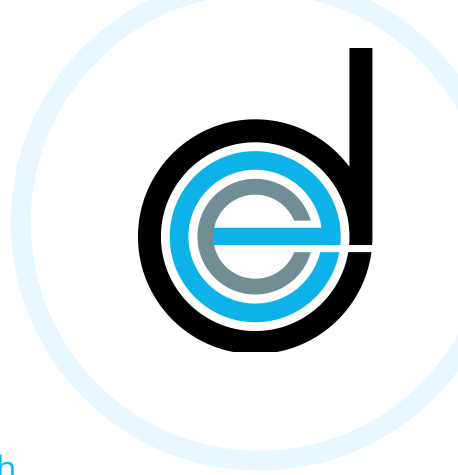


# VFD PROJECT SAVINGS EXAMPLE

**ELECTRONIC DRIVES AND CONTROLS, INC.**

*Integrating new control systems and breathing life into older equipment since 1968*



Watch your VFD installations pay for themselves in no time through energy savings and VFD rebate!

The following is an example of a VFD (variable frequency drive) project that includes the installation, wiring and start-up of (2) 30 HP chilled water VFDs with demand controls from BMS (building management system):

### Assumptions/Knowns:

1. 2 chilled water pumps (CWP) 30 HP 460VAC with class F insulation or better
2. Run time is 80 hours per week, 52 weeks per year= 4,160 hours
3. New average speed= 90% resulting from ability to control motor speed based on required load
4. Energy cost= \$0.16/kWh
5. Existing BMS and/or VFDs purchased with closed loop capability

Estimated Project Cost .....	\$18,000
<i>(30hp VFDs, installation, wiring &amp; start-up)</i>	
Expected rebate from Con Ed*.....	\$13,406
Net Project Cost.....	\$ 4,594
*2x30 hp CWP x 1176 kWh/hp (NYS TRM 6.0 Appendix K for NYC Office Building x \$0.19/kWh (ConEd prescriptive reimbursement rate at the time) = \$13,406	

	A	B	C	D				
	% Speed	% Load	Motor HP	Shaft KW	Motor EFF	Drive EFF	# Motors	Power, KW
Full Speed Operation	100%	100%	30	22.5	94.1%	100%	2.0	(A/B/C) x D
	Existing Motor KW Load:							48.06 <b>F</b>
VFD Operation	90%	72.9%	21.9	16.3	94.1%	97%	2.0	(A/B/C) x D
	*Load is reduced by the cube of speed							Reduced Speed (VFD) KW: 35.75 <b>G</b>
	KW Savings (F-G):							12.31 <b>(F-G)</b>
	Annual Energy Savings, kWh savingsx 80 hrs/wk x 52 wks/yr (H = 4,160 x (F-G)):							51,224 <b>H</b>
	Annual Savings at \$0.16/kWh (H x \$0.16/kWh):							\$ 8,196
	Net Project Cost:							\$ 4,594

Simple Payback: 0.56 years, or less than 7 months!

\*If average motor speed can be reduced to 80%, annual energy savings are 94,472 kWh or \$15,275  
Payback is reduced to 4 months!