A REVIEW OF THE CHANGES IN RISK SHARING IN THE FINANCING, CONSTRUCTION AND OPERATION OF SOLID WASTE RESOURCE RECOVERY FACILITIES

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Discussed by

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The authors have presented a detailed evaluation of risk sharing in three solid waste processing contracts. Their evaluation showing a healthy and progressive evolution in risk management could be useful to others contemplating such contracts.

The authors have not addressed other factors which affect decisions on risk sharing. They are: 1. effect of success or failure on future political ambitions of key elected officials; 2. general equity of the contract; 3. procedures for resolving disputes during the contract period; 4. procedures for replacement of equipment during the contract period; and 5. flexibility to adapt to changes in environmental laws and regulations.

For a successful contract it is essential to organize an institutional arrangement which insulates elected officials. Otherwise, short term political outlook will dictate the extent to which risk sharing can be avoided, thereby creating blocks for successful negotiations. This particular factor is, in my opinion, the most critical aspect of risk sharing negotiations.

Prior to start of negotiations, it is very important to define clearly the objectives of the project sponsors. Otherwise, the prospective contractor will find it difficult to assess risks and will, consequently, take positions to avoid sharing risks.

In this context, the “Request for Proposal” document is very important. The project sponsor should identify his objectives and indicate, as a minimum, a list of nonnegotiable items. As a rule, one should look for equity in the contract and assure reasonable profit to the contractor. A long term contract will not work if either party is able to take advantage over the other for an extended period of time. The authors have not stressed the importance of quantifying the damages to each party in the event of a “shipwreck.” Unless such assessment is made, it becomes difficult to make a business decision on risk sharing.

The DRP contract required a period of one year and ten days for negotiations. Successful negotiation of the contract was possible because managers on both sides wanted a contract. Having understood the objectives, it was possible for management on both sides to quantify risks and assess the probability of such risks becoming real. Once business decisions were made, the attorneys for both parties worked out the language. If the attorneys get the first crack, the situation becomes more difficult to resolve.

Discussed by

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This paper presents a good overview of the changing trends in procurement and risk sharing.
and highlights the pitfalls inherent in a project when the risks are inequitably distributed (i.e., one or more parties in the deal bear substantially more risks than is appropriate or else they bear risks which are not in the best position to absorb or otherwise manage).

A resource recovery from municipal solid waste project, to be successful, must be overlain by a sound risk management strategy. In theory, project risks should be borne by those best able to manage or absorb them. In practice, this has not always been the case and has led to serious technical problems, unnecessary costs, delays and frustrations, and bad press for the entire resource recovery industry (including development agencies, consultants, vendors, and other parties-at-interest). These situations are demonstrated in two of the projects (Nashville and Akron) which the authors describe.

It is interesting to note that many of the problems inherent in the structure and procurement of the Nashville project were also evident in the Akron project developed several years later. Thus, it points out the lengthy period in moving up the learning curve that has taken place in the trend toward more full service and modified full service procurements.

It is also interesting to note the author's closing statement, which is most appropriate: "there is no substitute for beginning with a project which is technically and financially well founded." In the cases of Nashville and Akron, the lack of these essential features was not so surprising given the state-of-the-industry and the level at which project planners and developers had reached on the learning curve, particularly as it applies to risk management in resource recovery. What is surprising is that both of these projects were revenue bond financings and, as such, required an "independent third party" engineering evaluation of the technical and economic underpinnings of the projects for the bond sale. Thus, in theory, many of the potential technical problems which later plagued both projects, as well as certain adverse economic implications of the contractual structures, should have been emphasized in the bond statements. This, however, raises another problem. The third party review is usually done for the investment banker(s) in the project and/or the project development agency, and statements in the bond prospectus which would seriously jeopardize the financing or raise concerns of the energy customer(s) may then, understandably, not be included.

Those who have developed projects in which they: 1. lined components which had never been demonstrated at commercial scale; 2. reduced the amount of key equipment or applied some alternative equipment simply to lower capital costs; or 3. otherwise applied technology or part of technologies which were not yet mature have usually paid the price.

I concur with the authors that a procurement strategy which includes a single party who is responsible for design, construction, and operation of a project, and who can guarantee performance and efficiency of the project as well as certain costs, is a sound approach and one that appears to have transcended the more traditional A/E procurements, at least in the large-scale systems marketplace. It is important to point out that the guarantees alone are not enough, as the vendor must have the experience and the "financial strength" to make the guarantees meaningful. I cannot emphasize too heavily the need to have a financially strong party guaranteeing the operation and performance of a resource recovery system. In lieu of a financially strong vendor, a project must be layered with substantial security such as efficacy insurance, contingency funds and other backing. Otherwise, the municipality (and ultimately the taxpayers) must serve as the "deep pocket."

It is clear that there will be a lot more scrutiny given to future resource recovery projects by the investment community, as well as a requirement for more security features in the form of special funds, added insurance, and higher levels of debt service coverage. This will increase the costs of projects. By spreading more of the technical operating performance, and financial risks to a full-service vendor, development agencies will also add additional costs to projects. On balance, however, future projects can benefit from an infusion of vendor equity or special credits as part of the tax benefits received as well as creative financing which can serve to lower costs, especially in the early years of the projects' operations. Most important, however, the next generation of projects, it appears, will benefit from sounder development plans and a more even distribution of risks. They will hopefully build on the lessons learned from earlier procurement and risk allocation shortcomings and offer the U.S. resource recovery industry renewed vitality.

AUTHORS' REPLY

To Mr. Vasuki

All of Mr. Vasuki's comments are well taken. While the subject paper really dealt with a history of how risk sharing has changed during the past
10 years, Mr. Vasuki’s comments are aimed more at a “how to” approach to negotiating a contract. Since Mr. Vasuki was instrumental in negotiating a successful contract on behalf of the Delaware Reclamation Project, he obviously knows whereof he speaks. We would urge Mr. Vasuki to expand upon his relatively brief discussion paper and present it as a full-blown paper at the 1984 ASME National Waste Processing Conference in Florida. Mr. Vasuki has brought up many salient points in his paper and most participants could greatly benefit by having Mr. Vasuki go into greater detail in amplifying this discussion paper.

To Timothy J. Bratten

I would like to emphasize Mr. Bratten’s point concerning the lengthy period it takes to move along the learning curve in the development of resource recovery projects. As Mr. Bratten has indicated, many of the problems inherent in the structure and procurement of the Nashville project were also evident in the Akron project developed several years later. While this statement is true, it is important to note that when the Nashville project was initially financed in 1972, there was no experience in the United States concerning the technical difficulties which a resource recovery project may encounter. The structure of the financing utilized in Nashville in 1972 followed the basic format of other project financings at that time and none of the parties involved realized the inherent technical risks associated with converting solid waste to energy. The difficulties experienced in Nashville did not become evident until 1975 and 1976, approximately 4 years after the initial financing, at the same time the financing of the Akron project was proceeding. The City of Akron had begun developing the structure of its project approximately 4 years prior to the financing in 1976 and was not in the position to benefit from the difficulties which had been experienced in Nashville.

Mr. Bratten states that, “What is surprising is that both of these projects were revenue bond financings and as such required an independent third party engineering evaluation of the technical and economic underpinnings of the projects for the bond sale. Thus, in theory, many of the potential technical problems which later plagued both projects, as well as certain adverse economic implications to the contractual structures, should have been emphasized in the bond statements.” There are several problems with this particular statement. The first has to do with the technical dissimilarities of the two projects. The plant in Nashville is a mass burning facility with no front end processing of the solid waste prior to incineration. The problems which were experienced in Nashville were related to difficulties with the emission control equipment and failures of the boiler tubes. The Akron project is a refuse derived fuel plant with a considerable amount of front end processing of solid waste including shredding, air classification, magnetic separation and storage prior to being burned in semisuspension on the Babcock and Wilcox boilers. In developing the official statement for the Akron financing, a careful review was undertaken with representatives of Babcock and Wilcox, the boiler manufacturer, as to the remedial steps they planned to take in Akron to avoid encountering the same problems which had been experienced by Babcock and Wilcox in Nashville. The limited operating history of the plant in Akron indicates that the boilers have not had the same operating problems which were experienced in Nashville.

The principle difficulties experienced in Akron were related to the material handling equipment. At the time of the Akron Financing, a review was undertaken of other installations of similar nature and with similar material handling equipment which had previously been in operation. Those plants which were visited included the Solid Waste Reduction Plant in Hamilton, Ontario, the Waste Shredding Plant in St. Louis, Missouri, the Waste Reduction Plant in Elmira, New York and the Resource Recovery Plant in Iowa. Furthermore, the Official Statement included the following statement, “The shredding facility, spreaders, stokers and boilers, and appurtenant facilities to each have not previously been assembled in a single operating facility, although facilities similar to the shredding facilities and boilers are each in operation at separate locations.” The Official Statement also included a statement concerning “the relatively innovative concept of the ram charger and the fact that there is only one conveyor from the shredded solid waste storage area to the incinerator boilers.” Thus the prospective bond purchasers were advised of a certain level of technical risk.

Mr. Bratten has also included the statement that, “The third party review is usually done for the investment bankers in the project and/or the project development agency, and statements in the bond prospectus which would seriously jeopardize
the financing or raise concern to the energy customers may then, understandably, not be included." This particular statement is inaccurate as any party that has been involved in the preparation of a report on behalf of investment bankers, bond counsel, and underwriters counsel can readily attest. The level of scrutiny involved in a third party engineering review is far more intense than in any other study or report prepared during any of the earlier planning stages of a resource recovery project. Both the investment bankers and the engineers must be satisfied that any aspects of the project which would "seriously jeopardize the financing or raise concern to the energy customers" have been properly addressed. The failure to adequately and properly disclose all material points of information to prospective investors is a serious offense of which neither underwriters, attorneys nor engineers want to be accused. The decisions that were made in 1976 were based on the best information that was available to all parties involved and there was no attempt to fail to disclose matters of material import concerning the Nashville project to the prospective purchasers of the bonds of the Akron project.

Many of the lessons which have been learned in the 10 years since 1972 were not yet evident in 1976 and all the concerned parties involved in resource recovery projects, including engineers, lawyers and bankers, have greatly benefitted from earlier mistakes.