

Summary of Case Study Proposal Compressed Natural Gas (CNG) Filling Station City of Clearwater/Clearwater Gas System

The City of Clearwater earned statewide certification as a Green City in December 2009. The Florida Green Building Coalition administers the Green Local Government program and recognizes cities and counties around the state for outstanding environmental stewardship. Municipalities awarded with this distinction are recognized as more environmentally efficient than other municipalities. The designation focuses on improving environmental performance in areas such as energy, water, air, land, and waste. The Green Local Government standard includes meeting a comprehensive list of criteria encompassing environmental programs, initiatives, and events.

The City of Clearwater has recently embarked upon the next level in our effort to increase our sustainability and become an even “greener” City. The “Clearwater Greenprint” initiative promotes a citywide mobility and sustainability vision and framework, which supports methods to increase the energy-efficiency of our neighborhoods, business districts and transportation systems, while enhancing economic competitiveness, livability and overall quality of life in Clearwater.

A key resource that the City of Clearwater has is that it owns and operates the Clearwater Gas System, a full-service natural and propane gas utility that serves 20 surrounding cities in 2 counties. Natural and propane gas are inherently a “green resource” in their end-use application. They are:

- far more energy efficient than electricity when you consider the full-fuel energy cycle --- typically 2 – 3 times more efficient, and
- far more environmentally friendly --- typically emitting 1/3 to 1/2 the carbon emissions as compared to electricity energy production or gasoline for vehicles.

Therefore, in January 2010, the City and Clearwater Gas System embarked on a plan to build a Compressed Natural Gas (CNG) filling station and begin the conversion of solid waste trucks and utility vehicles to further support the City’s Greenprint initiative and further promote green energy use while enhancing Clearwater’s sustainability. The City’s CNG facility is the first of its kind within the Pinellas County area and one of only a hand-full in the State. It provides local public and private fleets the ability to utilize CNG vehicles versus gasoline fueled vehicles. Best of all, the residential community will have the opportunity to utilize natural gas outside the traditional end-uses, i.e. water and pool heating, space heating, cooking, etc.

Natural gas is widely known as an environmentally-friendly fuel with minimal carbon emissions. Additionally, natural gas is cheaper than most fossil fuels and in wide abundance in this country. As a primary initiative to enhance Clearwater’s sustainability, Clearwater Gas System (owned by the City of Clearwater) and the City’s Solid Waste departments have partnered to build this inovative local Compressed Natural Gas (CNG) vehicle fueling station/facility.

The station will initially be constructed for the purpose of converting the City's garbage trucks to CNG. Currently the City of Clearwater operates approximately 800 vehicles, utilized in various departments. The Solid Waste department operates over 70 diesel-powered refuse trucks that collect and transport garbage each day throughout the City of Clearwater. By 2011, the cost of diesel fuel is projected to rise with little hope of price stability thereby increasing the department's operating/maintenance costs. On average, refuse trucks consume approximately 40 gallons of fuel per day, this equates to an annual cost of \$31,200 per truck. In order to reduce our operating expenses and dependency on oil, the conversion to CNG would cut our fuel costs by an average of \$7,500 per truck each year. In addition, A CNG vehicle produces extremely low emissions of pollutants, including CO₂ emissions. Based upon our research, we estimate this project will reduce our carbon footprint by an annual average of 2,200 metric tons of CO₂.

In this difficult time of government revenue reduction (property taxes), the City is reviewing every possible opportunity to reduce departmental expenses. The ultimate goal of the City is conversion of all work vehicles to operate as CNG vehicles. Initially, 2-3 refuse trucks will be converted to CNG, with an overall goal to purchase dedicated CNG replacement trucks. In addition, light-duty trucks would be converted and/or purchased based upon economic analysis and potential CO₂ reductions. Listed below are the results and expectations to support the installation of a CNG facility.

Results of the CNG station

- **Reduce Operating costs** – the City estimates an overall savings of \$9,300 per year/per refuse truck and \$2,100 annually for each medium duty truck. Savings include both fuel and maintenance.
- **Increase “Green” initiative** – with the construction of a CNG station the City can work towards obtaining a “gold” certification/classification.
- **Reduce dependency on foreign oil** – Annual petroleum offset of 568,000 gallons per year over the first 10 years.
- **Greenhouse gas reduction** – over 2,200 metric tons (MT) of CO₂ will be removed from the atmosphere.
- **Improved safety** – Natural gas is lighter than air; therefore, the gas will dissipate into the air which is perfect for the environment - no environmental concerns. On the NGV, gas is stored in a tank mounted under the vehicle similar to the normal gasoline tank. The operator attaches the hose to the vehicle and gas is transferred to the vehicle in similar fashion to conventional fuels. In the event of a gasoline fuel spill, a pool of gas is lying on the ground (and highly flammable) which and also has the potential to contaminate ground water versus CNG which dissipates into the air.
- **Create Jobs** – Will support three direct and 15 indirect jobs. In addition, will stimulate the purchase of CNG vehicles by local fleets and private citizens.

The CNG Station is expected to be operational by 1Q 2011.

Questions:

- 1) How did the program improve the organization? Creates diversification of knowledge regarding CNG to operate local fleet facilities. Program also decreases operational costs in the City of Clearwater's general fund plus adds revenues to the Clearwater Gas System, which spins back dividend revenues to the General Fund.
- 2) Were new technologies used? Yes, new natural gas technologies were utilized outside our normal equipment installations.
- 3) Were private consultants used? Yes, we hired Cardno TBE engineering firm to design the station. We also are bid out the equipment design.
- 4) What customer/community needs and expectations were identified and fulfilled? Installation of a CNG facility supports the City of Clearwater's green initiatives to implement strategies for a sustainable future.
- 5) Has service delivery been enhanced? Yes, the public and other governments will be able to use this facility.
- 6) Did the initiative improve access to your government? Yes
- 7) Has the health of the community improved as a result? Yes, our carbon footprint will be greatly reduced.
- 8) What practical applications could you share if selected? The tasks involved with working with in a municipal government to obtain grants along with the actual construction of the facility.
- 9) How applicable is the project/program/service to other local governments? Program can be a stepping stone to incentivize other local governments to convert or purchase NGV fleet vehicles.
- 10) What results/outcomes will you be able to share? The successes and obstacles of our program.

The final Case Study presentation will include a power point and tours will be available to the CNG filling station site.