

# Leightons, e3k benchmark energy to cut emissions

**L**eighton Contractors and e3k have teamed up to create the Leighton Energy Efficiency Equations, or Le3 method for short, for benchmarking the energy efficiency of material transportation.

The idea for the research and development came from Leighton Contractors, operators of one of the largest fleet of bulk materials transport vehicles – known as haul trucks – in Australia and New Zealand.

Steve McDonald the general manager of Plant for Leighton Contractors, said the company needed a reliable measurement system that could be applied equally across all operations and within the operations, where the nature of the work undertaken varied frequently.

“When we looked for such a system, it was clear that no-one had developed anything that could take into account the variation that we frequently encounter, particularly in our contract mining operations,” Mr McDonald said.

“Together with e3k we have been able to develop a system which will enable us to lower our carbon emissions and fulfil our commitment of becoming a more sustainable company.”

Duncan Gilmore, director and president of e3k, said it was important for

companies that are aiming to improve the energy efficiency of their operations to have a way of knowing how well they are doing compared to what is realistically possible.

“It is of no use to aim for energy efficiencies that are just not physically possible and conversely it is not as beneficial to aim for energy efficiencies which are less than those already being achieved by best practice operations around the world,” Dr Gilmore said.

### DO THE MATHS

The research and development (R&D) work undertaken produced several mathematical equations which took into account many inputs that were logged and available from the vehicles and the mining operations, as well as key physical parameters.

Using these equations, live data from vehicles can be readily manipulated by computer to provide a comparison with best-practice benchmark efficiency parameters for a particular fleet.

The output information is able to be easily analysed to give regular guidance on the status of everchanging energy efficiency of fleets, vehicle types, haul routes, individual vehicles and drivers.

Dr Gilmore said the methodology focussed on the energy dissipated



when relocating materials.

“This same principle can be applied to construction, tunnelling, materials handling, oil and gas pipelines, waste collection and treatment, freight, and shipping,” Dr Gilmore said. “Before you can reduce your fuel costs and carbon emissions, you need to understand your inefficiencies.”

Dr Gilmore said one of the most valuable aspects of e3k’s work was in developing and expanding their client’s intellectual property (IP) with innovative and creative engineering ideas.

Leighton Contractors, owns the IP associated with the Le3 method, and is currently implementing an Le3 monitoring system at one of its mining sites.

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