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A S S O C I A T I O N

**The Fiscal Impact of the
California Global Warming
Solutions Act of 2006 on
California State Government**

June 2012

Andrew Chang & Company, LLC

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**The Fiscal and Economic Impact of the
California Global Warming Solutions Act (AB 32): State Case Studies
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**The Fiscal and Economic Impact of the
California Global Warming Solutions Act (AB 32): State Case Studies
(Key Findings)**

- AB 32 will negatively impact the state budget by \$7.2 billion annually and \$22.1 billion cumulatively by 2020.
- AB 32 will reduce state tax revenues by \$6.8 billion annually in 2020 and \$19.7 billion cumulatively by 2020.
- Total state costs for electricity, transportation fuel and water will increase by \$485.6 million annually in 2020 and by \$2.4 billion cumulatively by 2020.
- The State Executive branch and its agencies will have \$48.8 million in additional costs in 2020.
- The State Water Project will face an additional \$48.1 million cost annually in 2020
- Departments that buy bulk fuel, such as the California Department of Transportation, will face an additional \$22.4 million in cumulative costs by 2020.
- The State Center Community College District in Fresno County will face \$1.0 million in cumulative increased costs from electricity alone, or an increase of 6.3 percent from their current electricity costs by 2020.
- The California Highway Patrol will bear an additional \$5.3 million in costs due to electricity and transportation fuel costs by 2020.

1. Introduction

“The Fiscal and Economic Impact of the California Global Warming Solutions Act of 2006,” by Andrew Chang & Company, LLC measured the total fiscal and economic impacts of AB 32 as currently specified by the California Air Resources Board. In an effort to highlight the impacts to state public entities, this report isolates the direct fiscal impact to agencies in state government, including the executive branch of state government, higher education and community colleges.

The main report found that the cumulative GSP loss between 2012 and 2020 will be \$85 to \$245 billion between the Low and High Case. In the Optimistic Case, the total impacts to California consumers and the economy in the year 2020 are significant:

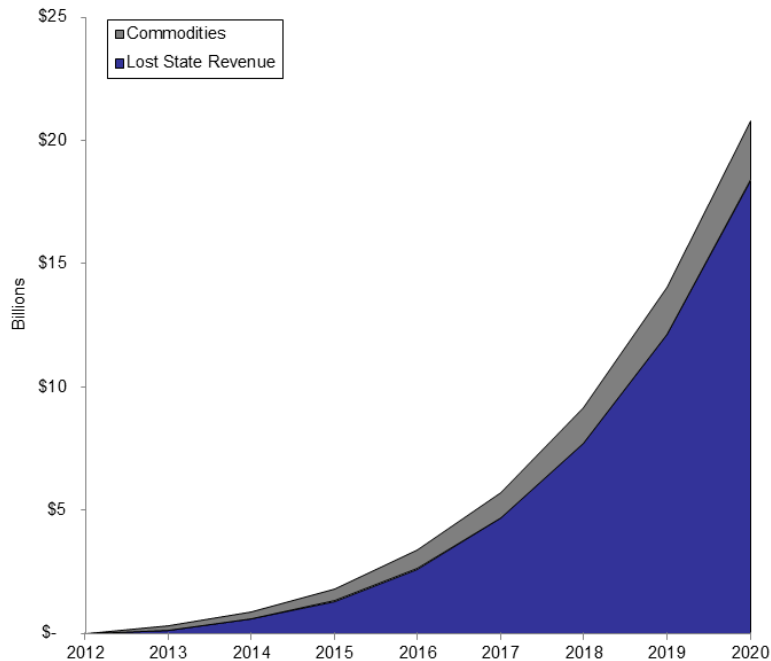
- Direct cost to California consumers is \$35.3 billion
- Net effect on Gross State Product is a 5.6 percent loss with 262,000 jobs lost
- \$7.4 billion in lost state and local revenue
- \$12.3 billion in lost statewide earnings
- Average family costs of over \$2,500 a year, in addition to over \$900 in lost annual family earnings

This report details the impacts these policies will have on specific public agencies. This includes the impact of increased commodity costs (electricity, transportation fuel and water) and lost state tax revenue from decreased economic activity. We also illustrate the impact to specific agencies, including case studies of a community college and the California Highway Patrol.

2. AB 32's Impact on State Government

AB 32 will drive up the cost of electricity, transportation fuel and water for all consumers, including state agencies. Moreover, the economic slowdown caused by AB 32 will reduce the revenues to state government. The cumulative impact to state public entities from 2012 to 2020 will be \$22.1 billion, driven largely by lost state revenue as shown in Figure 2.1. The cumulative lost revenue is approximately \$19.7 billion. The second largest cumulative impact is from additional water costs which will total \$1.8 billion in 2020, followed by the cumulative impact of electricity and transportation fuel will cost state government \$488.9 million and \$71.8 million respectively.

Figure 2.1
Cumulative State Costs
(Optimistic Case)

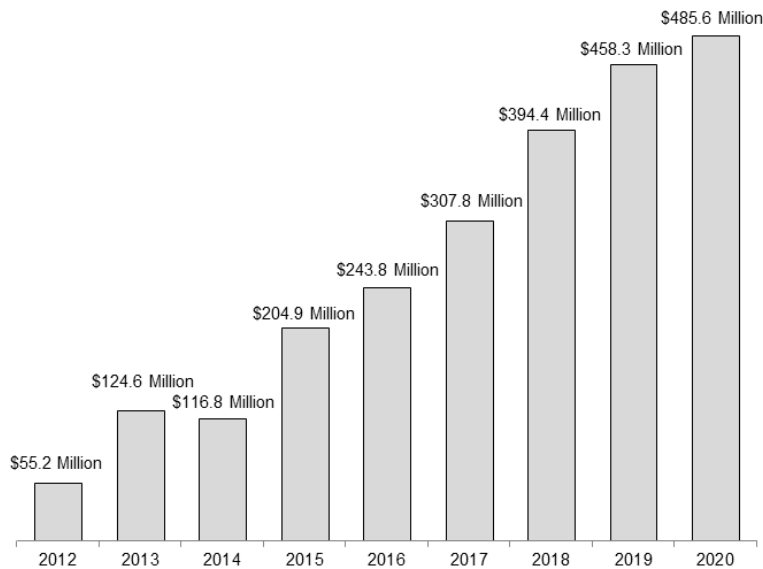


SOURCE: Appendix A, B, C

The cumulative impact of \$22.1 billion is approximately the state's General Fund expenditures for Health Care Services and the Department of Social Services in 2010-11, or, when averaged, more than the annual budget of the Public Utilities Commission.

In Figure 2.2, we see the escalating annual costs of commodities for state public entities. Annual state costs grow from \$55.2 million in 2012 to \$485.6 million in 2020. In 2020, additional annual electricity, transportation fuel and water costs will total \$105.5 million, \$19.2 million and \$360.9 million respectively. The 2020 commodity cost is greater than the 2009 total energy cost for the entire commercial sector of the state of Vermont.

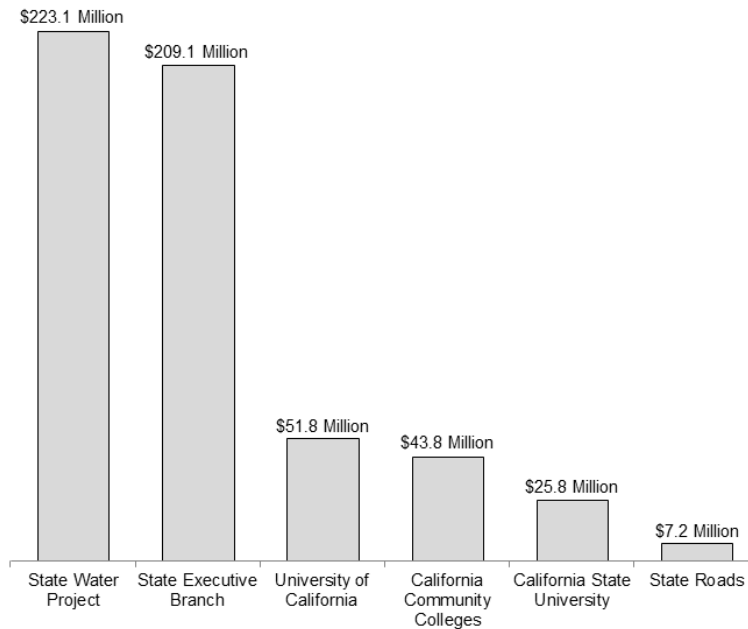
Figure 2.2
Annual Commodity Costs for State Entities
(Optimistic Case)



SOURCE: Appendix A, B, C

The increased commodity costs will significantly affect the ability of state entities to perform their functions and services. Figure 2.3, shows the projected cumulative costs of electricity, water and transportation fuel for the State Water Project, the Executive Branch, the University of California, California Community Colleges, California State University and state roads.

Figure 2.3
 Cumulative Commodity Cost for State Entities
 (Optimistic Case)



SOURCE: Appendix A, B, C

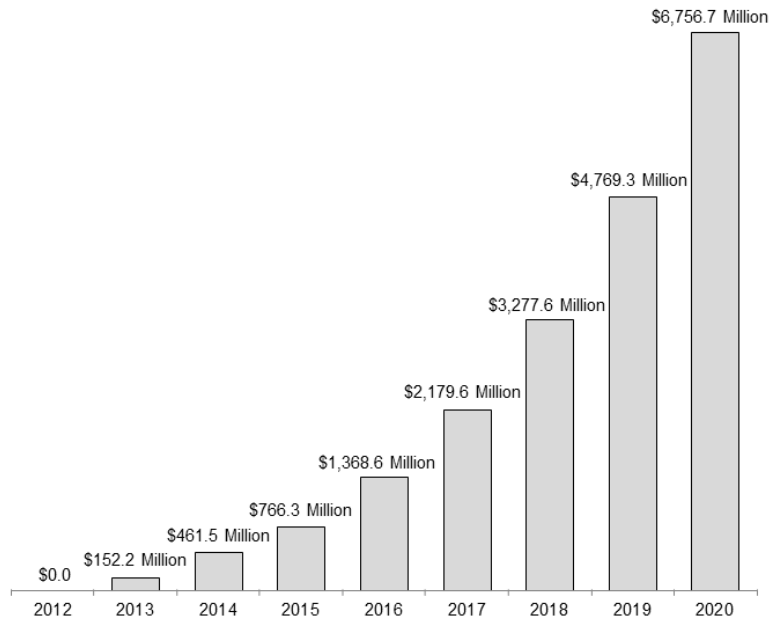
The State Water Project will face cumulative costs of more than \$223 million by 2020. The State Executive branch, including all state departments and agencies, will incur over \$209 million in cumulative costs by 2020. Higher education also bears a great deal of impact; the University of California system will have more than \$51 million in cumulative costs, however the California Community College and California State University systems are close behind with additional cumulative costs of more than \$43 million and \$25 million respectively. Lastly, state roadways will incur more than \$7 million in cumulative costs through 2020 as a result of AB 32.

The Impact of AB 32 on the State Revenues

The primary driver of increased costs in the Optimistic Case is lost state revenues from decreased economic activity in the state, as seen in Figure 2.4. Due to the slowdown in economic activity and lost earnings, AB 32 will reduce state tax revenues by over \$6 billion annually by 2020. The annual loss in 2020 is more than the state's proposed total expenditures

on the Departments of Public Health, Child Support Services, Managed Health Care, Developmental Services, and State Hospitals in Fiscal Year 2012-13.

Figure 2.4
Lost State Revenues
(Optimistic Case)



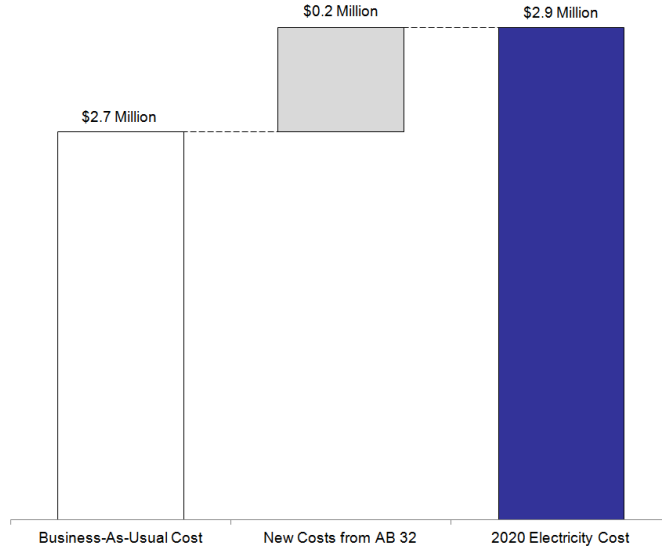
SOURCE: Main Report, Appendix C

Cumulatively, this amounts to over \$19 billion in lost state tax revenues, or the approximate amount of money the state spent on all higher education during the previous two years. Additionally, since these revenues are placed into the General Fund, K-12 education stands to lose \$2.7 billion annually by 2020, the equivalent of more than 45,000 teachers across the state.

The Impact of AB 32 on the State Center Community College District

The State Center Community College District (SCCCD) includes Fresno City College, Reedley College, Willow International Community College Center, Madera Community College Center and Oakhurst Community College Center with a district-wide student enrollment of over 53,000 in the 2010-11 school year. The district is located in Fresno County and accounts for approximately 2.2 percent of the entire California Community College building space and used approximately 22.4 GWh of electricity in 2010.

Figure 2.5
 SCCCED Electricity Costs in 2020, Comparison



SOURCE: Appendix A

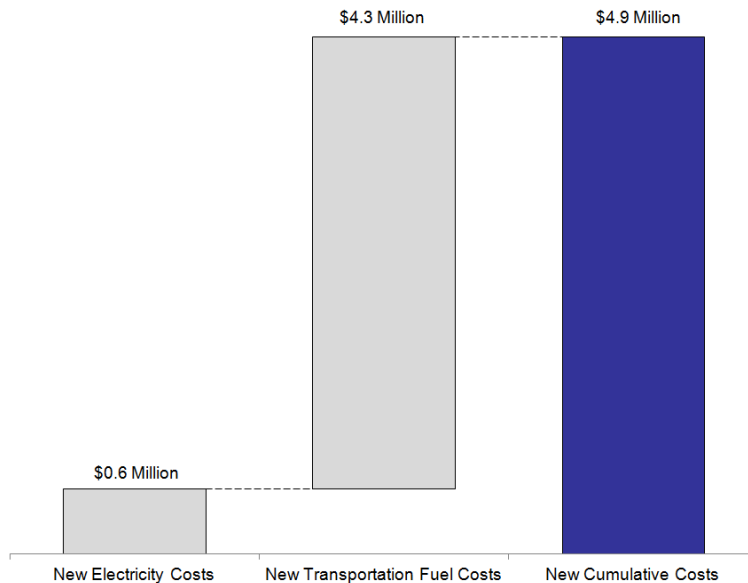
The district would bear additional annual costs of \$200,000 in 2020, representing a 6.3 percent increase in its current costs and equivalent to the yearly tuition of more than 230 full-time students. 2020 cumulative costs would total \$1.0 million in increased costs from electricity. The total annual costs in 2020 are also the equivalent of several budget items; the figure represents annual spending in the district’s 2010-11 fiscal year for new vehicles, vehicle repair & maintenance, and architectural and engineering services.

The Impact of AB 32 on the California Highway Patrol

The core mission of the California Highway Patrol is to provide safety, service and security to the people of California through minimizing traffic collisions, maximizing service to the public and public agencies, managing traffic and emergency incidents, protect the public property, state employees and the state's infrastructure and collaborate with local, state and federal public safety agencies to protect California. The department has 11,101 total law enforcement

employees, including 7,660 total officers and is the largest state law enforcement division in the nation.

Figure 2.6
Cumulative Electricity and Fuel Cost for CHP



SOURCE: Appendix A, C

As a percentage of total state law enforcement, the CHP makes up 9.3 percent of all state law enforcement personnel and 9.7 percent of all state officers. The California Highway Patrol operates approximately 1.2 million square feet of office and other building space, or 0.5 percent of the square footage of the entire state of California, and the total volume of bulk fuel purchased by the CHP is approximately 2.5 million gallons of gasoline and diesel per year.

CHP will bear \$5.3 million in increased costs cumulatively from electricity and transportation fuels. The 2020 total additional cost of \$1.6 million is equivalent to 0.1 percent of the Department's FY 2010-11 budget and the equivalent to more than 23 full-time CHP officers. The cumulative cost for the department is also larger than the department's spending on their enhanced radio system in fiscal year 2010-11. The California Highway Patrol Enhanced Radio System (CHPERS) project's purpose is to provide for the development and implementation of

an enhanced statewide radio communications system and as well as provide interoperability at the local, regional, and federal level.

3. Conclusion

The increased cost of commodities coupled with the significant decrease in state revenues from economic loss upon fully implementing AB 32 will create a \$22.1 billion cumulative impact to state public entities over the length of the implementation period, with a \$7.2 billion impact in the year 2020. It will also reduce state tax revenues by \$6.8 billion annually by 2020 and \$19.7 billion cumulatively in the Optimistic Case.

The State Water Project will face an additional \$48.1 million cost annually in 2020 and the State Executive branch and its agencies will have \$48.8 million in additional costs in 2020 in the Optimistic Case, while additional costs for water due to electricity costs will reach \$360.8 million in the year 2020 for the state. Even individual state entities, such as the State Center Community College District and the California Highway Patrol, will face millions in additional cost that they will need to address.

**Appendix A:
Electricity Usage**

	2012	2013	2014	2015	2016	2017	2018	2019	2020
Additional Electricity Cost per GWh ¹ (Real \$)	\$1,121.2	\$2,509.0	\$2,300.2	\$4,093.2	\$4,847.7	\$6,117.7	\$7,819.1	\$9,006.8	\$11,313.8
State Water Project Total Usage ² (in GWh)	5,211.3	5,081.0	4,954.0	4,830.1	4,709.4	4,591.6	4,476.8	4,364.9	4,255.8
State Buildings Total Usage ³ (in GWh)	3,204.3	3,124.2	3,046.1	2,969.9	2,895.7	2,823.3	2,752.7	2,683.9	2,616.8
University of California Total Usage ⁴ (in GWh)	1,209.4	1,179.2	1,149.7	1,121.0	1,092.9	1,065.6	1,039.0	1,013.0	987.7
California State University Total Usage ⁵ (in GWh)	601.6	586.5	571.9	557.6	543.6	530.1	516.8	503.9	491.3
California Community Colleges Total Usage ⁶ (in GWh)	1,023.0	997.5	972.5	948.2	924.5	901.4	878.8	856.9	835.5
Street Lighting Total Usage ⁷ (in GWh)	168.9	164.7	160.6	156.6	152.7	148.9	145.1	141.5	138.0
SCCCD Total Usage ⁸ (in GWh)	22.4	21.8	21.3	20.7	20.2	19.7	19.2	18.7	18.3

¹ See Main Report, Appendix D

² 2008 Management of State Water Project Bulletin, Department of Water Resources, accessed May 2012

³ State Owned & Leased Building Energy Data, direct correspondence with Dan Burgoyne, DGS Sustainability Manager, accessed May 2012

⁴ UC Energy Data, direct correspondence with Dirk Van Ulden, Associate Director, Energy & Utilities, University of California, accessed May 2012

⁵ "Emission Inventory for CO2 for 2006 for the California State University System," ENSR Corporation, November 2007

⁶ State Center Community College District Energy Data, direct correspondence with Will Schofield, Director of Finance, accessed May 2012; FUSION statistics, Foundation for California Community Colleges, accessed June 2012

⁷ State Center Community College District Energy Data, direct correspondence with Will Schofield, Director of Finance, accessed May 2012; FUSION statistics, Foundation for California Community Colleges, accessed June 2012

⁸ State Center Community College District Energy Data, direct correspondence with Will Schofield, Director of Finance, accessed May 2012

**Appendix B:
Transportation Fuel Usage**

	2012	2013	2014	2015	2016	2017	2018	2019	2020
Additional Per Unit Cost per Gallon of Gasoline ⁹ (Real \$)	\$ -	\$0.04	\$0.08	\$0.09	\$0.16	\$0.23	\$0.35	\$0.54	\$0.73
Additional Per Unit Cost per Gallon of Diesel (Real \$)	\$0.07	\$0.15	\$0.30	\$0.36	\$0.35	\$0.31	\$0.25	\$0.30	\$0.36
Total Agency Usage – Gasoline ¹⁰ (in million gal)	28.2	27.5	26.8	26.1	25.5	24.8	24.2	23.6	23.0
Total Agency Usage – Diesel ¹¹ (in million gal)	8.6	8.4	8.1	7.9	7.7	7.5	7.4	7.2	7.0
Total Caltrans Bulk Usage – Gas ¹² (in million gal)	3.0	2.9	2.8	2.8	2.7	2.6	2.6	2.5	2.4
Total Caltrans Bulk Usage - Diesel ¹³ (in million gal)	5.1	5.0	4.9	4.8	4.6	4.5	4.4	4.3	4.2
Total Fish & Game Bulk Usage - Gas ¹⁴ (in million gal)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Total Fish & Game Bulk Usage - Diesel ¹⁵ (in million gal)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Total DWR Bulk Usage ¹⁶ (in million gal)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Total CHP Bulk Usage ¹⁷ (in million gal)	2.5	2.4	2.4	2.3	2.3	2.2	2.1	2.1	2.0

⁹ See Main Report, Appendix F

¹⁰ "2012 Progress Report For Reducing or Displacing the Consumption of Petroleum Products by the State Fleet," California Department of General Services, May 23, 2012

¹¹ *Ibid.*

¹² Caltrans Bulk Fuel Delivered by Calendar Year (gallons), Office of Fuel Programs Management, Divisions of Equipment and Maintenance, California Department of Transportation, 2009-2011, accessed June 2012

¹³ Caltrans Bulk Fuel Delivered by Calendar Year (gallons), Office of Fuel Programs Management, Divisions of Equipment and Maintenance, California Department of Transportation, 2009-2011, accessed June 2012

¹⁴ Bulk fuel usage, direct correspondence with Reginald Bohanan, Department of Fish and Game, accessed June 2012

¹⁵ *Ibid.*

¹⁶ "PRA Request Bulk Transportation Fuel Purchases," Procurement and Contracting Office, California Department of Water Resources, accessed June 2012

¹⁷ Bulk fuel purchase orders, Business Services Section, California Highway Patrol, accessed June 2012

**Appendix C:
Water¹⁸**

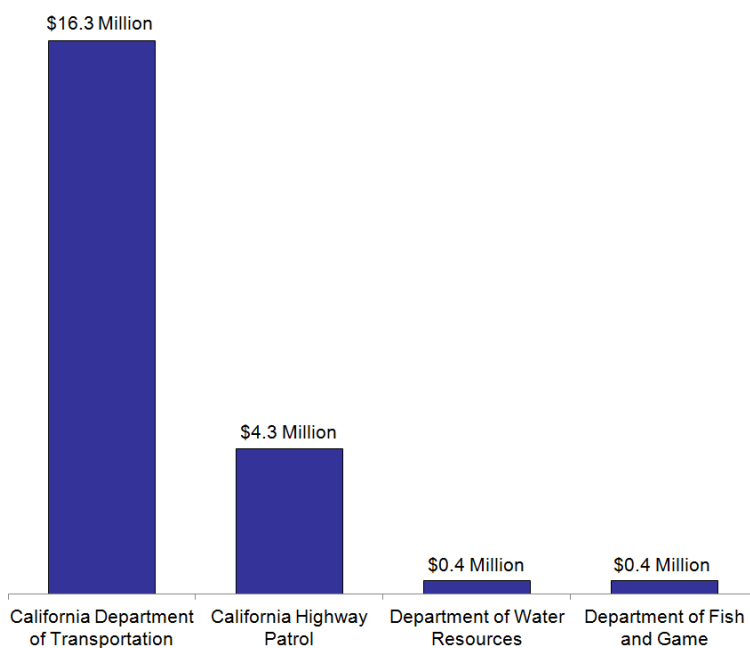
	2012	2013	2014	2015	2016	2017	2018	2019	2020
Total Energy Usage from Identified Sources (GWh)	23,729	23,729	23,729	23,729	23,729	23,729	23,729	23,729	23,729
Total Water Usage (million acre feet)	41	41	42	42	42	43	43	42	44
Total Water from Identified Sources (million acre feet)	25.9	25.9	25.9	25.9	25.9	25.9	25.9	25.9	25.9
Divide Usage from Identified Sources for Project Energy Usage	÷								
Ratio Between Identified Sources and Usage	1.6	1.6	1.6	1.6	1.6	1.6	1.7	1.7	1.7
Multiply Ratio with Energy Usage for Total Usage	x								
Total Energy Usage (GWh)	37,262	37,579	37,895	38,212	38,584	38,955	39,326	39,671	40,069
BAU Annual Average Cost of Electricity (\$/GWh)	\$84,418	\$85,509	\$86,764	\$87,560	\$87,982	\$88,481	\$88,850	\$89,597	\$90,580
Multiply Average Cost of Electricity by Usage	x								
BAU Total Cost of Energy for Water (\$Millions)	\$3.1	\$3.2	\$3.3	\$3.3	\$3.4	\$3.4	\$3.5	\$3.6	\$3.6
Scenario Annual Average Cost of Electricity (\$/GWh)	\$85,539	\$88,018	\$89,064	\$91,653	\$92,830	\$94,599	\$96,669	\$98,604	\$101,893
Multiply Average Cost of Electricity by Usage	x								
Scenario Total Cost of Energy for Water (\$Millions)	\$3.2	\$3.3	\$3.4	\$3.5	\$3.6	\$3.7	\$3.8	\$3.9	\$4.0

¹⁸ See Main Report, Appendix G

Appendix D: Bulk Fuel

In addition to the Voyager Fuel Card program that the state uses to provide transportation fuel to public agencies, several departments operate independent fueling stations across the state and would bear increased costs from bulk fuel purchases, as seen in Figure D.1.

Figure D.1
Cumulative Costs to Departments from Additional Bulk Fuel Costs



SOURCE: Appendix C

The California Department of Transportation (Caltrans) is the largest purchaser of bulk fuels and would face an additional \$16.3 million in fuel costs over the implementation period. The California Highway Patrol would face \$4.3 million in additional fuel costs, while the Department of Fish and Game and Department of Water Resources would face \$0.4 million in additional cumulative costs.

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