MolyCop swirls into Energy Savings

> The EAF Swirl Burner is the latest in a series of upgrades we have undertaken at our Waratah Site. Northmore Gordon is a long-term valued and trusted partner of Moly-cop. Over many years they have unlocked substantial funding from the Energy Savings programs which has assisted in continual improvements in production efficiency and helped to lower emissions from our operations.
>
> - Jeffrey Neave, Environmental Manager - Molycop

The Client

Molycop's Australian operations began as Commonwealth Steel Company (Comsteel) in Waratah, Newcastle in 1918 here it pioneered the Electric Arc Furnace steel-making with the first EAF in the southern hemisphere. Molycop produces steel grinding balls and train wheels at the Waratah site. Grinding balls are used in milling and regrind applications for mineral processing, extraction and other grinding applications.

Key Facts

Equipment Upgraded	Higher electrical efficiency through higher voltage used in the furnace
Annual Energy Savings	Substantial reduction in Co2-e emissions through the reduction of electricity
Certificate Value	›$500,000
Program	NSW Energy Savings Scheme (ESS)
Method	Project Impact Assessment M&V
Wattly Partner	Northmore Gordon

The Project

The Electric Arc Furnace (EAF) was upgraded with a number of different energy conservation measures and improvements to the steel-making production. The EAF uses graphite carbon electrode rods to strike an electric arc and melt the scrap steel at the centre of the furnace whilst gas burners ensure the materials at the edge of the furnace remains in a molten state. By upgrading the furnace transformer to a higher voltage, a low current passed through the furnace resulting in higher efficiency as well as slower electrodes (consumption of the graphite rods). At the same time the gas burners were modified to from standard to swirl type with a higher temperature. More energy was used from gas, but less from electricity resulting in a net reduction in CO2-e emissions.

Challenges

- Drastic increased cost of graphite electrodes led to researching how to reduce electrode consumption
- Reducing electrode current had the dual benefit of decreasing energy and electrode consumption
- The project included savings from both electricity and gas and showing the interactive effects from the Electric Arc Furnace as well as the Swirl Burners

Additional Outcomes

- The new swirl burner design reduces the build-up of steel and slag on the furnace wall reducing maintenance, downtime and heat loss.

Our Role

Wattly/Northmore Gordon is accredited under the NSW Energy Saving Scheme and ran the projects to claim Energy Saving Certificates (ESCs) on behalf of Moly-Cop. Northmore Gordon created the M&V plan, collected site data & supporting evidence, built the baseline and operating energy models to calculate both savings from the two different energy conservation measures. Subsequently we wrote the M&V report, then registered & sold the Energy Saving Certificates on behalf of Molycop.