

B5 K H97 % !')' '

PROCUREMENT OF EMERGING WASTE TO ENERGY TECHNOLOGIES

Teno A. West

Pannone Lopes Devereaux & West LLC
New York, NY, USA

1. INTRODUCTION

The City of Taunton, MA (City) has undertaken a competitive procurement process to consider proposals for a private company to develop, design, permit, finance, construct and operate a Solid Waste Management Facility (SWMF), which may be sized up to 1800 tons per day (TPD), to serve both the City's and region's needs for long term solid waste management. A comprehensive Request for Qualifications and Proposals (RFQP) for the SWMF was issued in June 2008. The City initiated the procurement process because its current landfill is scheduled to reach capacity in 2013. The procurement process focused on conversion technologies capable of recovering materials and producing electricity or fuels, and maximizing diversion of waste from landfilling. Technologies considered included both traditional and emerging technologies; e.g., composting, co-composting, thermal gasification, aerobic and anaerobic digestion, hydrolysis and mechanical means of waste separation into useful products. Landfilling and traditional waste-to-energy technologies were not considered.

This paper discusses the SWMF and related project goals, and, insofar as it remains ongoing, provides an update on the status of the procurement process. Project challenges, including the current State moratorium on incineration (particularly given its continued central importance to the procurement process thus far) and waste aggregation efforts, are included in the discussion.

2. THE SWMF

The SWMF is to recover and recycle materials and provide for the production of renewable energy in the form of fuels and/or

electricity. The SWMF is to accept post-recycled municipal solid waste and other waste materials, including sewage sludge, construction and demolition waste and other waste materials as allowed in the RFQP. The SWMF was not to include incineration, traditional waste-to-energy technology or landfill disposal. It could include gasification, anaerobic digestion, composting, transfer and other technologies that could meet the City's requirements. The size of the SWMF was to be selected by the proposer. The City stated that a range of facility sizes, from 100 to 1,800 TPD, was acceptable.

3. PROJECT GOALS

Key goals of the City are to host a modern, state-of-the-art facility to replace its landfill which will reach capacity by June 30, 2013 or shortly thereafter, provide reliable waste management for the City and other communities, recover recyclables and produce renewable energy, be environmentally "friendly" to address reduction of greenhouse gas emissions and other emissions, and to provide host community benefits comparable to those currently received from operation of the landfill. Such host community benefits are valued at approximately \$3.5 million per year, accounting for free disposal of City waste and operation of the citizen drop-off center for recyclables and waste by the landfill operator (approximately \$2.5 million per year) and host community fees paid by the landfill operator, for regional waste disposed at the landfill (approximately \$1 million per year).

4. UPDATE ON THE PROCUREMENT PROCESS

Proposals were due and received in June 2009. The City received five full technical and price proposals, all of which proposed some form of gasification technology, such as pyrolysis, high temperature gasification, and plasma gasification. The proposed facilities ranged in size from 750

TDP to 1,800 TPD. All proposals included materials recovery and, initially, electricity production.

Between July 2009 and the present, a detailed evaluation of those proposals has taken place, including a review of the written proposals, a review of responses to several requests by the City for clarification, further information and questions based on proposal review, interviews with all five companies submitting proposals, visits to the three top ranked company reference facilities in the United States and Japan, further review of additional responses to questions to the three top ranked proposers, second and third interviews with the top two of the three top ranked proposers, review of responses from proposers to the second and third interviews, and final review and consideration of all information by the City's proposal evaluation team. Given current issues with the DEP, as explained below, the City is still evaluating the proposals to determine which proposal can be permitted and best meets the City's needs.

5. PROPOSAL EVALUATION CRITERIA

As specified in the RFQP, the proposals contained non-cost proposals and price proposals. The RFQP established minimum evaluation criteria which had to be met before a detailed, comparative review was conducted. Those proposals that met these "minimum criteria" have been evaluated on a comparative basis using separate evaluation criteria specified in the RFQP for non-cost proposals and price proposals. Non-cost proposals were first evaluated and ranked. Price proposals were independently evaluated. Subsequently, an initial value analysis was completed, combining the findings of the non-cost proposal review and the price proposal review, to determine which proposal(s) best met the City's goals and needs and was most advantageous to the City. The proposal evaluation process also reflected the latest insights and understandings that resulted from meetings and communications with pertinent state agencies regarding permitting issues.

6. NEXT STEPS

After resolution of permitting issues and the selection of a preferred proposer, contract negotiations will ensue. Given the extended timeline, it is now anticipated that contract negotiations will be completed by the end of 2010 or early in 2011. Project implementation activities will then include:

- waste aggregation; i.e., securing adequate waste at a competitive tip fee;
- securing key product sales agreements; e.g., power sale agreement, other key product sales agreements;

- permitting, to include preparation of an Environmental Impact Report, Site Assignment and the necessary air, solid waste and wastewater discharge permits;

- obtaining project financing;

- facility design, construction, start-up, acceptance testing; and,

- operation.

7. REMAINING CHALLENGE – THE MORATORIUM

To date, although there has been significant progress made, one major issue remains for the City: the State Moratorium on incineration as it may apply to permitting thermal gasification technologies that combust gas on site to generate electricity.

The State Moratorium on incineration was imposed with the State Solid Waste Master Plan in the 1990s. It is a policy matter, and not a regulation nor legislation. It was put in place because of fear of emissions, including dioxins, furans and mercury, and because there was concern that such facilities require a long-term commitment of solid waste from municipalities which could preclude such communities from initiating enhanced source reduction and recycling programs. Since that time, waste-to-energy facilities have upgraded and retrofitted new air pollution control equipment. The Commonwealth has put in place a ban on landfilling and incineration of many recyclables and toxic materials, including wastes containing mercury. The DEP recently indicated in its update to the Solid Waste Master Plan that the ban on incineration would remain in effect.

The problem with the Moratorium for the Taunton procurement is in its potential interpretation by DEP. The DEP uses the federal definition of a municipal waste combustor to apply to technologies for purposes of applying the Moratorium. That definition applies to direct combustion of waste as well as to the combustion of gases produced from the waste. Inadvertently, such application by DEP could impact the permitability of advanced waste gasification systems, if such systems would combust the gas on site to generate electricity, a commonly proposed practice. The City contends that gasification is not direct combustion of waste, that such technologies can capture and pre-clean the gas prior to combustion, thereby reducing air emissions, can employ combined-cycle energy recovery systems to increase energy recovery, and can vitrify the residual product to make it more readily acceptable for use as a product in the open environment. Although not currently common practice, the gas produced can be utilized to produce fuels; e.g., natural gas for insertion in the gas pipeline, compressed natural gas for fueling vehicles, hydrogen, methanol, ethanol, and biodiesel.

The attributes of these technologies are consistent with the State's goals for solid waste management.

Unfortunately, the DEP has recently indicated that it will likely consider gasification technology that generates electricity on site to qualify as incineration. As such, it would be subject to the Moratorium. The City is therefore seeking modified proposals from the proposers focusing on fuel production, as fuel production likely would not be subject to the Moratorium.

Immediate challenges and those for the next year or two center on working with the DEP on the Moratorium issue, negotiating a successful contract, securing adequate waste at the needed tip fees, securing necessary product sales agreements, obtaining necessary permits and environmental approvals, and obtaining project financing. Upon resolution of the Moratorium issue and successful contract negotiations with a preferred proposer, the City expects a fully operational SWMF to meet its solid waste management needs and those of the surrounding communities.