



COUNTY OF LOS ANGELES

DEPARTMENT OF PUBLIC WORKS

"To Enrich Lives Through Effective and Caring Service"

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June 22, 2011

IN REPLY PLEASE
REFER TO FILE: EP-4

Dear Company Representatives:

REQUEST FOR EXPRESSIONS OF INTEREST CONVERSION TECHNOLOGY PROVIDERS

Public Works continues to pursue the development of vital conversion technologies to help reduce our dependence on landfill disposal and provide new sources of energy

Public Works is seeking information on conversion technologies that are offered in the U.S. market and would be available for application for one or more projects in the County of Los Angeles.

On behalf of Public Works, I would like to invite your company to participate in this process by completing and returning the information requested in the enclosed Request for Expressions of Interest by July 28, 2011

If you have any questions regarding this process, please contact Ms Susan Higgins of Alternative Resources, Inc., at (978) 371-2054, or Mr Coby Skye of this office at (626) 458-5163, Monday through Thursday, 7 a.m. to 5.30 p.m. Additional contact information for both Ms. Higgins and Mr. Skye is in the enclosed RFEI

Very truly yours,

GAIL FARBER
Director of Public Works

PAT PROANO
Assistant Deputy Director
Environmental Programs Division

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Enc.



**County of Los Angeles
Department of Public Works
Solid Waste Conversion Technology Program**

**Request for Expressions of Interest:
Conversion Technology Providers**

**Issuance: June 22, 2011
Submission Deadline: July 28, 2011**

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1.0 INTRODUCTION

This Request for Expressions of Interest (RFEI) is seeking information on conversion technologies that are available in the U.S. market and would be available for application for one or more projects in Los Angeles County, California. Through this RFEI, the County is requesting from conversion technology providers and/or project developers representing such providers (referred to herein as Respondent(s)), information on their technology, as well as qualifications and resources of their company. Another RFEI for financial service firms that are in the business of assisting in the structuring and financing of conversion technology projects has been issued in parallel to this RFEI.

Those firms that respond to this RFEI and that meet the minimum criteria specified herein will be described and included in a data base that results from this process. The data base will be used by the County and will be made available to public and private project developers. This solicitation is for purposes of obtaining information only, to identify and describe conversion technologies and the technology providers, and to serve as an informational tool for public jurisdictions and project developers that are interested in developing a commercial conversion technology project within Los Angeles County to process waste, including post-recycled municipal solid waste, food waste, and green waste as further described herein.

As an informational tool, the resulting data base will *not* be an endorsement or recommendation of particular companies and technologies. It will carry a general disclaimer that the data base is not necessarily all-inclusive, that it represents information and performance characteristics as described by the respondent as of the date of the RFEI submittal and not necessarily confirmed by the County, and that it is subject to change. The data base is intended to describe technologies and technology providers, including their capabilities and experience, to allow the County and other public and private project developers to initially identify and assess technologies that are ready for commercial application and that may be suited to their project-specific goals and objectives, and to encourage partnering for the development of commercial projects.

This RFEI is not a request for proposals for services. The County cannot assure any respondent to this RFEI that it would be deemed qualified by any public or private project developer to provide project-specific services or that it would be selected to provide such services.

The County is being assisted by a multi-party technical and financial consulting team led by Alternative Resources, Inc. (ARI). ARI has worked with the County to develop this RFEI and will be reviewing responses and compiling the data base referenced herein. As identified in Section 3.2 of this RFEI, the primary point of contact for the Respondents regarding the RFEI process is ARI.

2.0 BACKGROUND

For over a decade, Los Angeles County has been evaluating the development of conversion technology facilities as alternatives to the continued landfilling of solid waste by municipalities and communities in the County. In addition to providing an alternative method of solid waste disposal, the development of such facilities will produce sources of renewable energy (whether as electric power or gaseous or liquid fuels) and create local green-collar jobs. To date, the County's program has included a transparent four-phase process:

Phase I: An initial screening, ranking, and evaluation of conversion technologies and technology suppliers, along with efforts to identify material recovery facilities (MRFs) and transfer stations (TSs) in Southern California that could potentially host conversion technology demonstration facilities. The Phase I report was issued in September 2005, which identified a preliminary short list of technology suppliers and sites, along with a framework for development of a conversion technology demonstration project at one or more sites.

Phase II: A detailed evaluation of the technologies identified under Phase I, and an evaluation of candidate MRF and TS sites to determine suitability for the integration, installation, and operation of the technologies. A report of findings was published in October 2007. This effort led to the solicitation of offers from several conversion technology facility developers for small-scale privately-owned facilities. In April 2010, the County executed Memoranda of Understanding with three such developers for the development of three conversion technology demonstration facilities, representing thermal gasification and anaerobic digestion technologies.

Phase III: Now underway, Phase III includes the development of the demonstration projects resulting from the Phase II solicitation process. It is anticipated that this Phase will result in the development of up to three projects ranging in size from 150 tons per day (tpd) to 360 tpd, with the potential for expanding up to 1,000 tpd. Each project represents a different solid waste conversion technology, including thermal gasification and anaerobic digestion systems. These facilities will be privately financed, owned, and operated.

Phase IV: Underway in parallel with Phase III, Phase IV includes the planning and facilitation of development of commercial conversion technology facilities (of similar or larger size than the Phase III demonstration projects). This process includes: (a) the identification and evaluation of several specific sites in the County; (b) working with individual municipalities to determine their level of interest in being the host communities and/or sponsors of conversion technology facilities; (c) working with the potential host municipalities to assess community needs and assist with the development of business plans and other activities for project development (e.g., procurement and other implementation tasks, as applicable); and, (d) developing data bases and other information that will aid the County, municipal project sponsors and private project developers in implementing projects.

Phase IV siting activities are ongoing. Preliminary information has already been compiled on 16 sites within Los Angeles County, submitted by 11 stakeholders (i.e., cities, solid waste

companies, and industrial real estate developers) for consideration for hosting a conversion technology project. These sites were described in a Preliminary Siting Assessment submitted to the County Board of Supervisors in October 2010, including information on four cities that have proactively adopted City Council resolutions in support of developing a conversion technology project (Calabasas, Glendale, Lancaster, and Long Beach). In April 2011, the Department of Public Works submitted a second report to the Board identifying seven additional potential sites. More detailed site investigations are ongoing, and the County is continuing to work with interested stakeholders to identify other potential project locations within the County. The Preliminary Siting Assessment and other information related to the County's evaluation and development of conversion technology facilities is available on the County's conversion technology website (<http://www.socalconversion.org/>).

3.0 REQUEST FOR EXPRESSIONS OF INTEREST – CONVERSION TECHNOLOGY PROVIDERS

The sole interest of the RFEI is for the use of conversion technologies for management of MSW, food waste, and green waste. Please refer to Attachment 1 for definitions of these materials and Attachment 2 for assumptions regarding the composition of MSW that should be used for purposes of responding to this RFEI. Also of interest, but to a lesser extent and at a lower priority, is the potential use of conversion technologies for management of other waste feedstock (e.g., medical waste, biosolids).

This RFEI is not seeking information on conventional (or advanced) waste-to-energy combustion technology, or technologies that alter only the physical characteristics of waste feedstock (e.g., to produce a refuse derived fuel). This RFEI is also not seeking information on conventional composting technology except as such may be used for post-processing with certain conversion technologies (e.g., anaerobic digestion). Respondents are requested to identify what they consider to be optimum projects for commercial application of their technologies within Los Angeles County, considering self-defined technical, economic, and other factors specific to their individual circumstances. A single Respondent may, as applicable, identify more than one optimal project for different facility sizes and/or feedstocks. The County has not established a capacity range for determination of optimum project sizes. Currently, there is interest within the County for a variety of conversion technology projects, ranging for example from small-scale green or food waste projects (e.g., 100 tpd or smaller) to large-scale MSW projects (e.g., 1,500 tpd or greater).

3.1 *Minimum Criteria*

The County and its advisors will review all materials received in response to this RFEI. Based upon that review, the County will identify those respondents that it deems to be suitable for inclusion in its data base, considering their experience, capabilities, and resources as well as the demonstrated capability of the conversion technology to be used in a commercial facility to process MSW and/or green waste and food waste.

In reviewing submissions and determining which respondents will be included in the data base of conversion technology providers, the County will apply the following minimum criteria:

- The response to the RFEI must be clear and complete regarding the information requested.
- The response to the RFEI must include identification of at least one optimum project for commercial application within Los Angeles County. Such optimum project must be based on processing MSW as described in Attachment 1 and/or source separated food waste or green waste as a primary feedstock. The capacity of the optimum project should be determined by the Respondent in consideration of both technical and economic factors (self-defined and technology specific, as applicable). More than one optimum project can be described.
- The Respondent must be the owner of the technology, or otherwise hold the appropriate licenses or agreements to market, develop, warranty, and (if operating services are offered) operate and maintain the technology for long-term periods (e.g., 10 or 20 years) within Los Angeles County, California.
- The technology must be ready for immediate, commercial development in Los Angeles County at the capacity and with the feedstock defined by the Respondent for the optimum project(s). The Respondent shall demonstrate such "readiness" by documenting with its RFEI response that the technology has previously operated in either a commercial application and/or for demonstration purposes, processing MSW comparable to the characteristics of MSW described in Attachment 1 (or processing RDF or MRF residue resulting from such MSW), or processing food waste and/or green waste, as applicable. The commercial and/or demonstration project(s) used as evidence of technology "readiness" must be of a comparable unit and/or facility capacity to the optimum project(s) identified by the Respondent, or must have a reasonable "scale up" factor justified by the Respondent as part of the RFEI response.
- The technology must have an existing reference facility (demonstration or commercial) that can be visited to observe the technology in operation. The RFEI response must provide information on that reference facility, including its location and operating status.
- The technology must provide for beneficial use of waste through the production of fuel and/or energy, compost, and other marketable products, as applicable, evidenced by defined markets for all such products. The County recognizes that certain recovered or generated products may have legitimate beneficial uses but no or limited market value or revenue potential.
- The technology must be able to facilitate the County's goal of maximizing landfill diversion, and at a minimum must have the potential to achieve 50 percent or greater landfill diversion (by weight) when processing MSW as described in Attachment 1 or processing source-separated food waste and/or green waste.

3.2 Submission Requirements

Responses are to be received no later than 2 p.m. Pacific Standard Time on July 28, 2011

Responses received later than that time may not be reviewed. Responses shall consist of a total of two (2) printed copies and four (4) CDs, submitted to ARI and the County as indicated below. Proposers are also encouraged (but not required) to supplement the printed/CD copies with an e-mail submission to both ARI and the County. Submittals that are made via e-mail by the stated date and time will be considered timely, but must be followed up with the printed/CD copies shortly after submittal. Submittals sent via e-mail should have a file size of less than 10MB, and should state "Conversion Technology RFEI Response" in the subject line of the e-mail. Electronic files sent via e-mail and/or included on the CDs should be in PDF format, or such other file formats as necessary or beneficial to the review of the information. Please provide photos that are included with the response in a JPG format, to allow for insertion of photos into the data base.

As noted above, the Response shall consist of a total of two (2) printed copies and four (4) CDs submitted as follows:

ARI:

One printed copy and three CDs:

Ms. Susan Higgins

Alternative Resources, Inc.

1732 Main Street

Concord, MA 01742

978-371-2054

shiggins@alt-res.com

County:

One printed copy and one CD:

Mr. Coby J. Skye, P.E.

Civil Engineer

Environmental Programs Division

Los Angeles County Department of Public Works

900 South Fremont Avenue – Annex 3rd Floor

Alhambra, CA 91803-1331

626-458-5163

cskye@dpw.lacounty.gov

Responses shall follow the format and outline specified in Section 3.3 of this RFEI. Any questions should be directed via e-mail to ARI, with a copy to the County, as provided above. As appropriate, a written response necessary to clarify, modify, or supplement the RFEI will be distributed to all parties listed to be in receipt of the RFEI. **The ARI and County representatives**

listed above are also available for discussion by telephone. As appropriate, Respondents are encouraged to first contact ARI, which is responsible for coordinating the RFEI effort.

All responses will be considered public information. Although the individual responses may not be released publicly, the results of the County's review will be made available to the public. Consequently, responses should not include confidential or proprietary information that any respondent would not want publicly disclosed. If a Respondent would be unable to respond effectively to this RFEI without the submittal of confidential information, or otherwise wishes to submit confidential information for the benefit of the County and ARI, please contact ARI to discuss alternatives for management of such confidential information.

3.3 Response Format and Outline

Responses should be presented in a clear and organized manner to facilitate review and evaluation. Responses should be structured as follows:

3.3.1 Letter of Transmittal

A brief letter of transmittal should be included in the response identifying the company, describing the key features of the conversion technology, identifying the waste type(s) and size ranges for which the technology is suitable, identifying the self-defined optimum project(s) for commercial application of the technology within Los Angeles County, and providing contact information for the company.

3.3.2 Demonstration of RFEI Minimum Criteria

Respondents should provide a summary addressing their ability to meet each of the minimum criteria outlined in Section 3.1 of this RFEI.

3.3.3 Information Submittal

The respondent is requested to provide the following:

- Please complete the attached form "Identification of Conversion Technology Equipment Supplier/Project Developer".
- Please provide a discussion of the Respondent's business structure and relationship to the proposed technology (e.g., years of direct history with the technology; ownership and/or license arrangements; other parties involved in technology development and ownership, etc.); the territory(ies) covered by any licensing arrangements, the term(s) of any arrangement(s), and the extent of exclusivity of any arrangement(s); the Respondent should describe the extent of licensor financial, technical and management support (including the application

and enhancement over time of the technology), and arrangements that exist or would be put in place to efficiently access such support.

- Provide a description of the technology, including its capabilities for and experience with processing MSW, as described in Attachment 1, and/or source-separated food and/or green waste, as applicable.
- Information is requested on the Respondent's concept for an optimum project(s) for commercial application of the technology within Los Angeles County. Respondents can provide more than one size and type of waste for optimum project scenarios. Respondents are requested to identify their approach to modular development or scale up of modules for a commercial facility. The proposed concept should represent a complete process (i.e., pre-processing, conversion, and post-processing/ management of products and residue, including energy generation and compost curing, as applicable) for a greenfield facility that is not integrated with pre-existing infrastructure. Please provide a generic facility site layout, equipment general arrangement, and schematic process flow diagram for the optimum project. Provide a description of major system components for a commercial facility, including gas cleanup technologies and air pollution control technologies, as applicable. Please identify the *minimum* number of acres required for development of the optimum project(s) as well as the *preferred* acreage if different, and specify the approximate utilization of those acres (e.g., percent allocation to buildings and structures, roads and parking, buffer and green areas, etc.). Please identify the necessary utilities and interconnections that would be required. For water consumption, discuss the extent to which reclaimed water could be used, if available. For wastewater, discuss whether the project could be configured for zero discharge of process wastewater. In addition, for those submitting information as a project developer, please describe any existing relationships with environmental permitting firms, design firms, construction companies, operators, and project financing partners with which you are developing or planning to develop projects.
- As noted above, Respondents should define their optimum projects based on the assumption that such projects will be stand-alone, greenfield projects, not integrated with pre-existing infrastructure. Since there is the potential for development of conversion technology projects in Los Angeles County in combination with existing facilities such as recycling facilities, transfer stations, and landfills, Respondents should describe how their technology could, in general, be beneficially integrated with such existing infrastructure.
- Provide a list of operating facilities, size of such facilities, description of whether they are commercial or demonstration facilities, date placed in operation, and current status. Of the list, identify those facilities that are considered by the

Respondent to be reference facilities, in that they most closely represent the optimum project(s) for commercial application of the technology within Los Angeles County. At least one reference facility must be identified.

- For each reference facility identified above, please provide:
 - facility name and location;
 - facility description, including process flow diagram;
 - facility owner and operator;
 - entity(ies) served by the facility;
 - primary regulatory agency for facility;
 - development status (demonstration or commercial facility);
 - dates operated;
 - design capacity (tpd);
 - demonstrated operating capacity (tpd);
 - number of units and unit capacity (tpd);
 - annual availability;
 - demonstrated annual waste throughput;
 - annual operating hours;
 - type and quantity of waste processed;
 - type of products-energy, fuels, compost, etc. and marketability of same;
 - environmental performance, permit compliance history;
 - public acceptance;
 - client satisfaction;
 - mass and energy balance information; and
 - other relevant information that demonstrates readiness and reliability of the technology

Please provide electronic copies of photographs of each reference facility. Provide photographs in a JPG or comparable format that can be reproduced by the County for reports, presentations, or other media such as the data base. To the extent available, videos related to operations at the reference facilities are of interest to the County and ARI and are encouraged to be submitted with the RFEI response.

- As applicable, please describe plans for marketing fuel and/or energy, compost and other products generated by a commercial facility. Assess the strengths of markets for the products generated.
- Please provide an overall system mass balance for the optimum project(s) for commercial application of the technology within Los Angeles County. The balance should include recyclables recovered, energy generated, all other products generated such as compost or aggregate (as applicable), and residue requiring landfill disposal. This is intended to obtain sufficient information to assess the potential to achieve 50 percent or greater landfill diversion (by weight) when processing MSW as described in Attachment 1 (or processing RDF or MRF residue resulting from such MSW), or processing source-separated food waste and/or green waste, as applicable. The ability to achieve significant landfill diversion is a priority of the County. Please provide a discussion of steps that could be taken to increase diversion above that specified for the optimum project, including a discussion of the technical and economic impact on the overall project of increased diversion (e.g., changed energy output, increased or decreased operating cost, etc., as applicable).

ATTACHMENT 1 DEFINITIONS

Conversion technology – non-combustion thermal, chemical, mechanical, and biological processes capable of converting post-recycled, residual municipal solid waste (MSW) and/or other waste materials (e.g., food waste, green waste, medical waste, biosolids) into useful products and chemicals, green fuels, and clean, renewable energy.

Food waste – pre- and post-consumer food material (e.g., from institutional cafeterias, restaurants, grocery stores, and residential food scrap collection programs), excluding materials that would be defined as agricultural materials.

Green waste – urban landscape waste generally consisting of leaves, grass clippings, weeds, yard trimmings, wood waste, branches and stumps, home garden residues, and other miscellaneous organic materials

Municipal solid waste (MSW) – overall disposed waste stream generated by residential, commercial, and self-hauled sources after source separation of recyclables and other materials diverted from disposal.

**ATTACHMENT 2
DESCRIPTION OF MSW**

For purposes of this RFEI, MSW is considered the overall disposed waste stream generated by residential, commercial, and self-hauled sources, after source-separation of recyclables and other materials diverted from disposal. In order to provide uniformity among the RFEI submittals, please assume the following reference waste composition for preparation of a Response.

**ASSUMED COMPOSITION OF WASTE
(SOURCE: CALIFORNIA 2008 STATEWIDE CHARACTERIZATION STUDY)**

Material	% of Waste*
<i>Paper</i>	
Uncoated Corrugated Cardboard	4.8
Paper Bags	0.4
Newspaper	1.3
White Ledger Paper	0.7
Other Office Paper	1.2
Magazines & Catalogs	0.7
Phone Books & Directories	0.1
Other Misc. Paper	3.0
Remainder/Composite Paper	<u>5.2</u>
Total	17.3
<i>Glass</i>	
Clear Bottles & Containers	0.5
Green Bottles & Containers	0.2
Brown Bottles & Containers	0.3
Other Colored Bottles & Containers	0.1
Flat Glass	0.1
Remainder/Composite Glass	<u>0.3</u>
Total	1.4
<i>Metal</i>	
Tin/Steel Cans	0.6
Major Appliances	0.0
Used Oil Filters	0.0
Other Ferrous	2.0
Aluminum Cans	0.1
Other Non-Ferrous	0.2
Remainder/Composite Metal	<u>1.6</u>
Total	4.6
<i>Electronics</i>	
Brown Goods	0.2
Computer-related Electronics	0.1
Other Small Consumer Electronics	0.1
Video Display Devices	<u>0.2</u>
Total	0.5

Major Constituent	% of Waste*
<i>Plastic</i>	
PETE Containers	0.5
HDPE Containers	0.4
Misc. Plastic Containers	0.4
Plastic Trash Bags	0.9
Plastic Grocery & Other Merchandise Bags	0.3
Non-Bag Commercial & Industrial Packaging Film	0.5
Film Products	0.3
Other Film	1.4
Durable Plastic Items	2.1
Remainder/Composite Plastic	<u>2.8</u>
Total	9.6
<i>Other Organic</i>	
Food	15.5
Leaves & Grass	3.8
Prunings & Trimmings	2.7
Branches & Stumps	0.6
Manures	0.1
Textiles	2.2
Carpet	3.2
Remainder/Composite Organic	<u>4.3</u>
Total	32.4
<i>Inerts and Other</i>	
Concrete	1.2
Asphalt Paving	0.3
Asphalt Roofing	2.8
Lumber	14.5
Gypsum Board	1.6
Rock, Soil & Fines	3.2
Remainder/Composite Inerts & Other	<u>5.5</u>
Total	29.1
<i>Household Hazardous Waste (HHW)</i>	
Paint	0.1
Vehicle & Equipment Fluids	0.0
Used Oil	0.0
Batteries	0.0
Remainder/Composite HHW	<u>0.1</u>
Total	0.3
<i>Special Waste</i>	
Ash	0.1
Treated Medical Waste	0.0
Bulky Items	3.5
Tires	0.2
Remainder/Composite Special Waste	<u>0.1</u>
Total	3.9
Total	0.8

* Percentages for material types may not total 100% due to rounding.

**IDENTIFICATION OF CONVERSION TECHNOLOGY
EQUIPMENT SUPPLIER/PROJECT DEVELOPER**

Name of Company:

Technology:

Contact Person:

Name:

Title:

Telephone:

Email:

Fax:

Mailing Address:

Please check the appropriate boxes:

- Conversion Technology Equipment Supplier
- Conversion Technology Project Developer

Please indicate the feedstock for which the technology is demonstrated to be best suited (check all that apply):

- MSW
- Food Waste
- Green Waste
- Biosolids
- Medical Waste
- Other (Specify: _____)

Please indicate the capacity for which the technology is demonstrated to be best suited (check all that apply):

- <100 tpd
- 100 tpd - 500 tpd
- >500 tpd - 1,000 tpd
- >1,000 tpd - 1,500 tpd
- > 1,500 tpd

Please identify the optimum project(s) for commercial application of the technology within Los Angeles County:

Design Capacity (tpd):

Feedstock:

Acres Required: