Industry: Snacks and Coffee
Application: Energy Savings - Induced Draft Fans
Products: Baldor•Reliance XEX Motors

DOCUMENTED SAVINGS
CASE STUDY NO. 20

The Challenge

A coffee manufacturing facility in New Orleans was making considerations on a new motor for their three Induced Draft (ID) Fans on the process end of the operation. Repairs had become frequent, and there was a decision to be made on repairing the motors or purchasing new motors.

The Baldor•Dodge•Reliance Solution

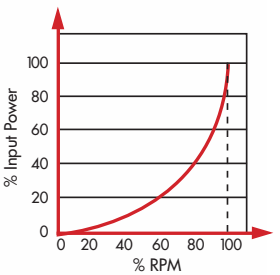
The local distributor representative and Baldor worked together with the manufacturer to select the Baldor•Reliance XEX motor. The mechanical features of the XEX were well suited for the environment, and the XEX line is NEMA Premium efficient.

Energy Savings

Payback for new versus repair was within (1) year. The manufacturer therefore decided to purchase a new motor. The investment of purchasing a NEMA Premium™ efficient motor over a standard energy efficient also paid off very quickly. Energy Savings for the first year yielded a savings of over $9,700, and is over $29,000 for the first three years. If you consider an average motor life of fifteen years, this is over $150,000 in energy savings. See the back page for the detailed energy analysis.

Additional Energy Considerations

In addition to the motor, savings on variable torque applications such as centrifugal fans and pumps should be considered with variable frequency drives (VFD). In the case of ID fans, this is applicable in that most facilities are using a mechanical damper to regulate flow. Flow is directly proportional to fan speed (RPM). In a variable torque relationship, the input power of a motor varies exponentially with the speed (RPM). For example, if a fan is being mechanically dampered at 60%, regulating speed (RPM) with a VFD to 60% would require only 20% of the input power. See the graph to the right for the illustration of this relationship. Most applications yield less than a six month payback for the investment of a VFD.



The Conclusion

Baldor continues to be the leader in energy efficient solutions. Contact your local Baldor representative to discuss your energy savings efforts. Consider a comprehensive Installed Base Evaluation (IBE) which will give you a complete energy analysis for the motors in your facility.

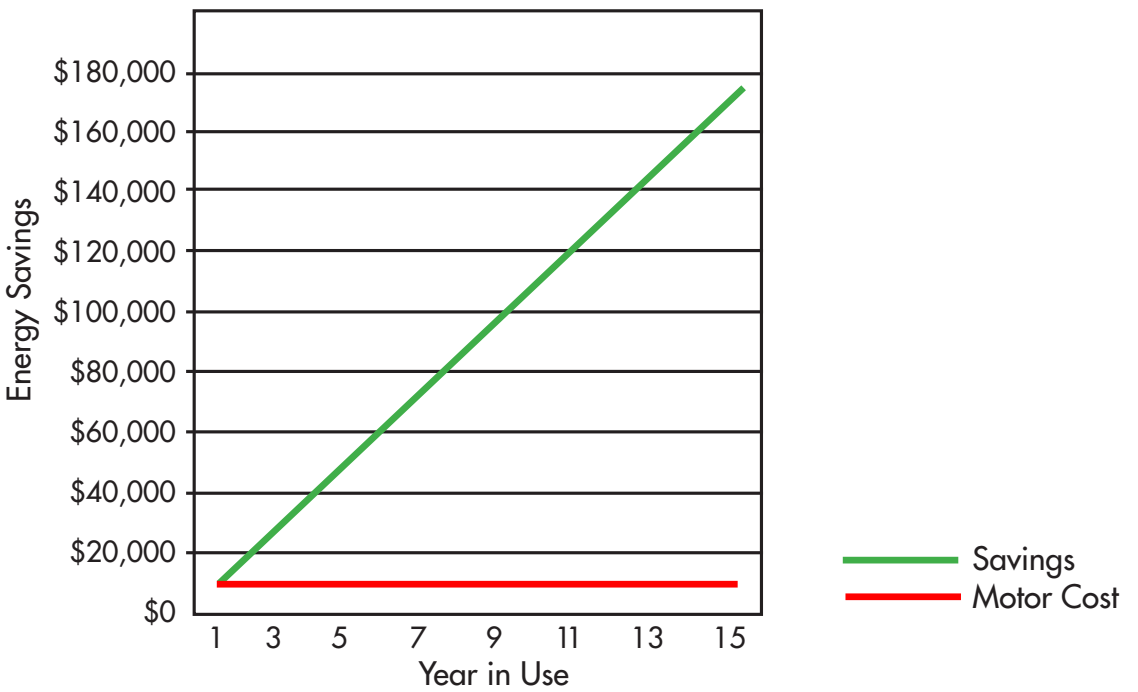
The Step-by-Step Calculation

Energy savings : **$9,725**

S= Energy Savings per year @ 100% Load
S= .746 x QTY HP X C X N (100/EE - 100/PE)

2-Year Savings $19,451.43
3-Year Savings $29,177.14

Quantity	3	(On ID Fans)
Horsepower	300	HP = Motor horsepower
Energy Costs	0.06	C = Energy costs $ per Kilowatt Hour (kWh)
Hours per Year	8760	N = Hours per year running time
EE Efficiency	94	EE = Energy Efficiency product at full load (%)
PE Efficiency	96.5	PE = Premium Efficiency product at full load (%)
Hours per Day	24	
Days per Year	365	
Hours per Year	8,760	
PE Motor Cost	$11,111.00	Purchase price of PE motor
EE Motor Cost	$10,668.00	Purchase price of EE motor
Savings	$9,725.71	Savings over time period (1 Year)
Payback	0.05	Time (in Years) in which savings will pay for PE motor.



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