

# **Driving sustainable fuel cells and hydrogen technologies**

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## **Abstract**

Some of the current fuel cell and electrolyser technologies have developed from historically niche applications where reliability and performance were considered to take priority over sustainability or even cost. This has led to low and high temperature fuel cells and electrolysers that use critical raw materials such as platinum group and rare earth metals, but also other elements such as titanium in one or more fuel cell components including the catalyst, bipolar plate, corrosion-resistant coatings or in the composition of the electrolyte. In addition to these critical raw materials where there is supply risk or low geological abundance, other potential disruptions to fuel cell or electrolyser critical materials must be considered, such as could arise from restrictions under REACH or other legislation. Thus while the business as usual scenario is appropriate for the short-term and to meet the demand of burgeoning interest in hydrogen technologies, in the longer term other solutions founded upon replacing where possible, reducing to a minimum, and recycling, are needed. This presentation will look at current usage of critical raw materials in fuel cell and hydrogen technologies, and at some of the research needed to underpin their sustainable development.