

### Equipment Budget Justification

Last Name: Morrison First Name: Bailey

1. List the 4 convection ovens you have selected to compare (4 pt):

Gas Convection oven #1 Make & Model #	Blodgett HVH100G
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Gas Convection oven #2 Make & Model #	Garland MCO-GS-20 ESS
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Electric Convection oven #3 Make & Model #	CPG CPG-DCO-E
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Electric Convection oven #4 Make & Model #	Southbend ES/29SC
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2. Complete the following table using the information obtained from the Fishnick Energy Savings Calculator. The baseline models' information is provided below. Attach calculations at the end of the assignment. (26 pts)

	Baseline Gas Model	Gas Conv. Oven #1	Gas Conv. Oven #2
Initial cost of oven	\$3229.00	\$3965.00	\$4595.00
One-time rebate	N/A	\$500	\$500
Maintenance cost/yr	\$150.00	\$150.00	\$150.00
Energy cost/yr	\$1359.00	-\$475 = \$884	-\$347 = \$1,012
Lifetime maint. cost	\$1,800	\$150 X 12 YR = \$1,800	\$150 X 12 YR = \$1,800
Lifetime energy cost	\$16,308	\$884 X 12 YR = \$10,608	\$1012 X 12 YR = \$12,144
<b>Total lifetime cost:</b>	<b>\$21,337</b>	<b>\$15,873</b>	<b>\$18,039</b>

	Baseline Electric Model	Electric Conv. Oven #3	Electric Conv. Oven #4
Initial cost of oven	\$3392.00	\$3795.00	\$4165.00
One-time rebate	N/A	\$350	\$350
Maintenance cost/yr	\$155.00	\$155.00	\$155.00
Energy cost/yr	\$3093.00	-\$386 = \$2,707	-\$456 = \$3,048
Lifetime maint. cost	1860	\$155 X 12 YR = 1,860	\$155 X 12 YR = 1,860
Lifetime energy cost	\$37,116	\$2,707 X 12 YR = \$32,484	\$3,048 X 12 YR = \$36,576
<b>Total lifetime cost:</b>	<b>\$42,368</b>	<b>\$37,789</b>	<b>\$42,251</b>

**Discuss** the initial purchase costs of each convection oven (all 6) vs. lifetime costs (12 pts):

Actual \$ amount of equipment initial purchase comparison (3):
There is a varying range of initial costs between the ovens ranging from \$3229-\$4595. There is a \$1,366 gap between the baseline gas model and gas conv. oven #2. This is initially concerning when considering which to purchase. In the electric oven models there is only a \$773 difference, almost half of the gas models.
Lifetime energy cost comparison; gas vs. electric (3):
The gas model ovens place the baseline model (\$16,308) at the most expensive out of the set with gas oven model #1 the most inexpensive (\$10,608). The largest gap between the two styles of ovens can be seen in the comparison in the lifetime energy costs between the gas and electric models. The electric models are more than double the price of their gas model counterparts reaching up to \$37,116.
Maintenance cost comparison (3):
There is a small discrepancy between maintenance cost differences of the gas and electric ovens of only \$60. This should not be such a tipping point of a category because of these small value differences.
Total lifetime cost comparison (3):
The gas model ovens place the baseline model at the most expensive (\$21,337) out of the set with gas oven model #1 the most inexpensive (\$15,873) with a \$5,464 gap. There is a stark comparison in the lifetime costs

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between the gas and electric models. The electric models are more than double the price of their gas model counterparts reaching up to \$42,368 compared to the lower end of \$15,873 in gas model #1.

3. Complete the following table using the information obtained from the “Qualified Convection Ovens” sheet. (8 pts)

	Gas Conv. Oven #1	Gas Conv. Oven #2
Cooking energy efficiency (%)	46%	48%
Production capacity (lb/hr)	101	103

	Electric Conv. Oven #3	Electric Conv. Oven #4
Cooking energy efficiency (%)	74%	75%
Production capacity (lb/hr)	102	102

**Explain** what efficiency means. Then **discuss** each convection oven’s (the 4 you selected) performance in terms of efficiency and production capacity (8 pts):

Efficiency is the determining factor when discussing how much electricity/gas it takes to cook a meal. This is a cost defining factor as the price of how much energy it takes to use these appliances can be quite different from one another.

Efficiency (%) comparison (4):
Efficiency of the electric convection ovens are at a much higher rating than the gas models. The electric ovens are at 74%-75% whereas the gas ovens have a cooking energy efficiency of 46%-48%. Electric is usually more efficient when compared to gas as seen here. Yet gas is chosen usually for its price benefits.
Production Capacity (lb) comparison (4):
Production capacity of these oven models are relatively similar at 101-103 lb/hr. The electric ovens have identical production capacity of 102 lb/hr. There is a slight gap between the gas models chosen of 2 lb/hr.

4. Compare & discuss all 6 convection ovens overall and state your top choice (6 pts).

Overall comparison:
The baseline options, whether gas or electric, were higher cost wise than the selected models. Gas models were notably less efficient than their electric counterparts. The gas models did have similar production capacities and maintenance costs to the electric models. Both of the gas models were priced more reasonably than their baseline model. Electric Conventional oven #3, CPG CPG-DCO-E, would be my first choice as it is an efficient choice when compared to its competitors at 74% cooking energy efficiency. It is in the middle of the price ranges of the electric oven models. The production capacity of 102 lb/hr is also in the middle of the total production capacity ranges between all the models. The price of CPG’s model is less expensive than the baseline model used for comparisons.

5. Complete the table below on the production capacity of your selected convection oven. Include calculations at the end of the assignment. (4 pts)

Amount of French Fries needed per hour (lbs)	Your Convection oven’s Production Capacity (lb/hour)
350, 4 oz 350 x 4 oz = 1400 oz of french fries / 16 oz = 87.5 lbs	102 lb/hr

Discuss the production capacity of <u>your selected convection oven</u> . Is it adequate for your needs? (3)
Yes, the CPG CPG-DCO-E would be capable of satisfying the 87.5lb need of French fries as its’ production capacity is 102 lb/hr. There is a 14.5lb leeway between this oven model’s capacity and the needs of the facility.

6. Provide a justification/proposal for your boss; to include at least the following (24 pts):

- a. Reason you need a new convection oven
- b. Which convection oven you propose to purchase
- c. Include the initial cost and lifetime cost (\$) of your selected oven
- d. Why gas or electric?
- e. Include performance and production capacity
- f. Your reasons for recommending it

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g. This is a formal justification/proposal, so it must be written in full sentences

h. Consider the number of points assigned to this portion of the assignment

Our current facility's convection oven has come to its end of line after 12 years. We need a new replacement for this appliance as we want to effectively be able to produce our baked French fries and sweet potato fries fresh for lunch time. I have done extensive research to present a viable option to replace our current convection oven with. I selected CPG's CPG-DCO-E model that would efficiently help facilitate a positive transition in our production of these items. Partly thanks to being an electric oven, it has a cooking efficiency rating of 74% and a production capacity of 102 lb/hr. This is suitable for our 87.5 lb lunchtime order of French fries. The efficiency rating is high which means it can cook our food items with less energy lost especially when compared to the gas models 46% cooking efficiency ratings. With the \$25,000 budget at hand, CPG's CPG-DCO-E electric oven comes in at \$3795 and lifetime cost of \$37,879 over the next 12 years. This is \$4,579 lifetime savings compared to the electric baseline model. The maintenance costs of \$1,860 over its lifetime stack very well against gas models' \$1800. We are in need of an appropriate appliance for the job at hand and this model would be a great addition to help our facility manufacture the desired requests.