

Capital Budget Comboven Purchase Justification

Justification

Our food facility is in need of a new combination oven due to the age and status of our current oven. As it stands, the current oven our facility has been using is 25 years old and has needed to be repaired and serviced multiples times in the past few years alone. In addition to the costs of repair and servicing, whenever the oven is not functioning properly, the facility is not able to prepare a large portion of the foods on our menu, resulting in a loss of potential sales.

Gas vs. Electric Combination Ovens:

Taking our facilities budget and needs into consideration, it would be best to choose a gas-powered combination oven. In general, gas ovens are less expensive to operate than electric ovens. To elaborate, one 1kWh of electricity costs \$0.1813 while the natural gas kWh equivalent costs \$0.0268. This represents a potential 85% decrease in operating costs by choosing gas over electric. With these facts in mind, a gas combination oven would be best suited for our facility.

Gas CombiOven Recommendation & Costs Comparison with Electric Combovens

	Alto-Shaam CTP7-20G	Base Efficiency Oven (Gas)	Energy Efficient Oven (Gas)	Convotherm C4e* 10.20ES	Base Efficiency Oven (Electric)	Energy Efficient Oven (Electric)
Lifetime Energy Cost	\$4,548	\$14,844	\$7,308	\$27,900	\$85,620	\$52,776
Lifetime Water Cost	\$3,000	\$12,048	\$5,160	\$660	\$18,936	\$8,112
Lifetime Maintenance Cost	\$120	\$120	\$120	\$125	\$125	\$125
Initial Cost of Oven	\$8,773	\$6,679	\$10,065	\$6,575	\$5,225	\$7,735

*Source: Fishnick.com

After extensive research on what gas combination ovens are available on the market today, I would recommend the **Alto-Shaam CTP7-20G gas combination oven**. In addition to exceeding our facilities requirements for an oven by being able to hold 14 full-sized pans and cooking 100lbs. of meat and/or vegetables in less than an hour in either convection or steam mode, the costs to operate the CTP7-20G are significantly less than that of gas base efficiency and energy efficiency ovens. Although the initial cost of purchasing the Alto-Shaam gas oven is roughly \$2200 more expensive than a comparable electric model, such as the Convotherm C4e* 10.20es, the significantly lower operating and lifetime costs would quickly make up that expense. As evidenced by the attached "Gas Combination Oven Life-Cycle Cost Calculation" and "Electric Combination Oven Life-Cycle Cost Calculation" documents, the Alto-Shaam oven has a

lifetime energy and water cost of \$4548 and \$3000 respectively for a total of \$7548. The Convotherm C4e* 10.20es electric combination oven, in comparison, has a lifetime energy and water cost of \$27900 and \$660, for a total of \$28560. It should also be mentioned that, the annual maintenance cost of any electric comboven is slightly more expensive at \$125 while those of a gas variant are \$120. When the price differences in lifetime energy and water costs are taken into account, the Alto-Shaam CTP7-20G gas comboven costs \$21000 less to operate than the Convotherm C4e* electric comboven. This \$21000 difference is more than enough to recuperate the aforementioned higher initial cost of \$2200 to purchase the gas comboven.

When comparing the CTP7-20G with electric standard base efficiency and energy efficient combovens, the differences in costs are even more significant. The electric base efficiency oven has a combined lifetime energy and water costs totaling \$104556 and the energy efficient oven, \$60888. Again, the Alto-Shaam CTP7-20G's total lifetime energy cost of \$7548 makes it the more appropriate oven to purchase when taking our facilities budget and needs into account.

Alto-Shaam CTP7-20G Costs Comparison with Gas Base Efficiency and Gas Energy Efficient Combovens

Although gas is generally a cheaper resource than electricity, not all gas combination ovens have the same costs and can vary widely. Referencing the table above, the initial purchase cost of the Alto-Shaam CTP7-20G is \$8773, compared to \$6679 for the gas Base Efficiency and \$10065 for the Energy Efficient models. In regards to operating costs (maintenance, energy, water, total), the annual maintenance costs for all gas-powered combovens are similar at \$120. However, when looking at the lifetime total (energy + water) operating costs, the Alto-Shaam is significantly less expensive at \$7548 compared to \$26892 for the Base Efficiency and \$12468 for the Energy Efficient gas models.

Alto-Shaam CTP7-20G Performance Comparison: Efficiency & Production Capacity

	Alto-Shaam CTP7-20G	Base Efficiency Oven (Gas)	Energy Efficient Oven (Gas)	Convotherm C4e* 10.20ES	Base Efficiency Oven (Electric)	Energy Efficient Oven (Electric)
Convection Mode Energy Efficiency	59%	35%	44%	83%	65%	70%
Steam Mode Energy Efficiency	47%	20%	38%	76%	40%	50%
Convection Mode Production Capacity (lbs/hr)	142lbs	80lbs	100lbs	232lbs	100lbs	125lbs
Steam Mode Production Capacity (lbs/hr)	250lbs	100lbs	120lbs	337lbs	150lbs	200lbs

*Source: Fishnick.com

Among the 3 gas ovens, the CTP7-20G's convection mode energy efficiency is 59% and 47% while in steam mode. The gas base efficiency oven, in comparison, is lower at 35% and 20% respectively, and 44% and 38% for the energy efficient gas model. In summary, when comparing these three gas combovens, the CTP7-20G's energy efficiency is the highest.

Looking at electric combovens, the Convotherm C4e* 10.20ES' efficiency in convection mode is 83% and 76% in steam mode, the electric base efficiency comboven 65% and 40%, and the electric energy efficient comboven 70% and 50%.

The electric combination ovens, in general, are significantly more energy efficient than their gas counterparts, including our recommended Alto-Shaam CTP7-20G gas model. However, it is important to keep in mind that, as aforementioned, the cost of purchasing one unit of gas is much less expensive than one unit of electricity. To reiterate, one therm (a unit used to measure gas energy) costs \$0.787/unit. 29.4 kWh (unit used to measure electric energy) equates to roughly one Therm, and 1 kWh costs \$0.1813, so 29.4 kWh, or the equivalent of 1 therm, costs \$5.33. In other words, it is close to 7 times more expensive to purchase one unit of electricity than gas. These figures explain why the lifetime energy costs for electric ovens are significantly more expensive than those for gas ovens, which was discussed in the previous section.

In regards to production capacity, all of the aforementioned ovens, with the exception of the gas base efficiency oven, satisfies our facilities requirements of being able to cook and hold 100lbs of either steamed or convected food per hour. Our recommended Alto-Shaam CTP7-20G exceeds this requirement and outshines the other two gas ovens in question in this department by being able to produce either 142lbs of food in convection mode per hour or 250lbs per hour when in steam mode. When looking at the electric ovens, the Convotherm C4e* 10.20ES has the highest production capacity among all 6 of the ovens being analyzed by being able to cook 232lbs of food per hour in convection mode and 337lbs in steam mode.

Summary:

In conclusion, the Alto-Shaam CTP7-20G gas combination oven is the best choice for our food facility and is my purchase recommendation. In addition to exceeding the performance requirements our facility has for combination ovens, when compared to both comparable gas and electric combovens available on the market, the CTP7-20G is significantly less expensive to operate on both an hourly and long-term basis. With a great ratio of performance and efficiency, choosing this oven over the other 5 that it was compared against will result in significant savings for our facility.