Amec Foster Wheeler’s waste heat boilers downstream of proprietary CO incinerators recovers waste heat from an incinerator that burns carbon monoxide (CO) gas from a refining process. The process of CO incineration and recovery of waste heat from the flue gas, incinerates harmful CO.

In 2015 the business undertook a study to reduce the size of the equipment without affecting the performance, in an attempt to reduce the carbon footprint of the equipment. Each part of the existing boiler design was put under test.

- Is it required at all?
- Can it be supported in a different manner?
- Can it be fitted differently?
- Why the down-comer is inside flue gas path when it can be outside?

The exercise resulted in savings of around 600 tons (reduced from the earlier weight of 1,640 tons to the new weight 1,040 tons) of material which would otherwise be superfluous and was actually not serving any purpose. The amount of energy and resources on the unwanted additional material is saved thus reducing the ‘carbon footprint’. As per norms, the reduction in production of carbon dioxide is to the tune of 480,000 kg and that of energy consumption is to the tune of around 8400 GJ, against saving of 600 tons of material.

This lead to

- Reduction in the carbon footprint by 480,000 kg and energy consumption by 8400 GJ
- Reduced plant layout requirement by 32%
- Reduced inspection and maintenance time due to more open space around the boiler
- Faster access to critical areas of the waste heat boiler
- Reduced fatigue to operating and maintenance teams
- Quicker evacuation in case of emergency due to more open space around the boiler.

Goals:

- Optimise space utilisation
- Reduce overall weight
- No compromise on performance or structural stability