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Revolutionizing Household Appliances

This project was intended for conservation of energy and money through utilization of three phase motors in household appliances. In doing this, the country could save almost $70 million and almost 800 billion Watts every month. This breaks down to a simple matter of replacing single phase motors with a three phase motor in common household appliances. Several field trials were run. For data records, an Amp meter which was also a data recorder was used. T his was to show the startup spike of the motors and the average amperage used in each trial. I anticipated showing a large decline in startup amperage with the VFD (variable frequency device), which occurred, but the major discovery was the increased efficiency in the three phase motor. Amperage was converted to Watts to show the amount of energy that was saved in each trial. After running several trials, data showed that the three phase motor and VFD setup saved 588 Watts in one run. The single phase setup was found to spike in startup to 24 amps and the three phase VFD setup was 7 amps, and the three phase was 2 amps. The three phase VFD setup was found to be 68% more efficient. Several conservative assumptions were used to extrapolate the average implementation for a common household, but, if three phase motors were used in household appliances instead of a single phase, it could save $835,278,950 and 9,430,392,168,000 Watts a year for the US. This could be broken down further to saving $69,696,579.17 and 785,858,514,000 Watts per month. These numbers show that 1,076,518,512 less pounds of coals would be burned every year; or 89,703,876 less pounds of coal per month. This would reduce the use of nonrenewable resources, which could create less pollution. This could help the Earth.