- **Company**: Cooper Energy (Adelaide-based) (ASX: COE)
- **Asset**: Orbost Gas Plant in Victoria

- **Proposed Project title: "**The Application of Machine Learning to Reduce the Fouling of Absorber Vessels at Orbost Gas Processing Plant"
- **Background**: Orbost Gas Plant (OGP) processes raw gas from nearly gas field to export sales gas into the pipeline (which is then used for commercial, industrial and power generation purposes). The export sales gas must meet several strict specifications such as the concentrations of solids particle, water, mercury, oxygen and hydrogen sulphide (H2S). Two absorber vessels were installed at OGP to remove the H2S concentration of untreated gas. These absorber vessels are designed to run for months/years without any fouling. However, since operating in 2020, these vessels have been having fouling issues, which requires each absorber vessel to be opened and mechanically cleaned **every 12 – 15 days.**

'Fouling' – significant deposition of sulphur (Photos in Nov 2021)
This is how the absorber vessel normally looks like after 12+ days of operations => require 2-day mechanical clean.

'Clean' – very minimal deposition of sulphur (Two dream runs in Dec 2021)
This is how the plant & vessel are designed to look like, and have been achieved only two times over the 4-year history.

- **Key questions: What were the differences in operational data that resulted in the two dream runs in Dec 2021? And how do we replicate it for the going-forward operation?** This could potentially be answered by the application of ML based on the time series data of pressure, temperature, flowrate, injection rate… of the related equipment in the process at OGP.
- **Note:** The real-time data at OGP are measured by the local device/gauges then transmitted to the AVEVA PI system for data storage, visualisation and simple analysis. The AVEVA PI system is very commonly used in industrial operations in Australia and over the world. Therefore, the quality, format and structure of the data are expected to be good quality for machine learning purposes.