



CITY OF HAYWARD
AGENDA REPORT

AGENDA DATE 12/19/06
AGENDA ITEM 2
WORK SESSION ITEM _____

TO: Mayor and City Council
FROM: Director of Public Works
SUBJECT: Co-Generation Alternative Study and Implementation – Authorization for Professional Services

RECOMMENDATION:

It is recommended that the City Council approve the attached resolution authorizing the City Manager to execute an agreement for professional services with HDR Consulting Engineers.

DISCUSSION:

Digesters, a component of the wastewater treatment system, are used to degrade biological solids captured and generated in the wastewater treatment process. A product of digestion is digester gas, a gas very similar to methane or natural gas. In 1986, the City constructed a cogeneration system that captures digester gas and uses this source of renewable energy to generate electric power and provide heat energy to plant digesters for optimal biological activity. Digester gas fuel is used to run internal combustion engines that turn electrical generators, and the waste heat captured from the engines is used to heat the digesters. Electric energy from cogeneration provides about 35% of all electric energy demand at the Water Pollution Control Facility (WPCF), offsetting an equal amount that otherwise would have to be generated and delivered by PG&E and purchased for plant operation.

The cogeneration system is aging and technology for the internal combustion engines has progressed since the manufacture of these engines. The key issue is that with more stringent air emissions regulations, it is increasingly more difficult for the older engines to meet current regulations. Also, fuel handling and combustion technology now used for the WPCF engines is no longer supported by the manufacturer or by third party vendors.

Due to the technological advances, there are now options for cogeneration that were not available in 1986, or even 10 years ago. The best and most appropriate technology must provide the best balance of thermal and mechanical efficiencies, costs, and air quality standards, while considering the Plant's treatment processes. An engineering report of sufficient detail and scope is needed to assist staff in making appropriate decisions for continued use of digester gas as an energy resource.

CONSULTANT SELECTION:

A request for proposals was sent to five consulting firms that have track records for providing cogeneration analysis reports and that have on their staffs persons with expertise and experience in analyzing and designing cogeneration systems for wastewater treatment plants. Each of the firms has provided both analysis and design for municipal treatment plants. The request for

proposals identified four options to be considered for energy generation: 1) Internal combustion engine/generator; 2) Gas turbines/generator; 3) Fuel cell; and 4) Other.

Four firms returned proposals: HDR, Whitley Burchett, Carollo Engineers, and Brown and Caldwell. Three of the four proposals, including HDR's, were in the same range of cost. The fourth was somewhat higher, due to incorrect assumptions for required electrical work. Staff reviewed the proposals and interviewed the two firms, Whitley Burchett and HDR, which had submitted proposals that more closely fit staff's expectations and goals. Staff recommends selection of HDR, based on both their experience and overall understanding of the City's needs; and, therefore, recommends that an agreement be executed with HDR Consulting Engineers to provide consulting services to study, analyze, and recommend how best to provide electric energy, utilizing digester gas within environmental constraints of today and the foreseeable future.

PROJECT COSTS:

Administration	\$ 5,000
HDR Consulting Engineer Report	60,000
Total	\$65,000

FUNDING:

This \$65,000 is part of the \$900,000 that has been approved in the Water Pollution Control Facility Replacement Fund of the 2006-07 Capital Improvement Program.

SCHEDULE:

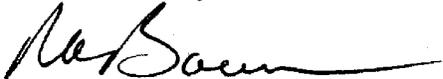
Begin cogeneration report	January 15, 2007
Complete cogeneration report	June 15, 2007

Prepared by:



Alex Ameri, Deputy Director of Public Works

Recommended by:



Robert A. Bauman, Director of Public Works

Approved by:



Jesús Armas, City Manager

DRAFT

NH
12/5/06

HAYWARD CITY COUNCIL

RESOLUTION NO. 06-_____

Introduced by Council Member _____

**RESOLUTION AUTHORIZING THE CITY MANAGER
TO EXECUTE A PROFESSIONAL SERVICES
AGREEMENT WITH HDR CONSULTING ENGINEERS
TO CONDUCT A CO-GENERATION ALTERNATIVE
STUDY AND PREPARE A REPORT**

BE IT RESOLVED by the City Council of the City of Hayward that the City Manager is hereby authorized and directed to negotiate and execute an agreement for professional services with HDR Consulting Engineers to study, analyze, and recommend how best to provide electric energy, utilizing digester gas within environmental constraints of today and the foreseeable future, in an amount not to exceed \$60,000, in a form to be approved by the City Attorney.

IN COUNCIL, HAYWARD, CALIFORNIA _____, 2006

ADOPTED BY THE FOLLOWING VOTE:

AYES: COUNCIL MEMBERS:

MAYOR:

NOES: COUNCIL MEMBERS:

ABSTAIN: COUNCIL MEMBERS:

ABSENT: COUNCIL MEMBERS:

ATTEST: _____

City Clerk of the City of Hayward

APPROVED AS TO FORM:

City Attorney of the City of Hayward