Motor Assessment Checklist

- [ ] **Replace all Standard Efficiency Motors with NEMA Premium Motors**
National Electrical Manufacturers Association (NEMA) premium motors can reduce energy use by as much as 10%. All standard efficiency motors should be replaced with NEMA premium motors. For motors on centrifugal loads, a NEMA premium motor with the closest full-load revolutions per minute (RPM) rating should be specified. Instead of rewinding older standard-efficiency motors, consider replacing them. Other convenient replacement opportunities include new installations, equipment package purchases, preventive maintenance operations, and energy conservation program implementation. Also consider replacing single-speed motors with dual-speed motors. Consider adding variable frequency drives (VFDs) to any AC motors that could be ramped up or down for different load requirements. If motor speed is reduced to half of full load speed, power usage is reduced to an eighth of full load.

- [ ] **Replace All Standard V-Belts with Cogged V-Belts**
Replacing standard V-belts with cogged V-belts can increase the efficiency of the power transfer by 2% to 5% due to reduced bending resistance and reduced slip. Cogged V-belts can use the same pulleys as standard V-belts. All standard V-belts should be replaced with cogged V-belts.

- [ ] **Install Variable Frequency Drives on HVAC Fans and Pumps**
VFDs efficiently meet varying airflow or water flow requirements by adjusting the frequency and voltage of the power supplied to an AC motor to enable it to operate over a wide range of rotational speeds. External sensors monitor flow, liquid levels, or pressure, and then transmit a signal to a controller that adjusts the frequency and speed to match process requirements. For centrifugal fans or pumps, the fluid or air flow provided varies directly with the pump or fan rotational speed. The input power requirement varies as the cube or third power of the speed ratio. Small decreases in equipment rotating speed or fluid flow yield significant reductions in energy use. For example, reducing speed (flow) by 20% can reduce power requirements by approximately 50%.

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