



# CASE STUDY

## Materials Handling Solution installed at Eraring Power Plant, Australia 4 x 660 MWe Coal-Fired

### The situation

- The main purpose of the Coal Combustion Product (CCP) Project was to ensure viability of Eraring Power Plant until at least 2032
- Existing Lean-Phase conveying system limited the plants long term future
- Plant required environmentally friendly and cost effective solution to transport fly ash to the existing ash dam
- Increase availability to deliver fine ash to existing buyers for use in their cement/concrete markets
- Improve quality of ash for resale
- Need to improve overall reliability at the plant
- Reduce water usage
- Increase life expectancy of existing ash dam

### Technical highlights of the materials handling solution installed at Eraring Energy:

- Fly ash handling system from fabric filters
- Ash conveying rates up to 208 tph
- Conveying distances ranging from 50 – 700 metres
- Ash vessels optimised to work in conjunction with existing fabric filter operating sequence
- Pipe diameters from NB100 > 400mm across the site
- Provision of two 1000m<sup>3</sup> steel storage silos
- Tanker filling station (dry & wet) rated at 100 tph
- High Concentration Slurry Discharge system (HCSD)
- High pressure 40 bar piston diaphragm pumps capable of pumping dense slurry at 273m<sup>3</sup>/hr over 3km
- Centrifugal air compressors with installed power of 3300kW provide all motive air for conveying and control





# High transport capacity, energy efficiency and environmental protection

## The solution

Clyde Bergemann Materials Handling (CBMH) working in partnership with newly acquired Clyde Bergemann Senior Thermal (CBST) in Sydney, Australia worked closely to address the plant's technical and commercial requirements.

Dense-Phase conveying based on the well established ash vessel technology was implemented to cater for the handling requirements from the existing fabric filters. The Dome Valve allowed the system to cycle more frequently enabling segregation of the coarse and fine ash produced during the filters various operating regimes.

Coarse and fine ash is conveyed to intermediate booster stations or directly to the final silos for further utilisation. The high transfer rates and conveying distances were accommodated by using a combination of Dense-Phase technology .

On demand fine fly ash is transported to the stations existing customer for utilisation in the concrete and cement industries. Alternatively, mixed ash can be diverted via the storage silos to the ash pond 3km away utilising dense slurry conveying technology. This technology uses high pressure piston diaphragm pumps with low volumes of water to transport the wet ash over long distances.

## Why Eraring Energy chose the materials handling solution by Clyde Bergemann:

- Comprehensive in-house design know-how – we were able to offer multiple options allowing the specification to be tailored inline with the customer's requirements and expectations
- Previous reference installations in the power sector demonstrated the expertise and focus required to successfully complete a project of this magnitude
- Online installation of fabric filter equipment reduces overall installation programme allowing station to return to operation earlier than planned
- Long term life of the Dome Valve reducing overall maintenance requirements and cost to the station
- Ability to offer the complete scope of work from within the Clyde Bergemann Power Group of companies
- Previous experience of High Concentration Slurry systems incorporating well established and proven technologies
- Operate and maintain implemented by Clyde Bergemann Senior Thermal in Sydney, Australia

## Further references:

Plant / Country	MWe	max. capacity
Torrevaldaliga Nord, Italy	3 x 660	150 tph
Yuhuan Power Plant, China	4 x 1000	97 tph
Longannet Power Station, UK	4 x 600	50 tph



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