



**CALIFORNIA
ENERGY COMMISSION**



California Energy Commission
Clean Transportation Program

FINAL PROJECT REPORT

Lompoc Unified School District New Compressed Natural Gas Fueling Station

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Gavin Newsom, Governor

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DISCLAIMER

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PREFACE

Assembly Bill 118 (Núñez, Chapter 750, Statutes of 2007) created the Clean Transportation Program, formerly known as the Alternative and Renewable Fuel and Vehicle Technology Program. The statute authorizes the California Energy Commission (CEC) to develop and deploy alternative and renewable fuels and advanced transportation technologies to help attain the state's climate change policies. Assembly Bill 8 (Perea, Chapter 401, Statutes of 2013) reauthorizes the Clean Transportation Program through January 1, 2024, and specifies that the CEC allocate up to \$20 million per year (or up to 20 percent of each fiscal year's funds) in funding for hydrogen station development until at least 100 stations are operational.

The Clean Transportation Program has an annual budget of about \$100 million and provides financial support for projects that:

- Reduce California's use and dependence on petroleum transportation fuels and increase the use of alternative and renewable fuels and advanced vehicle technologies.
- Produce sustainable alternative and renewable low-carbon fuels in California.
- Expand alternative fueling infrastructure and fueling stations.
- Improve the efficiency, performance and market viability of alternative light-, medium-, and heavy-duty vehicle technologies.
- Retrofit medium- and heavy-duty on-road and nonroad vehicle fleets to alternative technologies or fuel use.
- Expand the alternative fueling infrastructure available to existing fleets, public transit, and transportation corridors.
- Establish workforce-training programs and conduct public outreach on the benefits of alternative transportation fuels and vehicle technologies.

To be eligible for funding under the Clean Transportation Program, a project must be consistent with the CEC's annual Clean Transportation Program Investment Plan Update. The CEC issued PON-11-602 to provide funding for the Lompoc Unified School District to build a new, state-of-the-art compressed natural gas refueling station to service its fleet of compressed natural gas buses as well as provide fast-fill fueling capabilities to the public. In response to PON-11-602, the recipient submitted an application which was proposed for funding in the CEC's notice of proposed awards April 24, 2012 and the agreement was executed as ARV-12-025 on July 27, 2012.

ABSTRACT

The Lompoc Unified School District has worked diligently towards a cleaner, greener environment for the benefit of the community. This document will outline how Lompoc Unified School District started its green movement and present an example of how other jurisdictions can begin their clean and green journey.

The Lompoc Unified School District submitted a grant application to the CEC in April of 2012. The CEC grant award was \$300,000 which partially offset the cost of installing a compressed natural gas compressor to fuel the district's 10 school buses as well as the public fueling station.

The Lompoc Unified School District's public station is a 24 hour, 7 days per week, publicly accessible compressed natural gas fueling station that provides compressed natural gas for vehicles, fueling for businesses and citizens, and promotes the purchase and use of clean burning natural gas vehicles. It continues the City's efforts to improve air quality for our citizens. The Lompoc Unified School District's public station also provides a compressed natural gas refueling location for disaster preparedness purposes as many of the heavy-duty emergency response vehicles use compressed natural gas fuel.

Keywords: Compressed natural gas, fueling station, Lompoc Unified School District, plug-in electric vehicle, school buses

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EXECUTIVE SUMMARY

The Lompoc Unified School District's fueling station location will provide compressed natural gas for vehicles, fueling for businesses and citizens, and promote the purchase and use of clean burning natural gas vehicles. The public station will consist of a dual compressor for fast filling vehicles at dual hose fast fill dispensers, and 17 dual hose time-fill posts to allow refueling of 15 district vehicles overnight. The compressed natural gas fueling station will continue the District's efforts to improve air quality for our community by providing a high volume 24/7 publicly accessible facility.

The Lompoc Unified School District submitted a grant application to the California Energy Commission in April of 2012. The CEC grant award was \$300,000 which partially offset the cost of installing a dual compressor and a compressed natural gas fueling station near the school district's central kitchen at 596 East Central Avenue, Lompoc CA 93436.

Lompoc Unified School District posted a Request for Proposals on July 8, 2014, for design build services. The request closed on August 11, 2014, with one proposal received. The specialized nature of the compressed natural gas station design build installation likely limited the number of qualified proposers due to the equipment specified in the request.

The Lompoc station is a 24 hour, 7 days per week, publicly accessible compressed natural gas fueling station that provides compressed natural gas fueling for businesses and citizens and promotes the purchase and use of clean burning natural gas vehicles. The station complements the District's efforts to improve air quality for the community.

CHAPTER 1:

The First Station

In 1992 Southern California Gas and Lompoc Unified School District joined in bringing compressed natural gas (CNG) to Lompoc. Southern California Gas put an Aerial compressor in at the district's transportation yard and the district obtained 10 CNG buses through grants. In 1996 the district then purchased 5 more CNG buses and sold five 1992 CNG buses due to engine problems. The district received grants to install John Deere engines in the remaining five 1992 CNG buses. After many years of fueling and no service to the compressor it seized up in 2010. In 2011 Lompoc Unified School District rented a compressor on a skid from Tulsa Gas to fuel the school buses while looking into funding opportunities to fund a new CNG station (Figure 1).

Figure 1: CNG Compressor Installed at Lompoc Station



Source: Lompoc Unified School District, 2011.

In 2012, Lompoc Unified School District applied for a grant with the CEC to do CNG infrastructure upgrading as well as install a CNG public fill station (Figure 2). The CEC grant award was \$300,000 which partially offset the cost of installing a dual compressor and a compressed natural gas fueling station in the area. At that time, many Lompoc residents and business expressed an interest in CNG fuel. Some businesses outside of Lompoc were considering relocating to Lompoc if a CNG public fill station were installed. That's A Wrap, a packing and shipping company with all CNG vehicles did relocate to Lompoc when the District's CNG public fill station opened on August 12, 2015.

Figure 2: Lompoc CNG Station



Source: Lompoc Unified School District.

CHAPTER 2:

The New Lompoc Station is Complete

Installation of the Lompoc Unified School District CNG Station was completed at 596 East Central Ave in May of 2015 and the Grand Opening will be held on November 23, 2015 (Figure 3). This new CNG station is located just in front of the District's Central Kitchen.

Figure 3: Lompoc Unified School District Station Grand Opening



Source: Lompoc Unified School District.

This new fueling station location provides CNG for city vehicles, fueling for businesses and citizens, and promotes the purchase and use of clean burning natural gas vehicles. The station consists of a dual compressor skid for fast filling vehicles at a dual hose fast fill dispenser, 17 time-fill posts that allow overnight refueling of the district's 15 CNG vehicles (Figures 4, 5 and 6 show the new fueling station in use). The new station also continues the District's efforts to improve air quality for the community by providing a high volume 24/7 publicly accessible facility. Table 1 shows the usage, in therms, and sales of the new CNG station from May to October 2015.

Figure 4: CNG Dispenser and Nozzle



Source: Lompoc Unified School District.

Figure 5: The First Lompoc Station Customer



Source: Lompoc Unified School District.

Figure 6: The First Sale for the Public Station



Source: Lompoc Unified School District.

Table 1: Therms Used and Sales at New Public Compressor Station

Month	Therms	Sales
May	5230	0
June	2288	0
July	465	0
August	2700	65.49
September	5043	143.63
October	5550	106.46

Source: Lompoc Unified School District.

GLOSSARY

CALIFORNIA ENERGY COMMISSION (CEC)—The state agency established by the Warren-Alquist State Energy Resources Conservation and Development Act in 1974 (Public Resources Code, Sections 25000 et seq.) responsible for energy policy. The Energy Commission's five major areas of responsibilities are:

1. Forecasting future statewide energy needs
2. Licensing power plants sufficient to meet those needs
3. Promoting energy conservation and efficiency measures
4. Developing renewable and alternative energy resources, including providing assistance to develop clean transportation fuels
5. Planning for and directing state response to energy emergencies.

COMPRESSED NATURAL GAS (CNG)—Natural gas that has been compressed under high pressure, typically between 2,000 and 3,600 pounds per square inch, held in a container. The gas expands when released for use as a fuel.