

**Alternative and Renewable Fuel and Vehicle  
Technology Program**

**FINAL PROJECT REPORT**

**Paso Robles Waste & Recycle  
Compressed Natural Gas Fueling Facility**

**Installation of a New Public Access  
CNG Fueling Station in Paso Robles**

Prepared for: California Energy Commission

Prepared by: Paso Robles Waste & Recycle



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## PREFACE

Assembly Bill 118 (Núñez, Chapter 750, Statutes of 2007), created the Alternative and Renewable Fuel and Vehicle Technology Program (ARFVT Program). The statute, subsequently amended by Assembly Bill 109 (Núñez, Chapter 313, Statutes of 2008), authorizes the California Energy Commission to develop and deploy alternative and renewable fuels and advanced transportation technologies to help attain the state's climate change policies. The Energy Commission has an annual program budget of about \$100 million and provides financial support for projects that:

- Develop and improve alternative and renewable low-carbon fuels.
- Optimize alternative and renewable fuels for existing and developing engine technologies.
- Produce alternative and renewable low-carbon fuels in California.
- Decrease, on a full-fuel-cycle basis, the overall impact and carbon footprint of alternative and renewable fuels and increase sustainability.;
- Expand fuel infrastructure, fueling stations, and equipment.
- Improve light-, medium-, and heavy-duty vehicle technologies.
- Retrofit medium- and heavy-duty on-road and nonroad vehicle fleets.
- Expand infrastructure connected with existing fleets, public transit, and transportation corridors.
- Establish workforce training programs, conduct public education and promotion, and create technology centers.

The Energy Commission issued solicitation PON-11-602 to fund projects under the ARFVT Program that develop infrastructure necessary to store, distribute, and dispense electricity, E-85 (ethanol fuel blend of 85%), propane, diesel substitutes, and natural gas. To be eligible for funding under PON-11-602, the projects must also be consistent with the Energy Commission's *ARFVT Investment Plan*, updated annually. In response to PON-11-602, the recipient submitted Application #38, which was proposed for funding in the Energy Commission's notice of proposed awards (NOPA) on April 24, 2012, and the agreement was executed as ARV-12-029 on April 3, 2013.

## ABSTRACT

Convenient access to alternative fuel stations is essential for the statewide adoption of alternative fuel vehicles in California. A large void existed in the state's compressed natural gas (CNG) fueling infrastructure in Northern San Luis Obispo County, which has historically been reflected in limited adoption of this alternative fuel technology in this area of the state.

Paso Robles Waste & Recycle (PRW&R) sought to bring CNG fueling infrastructure to northern San Luis Obispo County. PRW&R wanted a public-access site that would reliably serve its fleet of refuse trucks, as well as provide convenient access to Compressed Natural Gas for other fleets and private users.

Strategically situated between Los Angeles and San Francisco on U.S. Highway 101, a CNG fuel station in Paso Robles is a critical link in the CNG fueling infrastructure. The station closes a gap that prevented meaningful adoption of alternative fuel use between Los Angeles and San Francisco, as well as between Bakersfield/Fresno and the Central Coast.

Designed from its inception to serve full-size Class 8 trucks and municipal buses, as well as private vehicles, the primary goal of this project was to provide a cleaner, safer and healthier environment for residents of Paso Robles, California, through the development of a viable CNG fueling facility, while decreasing dependence on foreign fuel sources and realizing the economic benefits available through CNG.

Construction of the CNG Fueling Facility was completed in July 2014, and the facility became operational at that time.

**Keywords:** California Energy Commission, compressed natural gas, fueling infrastructure.

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## EXECUTIVE SUMMARY

Paso Robles Waste Disposal, Inc., doing business as Paso Robles Waste & Recycle, used California Energy Commission grant funds to enable the construction of a new compressed natural gas (CNG) fueling station adjacent to its office and operations yard in Paso Robles, California. The new facility included both time-fill (also known as slow-fill) dispensers to fuel the PRW&R's private fleet of refuse trucks, as well as an expandable fast fill dispenser for fueling CNG vehicles owned by the public and other private and municipal fleets. The station is at 3529 Combine Street, in Paso Robles.

PRW&R wanted to transition its fleet from diesel fuel to compressed natural gas but did not have ready access to a CNG fueling station, as the closest facility was in San Luis Obispo, about 33 miles south of the company's facilities. The company noted that other fleets in the northern San Luis Obispo County area faced the same issue, and that local municipalities could benefit from access to CNG. To meet its needs, and to provide access to CNG to the northern area of the county, PRW&R, through its affiliate, 3G CNG Corporation, committed to constructing the required infrastructure in early 2012. In April 2012, PRW&R applied for a grant from the Energy Commission to help make the project a reality. Shortly thereafter, the Energy Commission awarded the grant, and the project officially began. Planning and design were thereafter completed, and construction began in September 2013. The facility was completed and operational in July 2014.

From inception through May 31, 2015, the amount of CNG fuel dispensed at this facility was 84,387 centum cubic feet (CCF) of CNG (66,620 gasoline gallon-equivalents [GGE] or 58,439 diesel gas-equivalents [DGE]). Since January 1, 2015, the monthly output of this station has averaged more than 9,092 CCF of CNG (7,178 GGE or 6,296 DGE), with the highest sales coming in May 2015.

One of the original design criteria for the facility was to be able to accommodate large vehicles, such as Class 8 trucks and buses. Much time was spent during planning to ensure that the layout would conveniently accommodate all vehicle types. The final design allows both drive-through and turn-around access to even the largest vehicles. PRW&R felt this feature was essential to encouraging adoption of CNG by fleets in the local area, as well as providing trucking companies throughout the State with a convenient and reliable source of CNG. Large vehicles consume the most fuel per mile, so providing access to alternative fuels will have a large impact on achieving clean air requirements, reducing dependency on foreign fuels, and saving fuel costs.

Another main design goal was minimizing the energy impact of the facility while maximizing the energy efficiency of the station. These goals were accomplished through a thoughtful selection of unique equipment combined with structures enhanced for a future photovoltaic solar installation.

# CHAPTER 1:

## Project Background and Objectives

### 1.1 Project Background

Paso Robles Waste & Recycling (PRW&R) is the franchised solid waste hauler for the City of Paso Robles. Along with its affiliated companies (Paso Robles Roll-Off, Inc., and Paso Robles Country Disposal), it operates a fleet of pickup trucks, automobiles, and refuse trucks in providing residential, commercial, and roll-off waste and recycling services in the city and surrounding area. The company prides itself on providing high-quality services using state-of-the-art equipment and is always looking for ways to improve its ability to provide cost-effective and efficient services to its customers.

In 2010, Dale Gomer, the president and CEO of the company, recognized the benefits available to customers if the six-diesel powered trucks due for replacement were to be replaced with cleaner-emission CNG vehicles, as opposed to purchasing diesel-powered vehicles. This switch would result in decreased fuel costs and would provide positive air quality improvements. CNG is one of the most viable alternative transportation fuels for refuse haulers because it is an affordable, commercially viable, domestic alternative to diesel fuel.

Due to the nature of refuse truck operations, solid waste hauling vehicles (garbage or refuse trucks) are some of the highest consumers of fuel per mile on the road. Refuse trucks are heavy duty vehicles performing rigorous tasks using power-take-off devices (A mechanism attached to a motor vehicle engine that supplies power to a non-vehicular device, such as a pump or pneumatic hammer) to run extensive hydraulic systems for the collection, compaction, and transportation of solid waste. The manner in which these vehicles are operated (collecting solid waste in urban residential and rural areas) requires these vehicles to start and stop repeatedly throughout the workday. Because of the constant starts and stops, combined with significant use of power-take-off systems, these vehicles have very high fuel consumption compared to other vehicles on the road. Fuel consumption is directly correlated to emissions.

Refuse trucks typically operate as a “captive fleet,” meaning they leave and return to a single terminal every day in during the collection routes. Captive fleets are ideal candidates for alternative fuel vehicle technologies, as they do not need to rely on an established fueling network with a density of fueling facilities greater than the vehicle range to complete the routes. In other words, captive fleets can efficiently use a local fueling station to meet refueling needs.

The large investment necessary to establish CNG fueling facilities makes the proliferation of such facilities unfeasible without an existing demand sufficient to cover costs. Conversely, the adoption of widespread use of cleaner alternative fuel vehicles is extremely difficult without stations to fuel them. This “chicken or the egg” problem has traditionally limited the growth of alternative fuel technologies.

Before this station opened, the closest CNG fueling station open to the public was in southern San Luis Obispo, about 33 miles south of PRW&R's operations yard and a round-trip drive of roughly 90 minutes. The topography of San Luis Obispo is unique, insofar as the Cuesta Grade (a short, steep segment of U.S. Highway 101 that has a 7 percent grade—steeper than the Grapevine section of Interstate 5) provides a physical separation between northern San Luis Obispo County and San Luis Obispo/southern San Luis Obispo County. Given the time, distance, and wear and tear on the company's solid waste trucks from going up and down Cuesta Grade, the use of CNG-powered vehicles without a local fuel source was wholly impractical. To the north, the nearest facility is in Salinas, 100 miles from Paso Robles, while the closest public CNG stations to the east are between 77 (in Lemoore) and 81 miles (in Wasco) distance.

The company was in a unique position to bring access to CNG to the northern part of the county. PRW&R's fleet of refuse trucks could provide the baseline fuel consumption necessary to support construction of a CNG fueling station in the area. Moreover, the company's headquarters and truck operations yard are ideally located next to an important trucking corridor, State Highway 46, and only two miles from the intersection of U.S. Highway 101 and State Highway 46.

In conjunction with the project, PRW&R and its family of companies initially purchased eight new CNG refuse haulers and one CNG pickup. Two more CNG refuse trucks were subsequently ordered in January 2016 and will be integrated into the fleet in the summer of 2016. PRW&R and its affiliated companies plan to transform their entire fleet of more than 30 solid waste hauling and related vehicles to cleaner CNG alternatives. While no formal timetable has been adopted, it is anticipated that this transformation could be accomplished within the next 10 years. Moreover, the new CNG facility enhances public refueling capabilities to individuals living in or traveling through the service area to use CNG fuel.

With the support of the Energy Commission, PRW&R has been able to address and overcome the following obstacles:

- Lack of onsite CNG fueling capabilities
- Scarcity of local, publicly accessible CNG fueling stations
- Financial burden of constructing new refueling site
- Excessive oxides of nitrogen (NO<sub>x</sub>), particulate matter (PM), and carbon dioxide (CO<sub>2</sub>) emissions generated by the use of diesel fuel, which are improved by using CNG
- Inability of private companies and public entities to replace existing diesel fleet of waste haulers and recycling trucks with CNG-fueled trucks

## **1.2 Objectives/Goals of the Agreement**

This project sought to provide a cleaner, safer, and healthier environment for Paso Robles residents. To accomplish this, PRW&R successfully installed a new, state-of-the-art CNG refueling station.

In addition to the financial benefits accruing to the company through the replacement of higher-cost diesel fuel with CNG, secondary benefits/goals that were achieved include:

- Encouraging the expansion of CNG use by providing publicly accessible CNG fueling to interested area fleets and residents.
- Reducing emissions of NO<sub>x</sub>, PM, and greenhouse gases within Paso Robles, San Luis Obispo County, and California.
- Complementing, and not interfering with, efforts to achieve and maintain federal and state ambient air quality standards, reducing toxic air contaminant emissions, and realizing air quality benefits in the California Phase 2 Reformulated Gasoline program.
- Increasing knowledge of CNG benefits among PRW&R staff, Paso Robles residents, and local public and private company fleets.

## **CHAPTER 2: Activities Performed**

### **2.1 Scope of Work**

The scope of work (SOW) under Energy Commission Contract ARV-12-029 included project administration (Task 1 under the project SOW) and the design and construction of the facility, including the installation of CNG equipment. After the facility became operational, the SOW entailed data collection and reporting on facility operations.

### **2.2 Project Administration**

The following tasks were identified and completed before, during and in conjunction with construction of the CNG fueling facility:

- All necessary permits and approvals were identified and obtained (SOW Task 1.7) from the City of Paso Robles, 1000 Spring Street, Paso Robles, California, which was the lead agency for the project. These permits included a conditional use permit; a grading permit; a building permit; approvals from the city community development department, the planning commission, and the city fire department; planning division staff approval of site and landscaping plans; and engineering and building division approvals.
- All regulatory inspections were undertaken by or under the authority of the City of Paso Robles. As an infill project in a subdivision surrounded by existing urban development located wholly within Paso Robles, the city found that the project was categorically exempt under the California Environmental Quality Act.

### **2.3 Project Design**

The design and engineering of the Project (SOW Technical Task 2) were undertaken and completed, starting with an undeveloped lot. Several preliminary site plans were produced by Alternative Fuels Today, Inc., with significant input from Keith and Mata Iaia of Revolution CNG; Vince Vanderlip of Vince Vanderlip, Inc. (VVI); and Ian Hoover of PRW&R. These plans were considered and refined until an efficient layout that met the requirements of the project was developed and approved by PRW&R. Once a final site plan was chosen, the details of that plan, including civil, structural, and mechanical engineering, were developed.

### **2.4 Project Construction**

VVI was the general contractor on this project. Subcontracts were entered into and subcontractor activities were coordinated throughout project construction. Subcontractors retained to work on this project included Nunno Corporation Ltd. (steel fabrication and structures); Cal Paso Electric (electrician); Viborg Sand and Gravel, Inc. (grading and related activities); Vickers Drywall, Inc. (drywall); Ted Muller Plastering Inc. (plastering); K Brush Concrete (concrete work); J. Smith Painting (painting); Lane Masonry (masonry); Robert Phillips Construction (framing); Armet's Landscaping (landscaping); and Henry Schmitz Plumbing (plumbing).

Construction of this new facility at 3529 Combine Street, Paso Robles (Task 3 of the SOW) involved a range of construction activities, from the installation of underground improvements, grading, paving, the installation of equipment and a building, to finish work and landscaping. These activities were managed and sequenced for efficient work flow and successful completion. PRW&R was responsible for, among other things, (a) overseeing and managing site construction, (b) installing underground and above-ground piping and conduits to transport gas and to provide necessary utilities and communication lines to the equipment locations, (c) coordinating with PG&E to install transformer and electrical meters, (d) coordinating with SoCal Gas for the installation of gas lines to supply natural gas to the station, and (e) coordinating with and managing subcontractors for concrete, paving, fencing, landscaping and structures (SOW Task 1.8). These tasks were accomplished by PRW&R representatives and through VVI, the state-licensed general contractor retained by PRW&R.

**Figure 1: Initial Grading at the Project Site, 3529 Combine Street, Paso Robles**



Source: PRW&R

Grading was undertaken and completed by Paul Viborg and Viborg Sand and Gravel, Inc., based in Paso Robles. The heritage oak tree shown at the center of Figure 1 was protected throughout construction, and PRW&R retained Steven Alvarez of Alvarez and Tamagni Arborists and Vegetation Management to provide guidance and recommendations to ensure the long-term health of this property feature. Alvarez and Tamagni Arborists and Vegetation Management is certified by the International Society of Arboriculture.

**Figure 2: Construction of the Bioswale at the Facility Site**



Source: PRW&R

Although not a feature of the original design, the bioswale (a biofilter, constructed in Figure 2) was later added and installed to decrease the amount of runoff from the project, filter stormwater, and decrease the velocity of stormwater transported to an adjacent detention basin.

**Figure 3: Subgrade Trenching**



Source: PRW&R

The subgrade trenching (as shown in Figure 3), which enabled the installation of gas and electric lines, was completed by Viborg Sand and Gravel.

**Figure 4: Site Preparation**



Source: PRW&R

Figure 4 captures a scene from the site preparation. Vince Vanderlip of Vince Vanderlip, Inc., a general contractor licensed by the State of California, provided construction management services on this project, from inception to completion.

**Figure 5: Installation of Underground Lines**



Source: PRW&R

Figure 5 depicts the vast array of underground lines that were installed at this project to enable the servicing of both fast-fill and slow-fill customers. Figure 6 similarly shows the project site before the pouring of concrete.

**Figure 6: Fueling Island Before Concrete Pour**



Source: PRW&R

**Figure 7: Pouring Concrete at Site**



Source: PRW&R

K Brush Concrete, a concrete contractor based in Paso Robles, installed concrete at the project, as depicted in Figure 7.

**Figure 8: Installation of Canopy at Fuel Island**



Source: PRW&R

Nunno Corporation, Ltd., of Paso Robles installed the canopy and provided other steelwork, as depicted in Figure 8.

## **2.5 Installation of Equipment**

PRW&R ordered, took delivery of, and installed all necessary equipment at the site (SOW Task 4). The installation of equipment, controls, and support infrastructure was completed in accordance with the system design specifications, through the efforts of VVI, Revolution CNG, and the subcontractors identified above. Revolution CNG's expertise was invaluable in selecting the equipment that was installed onsite.

**Figure 9: Delivery of CNG Storage Containers**



Source: PRW&R

Figures 9, 10, 11, and 12 depict the delivery and placing of key equipment. The following equipment was used in the CNG fueling station:

- JW Power CNG compressor (125 horsepower)
- Bauer CNG compressor (60 horsepower)
- Xebec CNG gas dryer
- Three 24-foot CNG storage cylinders
- TGT CNG fast-fill dispensers
- Time-fill dispensers
- FuelForce fuel management system card reader

The JW Power Compressor is more efficient in providing the public with fast-fuel CNG service, while the Bauer Compressor is designed to fuel the time-fill section of this facility. These two compressors have been designed to work either in tandem or separately, so that all fueling needs can be readily met.

**Figure 10: Delivery of the Bauer Compressor**



Source: PRW&R

Alternative Fuels Today, Inc. provided the design of this fueling, with significant input from Keith and Mata Iaia of Revolution CNG, Vince Vanderlip of Vince Vanderlip, Inc., and Ian Hoover of Paso Robles Waste & Recycle. Mr. Hoover also designed, fabricated, and installed the metal fencing that encloses the equipment area.

This facility was specifically designed to enable the capacity of this station to be increased in the future and to allow maintenance personnel safe and easy access to equipment.

Keith Iaia of Revolution CNG, widely recognized as a CNG expert in California, was primarily responsible for selecting the equipment installed at this facility and the installation and testing of that equipment.

**Figure 11: Bauer Compressor, With CNG Storage Tanks in the Left Background**



Source: PRW&R

Figure 12: Installation of Fast-Fuel Dispenser



Source: PRW&R

## 2.6 Postconstruction Activities

After installing the CNG fueling equipment, Revolution CNG performed inspections regarding the safety systems and the proper installation of equipment. The CNG fueling system was then subjected to final testing and commissioning, which was also performed by Revolution CNG.

Activities included in this task included (a) performing the necessary quality control and safety checks of the system prior to startup, (b) addressing findings revealed through the prestart check list, (c) undertaking fine-tuning and corrective measures, (d) performing startup and commissioning activities (SOW Task 5), and (e) collecting and analyzing operational data (SOW Task 6). Figure 13 shows the fueling station open for business.

**Figure 13: Open for Business**



Source: PRW&R

Data on operation of the fueling station have been and continue to be collected. The data are used to analyze the project for economic and environmental impacts.

# CHAPTER 3: Results

## 3.1 Results

In July 2014, the installation of the CNG fueling facility was completed, and operations were commenced using the time-fill dispensers to service the PRW&R fleet. In August 2014, the fast-fill dispenser was opened to the public, and since that time, this facility has been open 24 hours per day, seven days per week.

**Figure 14: Public Fast Fueling**



Source: PRW&R

The need for this facility has been demonstrated by the increased use of the fast-fill dispensers since the inception of operations at 3G CNG.

Figure 15: Slow-Fill Fleet



Source: PRW&R

Eight solid waste hauling vehicles are fueled at the time-fill dispensers; two more trucks are scheduled to come on-line during the summer of 2016, and usage will increase as more CNG vehicles are purchased by PRW&R and its affiliated companies.

Fuel usage for that six-month period from July 17, 2014 – January 15, 2015 was 43,021 CCF of CNG (33,965 GGEs, or 29,794 DGEs). Since that time, fuel sales (especially to the public) have increased significantly, as indicated in Appendix 1: 3G CNG Fuel Dispensed. Conservatively projected on an annual basis, it is anticipated that the fuel dispensed at this facility will be nearly 90,000 CCF of CNG (71,055 GGEs, or 62,329 DGEs).

Carbon dioxide emissions have been significantly reduced because of PRW&R's switch from diesel to CNG and the sale of CNG at the 3G CNG Station. According to the U.S. Energy Information Administration, about 22.44 pounds of CO<sub>2</sub> are produced by burning a gallon of diesel fuel, while only 11.99 pounds of CO<sub>2</sub> are produced per CCF of fuel usage. Based upon the fuel output at the project, CO<sub>2</sub> emissions are decreased at the rate of 70,669 pounds (or 33.33 tons) of CO<sub>2</sub> per month, or roughly 363 metric tons of CO<sub>2</sub> per year.

### **3.2 Problems**

No significant problems were encountered during project construction.

Since the permitting of a CNG fuel facility had never been undertaken in Paso Robles, minor delays were experienced in proceeding through the permitting process, which were successfully resolved through education concerning the characteristics of this fuel and technology.

### **3.3 Benefits**

This project has clearly demonstrated a measurable and significant positive impact by enabling a smooth and seamless transition from the use of a petroleum fuel to a low-emission alternative fuel.

With the completion of this project, greenhouse gas emissions and petroleum use have fallen; the ability of northern San Luis Obispo County residents, businesses, and long-haul trucking companies to use CNG as a viable fuel has been significantly increased; dependency on foreign fuel sources has been decreased; and air quality has improved both locally and in California.

On March 12, 2015, the California Assembly recognized the efforts of the Gomer Family and PRW&R in establishing this facility and contributing to the environmental well-being of the community. See Appendix 2: Certificate of Recognition.

**Figure 16: Slow-Fill Fueling During Off-Peak Hours**



Source: PRW&R

By using slow-fill fueling dispensers during off-peak periods (as shown in Figure 16), PRW&R and its affiliated companies are able to realize significant cost and energy savings and more efficiently use this fueling station.

## **CHAPTER 4: Conclusions**

CNG is a safe, clean, efficient, and abundant source of fuel in the United States, and the use of CNG decreases dependency on foreign energy sources.

The primary goal of the project was to install a new, state-of-the-art CNG refueling station and thereby provide Paso Robles residents with a cleaner, safer, and healthier environment. This goal was accomplished with the successful completion of the 3G CNG Station.

The successful installation of this CNG fueling station provided the necessary infrastructure to enable PRW&R to efficiently fuel its new fleet of natural gas vehicles, and to immediately benefit from a decrease in fuel prices and lower emissions. This project also provided benefits to other commercial CNG truck fleets in the northern San Luis Obispo County area and provided a much-needed supply link in Central California for long-distance CNG along the Highway 101 and 46 corridors. Lastly, local Paso Robles and San Luis Obispo County residents now have the ability to fast-fuel their CNG vehicles.

### **4.1 Commercial and Environmental Impact**

The completion of this project has provided the infrastructure necessary to make CNG a clean and commercially viable fuel solution for business, government, and private vehicle owners in Central California.

PRW&R and its affiliated companies will continue to pursue the purchase of additional CNG vehicles and place these vehicles into service to reduce emissions and dependency on foreign fuels and to lower fuel costs, and to enable California to achieve required greenhouse gas reduction goals.

# Acronyms

Alternative and Renewable Fuels and Vehicle Technology Program (ARFVT Program)

California Energy Commission (Energy Commission)

Carbon dioxide (CO<sub>2</sub>)

Compressed natural gas (CNG)

Centum cubic feet (CCF)

Diesel gas equivalent (DGE)

Gasoline gallon equivalent (GGE)

Notice of proposed awards (NOPA)

Oxides of nitrogen (NO<sub>x</sub>)

Particulate matter (PM)

Paso Robles Waste Disposal, Inc., doing business as Paso Robles Waste & Recycle (PRW&R)

Scope of work of California Energy Commission contract (SOW)

Vince Vanderlip, Inc. (VVI)

# Appendices

## Appendix A: Compressed Natural Gas – Total Dispensed to Date

Figure A-1: Total CNG Dispensed to Date

3G CNG Fuel Dispensed							
Period Start	Period end	PRW&R Fleet		Public		Total	
		GGEs	CCFs	GGEs	CCFs	GGEs	CCFs
July 17, 2014		2,299	2,912	-	-	2,299	2,912
August 1, 2014	August 15, 2014	2,082	2,637	-	-	2,082	2,637
August 16, 2014	August 31, 2014	1,845	2,337	40	51	1,885	2,388
September 1, 2014	September 15, 2014	2,166	2,744	100	126	2,266	2,870
September 16, 2014	September 30, 2014	2,054	2,602	319	404	2,373	3,006
October 1, 2014	October 15, 2014	2,056	2,604	949	1,203	3,005	3,807
October 16, 2014	October 31, 2014	2,279	2,887	1,794	2,273	4,074	5,160
November 1, 2014	November 15, 2014	1,994	2,525	886	1,123	2,880	3,648
November 16, 2014	November 30, 2014	1,653	2,093	1,108	1,404	2,761	3,497
December 1, 2014	December 15, 2014	1,977	2,504	1,516	1,920	3,493	4,424
December 16, 2014	December 31, 2014	2,150	2,724	1,463	1,853	3,613	4,577
January 1, 2015	January 15, 2015	2,057	2,605	1,176	1,490	3,233	4,095
January 16, 2015	January 31, 2015	2,120	2,686	1,352	1,713	3,473	4,399
February 1, 2015	February 15, 2015	2,109	2,671	1,148	1,455	3,257	4,126
February 16, 2015	February 28, 2015	2,049	2,596	1,316	1,667	3,365	4,263
March 1, 2015	March 15, 2015	1,593	2,017	1,584	2,007	3,177	4,024
March 16, 2015	March 31, 2015	2,218	2,809	1,795	2,274	4,013	5,083
April 1, 2015	April 15, 2015	2,056	2,604	1,400	1,774	3,456	4,378
April 16, 2015	April 30, 2015	2,055	2,603	1,536	1,946	3,591	4,549
May 1, 2015	May 15, 2015	2,256	2,858	2,058	2,607	4,314	5,465
May 16, 2015	May 31, 2015	1,955	2,476	2,055	2,603	4,010	5,079
		<b>43,022</b>	<b>54,496</b>	<b>23,598</b>	<b>29,891</b>	<b>66,620</b>	<b>84,387</b>

CCF= 100 cubic feet  
GGE= gasoline gallon equivalent

Source: PRW&R

# Appendix B: California Assembly – Certification of Recognition

Figure B-1: Certification of Recognition



Source: PRW&R