NIST BLCC 5.3-09: Comparative Analysis

Consistent with Federal Life Cycle Cost Methodology and Procedures, 10 CFR, Part 436, Subpart A

Base Case: Existing System

Alternative: Bldg 365 - Bi-polar Ionization Air Putifier

General Information

File Name:	C:\Program Files\BLCC5\projects\Bldg 365, Bi-polar Ionization air purifiers.xml
Date of Study:	Thu Mar 11 16:20:00 GMT 2010
Project Name:	Bldg 365, NVESD, Ft. Belvoir
Project Location:	Virginia
Analysis Type:	FEMP Analysis, Energy Project
Analyst:	Night Vision & Electronic Sensor Directorate
Comment	Installation of Bi-polar Ionization Air Purification System to allow reduced OA ventilation rates per ASHRAE 62.1
Base Date:	August 1, 2009
Service Date:	August 1, 2009
Study Period:	10 years 0 months(August 1, 2009 through July 31, 2019)
Discount Rate:	3%
Discounting Convention:	End-of-Year

Comparison of Present-Value Costs

PV Life-Cycle Cost

	Base Case	Alternative	Savings from Alternative
Initial Investment Costs:			
Capital Requirements as of Base Date	$0	$16,920	-$16,920
Future Costs:			
Energy Consumption Costs	$363,232	$306,235	$56,996
Energy Demand Charges	$0	$0	$0
Energy Utility Rebates	$0	$0	$0
Water Costs	$0	$0	$0
Recurring and Non-Recurring OM&R Costs	$0	$19,061	-$19,061
Capital Replacements	$0	$0	$0
Residual Value at End of Study Period	$0	-$13	$13
Subtotal (for Future Cost Items)	$363,232	$325,284	$37,948
Total PV Life-Cycle Cost	$363,232	$342,204	$21,028

Net Savings from Alternative Compared with Base Case

PV of Non-Investment Savings	$37,935
- Increased Total Investment	$16,907
Net Savings	$21,028

Savings-to-Investment Ratio (SIR)

SIR = 2.24

Adjusted Internal Rate of Return

AIRR = 11.67%

Payback Period

Estimated Years to Payback (from beginning of Service Period)

Simple Payback occurs in year	4
Discounted Payback occurs in year	4

Energy Savings Summary

Energy Savings Summary (in stated units)

Energy Type	Average Annual Consumption Base Case	Average Annual Consumption Alternative	Life-Cycle Savings Savings
Electricity	517,000.0 kWh	405,150.0 kWh	111,850.0 kWh 1,118,040.7 kWh

Energy Savings Summary (in MBtu)

Energy Type	Average Annual Consumption Base Case	Average Annual Consumption Alternative	Life-Cycle Savings Savings
Electricity	1,764.1 MBtu	1,382.4 MBtu	381.6 MBtu 3,814.9 MBtu

Emissions Reduction Summary

Energy Type	Average Annual Emissions Base Case	Average Annual Emissions Alternative	Life-Cycle Reduction Reduction
Electricity			
CO2	474,374.60 kg	371,746.36 kg	102,628.24 kg 1,025,860.91 kg
SO2	1,324.34 kg	1,037.83 kg	286.51 kg 2,863.96 kg
NOx	953.33 kg	747.08 kg	206.25 kg 2,061.62 kg
Total:			
CO2	474,374.60 kg	371,746.36 kg	102,628.24 kg 1,025,860.91 kg
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