

MULTI-CRITERIA ANALYSIS OF PROPOSITION 39
REVENUE SPENDING OPTIONS

A Thesis

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by

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Abstract
of
MULTI-CRITERIA ANALYSIS OF PROPOSITION 39 REVENUE SPENDING
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In an environment of high unemployment and deep budget deficits for the state, California passed the Clean Jobs Act – also known as Proposition 39 – in November 2012. Proposition 39 changed the corporate tax structure for multi-state businesses from a choice between a double-weighted sales formula and a single-sales formula to just a single-sales formula. The change in tax structure is projected to generate \$1.1 billion annually in tax revenue for California. Proposition 39 dedicates half the revenue for the first five years to the creation of clean energy jobs in California. This paper examined four funding alternatives for how the state could spend the money to meet the policy goals of Proposition 39.

In this thesis, I examined four allocation proposals, which are Governor Jerry Brown's, Senate Bill 39, Assembly Bill 39, and Assembly Bill 239. Schools are the primary recipient in all four proposals. I analyzed each of these proposals using a qualitative criteria alternative matrix. The criteria in the analysis were Job Creation, Energy Demand Reduction, Administration, and Equity. The analysis criteria were weighted equally. Assembly Bill 39 was the best scoring alternative for how to allocate

Proposition 39 revenue. Assembly Bill 39 allocates money to projects at K-12 schools based on the number of jobs created and the amount of energy demand reduction, which most closely matches the policy goals of Proposition 39. Ultimately, the responsibility of government is to the people of California, and Assembly Bill 39 creates the most public value for all Californians.

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Chapter 1

INTRODUCTION

In 2012 California passed Proposition 39 – Tax Treatment for Multistate Businesses, Clean Energy and Energy Efficiency Funding – by a margin of 61% to 39%. The Initiative is projected to create an additional \$1 billion annually in general fund revenue for California through a change in the corporate tax structure (Legislative Analyst's Office [LAO], 2012b). For the first five years of the law, a projected \$550 million annually, or half the revenue from Proposition 39, will be used to form a trust fund to help create green jobs and improve energy efficiency in schools. This study examines which funding strategies will best utilize the public funds created by Proposition 39 to lower California's school energy bills, create green jobs, and reduce California Green House Gas emissions.

The proposition is directed at changing the corporate tax code in California from a double-weighted sales formula to a single-sales factor formula, which will help close the funding gap in California's cash-strapped state budget. A double-weighted sales formula is a variation of the three-part formula commonly used in the United States. The three-part formula takes into account the percentage of a corporation's sales within a state, the percentage of corporation employment, and the percentage of the corporation real estate owned within the state. A double-weighted formula puts twice the emphasis on the sales portion of the formula while keeping the other two factors. The single-sales formula eliminates the other two factors and just uses the percentage of the corporation sales in

the state to calculate the corporation tax liability. The proposition is part of a larger effort on the California ballot to raise revenue to pay off the systemic budget deficits that have plagued California since the housing crash of 2006. Part of the Proposition 39 language directs 50% of the revenue be deposited in a clean energy job creation fund. These funds are directed to be used on school energy efficiency projects; however, the initiative does not lay out a specific plan for allocating those funds. In response, Governor Jerry Brown, the group of democrats who backed the proposition including Senator De León and Senator Steinberg, Assembly Members Skinner and Perez, and Republican Assembly Member Hagman have proposed various strategies.

The January proposed budget by Governor Jerry Brown directed the \$550 million Proposition 39 revenues to K-12 schools and community colleges for energy efficiency projects. Brown wants to give the money to school districts by a per-student funding strategy, which would help pay back some of the money owed to the school districts from the Proposition 98 maintenance factor. There is some question about whether this approach is entirely legal based on the language in the Proposition 39 ballot. This study does not attempt to address those concerns and instead assumes Brown's proposal is legally viable.

The senate alternative proposal to Brown's per-student funding strategy is Senate Bill (SB) 39. SB 39, by Senator De León and Senator Steinberg, proposes to award energy efficiency upgrade projects to economically disadvantaged school communities on a competitive basis. Under this proposal, priority for projects will be given to schools

with above average energy consumption, in economically disadvantaged school communities, and in areas with above average unemployment rates. The SB 39 plan will retrofit 5,000 schools and create 66,000 jobs for Californians (Advance California, 2013). The main policy goals of SB 39 are to invest in energy efficiency projects for schools, which will save close to \$230 million across the entire California system, generate jobs, and reduce GHG emission through energy efficiency (de León, 2012).

Assembly Members Skinner and Pérez introduced Assembly Bill (AB) 39 as a house version of the SB 39. Their proposal directs the funds to schools based on the project's ability to generate benefits in terms of energy demand reduction and job creation. This bill puts the California Energy Commission (CEC) in charge of allocating the money for this program to K-12 schools using grants, loans, and other financial assistance (Skinner & Perez, 2013). The main policy goals of AB 39 are to generate green energy jobs and to help reduce California schools' energy bills through energy efficiency improvements.

Assembly Member Hagman introduced Assembly Bill (AB) 239 as an alternative to both the Governor's budget proposal and SB 39. His proposal directs 50% of the funds from the Clean Energy Job Creation Fund to a Clean Energy School Fund. It also puts the Office of Public School Construction in charge of giving out zero interest loans to schools for performing energy efficiency retrofits and clean energy installation projects. The SB 39 proposal differs from the other three because it asks the schools to

pay back the money and assumes the savings from the retrofits and clean energy projects will save the schools more money than the amount borrowed.

Each of these proposals look to address retrofitting California's ageing public school infrastructure. There are over 10,569 public K-12 schools in California; more than 70% of these schools are in buildings over 25 years old, and California schools account for roughly 12% of all commercial energy consumption (Gordon & Barba, 2012). The United States Environmental Protection Agency estimates that schools waste 30% of their energy unnecessarily through inefficiencies (Skinner & Perez, 2013). Despite the number of statewide school bonds passed in the last 10 years, most of that money went toward building new schools to address overcrowding, rather than retrofitting older schools. In total, California schools need close to \$117 billion in capital improvements over the next 10 years for repairs, maintenance, modernization and construction of both new and existing schools; these funds will help to meet some of that need (Gordon & Barba, 2012). During an already austere time, these costs represent a significant burden on schools and subtract resources that could be used to enhance student learning by allowing schools to spend more money in the classroom.

Despite the need and benefits of retrofitting California schools, this was not the primary selling point for Proposition 39 during the campaign. The campaign stressed fixing a tax loophole for corporations that would raise \$1 billion, setting aside half that money for the first five years to create green jobs in California. A majority of the "Yes" votes for Proposition 39 supported the measure because of the dedicated funding for

energy efficiency and clean energy programs in the state to improve the energy efficiency of buildings across the state (Gordon & Barba, 2012). This struck California voters who were suffering from close to 10% unemployment and were desperate for some stimulus in the economy. Additionally, California voters appreciated new jobs creation that would not be at the expense of the environment. Californians, like people in many other places across the world, appreciated the link between a new greener economy and economic recovery (Lehr, Lutz, & Edler, 2012).

Chapter 2 discusses the background and literature on California schools and the reasons why schools are the target for this funding. It also covers what the single-sales factor is and what it means for California, background on energy efficiency in California; and, green jobs and their role in the new economy. Chapter 3 outlines my methodology, specifically multi-criteria analysis and its role in government decision making of energy policy. Chapter 4 discusses how I selected the alternatives and then details the alternatives I used in my analysis. Chapter 5 details the criteria I used in my analysis. Chapter 6 presents the results of the multi-criteria analysis and the influence a sensitivity analysis has on my results. Chapter 7 discusses the conclusions that can be drawn from my research and their policy implications.

Chapter 2

LITERATURE REVIEW

This chapter discusses the background and literature surrounding the Proposition 39 debate. The first section discusses California's erratic school funding, how it came to dominate the California state budget, and the Proposition 98 maintenance factor. The next section discusses the single-sales factor method for calculating multi-state corporations and the impact that will have on the State budget. The following section discusses California's history of energy efficiency and the benefits to the California economy. Lastly, I discuss the tie between green jobs and the economic recovery, as well as the state of green jobs in California.

School Funding

California schools were once a model for the nation. Through court decisions and voter initiatives, school funding has moved from a locally funded program to a program not only funded by the state but also dominating the state budget. This move has caused California's K-12 schools to become outdated and in desperate need of capital improvements during a time when the state is cutting funding for all programs. In response to this need, California policymakers are proposing to use Proposition 39 revenues for energy efficient retrofits and clean energy projects, helping provide some desperately needed capital financing for schools. This section examines the history of California K-12 school financing and why there is such a need for these energy efficient retrofits and clean energy projects.

California funding for schools in the 1970s came from a set state allocation and local property taxes. At that time, California was in the top 10 states in per pupil spending; however, spending varied considerably based on the local property values. California state government provided a base funding for per pupil spending, and then local government would use their property tax to allocate more funding for schools based on local needs, preferences, and ability to pay. However, in 1971, the California Supreme Court ruled that this public school finance system was not equitable, and districts may not condition revenue based upon local property wealth (Bersin, Kirst, & Liu, 2008). In response, the legislature subsequently enacted a plan limiting the amount of per pupil revenue each district could raise for general spending based on the amount it raised in 1972-1973, which became known as the revenue limit, essentially equalizing state school funding.

California passed Proposition 13 in 1978, which limited California's property tax significantly. Prior to passage of Proposition 13, California's local governments, including school districts, financed capital projects one of two ways: they would go to voters and ask for a General Obligation bond or they would save enough money to pay for financing out of their operating budget. Proposition 13 and the voters' general attitude toward tax increases at that time limited California's local governments' ability to use either of those options, forcing local governments to turn toward redevelopment finance through the use of tax increment financing techniques and Certificates of Participations (Chapman, 1998). Financing California schools' capital projects became

much more complicated and more expensive, which has led to the gradual decline of their facilities. Proposition 13 limited the annual tax to 1% of the assessed value of real estate and personal property. Both types of property are assessed at acquisition value and the assessed value of the property only increases by up to 2% annually (LAO, 2012a). As such, California's property tax, which along with state general funds was the primary way California schools were funded, did not keep up with inflation and, starting in about 1985, California's spending per pupil began to fall behind the national average.

Californians passed Proposition 98 in 1988 in an attempt to increase and stabilize education funding. Proposition 98 established a minimum funding level for K-12 schools and community colleges. The fundamental goal of Proposition 98 was for the state to provide a minimum guaranteed funding source that grows each year with the economy and the number of students. The guaranteed funding is provided through state general fund revenue and local property tax. The Proposition 98 guarantee of funding grows each year by the growth in K-12 attendance and growth in the economy as measured by per capita personal income. The Proposition 98 guarantee can be suspended with a two-thirds vote of the legislature or if the general fund revenue grows slower than personal income. The piece of Proposition 98 with major implications for the Proposition 39 revenue is the maintenance factor. When the state suspends Proposition 98 because of a vote or a slow economy, the state provides less growth in K-14 funding than growth in the economy, which is called the maintenance factor (LAO, 2005). The state is then meant to make up that funding in the following years when the economy rebounds.

Proposition 39 will change the state tax code to a single-sales factor for multi-state corporations; as part of Governor Brown's January budget, he proposed using the funds generated from Proposition 39 to retrofit schools. Brown wants to count these additional funds as repaying the maintenance factor the state owes schools under Proposition 98. This fund is reported to be \$2.5 billion total and will be used to retrofit schools with energy efficiency upgrades. The next section outlines California's multi-state corporation tax and some of the implications of the change to a single-sales factor.

California Multi-state Corporation Tax

Large multi-state corporations have always posed a difficult problem for policymakers, who have to strike a delicate balance between taxing the corporation its appropriate share and not taxing the corporation's profits already taxed in another state. In response to this problem, in the 1950s states developed the Uniform Division of Income for Tax Purposes Act (UDITPA) to allow corporations to be taxed on a three-factor formula. The three factors are: the percentage of a corporation's nationwide property located in a state, the percentage of a corporation's nationwide sales made to residents of a state, and the percentage of a corporation's nationwide payroll paid to residents of a state (Institute on Taxation and Economic Policy, 2012). In practice, this means if a corporation had all its employees and property in California but all of its sales were to residents outside the state, the corporation would pay two-thirds of its corporation taxes in California at the California rate. The justification for this tax module is that the corporation is using public resources (such as roads) and should pay their share of taxes

but should not have to pay taxes on the same profits twice. These factors are considered appropriate approximations for production activity engaged in within the state (property and employees) and the demand for company output in the state (the sales factor). If every state adopted the equal distribution among the three factors as UDITPA recommends, it would help ensure all of a corporation's profits are subject to taxation.

The three-factor approach has been used less and less in the last 20 years in favor of a double-weighted sales formula. The double-weighted sales formula puts a greater emphasis on the amount of sales by a corporation and lowers the importance of the property and employees located in a state. The emphasis on sales is meant to attract corporations to states, with the state benefiting from increases in employment and property tax. Nine states still use the three-factor equal-weighted formula; states still using the three-factor formula are at a disadvantage when trying to attract corporations to their state (Institute on Taxation and Economic Policy, 2012).

Many states have gone even further trying to attract corporations by using a single-sales factor. A single-sales factor taxes a corporation only on the percentage of sales made within a state. The single-sales factor is enacted generally for two reasons: it entices companies to locate operations within the state because they do not have to calculate factories or employees into their corporate taxes, and it can make the state more attractive to corporations that already have operations located within the state but are threatening to move. The single-sales factor formula is not without disadvantages. Corporations with a majority of their property and payroll in state yet selling their

product out of state pay less in taxes; however, companies without property or payroll in state yet selling most of their goods in state pay more in taxes. The policy is an attractive one for larger states, like California, which, because of the size of the economy, are more likely to make up a larger portion of multi-state corporations' revenue than smaller states. Although there are not specific federal laws governing most aspects of state apportionment, the federal courts have ruled that states can only tax corporations if they have a nexus or physical presence in the state. Therefore, corporations shipping in most of their sales without a physical office or factory could pay significantly more in taxes if they chose to locate to a state with a single-sales factor (Taylor, 2010). Thus, the single-sales factor formula can at times create a perverse incentive for corporations to not invest within a state.

The use of the single-sales factor and its ability to attract companies and generate revenue for the state has been called into question by some studies (Institute on Taxation and Economic Policy, 2012). In Massachusetts, the Raytheon Company threatened to leave the state unless the state changed to a single-sales factor formula. The state conceded to the pressure of the company and changed its corporate tax structure. Raytheon received a roughly \$50 million per year reduction in its corporate taxes because of this switch. Despite this change, Raytheon still closed many of its Massachusetts factories, which led to roughly an 8,000-person reduction in Massachusetts' workforce (Mazerov, 2005). Additionally, under Federal Public Law 86-272, corporations can be exempt from state corporation tax if they have closed plants and offices in a state but

keep salespeople in the state to retain their local market. In this case, the retention of sales people does not constitute a nexus and therefore exempts corporations from paying corporate tax in the state.

California used a double-weighted sales formula until 2009. Trying to become more competitive with other states, California tried to pass a single-sales factor reform on corporate taxes. However, as part of a budget deal it chose to allow companies to choose whether to pay taxes under the double-weighted sales formula or use the new single-sales factor. The ability to choose their preferred tax formula was a boon for companies with a lot of employees and property in California, who collectively saved \$1 billion per year by switching to the single-sales formula. Meanwhile, corporations with high sales but relatively few employees and little investment could continue to pay taxes under the three-part approach which favored them (Healey, 2012). The result was a loss in revenue for California during an already difficult budget time.

With California changing from a choice between the double-weighted formula and the single-sales factor to just the single-sales factor, California is expected to generate an additional \$1 billion in tax revenue and half that money will be used for clean energy jobs. California has long been a leader in environmental protection and during the energy crises of the 1970s California became a leader in energy efficiency. The next section discusses California's leadership in environmental protection and energy efficiency and discusses some reasons why California's low energy per capita usage may not only be due to energy efficiency policies.

California: A Leader in Energy Efficiency

California initially began its journey of energy independence after the 1970 oil embargo. California and the rest of the nation felt the effects of the market manipulation of Organization of the Petroleum Exporting Countries. The embargo caused Californians to have long waits in line for gasoline because of decreased supply, spurring discussion of the need for energy conservation because of increased price. In particular, one California physicist, while waiting in line for gasoline, realized leaving his lights on all weekend used the equivalent of five gallons of gasoline (Rosenfeld, 1999). The physicist, Arthur Rosenfeld, led the charge to make California a leader in energy efficiency. While the rest of the nation's per capita energy usage rose by 50% since 1975, California's usage has stayed the same (Rosenfeld, 1999). Rosenfeld studied the United States' consumption of energy and realized because America had a history of domestic sources of oil, gas, and coal, Americans thought of their energy purchases by first cost; to put it another way, Americans looked at the sum of the initial expenditures involved in purchasing the energy (National League of Cities, 2013). The American energy perspective was in contrast to places such as Europe and Japan that had to import their sources of energy and tended to think about energy in terms of life-cycle cost, (i.e., all of the costs related to the purchase of the energy including the extraction and clean up of the pollution resulting from the energy usage).

Rosenfeld did not lead the charge for energy efficiency in California alone, however; in 1974 the California Energy Commission (CEC) was created. The CEC was

mandated to approve or deny site applications for new power plants, to write energy performance standards for new building, and to sponsor energy related research (Rosenfeld, 1999). In 1974, California's power needs were growing at roughly 6% per year, which would require building two large 1 Giga Watt power plants each year. Most of the new demand came from new homes and buildings. The energy efficiency policies of the state have been credited for providing a benefit of \$875 to \$1300 per capita to the state economy from 1977 to 1998, lowering air pollution emissions from stationary sources by 40%, and reducing the energy burden on low-income households (Bernstein, Lempert, Loughran, & Ortiz, 2000).

Changes in energy efficiency in California are not only attributed to government policies. In the industrial sector, the composition of the sector has changed – the concentration of energy intensive industries has declined, which some have attributed to California's lower than average price for energy efficiency (Mitchell, 2009). New technologies, such as florescent light bulbs, appliances, and improved building codes, can also be attributed to California's energy efficiency. If energy intensity, which is the energy used per unit output or unit served, remained at the 1975 level, air emissions from stationary sources in the state would be approximately 50% greater than the 1998 levels because of increased industrial and electric power generation production. Lastly, because of California's improvements in residential energy efficiency, the per capita energy expenditures were reduced between 1980 and 2000 (Bernstein et al., 2000). The energy

efficiency policies, standards, and improvements championed by Arthur Rosenfeld and the CEC have created a significant environmental and economic benefit for California.

However, some think California's low energy per capita usage is not solely due to the energy efficiency policies championed by Rosenfeld and enacted by the CEC.

Mitchel (2009) found the price of residential electricity, climate, household size, housing mix, conservation ethic, and the structure of California's economy all contributed to California's low per capita energy usage. California's price for electricity in 1970 was 0.0809 cents/kWh, which was slightly higher than the United States average of .0806 cents/kWh. However, by 2005 California energy costs had risen by 37% to 0.1109 cents/kWh while US prices have stayed roughly the same at .0838 cents/kWh (Mitchell, 2009). California consumer prices have increased significantly since 1970 in response to the 1970 fuel crisis and the 2001 electricity crisis. Both of these crises caused rates for California consumers to jump by 30%. Additional causes of California's rising electricity prices are increased responsibility for capital costs associated with electric transmission, increased fuel costs for electricity generation, and deregulation of the energy market (Bloom Energy, 2012). California has a moderate climate, also contributing to its low per capita energy use. California has a lower than average number of cooling degree days (which is a measure estimating the cooling needs) compared to the rest of the country, meaning California businesses and residences have a lower demand of energy to power things such as air conditioning and refrigerators (Mitchell, 2009).

California housing stock has become more urbanized, concentrating more people in more

multi-unit houses causing less energy use per person because people are sharing the appliances and cooling costs. California conservation ethic has also played a role. In response to the price of energy, Californians are more likely than U.S. households overall to lower the heating or cooling thermostats when they are not in the house, according to a study by the U.S. Energy Information Administration (EIA; 2009). In fact, California uses less energy overall per household than every state except Florida. The national average is 89.6 mmBtu per household while California's average is only 61.6 mmBtu (EIA, 2009). Since 1990, California's employment in energy intensive industries has declined more than the rest of the United States. The manufacturing sector, which is California's second largest sector of GHG emissions behind transportation, has declined more in California than it has in other parts of the country, leading to lower demands on energy. These factors have played a role in California's low energy per capita consumption rate and lead to larger questions about how much benefit has truly been created by energy efficiency features and whether Californians are just responding to the market pressures of higher energy costs.

One of the policy goals of Proposition 39 is to help replace California's lost energy intensive jobs with a new green collar industry. Half the Proposition 39 revenue is intended for a green job generation fund. The next section discusses the rising wave of green jobs in the United States and the in world, as well as some of their benefits.

Green Jobs

Internationally, green jobs, “jobs associated with products and services that use renewable energy resources, reduce pollution, and conserve natural resources,” are being pushed as a way to meet both short-term economic and long-term environmental policy goals (U.S. Department of Labor, 2011, p. 2). Due to The Great Recession of 2009, governments looked at ways to stimulate employment and are investing in green jobs. Australia has implemented the National Green Jobs Corps, an Australian government program allocated to offer long-term unemployed youth 26 weeks of green job training and work experience. Activities include bush regeneration, planting native trees, and training and hands-on experience in the installation of energy efficient features for buildings. In Spain, the Automotive Sector Competitiveness Plan provides funding for a range of projects aimed at increasing the competitiveness of the Spanish auto industry through improvements in the energy efficiency of the production process, products, and services. The Spanish program offers firms the possibility of obtaining grants and loans to improve technical skills of their workers (Organisation for Economic Co-operation and Development [OECD], 2010).

In 2007, the United States federal government passed the Green Jobs Act as part of the Energy Independence and Security Act. The Green Jobs Act awarded \$125 million in competitive grants to entities to carry out training leading to the development of an energy efficiency and renewable energy industries workforce (OECD, 2010). The Green Jobs Act was built upon by the American Reinvestment and Recovery Act (ARRA) in

2009, which provided \$500 million for research, labor exchange, and job training projects to prepare workers for careers in energy efficiency and renewable energy. A study by the U.S. Department of Labor, Office of Inspector General (2011) found these grantees were having a difficult time achieving the performance targets set for the program. At the time of the audit in 2011, with 61% of the grant period elapsed, only 10% of the participants had entered employment. California received a grant of \$6 million to develop green jobs programs in the state but the program created only 40 of the 960 jobs it aimed to create. It is not entirely clear from the audit what attributed to this shortfall; however, some of the blame was attributed to the difficult grant requirements. Proposition 39 will provide significantly more money for green job investment in California than the ARRA. California policymakers should take lessons from the federal efforts to stimulate green job growth and realize because green jobs are in many ways a new sector, the path to job development programs may need some time to be implemented.

Non-fossil fuel technologies – such as renewable energy, energy efficiency, and low-carbon hydroelectric power – create more jobs per unit of energy than coal and natural gas (Wei, Patadia, & Kammen, 2010). Renewable technologies create not just short-term construction jobs but also long-term operation and maintenance jobs. Studies have shown there is a higher potential for job growth in the United States from green jobs over their fossil-fuel intensive substitutes. In California, like much of the rest of the world, green jobs are being looked at as a way to spur employment growth in a sustainable industry. The next section discusses California's green economy.

California's Green Economy

The Great Recession hit Californians hard. Before the Great Recession hit in 2006, Californians enjoyed an unemployment rate of 4.9%. At the peak of the recession, unemployment was 12.3% (Employment and Development Department [EDD], 2012). As a result of these difficulties, Californians were eager to invest in an employment training program that would help ease the troubles so many in California were facing.

California's green economy is a small but growing sector of the economy. According to a 2010 survey by the Employment and Development Department (EDD), more than 400,000 Californians perform green work at least part time. EDD (2010) defines green work as:

Generating and storing renewable energy

Recycling existing materials

Energy efficient product manufacturing, distribution, construction, installation, and maintenance

Education compliance and awareness

Natural and sustainable product manufacturing (p. 7)

Employment in the production of green goods and services accounted for an estimated 3.4% of California's total wage and salary in 2010 (EDD, 2010). Green jobs currently are not a significant portion of the economy; however, citizens' concerns about the role of green jobs in the 21st century's economy and the science on global warming

have inspired many governments to link stimulus with green jobs and California has followed suit.

Numerous studies link green jobs policies with gains in employment. In California, one study pointed to 1.5 million full-time employment jobs due to California's energy efficiency policies with a payroll of \$45 billion. There is also evidence that energy efficiency innovation has compounding effects on the economic benefits, generating 181,000 jobs from the first 1.4% of annual efficiency gain and 222,000 jobs with an additional 1% gain in efficiency (Roland-Holst, 2008). Roland-Holst's study, along with the international and domestic studies, gives California policymakers significant reason to believe investing in energy efficiency will yield not just environmental benefits but could also produce significant economic benefits for California.

Conclusion

In California, because of unintended consequences of state policies, K-12 school capital projects are drastically underfunded. The energy costs associated with aging K-12 school buildings is a significant drain on the operating budgets for schools already struggling. California voters passed Proposition 39, which changed California's corporate tax structure to a single-sales formula. The resulting effect in revenue is believed to be an additional \$1 billion in tax dollars for the state, half of which will be used to create clean energy and energy efficiency jobs; however, the overall effect on the economy will remain unclear for years to come. The two major proposals for this

funding by the Governor and the Legislature concentrate the additional revenue from Proposition 39 on energy efficient retrofits for schools. California has a long history of leadership in energy efficiency, and both of these proposals fit within this energy efficiency ethic. One concern is how this energy efficiency program fits within California's crowded portfolio of energy efficiency programs. Proposition 39 passed overwhelmingly and one of the main reasons was because California voters wanted to invest in green jobs. Green jobs and economic recovery have been tied together all over the world and California is no different. Clean energy jobs ultimately create more jobs per unit of energy than coal or natural gas alternatives and, therefore, are an appropriate sector for government investment. There have been some issues with realizing the total potential for green jobs creation and California policymakers should pay attention to the lessons learned from other efforts.

Chapter 3

METHOD OF ANALYSIS

The previous chapter discussed the background and literature of Proposition 39 and introduced the proposed alternatives for the generated funds. This chapter discusses the method of analysis I used to evaluate the alternatives. The first section of this chapter outlines the specific methodology, multi-criteria analysis. Section two examines why multi-criteria analysis is appropriate for this context. Section three discusses how to select the appropriate multi-criteria technique.

Multi-criteria Analysis: The Foundation of an Analytical Tool

Multi-criteria analysis is an analytical tool used to analyze multiple alternatives with conflicting criteria. There are various methods for using this tool; however, they all have a few key components. The first is that multi-criteria analyses are addressing a defined problem, like which house to buy or how to reduce the prison population. The second is that multi-criteria analysis must have multiple alternatives to the problem; if there is only one solution, a multi-criteria analysis is not an effective analytical tool. Lastly, there must be multiple conflicting criteria to compare each alternative against; the results of the comparison form the analytical recommendation of a multi-criteria analysis.

The foundation for multi-criteria analysis and its use in public policy comes from two sources. The first source is decision theory. Decision theory states that people make rational choices that maximize their utility (Einhorn & Hogarth, 1981). Multi-criteria analysis builds on decision theory, saying people make decisions based on multiple

criteria and that the criteria are often conflicting (Zionts, 1979). Individuals do multi-criteria analysis every day when making decisions with multiple alternatives. For instance, when deciding which house to buy, a prospective buyer considers multiple factors:

1. The cost of the house
2. The location of the house
3. The style of the house
4. The number of bedrooms and bathrooms

For the homebuyer, these criteria are often conflicting. For example, a home located in a desirable neighborhood will be more expensive than a home located in a less desirable neighborhood. Using a multi-criteria analysis, the homebuyer can confront the trade-offs of each home to see if the difference in price is worth the difference in location.

These are just a few examples of the factors a prospective buyer considers when buying a home. Multi-criteria analysis provides a framework in which to clearly layout this decision making process so the trade-offs between the various alternatives are fleshed out and analyzed. Such an in-depth analysis allows the decision maker to maximize their utility, or in the case of public policy, maximize the public value of a policy.

The use of multi-criteria analysis in public policy comes from rational policy analysis. Bardach (2009) detailed the eightfold path to effective problem solving; the steps guiding rational policy analysis follow

Step 1: Define the Problem

This is one of the most important steps because it shapes the entire problem solving process. The key is to be descriptive and diagnostic. The solution should not be included in the problem statement; instead, the problem should be framed in a way allowing for the best solution to arise out of the problem.

Step 2: Assemble Some Evidence

This can be one of the most time consuming steps; however, for your conclusions to have validity, it is important they are grounded on evidence. These data can be interviews, statistics, or any number of other sources.

Step 3: Construct the Alternatives

This step involves looking at as many available alternatives as possible, erring on the comprehensive side, allowing you to consider as many potential solutions to the problem as possible.

Step 4: Select the Criteria

The analyst may always have some biases inherit to the analysis and this step introduces those values and judgments into the policy analysis. By maintaining a transparent and clear description of the criteria used to evaluate the alternatives, it frees the reader to accept the conclusions within the context of the criteria. Additionally, an important nuance is that the criteria are not specifically evaluating the alternatives but are evaluating the outcomes of each alternative.

Step 5: Project the Outcomes

Bardach described this as the hardest of his eight steps, primarily because it is hard to know what will happen in the future. However, it is important to analyze what effect any policy change will have. Some of his suggestions are to project by magnitudes, use sensitivity analysis, and make sure to consider the possible side effects of a policy.

Step 6: Confront the Trade-offs

Most of the time, a clearly dominant alternative does not emerge and the analyst is forced to confront the trade-offs created by the alternatives. Economists suggest that these trade-offs occur at the margins. Bardach advised establishing commensurability and focusing on the outcomes.

Step 7: Decide

In this step you should decide on the preferred alternative. It is important, even if you are not the final decision maker, to make sure you have clarified the trade-offs and implications of the suggestions of the alternatives.

Step 8: “Tell the Story”

This is the last step in the process. In this step you explain your analysis and give the logical path by which you came to your conclusions. It is important to think through this step carefully so your audience does not dismiss your work because of problems with the medium.

Multi-criteria analysis follows this guide by first defining the problem, gathering information, constructing the alternatives, selecting the criteria by which to evaluate the alternatives, and analyzing the outcomes and tradeoffs from the results of the evaluation of the alternatives. The analysis then informs your policy recommendations and the resulting report tells the story of the policy recommendation.

Munger (2000) took rational policy analysis and the use of multi-criteria analysis a step further. Munger described the process of finding alternatives, selecting criteria, and organizing these into a matrix as a Criteria Alternative Matrix or (CAM). A CAM can be either quantitative or qualitative. In a qualitative CAM, instead of using a quantifiable value for the alternatives for each criterion, the analyst discusses the alternative from that criterion's perspective. An often used practice for qualitative CAM is to apply a plus, minus, or neutral indicating the expected effect of an alternative. Qualitative CAM can help the analyst provide a rational context for discussion that even a quantitative CAM fails to truly address. A quantitative CAM is set up in a way similar to a qualitative CAM except it uses values that are either ordinal or interval/ratio measures.

Categorical measures are not generally used in a CAM because they are unable to be ranked, for example males are not more valuable than females; therefore, the categorical measure does not inform the decision making process. Ordinal measures are rankings of the various alternatives, although this can be deceptive because the ordinal ranking does not quantify how much better two is than one or three is than one.

Interval/ratio measures are the most ideal for a CAM; however, it is important to contextualize the values of each alternative so the values are comparable and one does not dominate the others. One way to contextualize the values is to put a weight on the criteria. Weighted criteria should reflect the relative value the decision maker assigns to a particular criterion. A sensitivity analysis of various weights is a common practice to flush out any inherent biases that might occur during the analysis. In general, a CAM is a useful tool for comparing various policy alternatives. A CAM ultimately follows Bardach's eight steps and helps the analyst follow the rational problem-solving process. In the case of public policy, the decision maker is able to clearly see the steps the analyst took and they are able to draw their own conclusion and seek the greatest public value.

Why Multi-criteria Analysis for Energy Policy

Multi-criteria analysis is a helpful analytical tool for policymakers because it breaks down complex problems into units that are easier to understand and analyze. Energy models and policies solely looking at cost fail to take into account the fact that they are dependent on criteria beyond just the cost (Georgopoulou, Sarafidis, Mirasgeis, Zaimi, & D.P., 2003). With the growing demand for energy and the rising threat of global warming and other environmental degradation effects, energy policy is a prime candidate for multi-criteria analysis. As such, multi-criteria analysis has been used in numerous studies with many variations on the technique. Given the multiple conflicting criteria of Proposition 39 funding decisions, multi-criteria analysis can be used to evaluate each alternative from the perspective of multiple criterions; this eliminates the

magic box approach to policy analysis and gives decision makers a clear understanding of the trade-offs of each alternative.

Two important factors help the analyst choose which technique is the best fit: validity and appropriateness (Loken, 2007 and Bell, Hobbs, Elliot, Ellis, & Robinson, 2001). Validity is how well the method measures what it is supposed to measure. The various techniques produce different results and it is best to ensure the user's true values are reflected in the selection of the method. True values in this case can be thought of as how well the model reflects the decision maker's preferences. Appropriateness refers to how accessible the data are to the decision makers. The selected method should not be a magic box that produces an answer. Just as important as selecting the technique reflecting the true values of the user is to make sure the decisions made in the analysis are clear and transparent, so any discussion will be about the trade-offs of the alternatives and not the method.

There are three broad categories of multi-criteria analysis: value measurement models; outranking models; and goal, aspiration, and reference level models (Loken, 2007). The value measurement models assign a numerical score or value for each alternative. The scores are a result of how well an alternative does regarding a criterion. The scores generally produce a ranking of each criterion, which can be compared in a matrix with the highest scoring alternative being preferred. In the outranking model method, each alternative is compared pair-wise to see which one is preferred regarding each criterion. When the preference information is aggregated, the preferred alternative

is said to outrank the others. The goal, aspiration, and reference level models method is concentrated on the end result to see which alternative or alternatives come closest to achieving the desired policy outcome. This method is often used as a first phase because it can be used to narrow down a large number of alternatives to the three or four most relevant choices (Loken, 2007). All three of these models ultimately aim to give decision makers an analytical tool to make clear, informed, and rational decisions when there are multiple conflicting criteria. Therefore, choosing the appropriate technique must be based on the context of the situation.

The Selected Method

Given the context of the policy problem, the best method to analyze the various funding strategies is a qualitative CAM analysis using the outranking pair-wise comparison technique. There are several advantages to this technique. First, it provides the sufficient validity because it takes into account the tradeoffs of each alternative and compares their relevant values. The qualitative method was selected because some of the trade-offs for the alternatives are not quantifiable; therefore, ranking the alternatives against each other provides a proxy to having the quantifiable data. A qualitative CAM is also the most appropriate method because it allows the decision makers to clearly see the choices and trade-offs of each alternative. If the decision maker, upon receiving new data, finds a different ranking for a particular alternative is justified, they can clearly see the effect of the change in the analysis. The ultimate goal of the study is to provide a

rational context to discuss the trade-offs of the various policy alternatives with comparable rankings, and a qualitative CAM is best suited to achieve this goal.

Conclusion

After a review of the foundation and various methods of the multi-criteria analysis, a qualitative CAM using the outranking pair-wise comparison technique is best suited to address the policy problem of this study. A qualitative CAM provides sufficient validity and has a clear advantage in appropriateness because this method allows the decision maker to clearly confront the tradeoffs of each alternative and then make the decision based on rational criteria rankings. The qualitative CAM method also follows the path suggested by Bardach and Munger for rational policy analysis. The next chapter addresses the alternative funding strategies proposed to utilize the public funds created by Proposition 39 to lower California's school energy bills, create green jobs, and reduce California Green House Gas emissions.

Chapter 4

ALTERNATIVES

This section outlines the proposed funding strategies for allocating the revenue generated from Proposition 39. The strategies focus on using the money generated from Proposition 39 to fund school energy efficiency upgrades and alternative energy projects for K-12 schools and community colleges. The following sections review the alternatives for allocating Proposition 39 funding, which are Governor Brown's Proposal, SB 39, AB 39, and AB 239. Each section first outlines which agency will administer the program, to establish which agency is most suited to handle the program. Second is an examination of the methods the proposals will use to disperse the funding, which shows the methodological differences between the four plans. Third is a presentation of the criteria used by the programs to give out the funding, which details which schools will receive funding. Last is a general overview of the proposals, including a summary of the benefits and criticism of the proposals.

Governor Brown's Proposal

The January proposed budget by Governor Jerry Brown directed the \$450 million Proposition 39 revenues to K-12 schools and community colleges for energy efficiency projects. The proposal directs \$400.5 million for K-12 schools and \$49.5 million for community college districts in the 2013-2014 budget (Department of Finance [DOF], 2013). Governor Brown's proposal allocates funding to school districts based on their per student daily attendance and to community colleges based on their enrollment.

According to the LAO, in the 2013-14 budget each school district will receive \$67 per student and each community college will receive \$45 per student of the Proposition 39 revenue.

Governor Brown's proposal counts all of the Proposition 39 revenue as part of the general funds expenditure for K-12 schools and community colleges. By including all of the Proposition 39 revenue in this way, Governor Brown actually raises the Proposition 98 minimum guarantee; this has raised serious concerns from the LAO, which has understood the Proposition 98 guarantee as guaranteeing a portion of the general fund revenue but excluding special funds. Proposition 39 revenue is deposited in a separate Clean Energy Job Fund, which has specific requirements for how the money can be used. The LAO (2012b) argues that because of these requirements, the funding should not be counted as part of the general fund and can potentially create a dangerous precedent for manipulation of the Proposition 98 minimum guarantee. Governor Brown's theory is that including the funds as part of the Proposition 98 calculations will help pay back a portion of the money owed to the school districts from the Proposition 98 maintenance factor. This paper does not attempt to parse out the legal arguments; however, passage of Governor Brown's proposal without legal challenges seems unlikely.

The California Department of Education (CDE) and the California Community College Chancellor's Office (CCCCO) would oversee the money from Governor Brown's proposal. There would be one position dedicated to overseeing the program in the CDE and no positions created in the CCCCCO. By allocating the funding on a per

student formula, it eliminates the need for an administrative review and award process. Although the CDE has various energy efficiency grants available to local schools, they do not have experience directing funds to projects that would either produce the greatest energy savings or produce the greatest job demand. Their partnership with California Energy Commission (CEC) could provide that expertise for the California Department of Education (CDE); however, it is unclear if the CDE would be required to follow consultation or if they would be able to construct their own criteria if they disagreed with the CEC.

The dollars allocated by Governor Brown's proposal must be used for energy efficiency and alternative energy projects; however, under this proposal smaller districts may not have enough money allocated to them to actually perform some of the long-term energy saving projects creating the most jobs. In California, there are 102 small school districts with fewer than 100 students, which would receive less than \$6,700 for their projects (California Department of Education [CDE], 2013). Even though these small school districts may hold on to the money for a five-year period, the saved funds still may not be enough to fund energy efficiency projects that would produce significant energy saving benefits.

Currently, the proposal outlines five key criteria to guide schools districts on expending the funding. The CDE and the CCCCCO, along with the CEC and the California Public Utility Commission (CPU), would develop criteria for spending the money allocated. However, the criteria would only guide the schools on what type of

project they would be eligible to spend money on and not make the command decision for the district to spend the money. The criteria for the projects eligible for spending money on are:

- Each project should be focused on in-state job creation and energy benefits.
- Each project should be cost effective, with total benefits exceeding project cost over time.
- Each project should include documentation on project specifications, costs, and projected energy savings.
- Eligible project costs may include technical assistance costs associated with the identification, evaluation, and implementation of projects. (DOF, 2012)

These criteria are congruent with the language included in the text of Proposition 39; however, it is unclear if the school districts have the personnel or expertise to accurately judge the potential projects for the given criteria.

Governor Brown's proposal has a number of supporters and detractors. School districts that have already invested in energy efficiency projects are in favor of Governor Brown's proposal because they will still receive funding, which may not be the case with the other proposals. These schools districts argue they should not be excluded from receiving funding because they have already taken steps to reduce their energy consumption. The Department of Finance (DOF) supports the proposal, arguing that regardless of the current energy projects, all schools will still be able to benefit from

energy efficiency retrofits and that there is not sufficient data allowing for allocation based on the energy needs of the schools (Griffin, 2013).

Opponents of Governor Brown's proposal maintain that Prop 39 funds are not targeted where it will do the most good; instead the Governor's proposal will limit the benefits generated in terms of employment or energy saving, which was specifically included as a requirement in Proposition 39 (Griffin, 2013). The argument can be made that the government should use this funding to encourage projects and programs that would not otherwise be built because a district lacks incentive or the means to accomplish the project.

Senate Bill 39: De León

Among the alternate proposals to Brown's per student funding strategy, Senate Bill (SB) 39 is garnering the most media attention. Authored by Senators de León, was a co-chair of the Yes on Proposition 39 campaign, and Steinberg, SB 39 proposes to award energy efficiency upgrade projects to economically disadvantaged K-12 school communities using higher than average energy and having higher than average unemployment. SB 39 allocates no money for community colleges. SB 39 plans to retrofit 5,000 schools and create 66,000 jobs for Californians (Advance California, 2013), a big boon to schools in need of capital to improve their facilities.

The passage of SB 39 would put the Office of Public School Construction (OPSC) in charge of distributing funds to schools. The OPSC is an office within the Department of General Services, which is part of the executive branch and provides

business management services for the state of California. The OPSC is under the authority of the State Allocation Board (SAB), which is comprised of a 10-member committee including the Director of Finance, the Director of Department of General Services, the Superintendent of Public School Construction, three members of the Senate, three members of the Assembly, and one member appointed by the Governor. The SAB meets regularly to apportion funds to school districts and adopt policies and regulations regarding school construction, among other duties. The OPSC implements and administers the SAB allocated \$35 billion in voter approved school facilities construction programs.

One of these programs is the School Modernization Program, which provides a 60/40 split of state to local cost sharing for improvements that educationally enhance existing school facilities (Department of General Services [DGS], 2013). The eligible projects are air conditioning, plumbing, lighting, and electrical systems. OPSC is an efficient administrator of grants, with total administrative cost as a percentage of grant funds released at 0.4%. The school modernization program gives the OPSC some experience in providing schools with energy efficiency or alternative energy upgrades; however, the school modernization project does not rely on an energy audit to determine whether the project will be an effective use of public dollars. The money for modernization is given on a site-by-site basis (DGS, 2013). The program's eligibility requirements are that a facility is more than 25 years old and has not used the money before. There are no requirements about the benefits created by the retrofits, and instead

the program relies on local agencies to make that decision based on their local criteria and then put up a portion of the money.

OPSC would distribute Prop 39 funds to districts through a grant program. A grant program offers a few advantages; primarily, grant programs are attractive for grantees because they do not require the funds to be repaid. There are requirements and restrictions for how the funds can be used. Grants are often subject to audits to ensure the funds were spent in accordance with the restrictions of the grant. SB 39 will create a competitive grant process requiring applicants to demonstrate their project is a better use of funds than the other applicants, based on the grant's criteria.

Upon approval from the SAB, the OPSC will allocate funds to school districts meeting the qualifications for an energy efficient project. The general requirements for all proposals are that a school district will allow the OPSC to audit all expenditures and track the number of jobs created as a result of the energy efficiency project; the school district will also have to report the operational cost savings of the project. Each proposal will, however, be judged by the following criteria:

- If the school facility has above average energy consumption;
- The project is located in an economically disadvantaged school community, based on the percentage of students who are eligible for free or reduced lunch;
- The project is located in an area with an above average unemployment rate as compared to the rest of the state;

- The school district has actively involved pupils at the school facility site in the planning and design of the energy efficiency upgrade project;
- The project will enhance workforce development and employment opportunities;
- The project is a joint partnership between two or more public or nonprofit organizations (de León & Steinberg, 2012).

The general requirements included in the bill are to ensure the money is being spent in a transparent and reportable manner. The criteria listed will be used to ensure the public maximizes its investment so it produces the most benefit for the dollar invested, in terms of operational costs saved and jobs created where most needed in California.

The main policy goals of SB 39 are to invest in energy efficiency projects for schools, which will save close to \$230 million across the entire California system; generate jobs; and reduce GHG emission through energy efficiency (de León, 2012). This is a welcome investment in California schools recently hit hard by the effects of the Great Recession. Additionally, the targeted investment in areas of California with high unemployment will allegedly create close to 66,000 jobs primarily in the areas needing them most. Lastly, these grants are targeted at schools that are not only energy inefficient but also have a higher percentage of their population who are socioeconomically disadvantaged and therefore lack the resources to pass local school bonds to upgrade their facilities. One criticism of the proposal is it could remove the incentive for schools that have already invested in energy efficiency measures to continue to do so. Additionally, it

is unclear if the OPSC or the school districts will have the resources to effectively analyze the energy savings and jobs created by each project, one of the key components of the Proposition 39 language.

Assembly Bill 39: Skinner

AB 39, authored by Assembly Members Skinner and Perez, proposes to allocate money to K-12 schools and job training programs but the bill does not specify how the funds will be allocated. AB 39 appoints the California Energy Commission (CEC) to allocate funding to school districts based on the potential benefits for both reductions in energy demand and job creation of the project. AB 39 authorizes the CEC to distribute the money through grants, loans, or other financial assistance. Although there is some criticism of AB 39, it has not been at the same level as either Governor Brown's or the SB 39 proposal.

AB 39 puts the CEC in charge of allocating the funds to eligible facilities. The CEC was established in 1974 by the legislature and is the state's primary energy policy and planning agency. The CEC mission is to assess, advocate, and act through public/private partnerships to improve energy systems promoting a strong economy and a healthy environment (CEC, 2013). The CEC has extensive experience in energy efficiency and alternative energy programs. Specifically, the CEC operates the Bright Schools Program, which is a program available to schools to provide energy audits, review existing proposals and designs, and develop equipment performance specifications for school facilities. The CEC provides up to \$20,000 in technical

assistance and has low interest loans available for schools to pay for the recommended improvements. The CEC's extensive experience enables the agency to make appropriate use of the funding generated by Proposition 39.

AB 39 calls for Proposition 39 funding to be distributed to K-12 schools through grants, loans, or other financial assistance. The grants program proposed will provide immediate funding to schools on a competitive basis, so the funding will go to projects producing the most benefit in terms of energy reduction and job creation. The loan program will provide an option for schools that do not qualify for the competitive grants, allowing schools to realize the benefits of energy efficiency upgrades as long as they are able to repay the loans, which the cost savings of the project should enable them to do. In general, the proposal has created a number of options schools can take advantage of to reduce their energy demand and will create the most jobs in California.

AB 39, like SB 39, prioritizes funding to eligible institutions based on prescribed criteria. The criteria established by AB 39 for eligibility to receive funds are:

- the age of the school,
- the percentage of students receiving free and reduced-price meals,
- whether the facilities have been recently modernized,
- whether the facilities are operated as a year-round school,
- the potential for energy demand reduction,
- the school's score from an energy rating system,
- the institution submits to an energy audit,

- there is a present-value analysis or life-cycle cost analysis of the energy savings, the savings from the project go towards benefiting student learning.

The commission will prioritize the projects based on the potential for job creation within California, the potential for energy demand reduction, and the extent to which the project is coordinated with the Commission of the Public Utility Commission (CPUC) (Skinner & Perez, 2013). The criteria of the bill prioritizes projects so they will create the most benefit for the dollars invested, however not necessarily where there is the greatest need, as proposed by SB 39.

There are a number of benefits of AB 39. First, the CEC is an experienced agency that has already executed programs like the one proposed by this legislation for public schools to improve their energy efficiency. Second, by using a competitive grant process and a loan program, the funds can be directed to the projects creating the most benefit. Last, the project does not specify the type of project eligible for funding, which allows for more local flexibility in proposing a project to produce the most benefit.

One criticism of the bill is it will exclude a number of facilities that have already enacted energy efficiency projects. Similar to the criticism of SB 39, schools that have already been making the effort to improve their energy efficiency and reduce their demand will miss out on the funding; however, their ability to invest in these programs does not mean they have not been hit by the recession and does not negate their need for investment in their schools. The differences between AB 39 and SB 39 are not substantial and therefore it is likely that AB 39 and SB 39 will be joined because of the

similarities in their approach (Beltran, 2012). Ultimately, this would mean a joint legislative proposal would have a combination of elements from both the AB 39 and SB 39.

Assembly Bill 239: Hagman

Assembly Member Hagman introduced Assembly Bill (AB) 239 as an alternative to the Governor's budget proposal, AB 39, and SB 39. AB 239 directs 50% of the funds from the Clean Energy Job Creation Fund to a Clean Energy School Fund. It also puts the OPSC in charge of this funding and directs the office to give out zero interest loans to schools for performing energy efficiency retrofits and clean energy installation projects. This proposal differs from the other three because it asks the schools to pay back the money and assumes the savings from the retrofits and clean energy projects will save the schools more money than the amount borrowed. The intention behind this proposal is to create a sustainable fund for schools to use to develop energy efficiency projects at schools.

AB 239 has charged the OPSC with allocating the Clean Energy School fund. OPSC, as mentioned previously, is an office located in DGS. Currently, OPSC does not operate any loan programs like the one called for in AB 239. The OPSC primarily reimburses local governments for their various construction costs through grants to local school districts (DGS, 2013). In terms of the method for prioritizing which projects get funded first, AB 239 does not give the OPSC any guidance or direct them to a particular agency for development of criteria like AB 39 and SB 39.

One criticism of the plan is it will only deal with half the funding. The other half of the Job Creation Fund will still need to be allocated by the legislature. Additionally, if the zero interest loan program's goal is to create a sustainable source of capital available for energy efficiency and alternative energy projects, the interest rate on the loan would need to keep pace with at least the rate of inflation otherwise the buying power of the capital would gradually diminish over time. Additionally, the loan program can saddle districts with obligations that the schools, because of possible cuts, will not be able to pay back. A grant, on the other hand, does not require the schools to pay back the funds, so once the project is done there is no liability for the school to return the investment.

Conclusion

California voters approved a change to the corporate tax structure that will raise a projected \$5 billion in general fund revenue for the state. As part of that proposition, half the money was allocated to the creation of a Clean Energy Job Fund charged with creating jobs and reducing California's energy demand in public buildings. Due to the recent recession, schools have faced significant cuts, particularly to their capital budgets; in response, California policymakers have proposed various funding alternatives to allocate money for energy efficiency and alternative energy projects helping to reduce schools' energy operating costs and create longer-term budget savings, which can be used to benefit students. The next chapter discusses the criteria I used to evaluate the various proposals.

Chapter 5

CRITERIA FOR ANALYSIS

Chapter 4 outlined the various funding alternatives for the money created by the California Clean Energy Jobs Act. This chapter focuses on the criteria I used to analyze those funding alternatives. The first section discusses how to go about selecting the criteria. The following sections outline the criteria I selected and the specifics of what I looked for with each criterion.

Selecting Criteria

Selection of the appropriate criteria for the analysis is one of the most important steps in the process. Without careful consideration of the various points of view of the problem, the analyst will fail to meet the basic reason for using a CAM analysis because the model will lack sufficient validity. The literature can provide many good examples of criteria; however, the criteria must be selected in context and meet both the tests of validity and appropriateness (Loken, 2007). The consideration given to the various decision makers' points of view is of particular importance. Such consideration ensures the model reflects the true values of the decision makers and ensures the model has validity. If the model lacks a particular point of view, it weakens the power of the model because it will not reflect the true conflicting criteria of the decision maker. Each criterion must also be selected based on its appropriateness (Loken, 2007).

Appropriateness refers to whether the criteria are actually measuring what they intend to

measure. The analysis should clearly and concisely measure the alternative against the given criteria.

To select the criteria for this study, I used the text of Proposition 39 for guidance. The policy goals of Proposition 39 were clear: first, create clean energy jobs in California; second, maximize the energy benefits for the state of California; third supplement, complement, and leverage existing energy efficiency and clean energy programs in coordination with CEC and the CPUC; and last, provide a full public accounting of all money spent and benefits created in terms of jobs so the programs and projects funded can be reviewed and evaluated (Yes on Proposition 39, 2012). The selection of criteria should reflect the policy goals of Proposition 39 so the model has validity and appropriateness. Each criterion was given an equal weight in this analysis with preference given to Energy Demand Reduction and Job Creation in case of a tie between two or more alternatives.

The Criteria

The criteria selected for this study are energy demand reduction, job creation, administration, and geographic and economic equity. These criteria reflect the policy goals of Proposition 39 and serve as appropriate measures against which to compare the alternatives. Including exogenous criteria can provide some insights; however, it reduces the appropriateness of the analysis because they fail to account for the true values of the decision maker and can unnecessarily complicate the process.

Energy Demand Reduction

Energy demand reduction is one of the primary benefits of Proposition 39. All the funding alternatives involved aim to reduce energy costs for schools. As mentioned in previous chapters, schools currently face tightened budgets, and lowering their operational costs by reducing their energy demand can create real benefits for schools. This criterion looks at the potential for total long-term energy reductions across all four proposals. It is impossible to measure the actual energy reduction because all of the proposals will give the money to schools to address their specific local needs, so the decision of which projects receive funding will depend largely on the schools. It is, however, possible to discuss which funding alternative creates a better process with incentives and capacity for schools to apply the funding to maximize the potential for energy reduction. Therefore, this criterion measures which proposal creates the process, incentives, and capacity for schools to enact long-term energy reduction projects.

Jobs Created

Another policy goal of Proposition 39 is to create jobs for California. The unemployment rate in California is around 9.8%, much higher than the United States average of 7.8% (EDD, 2012). With a projected total of \$2.5 billion available for clean energy projects, policymakers hope this investment will create a number of new jobs, particularly in the hard-hit construction sector. Within the text of Proposition 39, there is authorization to work in coordination with CCC and local organizations as well as authorization for job training programs. Proponents of the various alternatives have

provided some projections regarding the number of jobs created by each alternative.. However, since their methodology is unclear and varied, these projections for the various alternatives are not to be used at face value. Additionally, there is difficulty in assessing how many jobs will be created because it is unclear what the school districts will do once they receive the funds. Therefore, this criterion discusses the potential for job creation with each proposal; nevertheless, the analysis does not quantify the projections.

Administrative Feasibility

Proposition 39 calls for any proposal for the use of the funding to work in coordination with CEC and the CPUC and their existing programs. This criterion does not intend to exclude proposals not explicitly calling for CEC or the CPUC to administer the money; nonetheless, it is meant to accurately reflect the language in the proposition the voters passed. An important consideration for this criterion is the capacity and experience of the administering agency to disperse the funds for a previous related proposal. The text of Proposition 39 calls for no more than 4% of the money to be used on administrative fees; therefore, an agency's successful experience administering programs with administrative fees at or below that percentage are preferred in this criterion. Ultimately, this criterion must consider the ability to administer programs to create jobs and reduce energy demand but also must be able to work with local schools to achieve the policy goals of Proposition 39.

Equity

This paper measures equity in two different ways. One way to address equity is through a fair and voluntary process; this form of equity allows all participants to choose whether to participate, and all have an equal chance at obtaining the good or service. Another way to address equity is to consider what Stone (2002) calls the end results concept; this concept is based on analyzing the characteristics of the recipient and the characteristics of the good to see whether there is a match. The discussion of the Proposition 39 funding proposals includes both process and end result concepts of equity. Geographic and economic equity lead most to think of the end results concept, but it is also important to allow for a fair and voluntary process in which all schools who wish to participate have that ability. Specifically, the criterion first looks at whether the proposed process is inherently unequal to certain parties; second, the criterion analyzes the proposal to see whether the funds will be distributed to recipients that are an appropriate match in both geography and economic characteristics as determined by need.

Conclusion

In conclusion, these criteria seek to represent the various conflicting criteria the policy must consider. Additional criteria, such as political feasibility and legality, were considered; however, they were not included because they were outside the scope of the analysis. The criteria included give the analysis validity and appropriateness. The criteria included address how well a policy meets the two main policy goals, how well the program can be implemented, and finally who will benefit from the program; these are

the key questions confronting the decision makers. The criteria also adhere to the text of Proposition 39, so they reflect the trade-offs of the policymakers and the voters of California thus ensuring validity of the analysis. Additionally, the criteria provide appropriateness because the criteria are clear and transparent. Chapter 6 uses multi-criteria analysis to compare each alternative against the specified criteria to see which one creates the most public value.

Chapter 6

ANALYSIS AND RESULTS

This chapter discusses the results of my qualitative CAM analysis of four alternatives for Proposition 39 funding. The results were determined by comparing the alternatives discussed in Chapter 4 against the criteria listed in Chapter 5. A score is assigned to each alternative based on their relative ranking against the criterion. A positive score on a criterion is represented by “↑,” which means the alternative scored the highest on that criterion compared to the other alternatives. A neutral score represented by a “∅” means there are no critical issues with the alternative for this criterion. A negative score represented by “↓” means this alternative has critical issues on that criterion preventing the proposal from meeting the policy goals of Proposition 39. The first section outlines each alternative in relation to each criterion. A table and summary of the CAM results follow the analysis of the alternatives.

Analysis of the Alternatives

Governor Brown’s Proposal

Governor Brown’s Proposal allocates money to K-12 schools and community colleges based on enrollment.

Criterion 1: Energy demand reduction. By providing per pupil funding, smaller school districts may not have enough students to obtain the amount of money needed to accomplish meaningful long-term energy reduction. Thus, these smaller districts may need to use the money on smaller items such as lighting replacement.

Though these smaller projects will have some benefits, they will also have a smaller life cycle than projects like HVAC replacement, which lead to long-term benefits in energy demand reduction. Larger school districts like Los Angeles Unified School District will receive significantly more revenue than the smaller districts; nonetheless, their funding would be shared with the districts that have already instituted energy reduction projects, diminishing their spending power. Brown's proposal received a negative score because there are not clear incentives for the schools to execute projects creating long-term energy demand reduction. ↓

Criterion 2: Job creation. This proposal does not directly consider job creation in its distribution method. Instead, it asks schools to consider state job creation in their internal selection of projects. For schools, job creation is a secondary consideration compared to reduction in their energy needs. A school's incentive is to assess projects from their bottom line and take job creation into consideration as a secondary criterion. Brown's proposal gives no consideration at the state level for geographic differences or for which projects will create the most jobs. Without state guidance or adequate local incentives, one of the primary policy goals of Proposition 39 will not be addressed specifically. Given these reasons, this proposal received a negative score. ↓

Criterion 3: Administration feasibility. This proposal puts the CDE and CCOC in charge of distributing the money. The proposal asks schools, not the state, to consider job creation, total benefits, and costs in selecting the project they wish to implement; this puts the administrative burden on the schools, including the consideration of all criteria

for the projects. Understanding and evaluating the criteria for projects takes a certain level of expertise. Brown's proposal calls for the CDE and CCOC to work with CEC and CPUC, which will provide some subject matter expertise. It may still be necessary to hire additional staff at the local level to manage projects or a poor project could be approved that would not result in long-term benefits to California; this could lead to increased overhead for the funding distribution, reducing the total benefits to California. Brown's proposal received a negative score because the administrative agencies do not have experience with school construction or energy efficiency projects. The lack of expertise at the local level means there could be significant administrative overhead limiting the total benefits to the state from Proposition 39 funding. ↓

Criterion 4: Equity. This proposal distributes funding to all schools by the number of students. Each school receives their equal share of the funding based on its population. However, in terms of the end result, there are some issues with Governor Brown's proposal. Governor Brown's proposal does not match the characteristics of recipients with the need for funding. Brown's proposal will give money to school districts that, because of their ability to pass bond measures, have already been able to do many of the energy efficiency improvements called for in this proposal (Szambelan & Gordon, 2013). Bond measures are a good gauge of the ability of school districts to raise capital funds. Geographically, the proposal gives the same amount of money to schools in temperate climates with lower energy needs as to schools in more extreme climates with higher energy needs. Brown's proposal sides on having a fair process instead of

addressing the inequities schools are facing in California, such as varying energy needs and the ability to raise capital funds. Ø

SB 39

SB 39 allocates the money to K-12 schools based on their energy usage and the unemployment in their area.

Criterion 1: Energy demand reduction. This proposal considers giving money to schools with above average energy usage. SB 39 will direct the money to schools with the most need for energy efficiency and alternative energy projects. These projects will free up room in the school budgets to invest in the classrooms or for other delayed capital projects that schools have no other means of financing. The only criticism of this approach is Proposition 39 calls for projects to be prioritized based on in-state job creation and energy benefits. Thus, distributing the money based on need does not necessarily address which project will produce the most energy reduction benefit. For example, school “A” has high-energy usage and has proposed a project that would reduce its energy usage by \$10,000 a year. School “B,” on the other hand, has medium-energy usage and has proposed a project that will reduce its usage by \$15,000. Under SB 39, school “A” would receive the funding because they have a higher than average energy usage. SB 39 received a neutral score because it will allocate money to schools based on their need for the projects instead of putting the money into projects creating the greatest reduction in energy demand. Ø

Criterion 2: Job creation. This proposal also considers the unemployment rate where the project will take place, as compared to the state average, when awarding the funding. California's construction sector has been hit particularly hard during the recession and by focusing jobs in areas with high unemployment, the money can go where there is the most need for jobs. The money allocated will enhance workforce development and employment opportunities for at-risk youth by collaborating with the CCC or local conservation corps, although the extent of the relationship is unclear. SB 39 allocates money to schools based on their communities' unemployment rate instead of the number of jobs created; this has the potential to limit the total benefits to the state generated from the Proposition 39 funding because projects creating more jobs could be passed over in favor of projects creating fewer jobs within high-unemployment areas. SB 39 received a neutral score because it will allocate money to areas based on their need for the jobs instead of putting the money into projects creating the most jobs. ∅

Criterion 3: Administrative feasibility. This proposal targets the OPSC as the primary administrator of the money for Proposition 39 funding. The OPSC primarily helps local school districts through grants for facility construction and improvements. A criticism of the OPSC is they do not have the expertise of the CEC in directing funding, specifically for energy efficiency and alternative energy projects. OPSC does, however, have experience administering grants to local schools and administers these grants at a very low administration cost of 0.4% (DGS, 2013). SB 39 received a neutral score

because while OPSC has experience with school construction, it does not have expertise with alternative and energy efficiency projects to the same degree as CEC does. Ø

Criterion 4: Equity. The SB 39 proposal creates a fair and voluntary process. It specifically sets aside a portion of the revenue for technical assistance with the grant process to encourage full participation by the school districts. There is a limited amount of funds available for these projects, making for a competitive grant process. By using a grant process with clear and transparent selection criteria, it will be easier for schools to participate in the process; however, given the nature of a competitive grant process, some schools will not receive funding. The primary benefit of this proposal is it seeks to match the resource with the recipient's need. By directing money to the areas needing both energy reduction and job creation, it has the potential to alleviate some of the current inequities in terms of geographic unemployment and underfunded facility improvements. Additionally, by directing the money by need, the money will go to schools facing more extreme temperatures and thus needing more energy efficiency improvements, addressing the geographic equity. SB 39 received a positive score because it has an equitable process matching resources to need. ↑

AB 39

AB 39 allocates money to K-12 schools based on the project's reduction in energy demand and the number of jobs created.

Criterion 1: Energy demand reduction. This alternative creates the best circumstances for long-term energy reduction. It allows for energy audits, which will

help schools identify where there can be substantial energy reductions through facility improvements. Projects eligible for these funds are similar to other proposals. The main difference between this proposal and the others is it focuses money where it will create the most energy reduction benefit. Going back to the school “A” and “B” example, AB 39 would award the money to school “B,” whose project would create \$15,000 a year in benefits, over school “A” because school “B’s” project creates more energy reduction benefits. AB 39 received a positive score because it allocates money to projects creating the greatest energy demand reduction benefit. ↑

Criterion 2: Jobs creation. While it is difficult to predict the number of jobs created by this alternative, there can be some assumptions gained from the proposal. AB 39 focuses the money on projects creating the most benefit in terms of the number of jobs. AB 39 does not focus on the location of the jobs created like SB 39; instead, it aims to provide the most benefit to the state. This focus on the total benefit is the preferred approach because it comes closest to the language of Proposition 39, which is what the voters approved. AB 39 received a positive score because it allocates money to projects creating the most jobs. ↑

Criterion 3: Administrative feasibility. The proposal calls for CEC to administer the grants and loans for schools. CEC has experience running such a program, given their Bright Schools Program and many other alternative energy and energy efficiency programs. The Bright Schools Program shows an existing understanding of the public school system and allows them to continue maximizing their subject matter

expertise in the arena of energy efficiency. The CEC have experience in running competitive grants, low interest loans, and financial assistance processes, which will help prevent technical difficulties in administering the grants. AB 39 received a positive score because it directs the management of the program to the CEC, which has the most expertise running programs like this proposal. ↑

Criterion 4: Equity. This proposal creates a fair process by allowing for a competitive grant process as well as a low interest loan program. The project fails just short of the top ranking on this criterion because it matches the funding with areas producing the most benefit not where there is the most need. Directing funding to where there is the most need would be a more equitable match between the characteristics of the resources and recipient. AB 39 received a neutral score because although it has a fair process, it does not put money specifically into the areas where there is the most need. ∅

AB 239

AB 239 takes half the money from the Clean Energy Job Fund and creates a Clean Schools Fund, providing zero interest loans to schools for alternative efficiency and efficiency energy projects.

Criterion 1: Energy demand reduction. This proposal intends to take half the Clean Energy Job Creation Fund money and deposit it in the Clean Energy School Fund, which the OPSC would administer. The proposal, however, does not describe the process by which to select the projects, so it is difficult to gauge the reduction in energy demand resulting from the potential projects. Advancements in financing for energy efficiency

and alternative energy projects have helped spur the recent growth in alternative energy; however, without prioritizing the funding, the funding could become quickly tied up in projects with potentially long payback periods. Ultimately, this could limit the benefits of having such a fund and gives this proposal a negative score. ↓

Criterion 2: Job creation. This proposal does not specifically call for job creation to be included within the project proposals. Notably, it does not use the entire Clean Energy Job Creation Fund revenue, meaning there are funds left over. There is potential to utilize a portion of the remaining funds for job skills and development of work opportunities; however, this proposal treats job creation as a secondary goal arising out of the projects as a byproduct. Without specifying either criteria or incentives for job creation, there is little guaranteeing the proposal will effectively create jobs, giving this proposal a negative score. ↓

Criterion 3: AB 239 administrative feasibility. Similar to SB 39, this proposal puts the OPSC in charge of the funds. Currently, the OPSC primarily uses revenue from bonds to allocate money to school districts through grants. There are some loan programs in the OPSC; however, there may need to be additional program management to ensure the loans from schools are repaid on schedule. AB 239 receives a neutral score because, while OPSC has experience with school construction, it does not have expertise with alternative and clean energy projects to the same degree as CEC. ∅

Criterion 4: Equity. This proposal creates a fair and voluntary process in which for schools to participate. Schools wanting the loans are able to receive them; however,

they must also take on the responsibility of repaying the loans. Although given the rate of inflation, a zero interest loan program would be fairly popular. Additionally, the proposal matches the resources with the needs of the recipient because they are able to spend the money on the energy efficiency projects meeting their local priorities. The program would be a benefit as long as the energy reduction benefits, primarily the reduction in energy costs, outweigh the projects' costs. Without laying out the criteria used to prioritize the loans, program financing could quickly be tied up in projects and not available to schools that need it, like the Energy Conservation Assistance Act (Fuentes & Barba, 2013). AB 239 receives a neutral score because a loan program will let everyone participate; however, without prioritizing the funding, the resources will not necessarily go where they are needed most. ∅

Table 1

Summary of CAM Analysis

	Energy Demand Reduction	Job Creation	Administrative Feasibility	Equity
Governor Brown Proposal	↓	↓	↓	∅
SB 39	∅	∅	∅	↑
AB 39	↑	↑	↑	∅
AB 239	↓	↓	∅	∅

Results

Governor Brown's Proposal scored negatively on the Energy Demand, Job Creation, and Administration criteria. Primarily, the reason for the low score is the lack of criteria for the state allocation of the dollars accounting for whether a project will reduce energy demand or creates jobs. Administratively, neither CDE nor the Community College Chancellor's Office has extensive expertise specifically in similar energy efficient or alternative energy programs to use as models. Giving the money on a per pupil basis eliminates the administrative need for decision. However, the auditing and tracking of the benefits, including the number of jobs created and the energy saved, could put a significant burden on local school districts that do not typically handle this type of work. In terms of equity, it scored evenly because it distributed the money evenly across all school districts, yet the proposal fails to match the needs of the recipients with the resource.

SB 39 scored favorably on the equity criterion and did not score negatively on any of the other criteria. However, since the proposal focused on the need-based distribution of funds rather than the generation of benefits, the potential for California to realize the full public value of the investment is lessened. SB 39 presents a more equitable way of distributing money and presents a viable second option for California.

This analysis concludes that AB 39 scores positively on all but one criterion. AB 39 creates the best possibility for the state to realize the benefits of energy demand reduction and job creations. AB 39 also puts the agency with the most expertise in

running energy efficiency programs in charge of managing the funds. However, there may be potential geographic and economic inequity issues with the proposal; these potential inequities are balanced by the focus on energy demand reduction and job creation benefits, producing the greatest generation of public value.

AB 239 scored favorably in the equity criterion because of the ease by which schools can participate. Ultimately, this proposal scored unfavorably in the Energy Demand and Job Creation criteria because it did not specify the selection process for identifying schools to receive the dollars. If funds are granted on a first-come-first-served basis, the process does not ensure funding will go to projects creating more jobs or producing significant energy reductions. Funding could run out before these projects are considered.

Conclusion

This chapter analyzed the potential effects of each alternative against the criteria listed in Chapter 5. After doing a qualitative CAM analysis, the AB 39 alternative scored the highest compared to the other alternatives. AB 39 received positive marks on three out of four categories. The conclusion is that AB 39 will create the most public value for the investment of Proposition 39 revenue. SB 39 provides a viable second option; it scored higher on equity than AB 39 yet scored lower on the other three criteria. AB 239 scored evenly on the administration and equity criterion; however, with its lack of detail, it failed to earn even marks on the other two. Lastly, Governor Brown's proposal scored evenly on equity though it failed to utilize incentives for schools to create jobs and it

potentially spreads the money too thin, reducing the likelihood of major capital improvements in smaller schools. The final chapter discusses my major observations, findings, and the broader policy implications.

Chapter 7

FINDINGS AND POLICY IMPLICATIONS

California is still facing close to 9.6% unemployment despite the general improvement in the United States' economy (EDD, 2012). California recognized the need for public investment to reduce unemployment and reshape its economy to be greener and more efficient. With the passage of Proposition 39, California took a step toward not only creating new clean energy jobs but also realizing the benefits of continuing its energy efficiency ethic while improving California's schools. Over the next five years, California will spend close to \$2.5 billion on energy efficiency and alternative energy projects in its schools system. This paper analyzed four funding proposals to distribute the money to schools. Governor Brown's January budget proposal for the funding allocated the money on per pupil bases to K-14 schools. SB 39 allocates money through grants to the schools with the most need for energy efficiency projects and jobs in their area. AB 39 allocates the money based on which project will create the most benefit in terms of energy reduction and job creation. AB 239 allocates through a zero interest loan program, with half the money creating a sustainable source of capital funding for energy efficiency projects.

Through my CAM analysis, I found AB 39 was the best option to create jobs and reduce energy demand for schools. AB 39 provides a combination of grants, loans, and financial assistance to schools. It prioritizes funding based on the number of jobs and the energy reduction benefits created. By prioritizing based on benefit, AB 39 ensures

California receives the greatest return for the dollars invested. AB 39 puts the CEC in charge of administrating the money. CEC is the preferred agency because their mission closely aligns to the policy goals of Proposition 39 and they have the most experience with energy efficiency programs. AB 39 is the preferred proposal because it follows the policy intent of Proposition 39, which was to create jobs and invest in alternative and energy efficiency projects.

Questions for Future Research

To continue the research of this thesis, there are a few areas I would further explore. First, I would have liked to conduct interviews with the major policy figures in the process to gather the true intentions behind their funding alternative; this information would have added depth to the alternatives, allowing the analysis to include more of their stated concerns rather than just the information publicly available. I did not include interviews in this study because of time and resource limitations; however, the real benefit of the analysis is laying out a rational framework for the policy discussion and I was able to achieve this through the publicly available information.

Second, I only chose four of the possible funding alternatives. Other proposed alternatives include AB 29, AB 114, and SB 729. The four proposals included represent the broadest range of proposals, parties, and ideologies. The other proposals were not included in the analysis because they did not enhance the range of party representation or offer significantly different ideologies. Additionally, because of time constraints, it was

necessary to limit the number of alternatives considered in the analysis to the four chosen.

Finally, a separate analysis should look at the current funding methodologies for the state to local governments, to see if there are best practices for efficient, equitable, and purposeful distribution and use of the money. Ultimately, the question could revolve around whether there are better ways to get money into local hands than through grants and loans. The question should examine under what context are grants, loans, and allocations the most effective methodologies? Alternatively, is it a more efficient use of the money for the state to contract directly with contractors so the locals do not have the administrative burden of being the intermediary?

Policy Implications

The analysis of these proposals brought out many larger policy implications for California. First, there are over a dozen energy efficiency programs in the state managed by at least three different agencies (LAO, 2012c). With no comprehensive framework and strategy for the state's energy efficiency and alternative energy projects, California has spent close to \$15 billion in energy efficiency funding on duplicative programs. The proposals for allocating Proposition 39 revenue add another program to that portfolio and, depending on the final outcome of the Proposition 39 debate, could add another agency to the mix. An additional agency would create a loss of synergy between the programs, ultimately leading to a potential loss in efficiency and adding to program duplication. When using public dollars, there is a responsibility to efficiency and

equitably allocate those dollars so there is a maximum generation of public value.

Having one agency lead California's energy efficiency portfolio would help ensure there are minimal duplicative programs and that the public is realizing the full value of their investment.

Second, there must be incentive for the agencies receiving money to use that money in a way matching the overall policy goals of the legislation. Governor Brown's proposal does not lay out incentives for schools to invest in projects creating jobs. The primary incentive for schools is to reduce their energy costs and creating jobs is a secondary concern. AB 239 does not have any incentives laid out in the proposal to ensure schools are meeting the policy goals of Proposition 39. Incentives matter; requiring schools to report their benefits only after they have spent the money, as in Governor Brown's proposal and AB 239, fails to maximize the value of the investment.

Last, the funding from proposition 39 does not solve the lack of capital improvement funds available long-term in California schools, which is one of the goals of the law. Schools in poor communities do not have the local dollars available and often do not have the ability to pass school bonds to help meet the state matching requirements. The school modernization program is a 60/40% state to local cost sharing program to help ageing schools retrofit their facilities. However, the 40% local share is still a large burden on poor communities having trouble raising bond revenue (Szambelan & Gordon, 2013). These schools will need to find ways to raise the revenue to meet the modernization matching portion of the state allocation and the current 40% is still a large

hurdle for poor school districts. The state needs to look at ways to help these school districts or lower the matching requirements for schools based on their ability to pay.

Conclusion

This thesis addressed the question of which funding strategy will best utilize the public funds created by Proposition 39 to reduce California's school energy bills, create green jobs, and reduce California Green House Gas emissions. The conclusion is that AB 39 is the best alternative for creating jobs and reducing energy demand in California schools. All of California's school could use more funding; however, the state must prioritize the funding so it produces the most benefit for the dollars invested for the greatest generation of public value. Prioritizing includes taking steps so California schools meet the broad AB 32 goals; however, this must be done with cost-effective solutions and AB 39 best achieves this goal. AB 39 is the best proposal; it accomplishes the goals of proposition 39 by using a combination of financing methods and concentrating money on projects creating the most benefits for California.

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