



**PROJECT
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Kern County Superintendent Of Schools Celebrates 20 Years Of Clean Fueling

*Slow fill and fast fill stations along with
advanced technology vehicles yield cost savings
and revenue generation with CNG stations
serving public and private fleets*



One look at the Kern County Superintendent of Schools’ Transportation Yard in the middle of a school day and you might ask, “Why are buses sitting idle?” In reality they are quietly being refilled with compressed natural gas, CNG, readying them for the afternoon run home.

You don’t have to be around Scott Fieber, Manager of Emergency Preparedness and Utility Conservation for the Kern County Superintendent of Schools, before you know he is hooked on CNG. Why shouldn’t he be? CNG is not only a clean energy form; it saves money and makes it too.



*70 School buses charge at KCSOS-
Transportation Yard daily*

In 1999 when CNG buses were in their infancy grant funds were made available to buy CNG buses. Procuring two CNG buses Kern County Superintendent of Schools, KCSOS, saw the potential of CNG technology to really work for them, their students and the community. They saw the potential of CNG: as a more cost-effective fuel emitting far less pollutants and gases in the exhaust than traditional diesel school buses which belch contaminants into the air each day. In the beginning KCSOS would fill their buses across town at the PG&E CNG filling station. By 2005 it was time for KCSOS to build a fueling station as their bus fleet had grown to 25. The big advantage ... KCSOS Transportation Center was located within feet of the PG&E CNG distribution pipeline virtually eliminating a large connection cost for the filling station. The station could serve not only the KCSOS fleet but the needs of private industry, such as AT&T, Haliburton and California Water. CNG had become a runaway hit. By 2011 another fueling station had been and both stations were showing wear and tear as demand for CNG increased.



*KCSOS-Transportation Yard CNG
East-Filing Station*

With so few CNG fueling stations what would happen when a station was down due to maintenance? Project Clean Air coordinated a plan with the four CNG station operators, KCSOS, PG&E, City of Bakersfield, and Golden Empire Transit to use each other’s stations as backups and when it made sense along a route to fill at one of the other CNG stations backups when a station has to be closed for routine major maintenance or break downs. Access for KCSOS customers was made easier by locating a second KCSOS station with additional pump islands outside the transportation yard providing easy access for all CNG users.

Scott and his staff saw the need to develop a strategy to cover current and future needs for both KCSOS and private CNG distribution. They enlisted the help of the Natural Gas Vehicle Institute that did an analysis of just what was needed immediately and in the future. Using the information KCSOS applied for three grants. What a surprise when they received all three which allowed them to replace, enlarge and upgrade the old stations while improving CNG filling techniques in both locations.

One goal was enabling the public filling station to utilize the fast-fill method. Translated, a CNG car pulls up and connects to the CNG pump and is filled just as easily as a conventional gas car, some times faster. For example, a CNG tractor trailer rig can be filled faster than a diesel rig. The public filling station uses credit or debit cards. The fast fill station inside the transportation yard fuels KCSOS vehicles.

So what are all those buses doing sitting idle in the middle of the school day? They are being refueled with CNG right in their parking stall. Yes, each stall has a CNG hook-up which the driver attaches to the bus. The driver is then free to do other tasks or even take lunch while a computer senses and fills each bus with CNG. KCSOS serves special-needs children in a county which is larger than some states. The fleet travels 12,575 miles per day. Most buses must be filled twice a day. Before the new system, a driver would have to wait an average of one hour per day for each bus to refuel. There are 70 buses equaling 70 man-hours filling buses per day, times 180 days in the school year, equals 12,600 hours per school year, times \$20 per bus driver equals a savings of \$252,000 per year, plus personnel benefit costs!



KCSOS-Transportation Yard slow fill posts

When it comes to school buses, CNG costs \$1.00 less per gallon than diesel. However, the difference in savings is reduced as diesel fuel gets about 2 miles more per gallon. Regarding maintenance, it is estimated that although CNG runs hotter than diesel the contaminants produced by diesel engines potentially create more servicing needs.

There are profit centers; the public filling station brings in \$400,000 profit per year which is put back into serving special-needs students. The amount of Average Daily Attendance funding KCSOS receives from the State of California does not cover the transportation expense of bringing special-needs children from outlying areas to a classroom which will fit their unique needs. Scott shared, "We generate clean air credits which KCSOS sells, bringing in \$139,412 per year, this helps purchase a portion of our CNG."

What's next? KCSOS is just beginning a pilot program to provide mobile CNG distribution to rural school districts which do not have CNG distribution available. Transportable tanks will be delivered to rural school sites. Depending upon the route of each bus, a portable CNG container will keep a bus running for almost a week. For KCSOS CNG is a money saver, a funding generator and a friend to the environment and will stay that way for a long time.



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