

Financial Case Study: NYC Area Hospital

One New York City area hospital was struggling with 52 aging mechanical AHUs, all original equipment from when the hospital was built in 1972. Poorly sloped condensate drain pans had led to years of standing water and premature corrosion of the AHU casing. With each AHU difficult to access in interstitial spaces, they were facing replacement costs upwards of \$250,000 per air handler.

The hospital had budgeted for the replacement of four AHUs at a time, at an expense of \$800,000. At the request of the hospital, AQUIS prepared a financial analysis to determine the potential cost savings of refurbishing these same AHUs. The analysis assumed the replacement or refurbishment of 4 AHUs at a time, and considered capital cost investment, energy savings, and operational cost savings for both refurbishment and replacement of these AHUs. Upon comparing the 7-year discounted cash flow for the AQUIS refurbishment versus replacement, they identified a significant overall savings in favor of AQUIS.

This New York City area hospital saved \$9.4 million in capital dollars at a ROI of 680% by refurbishing all 52 AHUs with AQUIS.

Financial Analysis for 4 AHUs

As follows is a detailed financial analysis for the refurbishment of 4 AHUs at this hospital.

- A NYC area hospital had budgeted to replace four 25,000 CFM modular AHUs in Year 2 at a cost of \$800,000
- AQUIS proposed to instead refurbish the same 4 AHUs with its CPR-SL System in Year 1 at cost of \$68,800
- The analysis considers the impact of both energy savings and maintenance savings for both the replacement and refurbishment scenarios

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Air Handling Unit Refurbishment Vs. Replacement

A Financial Analysis for NYC Area Hospital: 4 AHUs

SCENARIO A (Budgeted): Air Handling Unit Replacement

Cash Flow	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	TOTAL
Replacement Cost	\$0	(\$800,000)	\$0	\$0	\$0	\$0	\$0	(\$800,000)
Energy Savings	\$0	\$0	\$21,108	\$21,706	\$22,303	\$22,900	\$23,498	\$111,515
Maintenance Savings	\$0	\$0	\$12,000	\$13,000	\$14,000	\$15,000	\$16,000	\$70,000
TOTAL	\$0	(\$800,000)	\$33,108	\$34,706	\$36,303	\$37,900	\$39,498	(\$618,485)

SCENARIO B: AQUIS Air Handling Unit Refurbishment

Cash Flow	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	TOTAL
Installation Cost	(\$68,800)	\$0	\$0	\$0	\$0	\$0	\$0	(\$68,800)
10-Year Extended Warranty	(\$10,400)	\$0	\$0	\$0	\$0	\$0	\$0	(\$10,400)
Maintenance Savings	\$0	\$1,720	\$1,892	\$2,081	\$2,289	\$2,518	\$2,770	\$13,271
TOTAL	(\$79,200)	\$1,720	\$1,892	\$2,081	\$2,289	\$2,518	\$2,770	(\$65,929)

SCENARIO B VS. SCENARIO A: Savings for Refurbishment Vs. Replacement

Net Cash Flow	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	TOTAL
SAVINGS	(\$79,200)	\$801,720	(\$31,216)	(\$32,624)	(\$34,014)	(\$35,382)	(\$36,728)	\$552,556

INPUTS

Refurbishment Cost:	<u>\$79,200</u>
Replacement Cost:	<u>\$800,000</u>
Year of Replacement:	<u>Year 2</u>

RESULTS

Net Present Value (NPV):	<u>\$498,376</u>
Return on Investment (ROI):	<u>680%</u>

Assumptions:

- AHU replacement is already budgeted
- Cash Flow for Scenario A and Scenario B are compared against taking no action
- Approximates 4 AHUs totalling 100,000 CFM
- AHU replacement cost includes cost of equipment, installation and downtime
- AHU refurbished with AQUIS System on floors and antimicrobial coating on walls, ceilings, blowers and supports
- AHU refurbishment completed during Year 1; AHU replacement conducted at end of Year 2
- Maintenance savings based on reduced cost of parts & labor and increases by 10% annually
- Energy savings based on 10pp increase in efficiency of four 60 hp motors operating 8000 hours annually at 75% load
- Energy cost of \$ 0.1437 / kWh during year 1 increases by 3% annually
- ROI calculation based on discounted cash flow; Cost of Capital of 8% for NPV & ROI calculations