use of RECs, nothing prohibits the ARB from capping the number of RECs that can be used toward the standard.

Feed-In Tariff

Designed to encourage the adoption of renewable energy sources and to help accelerate the move toward grid parity, feed-in tariffs require utilities to purchase a designated amount of renewable electricity (solar, wind, biomass, geothermal, etc.) from all eligible participants. Legislation enacted in 2006, AB 1969 (Yee; D-San Francisco), first authorized an electrical corporation to enter into a power purchase agreement for the renewable generation installed by public water and wastewater agencies.

In July 2007, PUC extended the power purchase agreements to all customers who install renewable generation of up to 1.5 MW. Legislation subsequently enacted, SB 380 in 2008 (Kehoe; D-San Diego) and SB 32 in 2009 (Negrete-McLeod; D-Chino), increases the individual system capacity and aggregate capacity allowed statewide under the feed-in tariff program.

SB 32 revises and expands the feed-in tariff program from 1.5 MW to 3 MW for eligible renewable electric generation facilities and also authorizes the PUC to adjust the rate to reflect the value of the electricity and other attributes. In addition, SB 32 requires previously exempted

publicly owned utilities with 75,000 or more customers to provide for a feed-in tariff.

The feed-in tariff program is seen as a positive step toward achieving the state’s energy efficiency goals. It’s a useful mechanism that can help utilities meet their 20 percent RPS mandate, as well as other future procurement targets. Also, as previously mentioned, the feed-in tariff encourages the adoption of renewable energy sources and is intended to provide incentives to renewable participants through its power purchase agreement.

In the coming years, the feed-in tariff program is likely to keep expanding, either through legislation or regulation under the PUC. In fact, the CEC in its *2009 Integrated Energy Policy Report*, encourages the PUC to expand the feed-in tariff program by taking full advantage of all new renewable electricity capacity that such a robust program can provide. The PUC is encouraged to continue exploring expansion of the feed-in tariff program for small- to medium-scale generation using a market-based pricing approach.

Intermittent Nature of Renewables

While renewable energy presents a great alternative to traditional energy sources, it comes with its limitations. Renewables are intermittent. Because the amount of renewable energy available greatly depends on the climate (solar, wind, hydro), the state’s energy providers need to keep traditional existing resources on hand just in case. Although there have been some promising strides in energy storage technology, it is in its early stages. Thus, the inability to store the renewable energy when it is produced has become a significant challenge.

California’s energy experts agree that in order to maintain grid reliability, the state must have a generation mix to utilize different complementary resources. While the state continues to increase its use of renewables, there is a need to maintain some of the more traditional resources as well in order to ensure the lights stay on and that the state meets its resource adequacy standards.

Transmission

Perhaps the most troubling barrier to renewable development is the lack of transmission infrastructure required to transport clean energy across the grid. In order for the utilities to tap into the renewable resources available to the state, policy makers must ensure that they are doing everything in their power to speed the construction of new transmission lines.

The PUC estimates that seven new transmission lines would have to be built in order to sustain renewable growth to 33 percent. This massive infrastructure need would have an estimated cost of \$12 billion, according to a June 2009 *33% RPS Implementation Analysis* report by the PUC.

Building transmission is not only a costly process, but requires ample time. Upgrading existing transmission and developing new projects is difficult. Despite this reality, California must take time to plan, permit, construct, operate

and maintain a cost-effective, reliable electric transmission system that is capable of responding to important policy challenges, such as achieving significant greenhouse gas reduction and RPS goals. According to the CEC, this arduous task is going to require interagency involvement.

On May 13, 2010, the PUC and the CAISO signed a Memorandum of Understanding agreeing to coordinate in several ways. Under the memorandum, the agencies agreed to certain principles regarding the CAISO's proposed *Revised Transmission Planning Process* in an effort to account for state policies, such as renewable and climate change goals, more explicitly and comprehensively.

It is likely that transmission challenges in publicly owned utility service territories resulted in a greater cost to the state's economy. Regions with particularly critical needs are San Diego and the San Francisco Bay Area, where transmission constraints have resulted in decreased reliability and blackouts.

Limiting blackouts prevents the state from spending millions on high-priced, short-term contracts and saves California businesses from losing additional revenue to energy costs. One relatively new transmission project that would bring clean solar energy into the San Diego area recently received regulatory approval, and began construction on non-transmission-related facilities that are necessary to support the transmission line on September 16, 2010.

Financing transmission projects relies on a developer's ability to justify the cost and satisfy state and federal cost recovery regulations. Moreover, developers must satisfy both state and federal environmental regulations. Developers must seek approval from at least three state agencies and several federal agencies, depending on the location of the project. Assuming agency approval is forthcoming, developers still must overcome local opposition from various interest groups, which often leads to legal challenges.

Given the rigors of the approval process, it can take anywhere from five to 20 years to begin transmission upgrades and construction. Considering the growth in demand and aging infrastructure, this is time California does not have.

Better Planning Needed

The state's energy policies rightfully identify generation and transmission as critical needs; however, planning is the most basic of all needs. A more coordinated planning process is needed for determining the need and location of energy infrastructure projects.

Even a cursory look at the existing process for siting electrical infrastructure illustrates the need for change. Each agency has its own criteria and components to follow, and all projects are subject to both state and federal environmental review.

State and federal policy makers should commit themselves to simplifying the processes involved in developing new energy infrastructure. Recently, the CEC,

PUC and CAISO reported the results from the Renewable Energy Transmission Initiative (RETI) to help identify the transmission projects needed for the state. The RETI found that numerous new transmission lines and upgrades to existing transmission lines throughout the state need to be made in order to meet growing electricity demands as well as provide renewable sources of energy.

Detailed information from the report, the *2020 Renewable Transmission 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.

Sunrise Powerlink

Regarded as one of the most controversial projects ever proposed, the Sunrise Powerlink, a high-voltage power transmission line by San Diego Gas & Electric, is an example of a project that has faced its fair share of obstacles. Approved by the PUC in December 2008, the U.S. Bureau of Land Management (BLM) in January 2009, and finally by the U.S. Forest Service in July 2010, this 120-mile long transmission line is expected to bring 1,000 MW of renewable energy from the Imperial Valley to San Diego County. Although litigation is pending in state and federal court challenging approvals by the PUC and the BLM, construction of non-transmission-related facilities began in September 2010 with completion scheduled for 2012.

The line, which has been controversial since proposed years ago, has faced critics ranging from members of Congress to environmentalists, all of whom have challenged it on the basis that it's too expensive and too damaging to the environment. However, the powerline is essential in helping California meet its renewable energy targets. The powerline will help bring in power from the sun and the wind in the Imperial Valley and Mexico. The powerline will also make blackouts less likely and will reduce costs to consumers through access to cheaper power. In addition, the transmission line will create thousands of jobs and billions of dollars of investment in the state.

American Recovery and Reinvestment Act

On February 17, 2009, President Barack Obama signed the American Recovery and Reinvestment Act of 2009 (ARRA) into law. ARRA was signed to "jump-start" the nation's economy, create and save jobs, modernize the nation's infrastructure, and enhance energy independence. As a result, CEC is in charge of administering the billions of dollars in federal ARRA funding that has been allocated for energy-related projects and rebates.

According to the CEC, there are 48 renewable generating projects (11,120 MW) proposing to operate in California that are seeking ARRA funds. The CEC has nine

projects totaling more than 4,100 MW within its siting jurisdiction. Because ARRA funding for these projects was contingent upon projects breaking ground by the end of 2010, the CEC worked in partnership with other state and federal agencies to accelerate the processing of these green power projects so that permitted projects could meet the December 2010 start-of-construction date.

The CEC approved seven large solar thermal projects earlier in 2010 and was expected to approve siting for the remaining two plants before the end of the year. To help accelerate the process, Governor Schwarzenegger signed SBX8 34 (Padilla; D-Pacoima), a California Chamber of Commerce-supported job creator bill. SBX8 34 streamlines the permit process for large-scale solar energy plants in the California desert, fast-tracking approval for more than 9,000 MW of solar energy. Streamlining the permitting process for these projects is significant as, according to the CEC, these projects represent \$10 billion in investments, more than 6,000 new jobs, and millions of dollars in new taxes for California. These projects also will help California achieve the state's goal of significantly increasing the amount of electricity provided by renewable resources.

Smart Grid Technology

A technology modernizing the electric grid is the smart grid. This technology delivers electricity from suppliers to consumers using digital technology as an efficient way to save energy, reduce cost and increase reliability. Since the existing grid is increasingly costly to maintain and is not able to meet the future demands that will be placed on it, smart grid technology is a, reliable, efficient, affordable and interoperable system that, according to the PUC, is better fit to integrate and accommodate renewable technology.

The smart grid has many advantages; among them is the benefit consumers have of more information and tools to manage their electricity usage. Smart grids are designed to give consumers greater control over their utility bills by making available real-time information about things such as rebates and usage, allowing customers to decide when and how much energy to use.

For example, to reduce demand during the high-cost peak usage periods, communications and metering technologies inform smart devices in the home and business when energy demand is high and track how much electricity is used and when it is used. This provides important information as prices of electricity are increased during high-demand periods, and decreased during low-demand periods. The thought is that consumers and businesses will consume less during high-demand periods if consumers are made aware through these devices of the high price premium for using electricity at peak periods. As technology advances, the smart grid will help provide the innovation customers need in order to take greater control over their energy and lower their bills.

The PUC has set out a framework and an overall vision for a smart grid in California. To further enhance this

technology, the PUC has initiated a rulemaking (R.08.-12-009) to consider policies for California IOUs to develop a smarter electric grid in the state. The proceeding will consider setting policies, standards and protocols to guide the development of a smart grid system and facilitate integration of new technologies such as distributed generation, demand-side technologies and electric vehicles. The rulemaking is ongoing with the PUC having hosted several Smart Grid Workshops in 2010. These workshops likely will continue in 2011.

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 to 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.

As recently as two years ago, domestic natural gas production and imports to California were on the decline and liquefied natural gas (LNG), a natural gas converted temporarily to liquid form for the ease of storage or transport, was seen as a source to best serve California's natural gas needs. Since LNG is distributed as pipeline natural gas, it offers energy density comparable to gasoline and diesel fuels, and produces less pollution. Its relatively high cost of production and the need to store it in expensive tanks, however, makes LNG an expensive importing option.

The cost of importing coupled with the lack of LNG transporting facilities has made LNG no longer a cost-effective option for California at this time. Technological advancements in exploration, drilling and hydraulic fracturing have taken shale formations from a marginal domestic natural gas to a substantial and major contributor of the natural gas portfolio. Produced from shale, this gas has become an increasingly important source of natural gas, not only to California, but throughout the rest of the United States as well, particularly in New York, Texas and other midcontinent states. Experts believe that shale gas will supply as much as half the natural gas production in North America by 2020.

According to the CEC, if private investors are willing to invest in LNG facilities without using taxpayer or ratepayer funds, then LNG could be considered a viable future option. The CEC's main concerns with LNG are ensuring that development remains consistent with the state's interest in balancing environmental protection, public safety and local community concerns to ensure protection for both the state's population as well as the coastal environment.

In the *2009 Integrated Energy Policy Report*, the CEC

recommends that California work in collaboration with Western states to ensure the development of the natural gas transmission and storage system. In addition, policy makers should support construction of sufficient pipeline capacity to California to ensure adequate supply at a reasonable price.

California is the third largest consumer of gasoline in the world, behind the United States and China. However, according to the *2009 Integrated Energy Policy Report*, consumer demand for gasoline and diesel fuels has been declining due much in part to the recession. Overall, California is experiencing a downward trend in sales for gasoline, diesel and jet fuel. For example, California's average daily gasoline sales for the first four months of 2009 were 2.1 percent lower than the same period in 2008. Although the CEC forecasts that fuel demand will bounce back from the recession, it's also projecting that the mix of fuel types is likely to change significantly as the state transitions from gasoline and diesel to alternative and renewable fuels.

Energy at the Federal Level

Despite failed attempts to pass climate change legislation (that is, cap-and-trade) at the federal level, President Barack Obama has indicated that energy will be a top priority for his administration in 2011. Advancing the administration's goals of renewable energy and overall energy independence will require a bipartisan effort from both the U.S. House of Representatives and the U.S. Senate. The outcome of the 2010 midterm elections, however, which resulted in Republicans taking control of the U.S. House and Democrats retaining control of the U.S. Senate, will make reaching consensus on energy policy much more difficult.

In 2010, the office of the U.S. Secretary of the Interior approved six large-scale solar power projects on public land, five in California, and one in Nevada. Together these projects are expected to provide enough power for as many as two million homes. The Interior Department also approved the country's first commercial offshore wind farm, off the coast of Massachusetts.

Although these certainly are steps in the right direction, much more needs to be done if the United States wants to advance its renewable energy commitment. According to policy experts, the country must focus on federal subsidies, streamlining the approval process for projects, and of course, transmission infrastructure in order to update and expand the electrical grid to accommodate new sources of energy.

Subsidies in the form of tax credits and loan guarantees will help stimulate production. With expired federal tax credits for several renewable development projects, however, investors remain cautious until Congress commits to multiyear programs of support. Finally, streamlining the approval process for projects is just as important at the federal level as it is at the state level. The projects recently certified by the Interior Department took five years and nine years to receive all permits. In order to advance renewable

energy goals and job creation promised with clean energy projects, the permit process must be more responsive with swifter completion of regulatory hurdles.

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. In order for the state to meet these energy efficiency and renewable standards, projects must be streamlined through the approval process, which means effective inter-agency collaboration and communication is necessary.

The construction of the state's energy infrastructure is vital to the economic growth of California. Moreover, investments must be made in natural gas pipelines to more efficiently move the gas to where it is needed. Continued research and development is needed in technologies like smart grid that help advance energy efficiency goals, reduce cost and increase grid reliability. Finally, continued research 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 much-needed infrastructure and development, California will fail to meet tomorrow's energy demand.



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