

Online gas analysis in carbon neutral energy production

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Abstract

The widely recognized need to limit global warming to no more than 2°C requires significant reduction of carbon dioxide emissions in energy production – net 8% reduction per year until 2050 when net zero CO₂ emissions will be met. Renewable electricity production is predicted to represent 83% of the electricity system by 2050, but carbon capture and removal is also required to meet the overall target. A comprehensive renewable energy gas and hydrogen ecosystem is described, together with carbon neutral production technologies. Online gas analysis plays a critical role in these carbon neutral gas production processes. The accurate real-time measurements enable improvements in process efficiency necessary to close the gap between production costs and carbon credit market price. Measurements of carbon dioxide and methane emissions to air from these processes are needed to accurately assess the greenhouse gas footprint of the gas production process. Advanced *in situ* gas analysis technology and ways of minimizing instrument maintenance and downtime are discussed, and case examples of renewable gas production and carbon capture projects are given.

note: This document will be opened to the participants on IERE website before the Forum and opened to the public afterward.