

DATE ISSUED: November 22, 2000

REPORT NO. 00-242

ATTENTION: Honorable Mayor and City Council
Docket of November 27, 2000

SUBJECT: South Chollas Landfill Clean Fuel Project

SUMMARY

Issue - Should the City enter into a public-private partnership with Golden Spread Energy South Chollas, LLC, Tech-San South Chollas Energy, LLC, and Applied LNG Technologies USA, LLC, to design, build and operate an innovative, high technology project to harvest the Landfill Gas from the closed South Chollas Landfill and process it into a clean burning Liquefied Natural Gas fuel for use by Environmental Services Department collection vehicles.

Manager's Recommendation - Authorize the City Manager to enter into public-private partnership agreements with (a) Golden Spread Energy South Chollas, LLC ("Golden Spread") for the rights to the landfill gas (LFG) at South Chollas Landfill, to design, build and finance improvements to the existing South Chollas LFG collection system, and to operate and maintain the South Chollas LFG collection system, (b) with Tech-San South Chollas Energy, LLC ("Tech-San") to lease the South Chollas Liquefied Natural Gas (LNG) Conversion System Site from the City in order to design, build and finance a LNG production facility which will utilize LFG to produce LNG for resale to the City, and (c) Applied LNG Technologies USA, LLC (ALT) to design, build, and finance a LNG fueling station, and supply LNG to the Environmental Services Department's (ESD) collection fleet at a fixed price for five years.

Other Recommendations - None

Fiscal Impact - No City monies will be used to finance and develop this LFG conversion project. Golden Spread will make \$250,000 worth of improvements to the South Chollas LFG collection system and take over maintenance and operation of the system. This will provide ESD with savings of approximately \$200,000 per year in avoided maintenance and operation costs. ALT will provide a LFG fueling station to ESD for an annual lease cost of approximately \$135,000. This cost will be offset by the savings from using the alternative (LNG) fuel, estimated to be approximately \$220,000 in the first year. If the fuel price differential remains the same, these savings will increase as additional alternative fuel vehicles are added to the department's collection fleet.

BACKGROUND

The South Chollas Landfill was operated as a City landfill from 1951 through 1981 receiving a total of approximately 4,500,000 tons of municipal solid wastes. Landfill gas is produced by the anaerobic decomposition of these wastes, and state and federal laws

mandate that the City control the gas to prevent surface emissions to the air or lateral migration to adjacent properties.

In 1992, ESD funded and installed a LFG collection and flaring system to control gas emissions from the entire South Chollas Landfill. The collected gas is incinerated and destroyed within a flare stack under a permit from the San Diego Air Pollution Control District (APCD). In May 1995, ESD issued an RFP to solicit interest from private firms in utilizing the energy content of the landfill gas for beneficial use. Cambrian Energy Development, in partnership with Minnesota Methane LLC, responded with a proposal and ESD entered into negotiations with them based on that response. Minnesota Methane LLC is currently a partner with ESD and the Metropolitan Wastewater Department in the award winning Miramar Cogeneration Project that provides the entire electrical energy requirements of the Metro Bio-Solid Facilities, the North City Water Reclamation Facility, and the Miramar Landfill operations and maintenance facilities.

During the course of those negotiations, deregulation and other changes in the power industry negatively impacted the economic viability of the proposed South Chollas Landfill cogeneration project. Negotiations were suspended pending resolution of uncertainties within the power industry.

In 1997, the ESD entered into a five-year agreement with Clean Air Partners of San Diego to convert at least 54 heavy duty refuse collection trucks to a dual fuel LNG/Diesel system. The conversion of these vehicles is being partially funded by a \$1.7 million grant from the APCD and a \$200,000 grant from the California Energy Commission. Clean Air Partner's proprietary system is licensed to Caterpillar, and when used on its C-10 engine, each truck converted from diesel to LNG fuel reduces the emission of pollutants equivalent to removing 100 medium size passenger sedans from the road. Ultimately it is proposed to convert all of the City's 180 heavy duty collection vehicles to low emission "clean air" vehicles.

ESD approached Minnesota Methane LLC with the concept of producing LNG from LFG to augment the LNG fuel supply for its collection fleet. Minnesota Methane LLC initially indicated interest in the project, but ultimately withdrew from negotiations due to concerns about the technical difficulties associated with small scale LNG production from LFG.

After Minnesota Methane LLC withdrew from the negotiations, the other partner in the South Chollas Cogeneration Project, Cambrian Energy, indicated its interest in pursuing LNG production at South Chollas. They have re-partnered with ALT for a project to produce approximately 3,000 gallons per day of LNG, utilizing proprietary technology, to fuel the City's collection fleet. Additionally ALT will develop a LNG fueling facility at ESD's new Miramar Place Operations Facility and guarantee an uninterrupted supply of LNG for a five-year term at a fixed price. This station will be the first dedicated LNG station in San Diego County and will be partially funded by the grant from the APCD.

The ALT fuel supply agreement will provide LNG from the LFG liquefier, supplemented by other ALT sources as required, to meet the alternative fuel needs of the Environmental Services fleet for \$0.52 per LNG gallon for five years. Under the agreement, ALT will lease a LNG fueling station, installed at the Environmental Services Operations Station on Miramar Place, to the department at a cost of \$11, 234 per month for the five year term of the fuel supply agreement. The annual lease cost of the station, approximately \$135,000, is more than offset by the reduced cost of the LNG fuel. Because diesel fuel delivers more energy per gallon than LNG, a conversion factor of 1.60 must be applied to the LNG cost per gallon. Therefore, the diesel equivalent price of LNG at \$0.52 per

gallon is \$1.20 per gallon with taxes and fees included. Compared with the current cost of diesel at \$1.47 per gallon and the annual miles to be traveled by alternative fuel vehicles, fuel cost savings of about \$220,000 are projected during the first year. As additional alternative fuel vehicles are added to the collection fleet, the increased use of LNG in place of diesel fuel will result in additional fuel cost savings and further reductions in the emission of pollutants.

The LNG fueling station design anticipates the addition of a second 16,000-gallon storage tank and dispensers when the alternative fuel fleet's LNG consumption reaches the capacity of the first phase LNG station. The City's obligation under the Clean Air Grant from the APCD is to operate 54 collection vehicles fueled by LNG for five years.

CONTRACTUAL ARRANGEMENTS

This project requires a three party arrangement similar to the Miramar Cogeneration Project. Two agreements are required between the City and two distinctly separate companies in order to comply with the requirements of the IRS Section 29 tax code, which requires that the LFG sale must occur between two unrelated parties. This tax code provides 984 of Federal tax credits to the private company for every 1 million BTU's of landfill gas sold. Attachment A illustrates these contractual arrangements and the obligations of the companies.

Rights to the South Chollas LFG will be granted to Golden Spread. In return, Golden Spread will design, build and finance improvements to the South Chollas Landfill gas collection system and take over the operation and maintenance of the system. Tech-San will install a proprietary conversion system to manufacture LNG from the LFG. The term of the lease of the generation site and rights to the landfill gas is proposed to be 35 years. ALT will purchase the LNG made from LFG from Tech-San for resale to the City, and provide a fueling facility and a five year uninterrupted supply of LNG at a fixed price for ESD's collection fleet.

COMMUNITY BENEFITS

Currently landfill gas collected at the South Chollas Landfill is flared, creating a point source of emissions and making no other use of the energy content of the gas. Converting landfill gas to a clean burning vehicle fuel (LNG) will reduce or eliminate flared point source emissions and reduce diesel fuel use by the City's collection fleet. Thus, there will be reductions in air emissions from both the landfill and the City's collection fleet to the benefit of the community and the region at large.

TAX CREDITS

IRS Section 29 provides private developers with a 98¢ per one million BTU of landfill gas utilized. This tax credit makes this conversion system economically feasible for the private developers and provides the City with the following benefits:

- ! Beneficial use of the LFG by producing LNG to offset diesel emissions
- ! Significant capital improvements to the South Chollas LFG collection system
- ! Maintenance and operation of the LFG collection system

ALTERNATIVES

Reject the Public-Private Partnership Agreements with Golden Spread Energy, Tech-San and Applied LNG Technologies, Inc. This is not recommended because the City would lose a source of LNG, funded and developed at no risk to the City, and would retain responsibility for operating and maintaining the existing South Chollas Landfill gas collection and flaring system.

Respectfully submitted,

Robert J. Ferrier
Deputy Environmental Services Director

Approved: Frank Belock, Jr.
Deputy City Manager

HAYS/RJF

- Attachments:
1. Illustration of Agreements
 2. Golden Spread Energy Gas Rights Agreement
 3. ALT Energy Sales Agreement
 4. Tech San Conversion Site Sub-Lease Agreement

Note: Attachments 2, 3, and 4 are not available in electronic format. Copies of the attachments are available for review in the Office of the City Clerk.

