Top charge melting furnaces provide high intensity melting, and therefore require high heat release from the combustion system. Even though this furnace already had a heat reclamation combustion system (recuperative), this plant realized significantly large fuel savings with the retrofit of a Fives North American TwinBed® II regenerative combustion system.

Furnace ................................................................. 40 metric tonne round top charge aluminum melting furnace
Original combustion system type ..................... Recuperative – 4 burners
Original combustion system power ................. 10.3 MW, 400°C combustion air
Conversion combustion system type ............... Two pair regenerative
Conversion combustion system power .......... 11.0 MW
Before conversion net melting rate ............... 12 to 14 metric tonne per hour
Before conversion specific gas energy consumption .......... 760 kWh per metric tonne
Post conversion net melting rate ................. 16.5 metric tonne per hour
Post conversion specific gas energy consumption .......... 510 to 540 kWh per metric tonne
Estimated annual benefit from fuel savings .......... 820,000 USD (gas price = $ 9.75/mmBtu)