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One common cause of wasted energy—*and wasted money*—at industrial facilities is oversized motors and motor systems.

Industrial-energy auditors repeatedly cite this dynamic: Your process needs have changed, but your equipment hasn't. Wasteful motors may be oversized, improperly loaded or simply inefficient. All the time those systems are operating, energy and dollars are being lost. You can, however, avoid that waste.

Developing a motor inventory—*a list of all your motors, their type, size, efficiency, application and maintenance history* —can provide you with a complete picture of your motors and how they fit into your manufacturing process. Use this inventory to keep your motors in tune with your process needs and, of course, to cut energy losses.

When evaluating your motor-driven systems, keep the following factors in mind.

Size and load...
Motors operate most efficiently at 75-100% of their full rated load. Oversized or underloaded motors may operate well below their rated efficiency levels. Surveys of industrial facilities have found that as many as 30% of motors were operating at or below 50% load, significantly reducing their overall efficiencies. To ensure that your motors are running as efficiently as possible, it is crucial to match the size of the motor to the torque demand of the systems they serve.

Efficiency...
Older, inefficient motors may be prime candidates for immediate replacement when evaluated according to your company's investment criteria. Energy savings from improved efficiency are

typically proportional to horsepower and operating hours. Therefore, when evaluating the efficiency of your motor fleet, you'll want to target your largest, longest-operating motors first.

Size, load and efficiency are also critical considerations when purchasing a new motor—*but there's no need to wait for a failure!*
Your motor inventory is dynamic, so when your process needs change, simply track that change in your inventory and respond with new equipment or operational adjustments when the opportunity arises.

Oversized, underloaded or highly inefficient motors could be costing you money every day they run. Your motor inventory may reveal particular units with overall efficiencies so poor that you'll actually save money by immediately replacing them with new ones. That's what happened for the following two forest products operations.

At Alder Creek Lumber Co., conducting a motor inventory led to replacement of an aging 200 hp unit. The energy savings Alder Creek captured with that one motor amounted to $8300 per year. At Crown Pacific Lumber Co., which looked at the motors at its sawmill in LaPine, OR, in 2000, the inventory led to the immediate replacement of an inefficient fan motor that saved the company $3400 annually. To learn more, access complete case studies, motor management tools and more on the Motor Decisions MatterSM campaign Website, www.motorsmatter.org . MT

The Motor Decisions Matter (MDM) campaign is managed by the Consortium for Energy Efficiency (CEE), a North American nonprofit organization that promotes energy-saving products, equipment and technologies. For further information, contact MDM staff at mdminfo@cee1.org
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