

# TECHNICAL GUIDANCE DOCUMENT



INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

## Cost/Economic Impact Analysis

### BACT-01b

Office of Air Quality, Permits Branch

(317) 232-8603 • (800) 451-6027

[www.idem.IN.gov](http://www.idem.IN.gov)

100 N. Senate Ave., Indianapolis, IN 46204

#### COST/ECONOMIC IMPACT ANALYSIS

Complete this document for each BACT option in which cost and economic impacts are to be considered. For this document, do not include costs that would be incurred regardless of whether the BACT option is chosen. Attach a copy of the cost estimates in a format such that IDEM, OAQ staff can easily reproduce the cost estimates. If the particular item is not applicable to the BACT option being evaluated, indicate "Not Applicable" (N/A) in the appropriate blanks. Add additional lines and/or copy the document as necessary.

#### Source Information

<b>Facility:</b>		<b>Unit ID:</b>	
<b>BACT Option:</b>		<b>Pollutant:</b>	

#### TOTAL CAPITAL INVESTMENT

Total Capital Investment (TCI) is the total direct and indirect capital costs associated with implementation of a BACT option. Use Tables A and B to indicate the direct and indirect capital costs that would be incurred above the baseline project costs. Summarize the total capital costs in Table C. Attach vendor quotes and additional sheets as necessary.

#### A. Direct Capital Costs

Item*	Cost Estimate	Reference/Source of Cost Estimate
<b>Purchased Equipment Costs</b>		
1. Equipment Costs (Itemize below)		
	\$	
	\$	
	\$	
	\$	
2. Instrumentation	\$	
3. Sales Tax	\$	
4. Freight	\$	
5. Other (please specify)		
	\$	
	\$	
	\$	
	\$	
<b>6. Purchased Equipment Subtotal</b> (Sum of Items 1, 2, 3, 4, and 5)	<b>\$</b>	

\*Add lines as necessary

<b>Facility:</b>		<b>Unit ID:</b>	
<b>BACT Option:</b>		<b>Pollutant:</b>	

<b>A. Direct Capital Costs (continued)</b>		
<b>Item*</b>	<b>Cost Estimate</b>	<b>Reference/Source of Cost Estimate</b>
<b>Direct Installation Costs</b>		
7. Foundations and Supports	\$	
8. Auxiliaries (duct work, fittings - include only the equipment which would not be necessary if the facility was not controlled)	\$	
9. Handling and Erection	\$	
10. Piping	\$	
11. Insulation and Painting	\$	
12. Electrical	\$	
13. Site Preparation	\$	
14. Other (please specify)		
	\$	
	\$	
	\$	
	\$	
	\$	
	\$	
	\$	
	\$	
	\$	
	\$	
<b>15. Direct Installation Costs Subtotal</b> (Sum of Items 7, 8, 9, 10, 11, 12, 13, and 14)	<b>\$</b>	
<b>16. DIRECT CAPITAL COSTS SUBTOTAL</b> (Sum of Items 6 and 15)	<b>\$</b>	

<b>Comments/Explanation (Regarding Table A)</b>

\*Add lines as necessary



<b>Facility:</b>		<b>Unit ID:</b>	
<b>BACT Option:</b>		<b>Pollutant:</b>	

<b>C. Capital Cost Summary</b>	
<b>1. Total Capital Investment Subtotal</b> (Sum of Table A, Item 16 and Table B, Item 9)	<b>\$</b>
<b>2. Capital Recovery Factor</b>	
a. Interest Rate	
b. Economic Lifetime	
<b>3. CAPITAL RECOVERY COST</b>	<b>\$</b>

<b>Comments/Explanation (Regarding Table C)</b>



<b>Facility:</b>		<b>Unit ID:</b>	
<b>BACT Option:</b>		<b>Pollutant:</b>	

<b>TOTAL ANNUAL COST</b>
--------------------------

Total Annual Cost includes the direct and indirect costs and recovery credits associated with implementation of a BACT option. Use Tables D and E to indicate the annual costs that would be incurred above the baseline project costs. Use Table F to indicate the recovery credits that would be realized after implementation of the BACT option. Summarize the total annual costs in Table G. Attach vendor quotes and additional sheets as necessary.

<b>D. Direct Annual Costs</b>		
Item*	Cost Estimate	Reference/Source of Cost Estimate
<b>1. Operating Labor (Itemize below)</b>		
	\$	
	\$	
	\$	
<b>2. Maintenance Labor (Itemize below)</b>		
	\$	
	\$	
<b>3. Materials (Itemize below)</b>		
	\$	
	\$	
	\$	
<b>4. Utilities (Itemize below)</b>		
	\$	
	\$	
	\$	
<b>5. Waste Treatment and Disposal (Itemize below)</b>		
	\$	
	\$	
<b>6. Replacement Parts (Itemize below)</b>		
	\$	
	\$	
	\$	
<b>7. Other (please specify)</b>		
	\$	
	\$	
<b>8. DIRECT ANNUAL COSTS SUBTOTAL</b> (Sum of Items 1, 2, 3, 4, 5, 6, and 7)	<b>\$</b>	

<b>Facility:</b>		<b>Unit ID:</b>	
<b>BACT Option:</b>		<b>Pollutant:</b>	

<b>Comments/Explanation (Regarding Table D)</b>

\*Add lines as necessary

<b>E. Indirect Annual Costs</b>		
<b>Item*</b>	<b>Cost Estimate</b>	<b>Reference/Source of Cost Estimate</b>
1. Overhead	\$	
2. Property Taxes, Insurance, and Administrative Charges	\$	
3. Other (please specify)		
	\$	
	\$	
	\$	
	\$	
	\$	
	\$	
	\$	
	\$	
	\$	
<b>4. INDIRECT ANNUAL COSTS SUBTOTAL (Sum of Items 1, 2, and 3)</b>	<b>\$</b>	

<b>Comments/Explanation (Regarding Table E)</b>

\*Add lines as necessary

<b>Facility:</b>		<b>Unit ID:</b>	
<b>BACT Option:</b>		<b>Pollutant:</b>	

<b>F. Recovery Credits</b>		
<b>Item*</b>	<b>Credit Estimate</b>	<b>Reference/Source of Credit Estimate</b>
<b>1. Materials Recovered</b>		
	\$	
	\$	
	\$	
<b>2. Energy Recovered</b>		
	\$	
	\$	
	\$	
<b>3. Other (please specify)</b>		
	\$	
	\$	
	\$	
	\$	
	\$	
	\$	
<b>4. RECOVERY CREDITS SUBTOTAL</b> (Sum of Items 1, 2, and 3)	\$	

**Comments/Explanation** (Regarding Table F)

\*Add lines as necessary

<b>G. Total Annual Cost Summary</b>	
<b>1. Direct Annual Costs Subtotal</b> from Table D, Item 8	\$
<b>2. Indirect Annual Costs Subtotal</b> from Table E, Item 4	\$
<b>3. Recovery Credits Subtotal</b> from Table F, Item 4	\$
<b>4. TOTAL ANNUAL COST SUBTOTAL</b> (Item 1 plus Item 2 Minus Item 3)	\$

<b>Facility:</b>		<b>Unit ID:</b>	
<b>BACT Option:</b>		<b>Pollutant:</b>	

<b>TOTAL ANNUALIZED COST SUMMARY</b>
--------------------------------------

<b>H. Total Annualized Cost Summary</b>	
1. <b>Capital Recovery Cost</b> from Table C, Item 3	<b>\$</b>
2. <b>Total Annual Cost Subtotal</b> from Table G, Item 4	<b>\$</b>
3. <b>TOTAL ANNUALIZED COST (TAC)</b> (Sum of Items 1 and 2)	<b>\$</b>

<b>I. Cost Effectiveness</b>	
1. <b>Baseline Emissions Rate</b> (tons per year)	
<b>Post-BACT Emissions Rate</b> (tons per year)	
<b>Total Pollutant Removed</b> (tons per year) (Difference of Item 1 and Item 2)	
4. <b>AVERAGE COST EFFECTIVENESS OF BACT OPTION</b> (\$/ton of pollutant removed) (Divide Table H, Item 3 by Table I, Item 3)	

<b>Comments/Explanation</b> (Regarding Table I)

<b>Attachments:</b> List attachments in the space below.	