

Final Report

# Appraisal of the Harrisburg Material and Energy Recovery Facility

The Harrisburg Authority

January 2011



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Final Report

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This report has been prepared for the use of the client for the specific purposes identified in the report. The conclusions, observations and recommendations contained herein attributed to R. W. Beck, Inc. (R. W. Beck) constitute the opinions of R. W. Beck. To the extent that statements, information and opinions provided by the client or others have been used in the preparation of this report, R. W. Beck has relied upon the same to be accurate, and for which no assurances are intended and no representations or warranties are made. R. W. Beck makes no certification and gives no assurances except as explicitly set forth in this report.

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# Appraisal of the Harrisburg Material and Energy Recovery Facility

The Harrisburg Authority

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Section 1  
PREMISE OF THE APPRAISAL

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# Section 1

## PREMISE OF THE APPRAISAL

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### Purpose and Intended Use

The Harrisburg Authority (the Authority) retained R. W. Beck, Inc. (R. W. Beck) to perform an appraisal study to estimate the Fair Market Value of the Harrisburg Material and Energy Recovery Facility (the Facility). The results of the appraisal are set forth in this report (the Report).

The Harrisburg Authority is a municipal authority, located in the City of Harrisburg, Pennsylvania (the City), that owns water, sewer, and resource recovery assets that serve the City and surrounding communities. The resource recovery assets consist primarily of the Harrisburg Material and Energy Recovery Facility rated at 800 tons per day (TPD), an ash landfill co-located with the Facility (the Landfill) and various contracts for both the disposal of municipal solid waste (MSW) and operational services. The Facility is located in Harrisburg, Pennsylvania and is an 800 TPD mass burn waste-to-energy plant with a gross electrical generating capacity of 24 MW. The Facility was substantially rebuilt in 2008 and recommenced commercial operation in 2009.

The appraisal reflects the Fair Market Value of the Facility as of January 1, 2011.

The conclusions contained in the Report are based solely on the information, data, and assumptions discussed and described herein.

In undertaking the studies and analyses required to develop and provide an opinion with respect to the Fair Market Value of the Facility, R. W. Beck has relied on generally accepted valuation methods and procedures. The Report has been prepared in accordance with the Uniform Standards of Professional Appraisal Practice (USPAP) as promulgated by the Appraisal Standards Board of the Appraisal Foundation.

### Date of Valuation

The Fair Market Value of the Facility is estimated as of January 1, 2011.

### Definition of Value

The definition of Fair Market Value used in the Report is as follows:

Fair Market Value is the most probable price which a property should bring in a competitive and open market under all conditions requisite to a fair sale, the buyer and seller each acting prudently and knowledgeably, and assuming the price is not affected by undue stimulus. Implicit in this definition is the

consummation of a sale as of a specified date and the passing of title from seller to buyer under conditions whereby:

1. Buyer and seller are typically motivated,
2. Both parties are well informed or well advised and acting in what they consider their best interests,
3. A reasonable time is allowed for exposure in the open market,
4. Payment is made in terms of cash in United States dollars or in terms of financial arrangements comparable thereto, and
5. The price represents the normal consideration for the property sold unaffected by special or creative financing of sales concessions granted by anyone associated with the sale.<sup>1</sup>

## Property Interest Appraised

This appraisal evaluates a 100 percent interest in the property with no restrictions, indebtedness, or other encumbrances. A description of the Facility's condition can be found in Section 3 of the Report.

## Highest and Best Use

Highest and best use is defined as the reasonably probable and legal use of the property being appraised "that is physically possible, appropriately supported, financially feasible, and results in the highest value."<sup>2</sup> In R. W. Beck's opinion, the highest and best use of the Facility is its current use, which is to process municipal solid waste and produce and provide steam and electricity for sale to the open market.

## Scope of Work

At the request of the Authority, R. W. Beck performed an independent appraisal to determine the estimated Fair Market Value of the tangible and intangible property of the Facility as of January 1, 2011. In performing the appraisal, R. W. Beck considered all three generally accepted approaches to valuation (cost, income, and market) and their degree of applicability in estimating the value of the Facility. The results of R. W. Beck's analyses and indicators of value developed are described in Section 3 of the Report.

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<sup>1</sup> Pratt, Shannon P., Robert F. Reilly, and Robert P. Schweihs. *Valuing a Business: The Analysis and Appraisal of Closely Held Companies, Fourth Edition*. New York: McGraw-Hill, 2000, Appendix A, International Glossary of Business Valuation Terms, page 913.

See also American Society of Appraisers. *Valuing Machinery and Equipment: The Fundamentals of Appraising Machinery and Technical Assets, Second Edition*. Washington, DC: American Society of Appraisers, 2005, Glossary of Terms, page 566.

<sup>2</sup> American Society of Appraisers, *Valuing Machinery and Equipment*, page 570.

As a part of the services provided, R. W. Beck performed general field observations of the Facility in connection with the appraisal. The general field observations are visual, above-ground reviews of selected areas that we deem adequate to comment on the condition of the existing facilities. The reviews are not in the detail that would be necessary to reveal conditions with respect to safety; the internal physical condition of any facilities; or the conformance with agreements, codes, permits, rules or regulations of any party having jurisdiction with respect to the construction, operation, and maintenance of the properties.

## Research Undertaken

The opinions set forth herein are based on information provided by the Authority, other information generally available to R. W. Beck, and studies and analyses undertaken by R. W. Beck, all of which are basic to and in support of R. W. Beck's opinion regarding the Fair Market Value of the Facility. The studies and analyses undertaken in preparation of the opinions contained herein have been performed in accordance with standard engineering practices and USPAP as promulgated by the Appraisal Standards Board of the Appraisal Foundation. These studies and analyses included a site visit to the Facility at the request of the Authority. R. W. Beck also undertook review of certain documents relating to the Facility.

Section 2  
ASSUMPTIONS AND LIMITING CONDITIONS

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## Section 2

# ASSUMPTIONS AND LIMITING CONDITIONS

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In the preparation of the Report and the opinions that follow, R. W. Beck made certain assumptions with respect to conditions that may occur in the future. In addition, R. W. Beck used and relied upon certain information and assumptions provided to R. W. Beck by sources that R. W. Beck believes to be reliable. R. W. Beck believes the use of such information and assumptions is reasonable for the purposes of the Report. However, some assumptions will invariably not materialize as stated herein or may vary significantly due to unanticipated events and circumstances. Therefore, the actual results can be expected to vary from those forecasted to the extent that actual future conditions differ from those assumed by R. W. Beck or provided to R. W. Beck by others.

The conclusions and opinions found in the Report are made expressly subject to the following conditions and stipulations:

### Extraordinary Assumptions

- For the Fair Market Value analysis, municipal solid waste tip fees are assumed to be \$40 per ton for all waste received and escalate at 2.2 percent per year throughout the study period.
- Ash transfer expenses are as budgeted by the Authority through 2013 and are discontinued beginning in 2014 and throughout the remainder of the study period. This assumes the Authority expands its ash landfill as planned and it is available for all of 2014 and the remainder of the study period.
- Electric rates are estimated based on an average \$/MWh of \$44.28 and escalated at 2.2 percent per year throughout the study period.

### Other Assumptions

- R. W. Beck assumes no responsibility for matters that are legal in nature, nor does R. W. Beck render any opinion as to the title, land and/or land rights, which are assumed to be good and marketable. No opinions are intended to be expressed for matters that would require specialized investigation or knowledge beyond that normally used by an appraiser engaged in valuing the type of assets described in the Report.
- R. W. Beck makes no determination as to the validity, enforceability or interpretation of any law, contract, rule or regulation applicable to the Facility and its operation. However, for the purposes of the Report, R. W. Beck assumes that all such laws, contracts, rules and regulations will be fully enforceable in

accordance with their terms as R. W. Beck understands them and that the operators of the Facility will operate the Facility in accordance with all applicable laws, contracts, rules and regulations. R. W. Beck assumes that the Facility conforms to all applicable zoning and use regulations and restrictions.

- All existing liens and encumbrances have been disregarded, and the value of the Facility is appraised as though free and clear and under responsible ownership.
- R. W. Beck personnel performed general field observations of the Facility at the request of the Authority. As a result, R. W. Beck has firsthand knowledge concerning the condition of the Facility. R. W. Beck assumes that there are no hidden or unapparent conditions that would make the Facility more or less valuable.
- R. W. Beck assumes that the Facility has been operated in a reasonable and prudent manner consistent with industry practice. R. W. Beck assumes that the Facility will continue to be operated in a reasonable and prudent manner consistent with industry practices.
- R. W. Beck assumes that the Facility is in compliance with all federal, state and local environmental laws and regulations at the dates of valuation. No soil analyses or geological studies were ordered or made in conjunction with the Report nor were any investigations made of water, oil, gas, coal, or other subsurface mineral and use rights or conditions.
- Substances contained in building structures such as asbestos, chemicals, toxic wastes, or other potentially hazardous materials could, if present, adversely affect the value of the Facility. Unless otherwise stated in the Report, the appraiser in the development of the conclusion regarding Fair Market Value did not consider the existence of hazardous substances, which may or may not be present at the Facility. The stated value estimates are predicated on the assumption that there is no material at the Facility that would cause such a loss in value and, as such, are likely to represent the highest reasonable value of the Facility.
- For the purposes of estimating the value of the Facility R. W. Beck assumes income taxes based on a federal corporate income tax rate of 35 percent and a State of Pennsylvania corporate income tax rate of 9.99 percent. The assumptions used for tax depreciation is 100 percent of the value (and all capital additions) depreciated at 20-year Modified Accelerated Cost Recovery System (MACRS) tax depreciation rates.
- Under the Income Approach, the discount rate used to calculate the net present value of the projected cash flow stream is equal to the weighted average cost of capital for a typical purchaser of the Facility, rather than any actual financing associated with the Facility. For the purposes of the Report, R. W. Beck assumes the typical purchaser for the Facility would be a taxable entity, with a capital structure similar to that of an independent power producer (IPP) involved in the solid waste industry. R. W. Beck assumes that the capital structure of a typical purchaser will remain constant throughout the study period and will be made up of 58 percent debt and 42 percent equity.

- The cost of debt used to develop the discount rate is assumed to be 6.92 percent, based on an analysis of monthly corporate bond interest rates that were issued around December 2010.
- R. W. Beck assumes that a typical purchaser of the Facility would seek a return on capital similar to that of an IPP or private developer familiar with the solid waste industry. Therefore, for the analysis included in the Report, R. W. Beck assumes the return on equity to be used in the calculation of the discount factor is 15 percent. R. W. Beck's analysis of the cost of equity is presented in Exhibit 4, Cost of Capital Analysis.
- The discount rate used in the appraisal Report to determine the net present value of cash flow stream was 8.78 percent, based on a review of interest rates and equity rates as of December 2010 and illustrated in Exhibit 4, Cost of Capital Analysis.
- R. W. Beck assumes that general inflation would be 2.2 percent per year, which R. W. Beck believes is a reasonable long-term inflation rate, based on the long-range forecast of the Consumer Price Index (CPI) published in the October 2010 issue of the *Blue Chip Economic Indicators*.
- For the purposes of performing the appraisal, R. W. Beck assumes that a potential purchaser of the Facility would be able to operate the facility in accordance with contractual terms and conditions of the existing contracts, with the exception of the City and County Waste Contracts, and that the agreements, rights, and easements would be assigned to the potential purchaser.
- The current operating agreement with Covanta includes a management fee of \$875,000 per month, escalated at inflation.
- A sales commission 6 percent of estimated electricity sales is paid to the operator throughout the study period.
- Ferrous yield is estimated at 6,585 tons with a price of \$100 per ton escalated at 2.2 percent per year throughout the study period. A Sales Commission 50 percent of the estimated ferrous revenues is assumed to be paid to the operator throughout the study period.
- An excess waste processing fee of \$20 per ton is included in the existing Covanta operating agreement and is included as a part of the cash flow analyses completed as a part of the Report.
- For the Fair Market Value analysis, tipping fee revenues are based on the following tonnage and rates. Tip fees escalate throughout the study period at 2.2 percent. Tonnage remains constant. (see Table 2-1 on page 2-4)

**Table 2-1**  
**Tipping Fees – Fair Market Value Analysis**

MSW	Tons	Tip Fee
Harrisburg	38,800	\$200.00
Dauphin	126,650	\$73.47
Perry	5,350	\$39.00
Cumberland	19,600	\$39.00
Schuylkill	7,200	\$39.00
Northumberland	12,000	\$39.00
Spot	61,400	\$21.50
Bulky	2,200	\$127.00
C&D	16,900	\$74.00
Residual	2,160	\$68.00
Specialty	1,200	\$80.00

Note: Tonnages are used in the FMV analysis.

- Other assumptions made in the Fair Market Value analysis include:
  - Transfer waste is estimated at \$49 per ton and escalated with inflation throughout the study period.
  - Host fees and environmental steward fees (\$/ton) are as stated in the Authority's approved budget and applied to tonnage estimates as developed in the financial forecast.
  - Utilities expenses are as budgeted for FY 2011 and escalated at 2.2 percent per year throughout the study period.
  - Insurance expense is escalated at 5 percent throughout the study period, which is consistent with the Authority's approved budget.
  - Compliance, permitting, miscellaneous, engineering, and other expenses are as budgeted for FY 2011 and escalated at 2.2 percent throughout the study period.
  - Legal and special counsel expenses are \$750,000 through 2014. No legal or special counsel fees are assumed in 2015 and through the remainder of the study period.
  - Capital Additions are based on the Authority's capital plan through 2014; thereafter, Capital Additions are assumed to be \$1 million in 2015, escalated at 2.2 percent per year through the remainder of the study period.

No one outside R. W. Beck has provided significant assistance in the preparation of the Report. Individuals affiliated with R. W. Beck and contributing to the Report are Michael Lane, ASA, Senior Appraiser; Scott Cochran, ASA, Senior Appraiser Nancy Hughes, Accredited Senior Appraiser and Quality Control Reviewer and Dave Demme, P.E.

The studies and analyses undertaken in the preparation of the opinions contained herein have been performed in accordance with standard engineering practices and USPAP.

Section 3  
FAIR MARKET VALUE ANALYSES

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## Section 3

# FAIR MARKET VALUE ANALYSES

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### Condition of the Facility

There are a number of conditions at the Facility that negatively impact the day-to-day operations and maintenance (O&M) activities. These conditions are a result of the initial design and/or subsequent modifications of the Facility. One example is the limitation of the continuous emissions monitoring system (CEMS) and common flue gas duct for all three boilers. Another example is the ash system design that requires 24-hour-a-day attention to load and queue vehicles/storage boxes, as opposed to ash dumping on a storage floor that would then allow trucks to be loaded during (for example) day shifts five days per week.

Also, the tipping floor could be considered to be too small for the amount of material that is received each week, and there is only one scale for weighing vehicles. The incoming material includes both MSW for the Facility, as well as construction and demolition (C&D) waste that is transferred out of the Facility. As a result, maneuvering space is limited and extra attention is required on a daily basis to manage the receipt of incoming material.

Other, even more significant issues exist with the recent modifications made to the feedwater system, the capacity of the cooling tower (now that there is no steam export to the district heating system), and O&M issues with the air heater design. The Facility is currently under management and operations contract with Covanta, Inc. and Covanta has captured these issues and several others as part of a capital improvement plan (“CIP”) for the Facility that Covanta submitted to the Authority.

### Approaches to Valuation

There are three generally accepted valuation approaches that can be used to estimate the value of property: the Cost Approach, the Income Approach and the Market Approach. The Cost Approach analyzes various cost methods, such as the Original Cost Method, the Reproduction Cost Method, and the Replacement Cost Method. For the purposes of valuing electric generating resources, the Replacement Cost Method, which is an estimate of the cost to build and construct a new Facility similar to the existing Facility with requisite technological and regulatory modifications, best represents the method of determining value under the Cost Approach. The Income Approach values the property by determining the present worth of prospective net earnings using a discounted cash flow analysis. The Market Approach assesses value based on recent Fair Market Value sales of similar assets under similar circumstances.

In our studies and analyses of the Facility, we believe that all applicable approaches to valuation are relevant.

## Cost Approach

### Replacement Cost

The replacement cost method involves determining the estimated current cost of assets that could be designed and constructed under present market conditions with requisite technological and regulatory modifications to produce an equivalent net functionality to that of the Facility. Although this method indicates the cost of building a comparable asset at present market prices, it generally does not consider the inherent risks of construction and ownership, such as design defects, construction delays, cost overruns and natural disasters. Neither does it consider the value to a private company of the facts that 1) the Authority has the necessary operating permits for the Facility; 2) the Authority has a site for the Facility; and 3) the Authority has already incurred all the significant legal and engineering expenses associated with obtaining a site and all necessary permits.

Since the replacement cost is recognized to be a test of the reasonableness of actual expenditure rather than a repetition of the actual expenditure, our estimated replacement cost for the Facility represents expected the cost of a "generic" solid waste-processing facility. This generic unit is not represented to contain any or all of the same plant elements or to utilize identical technology for any or all of the components comprising the Facility. The generic unit is assumed to utilize current solid waste combustion technology with all necessary air pollution control technology to meet Maximum Available Control Technology requirements that will meet all the present requirements for environmental protection and can process essentially the same amount of municipal solid waste and produce the same electrical and steam output as the Facility.

We believe that this is a reasonable assumption for solid waste processing assets. A typical purchaser of the Facility would not be willing to buy these assets at a cost inclusive of any additional costs associated with these assets when the market may offer similar solid waste processing assets without the costs based on a specific design.

In determining the appropriate type of replacement asset, consideration must be given to factors, such as the current technology, economic factors, environmental restrictions or limitations, and competitive markets for the output of the waste-to-energy assets being appraised. In the case of the Facility, the replacement technology is assumed to be similar to the assets currently in place.

To develop the replacement cost for the Facility, R. W. Beck relied upon the opinions, knowledge, and experience of its engineering and cost-estimating staff to develop a reasonable estimate of the cost to replace the Facility.

The Facility's replacement costs are defined based on consideration of physical characteristics and other criteria such as materiality, identifiability, and process function. The estimated cost for the replacement asset is based upon our engineering knowledge associated with the cost to construct similar type assets, historical records of similar plants with which we are familiar, current market conditions, site specific conditions, local labor markets, various cost-estimating manuals available to us, and

our general knowledge based upon discussion with equipment manufacturers and subcontractors who routinely build these types of assets. The resulting estimate of Replacement Cost New Less Depreciation is included as Exhibit 2 of the Report.

The replacement cost was adjusted to reflect an appropriate amount of depreciation. In developing the amount of depreciation to adjust the replacement cost for each of the assets, we looked at the three basic types of depreciation defined as follows:

- Physical deterioration – the loss in value resulting from the wear and tear of an asset in operation and exposure to various elements.
- Functional obsolescence – the loss in value within the property as a result of the development of new technology.
- Economic obsolescence – the loss in value resulting from factors external to the property.

The replacement cost that was developed for the asset was adjusted to take into consideration an allowance for depreciation based on the age and estimated remaining useful life of the asset (physical deterioration). Although no specific adjustment was made for functional or economic obsolescence, some functional and economic obsolescence is present as is indicated by the large difference between RCNLD and FMV.

We assumed that the replacement asset would have a useful life of 50 years. The remaining life for the Facility was compared to the useful life of the replacement asset and age/life depreciation (physical deterioration) to the date of valuation was developed.

The development of the overall indicator of value under the Replacement Cost Method for the Facility, as of January 1, 2011, is shown in Exhibit 2 and is summarized in Table 3-1.

**Table 3-1**  
**Cost Approach – Replacement Cost Method**

Valuation	Indicator of Value
Replacement Cost	\$255,815,000
Less: Depreciation	\$63,954,000
Replacement Cost New Less Depreciation (RCNLD)	\$191,861,000

Note: Value as of January 2011

## Income Approach

The Earnings Stream Method under the Income Approach involves a determination of an estimated value, which, based upon an assumed level of revenues and expenses, would result in a typical purchaser receiving a return on its investment of an assumed amount, if that typical purchaser paid the estimated value.

In our earnings stream analyses for the Facility, we estimated the net cash flows from the operation of the asset under competitive market conditions and discounted such net cash flows using an appropriate discount factor. The value of the Facility was then determined by discounting cash flows to present value.

Based on our review of data requested and received from the Authority, we developed reasonable estimates for various expense items (including operations and maintenance expenses and capital additions expenditures) and used those as the basis of the costs included in our cash flow model.

Once the revenues and expenses were estimated for the asset, the estimated operating expenses were subtracted from estimated revenues to calculate the operating income for each year. The estimated amount of tax depreciation (including any tax depreciation on capital additions) was subtracted from the operating income to provide an estimate of the annual taxable income for the Facility. Income taxes were estimated based on the federal and state corporate income tax rates. The estimated net cash flow for each year was calculated by subtracting income tax and capital additions from the operating income. Through an iterative process using this procedure, an estimated purchased and paid earnings stream value was determined, which results in an assumed required return on investment for the Facility.

The Earnings Stream Analyses for the Facility are shown in Exhibit 3.

## Fair Market Value Analysis

Table 3-2 summarizes the estimated value of the asset at January 2011 for the Fair Market Value Analysis. In this case, Fair Market Value is the market value that a potential buyer of the Facility would likely face in the absence of special contractual considerations from the Authority related to waste stream and tipping fee guarantees.

### Tipping Fee Revenues

We assumed a private owner of the Facility would be unable to receive similar tip fees rates for receiving solid waste as have been received in the past by the Authority from the city and county.

Table 3-2  
Income Approach

Valuation Date	Indicator of Value
January 2011	\$0

## Market Approach

The Comparable Sales Method under the Market Approach involves a review of recent sales of similar assets between a willing buyer and a willing seller (who are unrelated) as an indication of the general market price for such assets.

In reviewing the sales of waste-to-energy assets to determine if a sufficient basis exists for comparison to the Facility, consideration must be given to factors related to the particular waste-to-energy asset being sold and the circumstances related to the sale, which may have had an effect on the sales price of such an asset. For instance, the relationship between the purchasing and selling parties and other transactions between such parties at essentially the same time as the sale may affect the sales price of the asset being sold. Also, the following technical features of a waste-to-energy asset will affect the sales prices: the type of waste, the location of the waste-to-energy asset, and the market from which it receives solid waste for processing and into which it sells steam and energy will affect the sales price.

One difficulty with the Comparable Sales Method is that all sales are not announced, and when they are, few details are often disclosed. Even when the daily processing capacity and sales price are provided, the remaining information about the Facility and sale may be insufficient to determine what the price included (e.g., contractual rights and other assets), how the price was derived, and whether the sale could be considered representative of a sale at Fair Market Value. A typical example of the level of detail released for examination is an announcement of a sale that stated that the owner sold a 50.5 percent share of its \$38 million, 19-MW waste-to-energy plant "for an undisclosed sum." No information regarding the solid waste processing capacity was given or could be found relative to that particular waste to energy transaction. Further, significant differences in the market-based tipping fees will significantly impact the sales price.

For the reasons discussed above, we did not rely on the Market Approach to value as an indicator of value in determining the Fair Market Value of the Facility.

## Section 4 CONCLUSIONS

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## Fair Market Value

The results of our analyses of the estimated Fair Market Value of the Facility at January 2011 are summarized in Table 4-1.

**Table 4-1**  
**Summary of Value Indicators as of January 2011**

RCNLD	Income Approach	Market Approach
\$ 191,861,000	\$ 0	N/A

Note: All values are in nominal terms.

Generally, a potential purchaser of a property should be willing to pay the lesser of the value indicated by the Replacement Cost Method (Cost Approach) and the value indicated by the Income Approach. If a prospective purchaser were to pay an amount greater than that indicated by the Income Approach, the prospective purchaser would be unable to earn its desired return on equity. Similarly, the prospective purchaser should be unwilling to pay more than the value indicated by the Replacement Cost Method, because the prospective purchaser could construct similar assets at or near the indicated replacement cost. However, the prospective purchaser might be willing to pay more than the replacement cost for solid waste processing assets if the earnings stream clearly supports a higher price because the potential costs associated with the risks of design, development, and construction of a project or any special technical or other features of a project are generally not precisely measured in the Replacement Cost Method. Additionally, projects of this type are generally difficult to permit, site and build in today's political environment.

The Fair Market Value of the Facility is extremely sensitive to the amount of tipping fee revenue as well as the price paid for the electricity generated. While it is difficult to predict the prices a potential buyer might be able to negotiate, it is apparent that the City's contracts contain favorable rates for tipping fees, which make it reasonable to assume that value is greater to the City than to a hypothetical third-party purchaser.

For the reasons discussed herein, we are of the opinion that the Income Approach is the most appropriate valuation method to use in identifying a Fair Market Value Indicator for the Facility. Accordingly, we are of the opinion that the Fair Market Value at current market conditions is \$0 and that no prudent purchaser would pay any amount for the Facility, as is, without certain guarantees from the Authority related to minimum waste flows and minimum tipping fees.

Section 5  
APPRAISAL CERTIFICATION

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## Section 5 APPRAISAL CERTIFICATION

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We, the undersigned, certify that, to the best of our knowledge and belief:

- The statements of fact contained in this report are true and correct.
- The reported analyses, opinions and conclusions are limited only by the reported assumptions and limiting conditions and are the unbiased professional analyses, opinions and conclusions of R. W. Beck.
- R. W. Beck has no present or prospective interest in the property that is the subject of this report and has no personal interest or bias with respect to the parties involved.
- Compensation is not contingent upon the reporting of a predetermined value or direction in value that favors the cause of the client, the amount of the value opinion, the attainment of a stipulated result or the occurrence of a subsequent event directly related to the intended use of the limited appraisal.
- The report is not based on a requested minimum valuation, a specific valuation or the approval of a loan.
- Representatives of R. W. Beck made on-site field observations of the property that is the subject of the Report.
- R. W. Beck staff, under the principal supervision of the undersigned, provided assistance in the preparation of this report. A list of significant contributors is included in Exhibit 1 the Report.
- The analyses, opinions and conclusions were developed and the Report has been prepared in conformity with USPAP, promulgated by the Appraisal Standards Board of the Appraisal Foundation and the Principles of Appraisal Practice and Code of Ethics of the American Society of Appraisers.

Respectfully submitted,  
**R. W. BECK, INC.**



Michael G. Lane, ASA  
January 14, 2011

Exhibit 1  
INDIVIDUALS CONTRIBUTING TO THE REPORT

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# Exhibit 1

## INDIVIDUALS CONTRIBUTING TO THE REPORT

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### Michael G. Lane, ASA

Belmont University: M.B.A. in Finance

Belmont University: B.A. in Business Administration

Thomas Edison State College: A.S. in Nuclear Engineering Technology

Mr. Lane is an Accredited Senior Appraiser in the public utility discipline and has 20 years of experience providing technical and management services to various industries. He has 12 years experience in utility valuation/appraisal and has worked on numerous valuation and appraisal studies used in the sale and acquisition of electric, gas, and water properties, in property tax disputes and for the financing of utility plant property. He also has experience relative to utility cost-of-service and rate design studies, econometric forecasts, and feasibility studies for electric, gas and water utility clients. In addition, his experience includes management of field condition assessments and valuation analyses of gas/propane peak shaving plants and the development of life-cycle cost studies that included cost sensitivity and discount rate sensitivity analyses.

Before joining R. W. Beck, Mr. Lane served in the U.S. Navy as a nuclear power plant supervisor onboard the USS Minneapolis–St. Paul where he was responsible for the safe operation of all reactor plant and power-related systems and as a field engineer/inspector for Hartford Steam Boiler Inspection and Insurance Company.

### Nancy Heller Hughes, ASA

University of Chicago: M.B.A in Finance and Accounting

University of Chicago: B.A. in Business and Statistics

Ms. Hughes has worked in the public utility industry since 1977 specializing in utility rates and regulation, depreciation and valuation. She has testified as an expert witness on these issues before federal and state regulatory commissions, city councils and courts of law. Ms. Hughes has performed valuation and appraisal studies to determine the value of a wide range of utility property including electric, natural gas, water, wastewater, telecommunications and solid waste property. These studies have been performed in connection with the sale and acquisition of property, eminent domain cases, property tax issues, fixed asset inventory development and utility rate cases.

Ms. Hughes is an Accredited Senior Appraiser (ASA) certified by the American Society of Appraisers.

## Scott Cochran, ASA

Belmont University: M.B.A. in Finance

Auburn University: B.A. in Business Administration (Finance)

A Project Analyst with R. W. Beck, Mr. Cochran brings more than 7 years of experience in finance and project management. He provides valuation/appraisal services, rate design, and cost-of-service studies for electric, gas, and water utility clients. Mr. Cochran also develops sales/demand forecasts, performs econometric studies of clients' service areas, and prepares economic feasibility studies for clients by making acquisition and project implementation decisions. In addition, he has served as lead analyst for numerous valuation analyses of gas/propane peak shaving plants, water and electric distribution systems, and power generation projects.

Mr. Cochran offers comprehensive expertise in the areas of cost of service and rate design for electric, water, wastewater, and natural gas utilities. He has served in multiple roles working for utility management, boards, city councils, attorneys, and end-users. Mr. Cochran provides detailed analyses for each client, including a determination of the required revenue, creating a cost of service model for each project, and providing a study report which includes a rate design for each customer class.

He has attended courses including Cost of Service Techniques for Electric Utilities and Introduction to Rate Design for Electric Utilities hosted by Electric Utility Consultants, Inc. (EUCI), a leading provider of education for the energy industry. He has also attended courses in Machinery and Technical Specialties appraisals taught by the American Society of Appraisers.

Mr. Cochran is an Accredited Senior Appraiser (ASA) certified by the American Society of Appraisers.

Exhibit 2  
COST APPROACH

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An SAIC Company

**THE HARRISBURG AUTHORITY**  
**25 MW Municipal Solid Waste Capital Cost Summary**  
**Harrisburg Resource Recovery Replacement Cost Estimate (Millions)**

	Replacement Cost New	Allocated Indirect Costs	Total RCN	Depreciation [1]	RCNLD
Civil (Clearing, roads, drainage, UG utilities)	\$ 2,000	\$ 1,555	\$ 3,555	\$ 889	\$ 2,666
Concrete - (Material/labor) excluding/form/rebar/backfill 4,000 yds	2,200	1,710	3,910	978	2,933
Steel 2,000 tons	6,000	4,665	10,665	2,666	7,999
Tipping/transfer floor building (75' x 200')	2,250	1,749	3,999	1,000	3,000
Tipping floor pit (65' x 125' x 35')	1,309	1,018	2,327	582	1,745
Ash loadout/ferrous building (30' x 60')	270	210	480	120	360
Boiler building (Siding and arch finish) - 5 story	3,000	2,332	5,332	1,333	3,999
Turbine building (40' x 60')	360	280	640	160	480
Vehicle maintenance center (100' x 100')	1,500	1,166	2,666	667	2,000
D&D building (40' x 75')	450	350	800	200	600
PDC building (30' x 40')	180	140	320	80	240
Piling	2,000	1,555	3,555	889	2,666
Civil/structural labor	3,000	2,332	5,332	1,333	3,999
<b>Subtotal Civil Structural Labor and Material</b>	<b>\$ 24,519</b>	<b>\$ 19,063</b>	<b>\$ 43,582</b>	<b>\$ 10,896</b>	<b>\$ 32,687</b>
Truck scale (1)	\$ 100	78	\$ 178	\$ 44	\$ 133
2 - 10 ton overhead cranes	6,000	4,665	10,665	2,666	7,999
3 - 270 ton per day stokers	24,000	18,660	42,660	10,665	31,995
3 - 85,000 lb per hour boilers	18,000	13,995	31,995	7,999	23,996
3 - dry scrubber/baghouses/fans	18,000	13,995	31,995	7,999	23,996
Stack	2,000	1,555	3,555	889	2,666
STG - 25 MW	8,000	6,220	14,220	3,555	10,665
Cooling tower (6-cell)	1,500	1,166	2,666	667	2,000
Pumps, piping, valves, miscellaneous	8,300	6,453	14,753	3,688	11,065
Water and wastewater treatment equipment	1,500	1,166	2,666	667	2,000
Ash handling equipment - vibrating pan, incline conveyor, oversize screen	3,000	2,332	5,332	1,333	3,999
Ferrous scrap metal equipment - trommel, feeder, magnet, chutes	2,000	1,555	3,555	889	2,666
Mechanical installation labor	12,000	9,330	21,330	5,332	15,997
<b>Total Mechanical Equipment Supply &amp; Installation</b>	<b>\$ 104,400</b>	<b>\$ 81,170</b>	<b>\$ 185,570</b>	<b>\$ 46,393</b>	<b>\$ 139,178</b>
GSU's/Aux	\$ 1,500	1,166	\$ 2,666	\$ 667	\$ 2,000
Electrical commodities	3,000	2,332	5,332	1,333	3,999
Miscellaneous, lighting, security	1,000	777	1,777	444	1,333
Switchgear, MCC's, breakers, UPS	1,500	1,166	2,666	667	2,000
CEMS	1,000	777	1,777	444	1,333
DCS & instrumentation	1,000	777	1,777	444	1,333
Electrical / I&C installation	6,000	4,665	10,665	2,666	7,999
<b>Subtotal Electrical / I&amp;C Labor and Material</b>	<b>\$ 15,000</b>	<b>\$ 11,662</b>	<b>\$ 26,662</b>	<b>\$ 6,666</b>	<b>\$ 19,997</b>
Construction indirect costs including insulation and painting	\$ 12,750				
Craft labor incentives	\$ 3,000				
Construction management	\$ 8,000				
Engineering & design	\$ 12,000				
Miscellaneous costs (Consultants, advisory)	\$ 4,000				
Startup - commissioning & craft	\$ 2,500				
<b>Project Indirects</b>	<b>\$ 42,250</b>				
Fee and contingency	\$ 27,010				
<b>Total Project EPC</b>	<b>\$ 213,179</b>	<b>\$ 111,896</b>	<b>\$ 255,815</b>	<b>\$ 63,954</b>	<b>\$ 191,861</b>
Owner's Costs (excluding project finance)	\$ 42,636				
<b>Total Project Cost (excluding project finance)</b>	<b>\$ 255,815</b>				
<b>\$ per kW</b>	<b>\$ 10,233</b>				

NOTES:

[1] Assuming 50-year useful life and 10-year age for the Harrisburg Authority

Exhibit 3  
EARNINGS STREAM ANALYSIS – IOU

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An SAIC Company



**THE HARRISBURG AUTHORITY  
WASTE-TO-ENERGY FACILITY  
EARNINGS STREAM ANALYSIS**

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**FOOTNOTES**

1. Represents operations beginning January 1, 2011.
2. Estimated annual Expenses are based on historical data and the Authority's financial plan.
3. Tax depreciation is based on 20 MACRS
4. Federal Income tax rate of 35%
5. State income tax rate of 6%



**THE HARRISBURG AUTHORITY  
WASTE-TO-ENERGY FACILITY  
EARNINGS STREAM ANALYSIS**

**Financing**

Debt Ratio	1
Debt Interest Rate	0
Equity Rate	15.00%
Weighted Average Cost of Capital	8.78%

**General**

In Service Date (year)	
WASTE-TO-ENERGY FACILITY	1972
Useful Life	
WASTE-TO-ENERGY FACILITY	50
General Inflation	2.20%

**Tax Information**

Income Taxes	
Pennsylvania State Corporate Tax	
Flat Rate	9.99%
Federal Income Tax	35.00%
Federal Effective Tax Rate	32.64%
Total Effective Tax Rate	39.37%
Use Tax Carry forward (0=No,1=Yes)	0
Depreciation Schedule	
20-year property MACRS	100.00%

**THE HARRISBURG AUTHORITY  
WASTE-TO-ENERGY FACILITY  
EARNINGS STREAM ANALYSIS**

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**Fair Market Value**

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Value of Facility - INPUT	\$	(31,587,000)
Value of Facility - CALCULATED	\$	(31,587,000)
Minimum Discounted Cash Flow	\$	(5,152,213)

THE HARRISBURG AUTHORITY  
WASTE-TO-ENERGY SYSTEM  
EARNINGS STREAM ANALYSIS

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	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>	<u>2019</u>	<u>2020</u>
<b><u>OPERATING REVENUES</u></b>										
Electrical sales (\$)	\$ 4,160,029	\$ 4,834,764	\$ 4,941,128	\$ 5,049,833	\$ 5,160,930	\$ 5,274,470	\$ 5,390,508	\$ 5,509,100	\$ 5,630,300	\$ 5,754,166
Ferrous sales	\$ 658,464	\$ 672,950	\$ 687,755	\$ 702,886	\$ 718,349	\$ 734,153	\$ 750,304	\$ 766,811	\$ 783,681	\$ 800,922
Tipping fee revenue	\$ 11,499,520	\$ 11,738,857	\$ 11,983,459	\$ 12,233,442	\$ 12,488,925	\$ 12,750,028	\$ 13,016,876	\$ 13,289,594	\$ 13,568,312	\$ 13,853,162
Miscellaneous revenue	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000
<i>Total revenue</i>	<b>\$ 16,319,013</b>	<b>\$ 17,246,570</b>	<b>\$ 17,612,342</b>	<b>\$ 17,986,161</b>	<b>\$ 18,368,203</b>	<b>\$ 18,758,651</b>	<b>\$ 19,157,689</b>	<b>\$ 19,565,505</b>	<b>\$ 19,982,293</b>	<b>\$ 20,408,251</b>



**THE HARRISBURG AUTHORITY  
WASTE-TO-ENERGY FACILITY  
SUMMARY OF REVENUES AND EXPENSES**

<u>ESTIMATED ANNUAL REVENUE</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>
Ferrous sales	\$ 658,464	\$ 672,950	\$ 687,755	\$ 702,886	\$ 718,349
Electrical sales (\$)	4,160,029	4,834,764	4,941,128	5,049,833	5,160,930
Tipping fee revenue					
Harrisburg	1,552,000	1,586,144	1,621,039	1,656,702	1,693,149
Dauphin	5,066,000	5,163,799	5,263,750	5,365,899	5,470,296
Perry	214,000	218,708	223,520	228,437	233,463
Cumberland	784,000	801,248	818,875	836,891	855,302
Schuylkill	288,000	294,336	300,811	307,429	314,193
Northumberland	480,000	490,560	501,352	512,382	523,654
Spot	1,320,100	1,349,142	1,378,823	1,409,157	1,440,159
Bulky	281,940	288,143	294,482	300,960	307,582
C&D	1,250,600	1,278,113	1,306,232	1,334,969	1,364,338
Residual	146,880	150,111	153,414	156,789	160,238
Specialty	96,000	98,112	100,270	102,476	104,731
Finance charges & other	21,000	21,440	21,890	22,349	22,819
<b>TOTAL REVENUES</b>	<b>\$ 16,319,013</b>	<b>\$ 17,247,570</b>	<b>\$ 17,613,342</b>	<b>\$ 17,987,161</b>	<b>\$ 18,369,203</b>
 <u>ESTIMATED ANNUAL EXPENSES</u>					
Waste transfer and ash disposal	\$ 3,373,332	\$ 3,468,791	\$ 3,524,050	\$ 1,500,084	\$ 1,533,086
Covanta operating agreement	12,536,934	12,847,739	13,130,389	13,419,258	13,714,482
Lease expense	34,000	34,000	34,000	34,000	34,000
Host fees to municipalities	813,346	813,346	813,346	813,346	813,346
Environmental fees	652,285	652,285	652,285	900,839	900,839
Utilities	1,299,600	1,318,934	1,347,950	1,377,605	1,405,329
Insurance	416,500	437,325	459,191	482,151	506,258
Compliance & post closure	1,500	1,511	1,522	701,534	701,545
Permit & engineering	108,500	110,887	113,327	115,820	115,313
Non-operating expenses & miscellaneous	147,384	98,426	99,492	50,581	51,693
Other expenses	1,090,884	1,062,683	1,084,962	1,057,732	1,081,002
<b>TOTAL EXPENSES</b>	<b>\$ 20,474,264</b>	<b>\$ 20,845,928</b>	<b>\$ 21,260,515</b>	<b>\$ 20,452,949</b>	<b>\$ 20,856,894</b>
 <b>NET REVENUE</b>	 <b>\$ (4,155,252)</b>	 <b>\$ (3,598,357)</b>	 <b>\$ (3,647,172)</b>	 <b>\$ (2,465,789)</b>	 <b>\$ (2,487,691)</b>

**THE HARRISBURG AUTHORITY  
WASTE-TO-ENERGY FACILITY  
ELECTRIC REVENUES**

	<b>2011 [1]</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>
<b>Production</b>										
Net KWH/ton	354	389	389	389	389	389	389	389	389	389
Tons Burned	274,360	274,360	274,360	274,360	274,360	274,360	274,360	274,360	274,360	274,360
KWH sold/yr	93,948,251	106,835,784	106,835,784	106,835,784	106,835,784	106,835,784	106,835,784	106,835,784	106,835,784	106,835,784
KWH sold/week	1,806,697	2,054,534	2,054,534	2,054,534	2,054,534	2,054,534	2,054,534	2,054,534	2,054,534	2,054,534
<b>Price (\$/MWh)</b>										
Avg. Annual Price	2.2% \$ 44.28	\$ 45.25	\$ 46.25	\$ 47.27	\$ 48.31	\$ 49.37	\$ 50.46	\$ 51.57	\$ 52.70	\$ 53.86
<b>Revenue</b>	<u>\$ 4,160,029</u>	<u>\$ 4,834,764</u>	<u>\$ 4,941,128</u>	<u>\$ 5,049,833</u>	<u>\$ 5,160,930</u>	<u>\$ 5,274,470</u>	<u>\$ 5,390,508</u>	<u>\$ 5,509,100</u>	<u>\$ 5,630,300</u>	<u>\$ 5,754,166</u>
Total	\$ 4,160,029	\$ 4,834,764	\$ 4,941,128	\$ 5,049,833	\$ 5,160,930	\$ 5,274,470	\$ 5,390,508	\$ 5,509,100	\$ 5,630,300	\$ 5,754,166

[1] Assumes 8th stage repair lasting 3 weeks, 13 weeks with impaired 8th stage and the remainder of the year with repair complete and approximately 10% increase in efficiency

Exhibit 4  
COST OF CAPITAL ANALYSIS

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An SAIC Company

**THE HARRISBURG AUTHORITY  
ESTIMATION OF WEIGHTED AVERAGE COST OF CAPITAL  
EXHIBIT 4-1 UNLEVERING GUIDELINE COMPANY'S BETA**

<u>Company</u>	<u>Debt</u>	<u>Tax Rate</u>	<u>Tax Effectd</u> <u>Debt</u>	<u>Equity</u>	<u>Cap.</u> <u>Structure</u>	<u>Beta [1]</u>	<u>Unlevered</u> <u>Beta [2]</u>
Covanta Holding	58%	40%	35%	42%	55%	0.95	0.52
Waste Management	58%	37%	36%	42%	54%	0.80	0.43
<b>Unlevered Beta</b>							<b>0.47</b>

[1] Based on data from Value Line

[2] Unlevered beta's are calculated based on the formula provided in "Valuing a Business" by Dr. Shannon Pratt, page 169. See also "Corporate Finance". Ross, Westerfield, & Jaffe, page 482.

**THE HARRISBURG AUTHORITY**  
**ESTIMATION OF WEIGHTED AVERAGE COST OF CAPITAL**  
**EXHIBIT 4-2 RELEVERING GUIDELINE COMPANY'S BETA**

<u>Debt [1], [2]</u>	<u>Tax Rate</u>	<u>Tax Effectd Debt</u>	<u>Equity</u>	<u>Cap. Structure</u>	<u>Beta [3]</u>	<u>Levered [4]</u>
58%	39%	0.36	42%	0.54	0.47	0.88

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[1] Debt and Equity ratios are assumed based on current ratios for the subject company, which are assumed to be typical for its industry niche.

[2] Market capitalization rate based on average of sample firms' debt ratios from Value Line.

[3] Exhibit 1-1.

[4] Unlevered and relevered beta's are calculated based on the formula provided in "Valuing a Business" by Dr. Shannon Pratt, et al. page 169. See also "Corporate Finance". Ross, Westerfield, & Jaffe, page 482.

**THE HARRISBURG AUTHORITY  
ESTIMATION OF WEIGHTED AVERAGE COST OF CAPITAL  
EXHIBIT 4-3 CAPITAL ASSET PRICING MODEL**

**Explanation**

Step One:		Risk Free Investment Rate	<a href="#">3.82%</a>	Based on 20-yr treasury rate at time of valuation [1]
Step Two:	<b>Plus</b>			
		Equity Risk Premium	<a href="#">5.70%</a>	Based on Ibbotson's Stock's Bonds Bills and Inflation page 252, Table C-1
Step Three:	<b>Times</b>	Beta	<u>0.88</u>	Exhibit 2-1
			5.0%	Valuation Date Average Market Return
	<b>Equals:</b>		8.81%	
Step Four:	<b>Plus</b>			
		Size Premium	<a href="#">5.34%</a>	
	<b>Equals:</b>		14.15%	Cost of Equity using the CAPM approach

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[1] Ibbotson's Stocks Bonds Bills and Inflation, page 57, Table 4-1.

**THE HARRISBURG AUTHORITY**  
**ESTIMATION OF WEIGHTED AVERAGE COST OF CAPITAL**  
**EXHIBIT 4-4 BUILD-UP METHOD**

		Explanation
Step One:	Risk Free Investment Rate	<u>4.80%</u> Based on 20-yr treasury rate at time of valuation [1]
Step Two:	<b>Plus</b> Equity Risk Premium	<u>5.70%</u> Based on Ibbotson's Stock's Bonds Bills and Inflation, page 252, Table C-1 11% Valuation Date Average Market Return
Step Three:	<b>Plus</b> Industry Premium	Based on Ibbotson's Stock's Bonds Bills and Inflation page 39, Table 3-5 <u>0.00%</u> Electric Services Premium
Step Four:	<b>Plus</b> Size Premium	<u>5.34%</u> Specific Company Risk based on size premium and unsystematic risk. [2]
Equals:		15.84% Cost of Equity Using the Buildup Method

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[1] <http://www.federalreserve.gov/releases/H15/data.htm>

[2] Standard & Poor Risk Premium Report, page 52, (Book value of equity < \$42m.)

**THE HARRISBURG AUTHORITY**  
**ESTIMATION OF WEIGHTED AVERAGE COST OF CAPITAL**  
**EXHIBIT 4-5 WEIGHTED AVERAGE COST OF CAPITAL CALCULATION**

$$WACC = W_D k_D (1 - T) + W_E k_E$$

Weight of Debt	58%
Cost of Debt [1]	6.92%
Tax Rate	38.50%
Weight of Equity	42%
Cost of Equity [2]	15.00%

Weighted Average Cost of Capital  
8.78%

**NOTES**

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- [1] Baa Moody's Seasoned Corporate Bonds May 2007,  
<http://www.federalreserve.gov/releases/H15/data.htm> plus 100 basis points  
[2] Utilized Buildup Cost of Equity