**One-Page Proposal Exercise**

**Sample Verbiage for Rationale Section**

1. **WINDOW AIR-CONDITIONER CONTROLS IN HOTEL SETTING**

**Capital Cost:** $104,000

**Annual Energy Cost Savings:** $110,000

**Annual Demand Cost Savings:** TBD

**Annual Non-Utility-Cost Financial Savings:** TBD

**Incentive:**  $19,900

**Analysis Term:**  10 years

**Discount Rate:**  10%

**Finance Rate:**  10%

**Reinvestment Rate:** 10%

**Inflation Rate:** 3%

Major hotels and resorts use guest room energy management systems to reduce electrical expenses by automatically adjusting temperature setbacks when guest rooms are unoccupied. XYZ Systems offers an innovative solution for hotels with AC Window Units that balances energy savings with the guest experience. Using a combination of motion and heat sensors to determine when guests leave the room, this system automatically turns off your AC Window Unit when the room is vacant. If the vacant room reaches the setback temperature you establish, the AC Window Unit is automatically turned back on.

No guest interaction is required, and no training is required for either Front Desk or Housekeeping staff. This guest room energy management system operates independently and automatically 24/7. Wireless communications make self-installation quick and easy with no need to take rooms out of inventory during the 30-minute retrofit. Self-powered components eliminate the need to change and dispose of batteries. The system uses high-quality components and has a 5-year warranty.

Your hotel completed an onsite test of XYZ’s energy saving solution and experienced a 51% reduction in kWh for air-conditioning, which equates to annual savings of $554 per room. Your utility offers rebates up to $100 per room to hotels implementing guest room energy management systems. Installing this system in your hotel is projected to save more than $110,000 per year, which would significantly boost the property’s Net Operating Income (NOI). Assuming a cap rate of 8%, that incremental NOI could support $1,375,000 in increased asset value. Moreover, the solution would lower the property’s greenhouse gas emissions by more than 550,000 pounds per year, which could not only help with carbon credits but also become a differentiating amenity when attracting hotel guests.

**One-Page Proposal Exercise**

**Sample Verbiage for Rationale Section**

1. **CHILLER IN FOOD MANUFACTURING SETTING**

**Capital Cost:** $270,000

**Annual Energy Cost Savings:** $32,000

**Annual Demand Cost Savings:** TBD

**Annual Non-Utility-Cost Financial Savings:** $43,800 ($15K less maint.; $28.8K avoided loss & delivery delays)

**Incentive:**  TBD

**Analysis Term:**  10 years

**Discount Rate:**  10%

**Finance Rate:**  10%

**Reinvestment Rate:** 10%

**Inflation Rate:** 3%

Your main chiller, which is 23 years old, has finally deteriorated to the point that unscheduled repairs are frequently required to maintain critical production temperatures. Each of your 11 major repairs last year has resulted in lost production time, overtime labor required to recoup that lost time, ruined work in process, and delayed deliveries to customers. Those delays have reduced much needed production capacity, created a negative image of the company among both your customers and your workforce, and in a few cases, even caused the company to suffer financial penalties for late deliveries. Your staff has estimated that unscheduled maintenance cost $15,000 last year, and that production losses and late-delivery penalties have collectively exceeded $36,000 in the same period. Since a new chiller would be under warranty, you can expect $15,000 in annual maintenance savings for at least the first five years. And with the increased reliability that this new equipment would bring, you can expect to reduce production losses and penalties by at least 80%.

A chiller plant upgrade consisting of a new chiller, controls and variable speed drives would also be more efficient than your current equipment. It is estimated that you would see a decrease in electricity consumption of at least 15%, which would save more than $32,000 per year.

Food manufacturing is a relatively low-margin business, so volume is critical to your company’s profitability. Assuming an industry-standard profit margin of 6%, how much revenue did you need to generate last year to net $77,000 (the projected annual savings of this new chiller plant)? More than $1.283 million, which equates to more than 366,666 frozen pizzas sold at a wholesale price of $3.50 each.

**One-Page Proposal Exercise**

**Sample Verbiage for Rationale Section**

1. **IMPROVED LIGHTING AND THERMAL COMFORT IN INCOME-PRODUCING OFFICE BUILDING SETTING**

Over the past two summers, many tenants at ABC South Office Tower have raised concerns about the building’s ability to maintain thermal comfort, particularly in the summer months. Given the importance of minimizing tenant complaints, maximizing tenant renewals and maintaining the building’s reputation in the local leasing community, management is presently considering a major chiller upgrade to address the situation.

A qualified lighting contractor has assessed the situation and confirmed that the building’s 20-year-old, inefficient fluorescent lighting system is a significant contributor to the building’s cooling burden. Moving to LED fixtures would reduce the building’s cooling load while saving $42,000 in energy use and $8,100 in energy demand charges. The building’s mechanical engineer has verified that reducing the heat generated by the building’s lighting system would resolve the cooling capacity shortfall in the summer months. Considering their inherently long life, these LEDs would also save $8,000 or more in annual maintenance costs for at least the first 10 years assuming the building’s current operating hours. Moreover, the energy savings would improve the building’s carbon footprint, which would not only help with carbon credits but also become a differentiating amenity when attracting/retaining tenants.

Finally, the building’s model lease form contains capital expense cost-recovery language, which allows the landlord to pass through a capital expense that reduces operating expenses for all tenants. So, while management would bear 100% of the cost of increasing cooling capacity, the cost of an energy-efficient lighting upgrade could be passed along to the tenants using an amortization schedule that mirrors the pace of projected energy and maintenance savings.

**Capital Cost:** $160,000

**Annual Energy Cost Savings:** $42,000

**Annual Demand Cost Savings:** $8,100

**Annual Non-Utility-Cost Financial Savings:** $8,000 ($8K less maint., not counting any added rent revenue)

**Incentive:**  TBD

**Analysis Term:**  10 years

**Discount Rate:**  10%

**Finance Rate:**  10%

**Reinvestment Rate:** 10%

**Inflation Rate:** 3%

**One-Page Proposal Exercise**

**Sample Verbiage for Rationale Section**

1. **IMPROVED FUME VENTILATION IN UNIVERSITY RESEARCH SETTING**

The University of Your Town is globally recognized as a research powerhouse and leader in

research-intensive education. The limitations of the fume hood exhaust system in the Science Building threaten the University’s commitment to providing a healthy and safe workplace. The current fan system does not meet peak fume-evacuation requirements during the day, leading to a build-up of harmful fumes. Building maintenance has been fielding an increasing number of odor complaints. Last week, the union filed a complaint with management saying that environmental regulations are being violated at peak ventilation demands. Both researchers and support staff in this building tend to request transfers at higher rates than HR has seen in other buildings.

Fortunately, the solution is simple: installing variable speed drive technology on the facility’s ventilation system to not only improve exhaust performance but also reduce energy waste during non-peak periods. The facility’s present ventilation system is similar to a car running at a constant speed; too fast for city streets and too slow for the highway. The proposed solution combines variable speed drives, a monitoring system, and industry-standard safety protocols to adjust the fume extraction rate of your fan system. Peak requirements are met, while low-demand periods (including unoccupied times) yield energy savings from thoughtfully reduced fan speeds. While safety is the main driver here, this solution should generate $28,000 in energy savings by reducing airflow in periods of low or zero occupancy, more than offsetting a projected $2,500 increase in maintenance related to the new gear. The University would also save an estimated $7,000 in HR expenses for each employee transfer averted, as well as many other avoided liabilities (e.g., regulatory fines, union litigation) that have not been quantified in this analysis.

**Capital Cost:** $145,000

**Annual Energy Cost Savings:** $28,000

**Annual Demand Cost Savings:** negligible

**Annual Non-Utility-Cost Financial Savings:** $4,500 ($2.5K added maint.; $7K avoided churn of one occupant)

**Incentive:**  TBD

**Analysis Term:**  10 years

**Discount Rate:**  10%

**Finance Rate:**  10%

**Reinvestment Rate:** 10%

**Inflation Rate:** 3%

**One-Page Proposal Exercise**

**Sample Verbiage for Rationale Section**

1. **IMPROVED REFRIGERATION IN FOOD RETAILER**

Replacing your refrigeration cases is a vital part of your modernization and rebranding campaign, delivering benefits far beyond the obviously better aesthetics. These new cases would be considerably more cost-effective to operate, with projected annual savings of $14,000 in energy use; $2,400 in energy demand; and, $4,800 in maintenance.

They also feature state-of-the-art LED lighting, which will deliver several important benefits for your business. You can expect to see longer shelf-life of perishable items like fish and meat (due to lower levels of ultraviolet light) as well as thin-skinned vegetables like tomatoes and peppers (due to less projected heat). That lower heat profile will also reduce the cooling load on your space conditioning equipment. Perhaps most importantly, one study cited a 19% increase in product sales after retrofitting mid- and low-temperature cases with LEDs, which is actually not surprising given how high-coloring-rendering LED light makes food packaging more vibrant and visually appealing. As you have no doubt noticed, many other stores in your area have already migrated to these new refrigeration units. When asked, their general managers have shared positive stories that corroborate the above-referenced benefits.

At an industry-average net profit margin of 2%, the $21,200 you will save in energy and maintenance costs equates to the profit you earned last year by selling $1,300,000 in groceries. And that calculation doesn’t even include the additional benefits of increased product shelf-life or higher retail sales.

**Capital Cost:** $80,000

**Annual Energy Cost Savings:** $14,000

**Annual Demand Cost Savings:** $2,400

**Annual Non-Utility-Cost Financial Savings:** $10,800 ($4.8K maint. savings; $6K margin on incremental sales)

**Incentive:**  TBD

**Analysis Term:**  10 years

**Discount Rate:**  10%

**Finance Rate:**  10%

**Reinvestment Rate:** 10%

**Inflation Rate:** 3%

**One-Page Proposal Exercise**

**Sample Verbiage for Rationale Section**

1. **UPGRADED BOILER IN LAUNDRY SETTING**

Your company is the region’s largest hospital linen laundry supplier. As such, you are well-positioned to capture significant financial and reputational benefits by retrofitting your existing process steam and hot water boiler with heat recovery technology.

You are currently spending about $45,000 per year to advertise the fact that your operations waste energy as is evidenced by the profound plume that exits your plant’s smokestack. If you were to install an economizer in your boiler stack, your system would condense a variety of your stack gases, thereby recovering the sensible and latent energy currently being exhausted to the atmosphere. In other words, the heat in that plume could be repurposed to help generate more hot water.

Other commercial laundry facilities in the region are currently saving 20% to 30% of their gas consumption using this heat recovery approach. The proposed upgrade to your system is expected to recover at least 25%, which equates to $45,000 annually – many times greater than the projected $5,000 in additional costs estimated to maintain the new equipment. $40,000 in net savings per year could reduce your cost per pound of laundry by $x/lb. while leaving your current production processes unchanged. And assuming a typical net margin of 5% in your industry, that $40,000 in net bottom-line benefit is equivalent to what you earned last year processing $800,000 worth of laundry.

Reducing stack gas exhaust will also lower your plant’s greenhouse gas emissions, improve local air quality, and prepare your company for compliance with the carbon emissions regulations coming soon.

**Capital Cost:** $170,000

**Annual Energy Cost Savings:** $45,000 (gas savings)

**Annual Demand Cost Savings:** n/a

**Annual Non-Utility-Cost Financial Savings:** ($5,000) (increased maintenance cost)

**Incentive:**  TBD

**Analysis Term:**  10 years

**Discount Rate:**  10%

**Finance Rate:**  10%

**Reinvestment Rate:** 10%

**Inflation Rate:** 3%