

# NELSON PINE INDUSTRIES

WORLD LEADING TIMBER PROCESSOR INSTALLS VSD'S AND IMPROVES PROFITS



Installing 2.8MW of SD700 series VSDs on Nelson Pine Industries' fan systems has delivered substantial energy savings and improved productivity.

Nelson Pine Industries is recognised as a world leader in the manufacture of MDF (Medium Density Fibreboard) with nearly 1,000,000m<sup>3</sup> of radiata pine logs processed annually at its Richmond plant. Electricity is a significant cost for NPI so they undertook an energy audit that identified many fans that would benefit from variable speed control.

An initial energy audit recommended the installation of variable speed drives as replacements for the damper control systems on a number of fans. Damper control is an inefficient way of controlling airflow; the fan runs at full speed and the air flow is reduced by partially closing off a damper valve. Nelson Pine also experienced issues with old dampers seizing (especially those subject to temperatures >300°C) which caused significant process variations. James Cameron, Project Engineer, "Our first stage involved the installation of nine VSDs on fans with the greatest estimated ROI. Measuring the actual benefits from these vs. that calculated gave us the confidence to pursue the next 15 fans/pumps. Stage one had an energy savings target of 650,000 kWh p.a involving 640kW of VSD controlled motors. For this second stage we fitted kWh metering on the large fans so we could compare energy usage before and after the VSDs were installed."

Project three was the biggie and involved the removal of a 710kW 11kV motor, autotransformer starter and supply transformer on Line 3 Dryer Fan and replacing it with a 560kW, 400V motor and SD700 VSD. A final fourth stage consisted of on-going replacements with new plant.

"Back up service and support was also very important to us as this plant runs 24/7 and the drives are installed on vital plant - if any of these drives stop the plant stops. We've known the guys from Power Electronics for many years and know that we can get hold of them any time, any day."

*Murray Tewnion, Electrical Supervisor.*

When selecting a suitable VSD for this project, NPI's electrical team approached Power Electronics for the SD700 series. "This was the first chance for us to use the SD700 and even though it was new to us, we could see that its familiar menu structure and overall form factor meant it was going to be simple for us to install and commission - this proved to be the case. Using the SD700 enabled us to utilise many of the existing unscreened motor cables that saved on further installation costs" comments Murray Tewnion, Electrical Supervisor.

The final tally saw 26 SD700 VSDs installed on 2887kW of motors. The total average kW before the project commenced = 1950kW, 14.8GWh p.a. At completion of project average kW = 1243kW, 9.5GWh p.a equating to a saving of 700kW and 5.3GWh p.a. At regular unit pricing this represents a saving of approximately \$600,000 p.a. However at present market spot pricing this figure jumps closer to a whopping \$2,300,000 p.a.

After some time in operation Nelson Pine have managed to realise other benefits from operating their fan motors on the SD700s. "We have seen a reduction in maintenance costs with the removal of old seizing dampers, bearings run cooler, fan blades are lasting longer (owing to reduced speeds), fan vibration issues have significantly reduced (lower speeds) and belt tensions have been reduced so belts are lasting longer. Additionally we're able to monitor performance more closely and tune our production to a finer degree - the old dampers weren't very linear in this regard" concludes Tony Donald, Electrical Technician.



**SD700**  
Series

VARIABLE SPEED DRIVE