



Memorandum

TO: HONORABLE MAYOR
AND CITY COUNCIL

FROM: John Stufflebean

SUBJECT: SEE BELOW

DATE: 03-28-11

Approved

Date

3/25/11

SUBJECT: AGREEMENTS FOR BIOMASS TO ENERGY TECHNOLOGY PROJECT

RECOMMENDATIONS

Adopt a resolution that authorizes the City Manager to negotiate and execute:

1. An agreement with the California Energy Commission to provide grant funding in an amount up to \$1,900,000 for the initial feasibility study, and potential demonstration of a biomass-to-energy technology facility at the San Jose/Santa Clara Water Pollution Control Plant from April 20, 2011 through December 31, 2014 consistent with the business terms specified herein; and
2. An agreement with Harvest Power Inc. to prepare an initial feasibility study, and potential demonstration of a biomass-to-energy technology facility at the San Jose /Santa Clara Water Pollution Control Plant from April 20, 2011 through December 31, 2014 consistent with the business terms specified herein; and for an in-kind match to the California Energy Commission grant for an estimated value of \$4,095,530.

OUTCOME

Approval of this recommendation would enable the City to implement a grant awarded from the California Energy Commission (CEC) to study and showcase an emerging technology that can meet the City's Green Vision goals for waste diversion, waste to energy, alternative fuels, job creation, and local economic development. A successful demonstration project would also further San José's reputation as a green technology leader and help meet San Jose/Santa Clara Water Pollution Control Plant goals for achieving energy self-reliance and for identifying alternative disposal options for biosolids.

BACKGROUND

On August 12, 2010, the CEC approved a \$1,900,000 award to the City for a proposed project with Harvest Power, Inc. to demonstrate that biomethane suitable for generating electricity or vehicle fuel can be produced through the gasification of wood and biosolids feedstocks. On December 14, 2010 Council authorized staff to initiate negotiations with Harvest Power, Inc. and the CEC to develop agreements needed to implement this project.

ANALYSIS

CEC and Harvest Power Agreements

The City proposes to enter into separate agreements with Harvest Power, Inc., and the CEC. The agreement with Harvest Power will incorporate the requirements of the City from the CEC for administering the grant, conducting the initial study, and submitting reports regarding the operation of the demonstration facility. The agreement with the CEC will include the scope of work to be performed by the City in collaboration with Harvest Power, and the requirement of a matching contribution from Harvest Power.

Project Timeline

The City would be entering into a three-year agreement with the CEC to produce an initial feasibility study, and to construct and operate a demonstration facility. The initial feasibility study will be critical to confirm optimal siting of a small demonstration-scale gasification facility on Plant lands, and provide an analysis of all permitting, engineering, feedstock, and outreach considerations required for the demonstration unit; as well as to identify the appropriate indicators of feasibility for implementation of a commercial-scale facility. Based on the results of the feasibility study, all of the Project Partners (City, Harvest Power, and CEC) must agree to proceed with Phase Two, the construction and operation of the demonstration facility. The terms and conditions for the Phase Two will be based, in part, on the results of the initial study. Staff proposes to return to Council with proposed amendments to the agreement with Harvest Power to implement Phase Two.

Table 1 – Project Timeline

| Task | Time Required |
|---|----------------------|
| Feasibility Study | Approx 12 months |
| Technical, Economic, & Stakeholder Analysis | Start April 2011 |
| Critical Review Process | |
| Construction and Operation | Approx 24 months |
| Public Outreach - Ongoing | Start April 2012 |
| Building design | |
| Equipment Procurement | |
| Construction | |
| Commissioning of Facility | |
| Feedstock testing – wood waste | Start October 2012 |

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|---------------------------------|------------|
| Feedstock testing - biosolids | |
| Long-term feasibility studies | |
| Operating/Capital Cost Analysis | |
| Fueling Station Viability | |
| Project Reporting | Ongoing |
| Data Collection & Reporting | |
| Publish Report of Findings | April 2014 |
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City Resources

The CEC grant requires a match from the City and Harvest Power. The City intends to include as part of its match commitment of City Environmental Services Specialists staff from the Integrated Waste Management Division and Plant operational and engineering staff. These existing staff positions would monitor the project implementation and integrate the demonstration unit with the Plant infrastructure and operations. It is forecasted that City employees would each contribute an average of between two hours to four hours per week for the duration of the project. This commitment is valued at approximately \$200,000 for the three-year term of the project.

The City will also commit up to \$200,000 in consultant support. The funding for the consultant support was encumbered in 2009 to perform engineering, environmental review, public outreach, and conversion technology analysis for these types of projects.

Harvest Power Resources

Harvest Power will also provide staff resources for the feasibility analysis, and if determined to be feasible, construction and operation of the demonstration facility. The contribution from Harvest Power includes in-kind support from their technology partner Agnion to develop the technical data required for the demonstration facility. Staffing resources from Harvest will total approximately \$135,000 for Phase One and approximately \$270,000 for Phase Two and include up to eight personnel with the following expertise: Construction Manager, Chief Technology Officer, Lead Engineer, Plant Operations Manager, Economic Feasibility Analyst, and Technology Feasibility Analyst. The majority of the contribution from Harvest Power shall be for Phase Two of the project. Harvest Power has agreed to conduct the construction procurement in substantial conformance with public works requirements.

CEC Fund Disbursement

The CEC funds are disbursed through a reimbursement process and will be released only after the required match funds from either the City or Harvest Power are expended. Staff anticipates that the CEC grant funds will be recognized and funding will be appropriated as part of the 2010-2011 year end budget cleanup actions. The CEC matching funds would then in turn be used for project activities such as existing consultant contracts, or new consultant services based on expertise required to complete the study. Monthly progress reports will provide ongoing analysis that will allow team members to adjust project allocations within allowable CEC limits.

Reporting Requirements

The City will be required to submit reports to substantiate services rendered by City staff and consultants, and Harvest Power as part of the reimbursement process. The CEC also requires the City to periodically submit project progress reports. Such reports are to include information regarding the evaluations of the feasibility data and demonstration results, including but not limited to feedstock throughput, problems encountered or reported and how they were resolved, real versus projected costs to operate the system, and cumulative data on system performance.

Ownership of Demonstration Equipment

If a demonstration facility is deemed feasible, Harvest Power will be required to construct the demonstration facility. The CEC grant agreement requires that any equipment purchased with grant funds must be retained by the City unless otherwise authorized by the CEC. In this case, since grant funds will not be used to pay for the cost of the equipment, Harvest Power shall retain ownership of the demonstration unit at the end of the project term. Harvest Power would also be required to remove the equipment and restore the Plant site to its original condition. The specific terms and conditions of Phase Two shall be detailed for Council consideration when staff returns to Council on or about May 2012.

EVALUATION AND FOLLOW-UP

The Administration will return in May 2012 with the proposed amendments to the agreement with Harvest Power if all of the partners have agreed that the project is feasible based on the results of the initial study.

PUBLIC OUTREACH/INTEREST

This recommendation meets Criteria 1.

- Criteria 1:** Requires Council action on the use of public funds equal to \$1 million or greater. **(Required: Website Posting)**
- Criteria 2:** Adoption of a new or revised policy that may have implications for public health, safety, quality of life, or financial/economic vitality of the City. **(Required: E-mail and Website Posting)**
- Criteria 3:** Consideration of proposed changes to service delivery, programs, staffing that may have impacts to community services and have been identified by staff, Council or a Community group that requires special outreach. **(Required: E-mail, Website Posting, Community Meetings, Notice in appropriate newspapers)**

As detailed in the memorandum to the City Council dated December 14, 2010, the City did background research in preparation for the stakeholder portion of the feasibility study and

demonstration project, including a nationwide phone survey with municipalities who are currently implementing outreach for conversion technology projects, and leveraging the communications efforts developed for the Plant Master Plan. The communication plan for the grant project was developed from these and other industry sources.

The first step in preparing for the stakeholder feasibility will be the identification of key stakeholders who should provide input on the feasibility study criteria to assure that the research being performed by the City and Harvest Power is most applicable to the local and statewide industry. Stakeholders who have already expressed interest in collaborating with the City include the California Biomass Collaborative, UC Davis, the Bay Area Regional Biomass Collaborative, the Treatment Plant Advisory Council, the City of Palo Alto, Zanker Road Resource Management, Ltd., Zero Waste Energy Development Co., Newby Island Resource Recovery, and Sacramento Municipal Utility District. Other stakeholders will also be contacted including environmental non-profits, the Plant Master Plan TAG, and the Bay Area Air Quality Management District. After the Phase One feasibility study is complete, a stakeholder meeting will be held in order to review the project findings and get input on the feasibility of moving forward with the construction and demonstration phase.

COORDINATION

This memorandum was coordinated with the City Manager’s Budget Office, the Office of Economic Development, and the City Attorney. This project and memorandum are scheduled to be considered by the Treatment Plant Advisory Committee on April 7, 2011.

COST IMPLICATIONS

The grant requires a match by City and Harvest of \$1,900,000. Harvest Power, its investors, and project partners would contribute significantly more than the CEC requires as grant match resources in cash and in-kind resources for this project, including: equipment, materials, labor, and administrative support, including all costs of site preparation, installation and operation, and maintenance for the demonstration unit. Harvest would also contribute the following: project feasibility reports, methane to the Plant above what is required to maintain the demonstration unit, any special waste disposal costs, construction and unit removal costs including interconnects, restoration of plant land used for the demonstration unit. The value of Harvest Power’s contribution for both phases of the project is estimated to be \$4,095,530. Phase Two of the project will not incur any new expenses from the City beyond what is indicated below.

Table 2 – San Jose Match by Timeline

| Task | Time Required | San Jose Contribution | Description |
|--------------------------------|----------------------|------------------------------|----------------------|
| Feasibility | Appx 12 months | | |
| Planning & Feasibility Studies | | \$200,000 | Consultant Contracts |
| | | \$15,000 | Staff time |

| | | | |
|---------------------------------|----------------|------------------|------------------|
| Construction - Operation | Appx 24 months | | |
| Equipment Procurement | | \$15,000 | Staff time |
| Construction | | \$20,000 | Staff time |
| Land Value | | \$211,701 | Land Value |
| Public Outreach | | \$25,000 | Staff time |
| Feedstock testing – wood waste | | \$40,000 | Staff time |
| Feedstock testing - biosolids | | \$50,000 | Staff time |
| Water and waste disposal | | \$60,000 | In-kind Services |
| Reporting | Ongoing | | |
| Data Collection & Reporting | | \$15,000 | Staff time |
| Publish Report of Findings | | \$20,000 | Staff time |
| Total | | \$671,701 | |
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As shown in Table 2 above, the value of the City’s contribution to this demonstration agreement will not exceed \$671,701. Of this, \$200,000 is currently encumbered in multi-year consulting contracts that support feasibility analysis and demonstration evaluation funded by ESD Non-Personal/Equipment appropriation in the Integrated Waste Management Fund. Another approximate \$212,000 of the City’s contribution is the estimated value of two acres for locating the demonstration project. Matching resources also include City Staff support for the project, estimated at approximately \$200,000. This would be absorbed by existing staff with no need for additional staffing allocations, including two staff approved by Council specifically to implement new organic energy conversion projects. The City will contribute the in-kind value of recycled water, waste water treatment, and solid waste disposal for an estimated value of \$60,000 during the demonstration period. The balance of City contributed resources will be from Plant operations staff, provided by the Plant Capital Division. To the extent that the demonstration unit will generate additional energy beyond what is required for the demonstration unit, it is contemplated that this energy can be used by the Plant.

CEQA

Construction and Demonstration phase - Categorical Exemption, File No. PP10-130, CEQA Guidelines Section 15303(d), New Construction and Conversion of Small Structures

/s/
 JOHN STUFFLEBEAN
 Director, Environmental Services

For questions please contact Michele Young, Organics Manager, at (408) 975-2519.