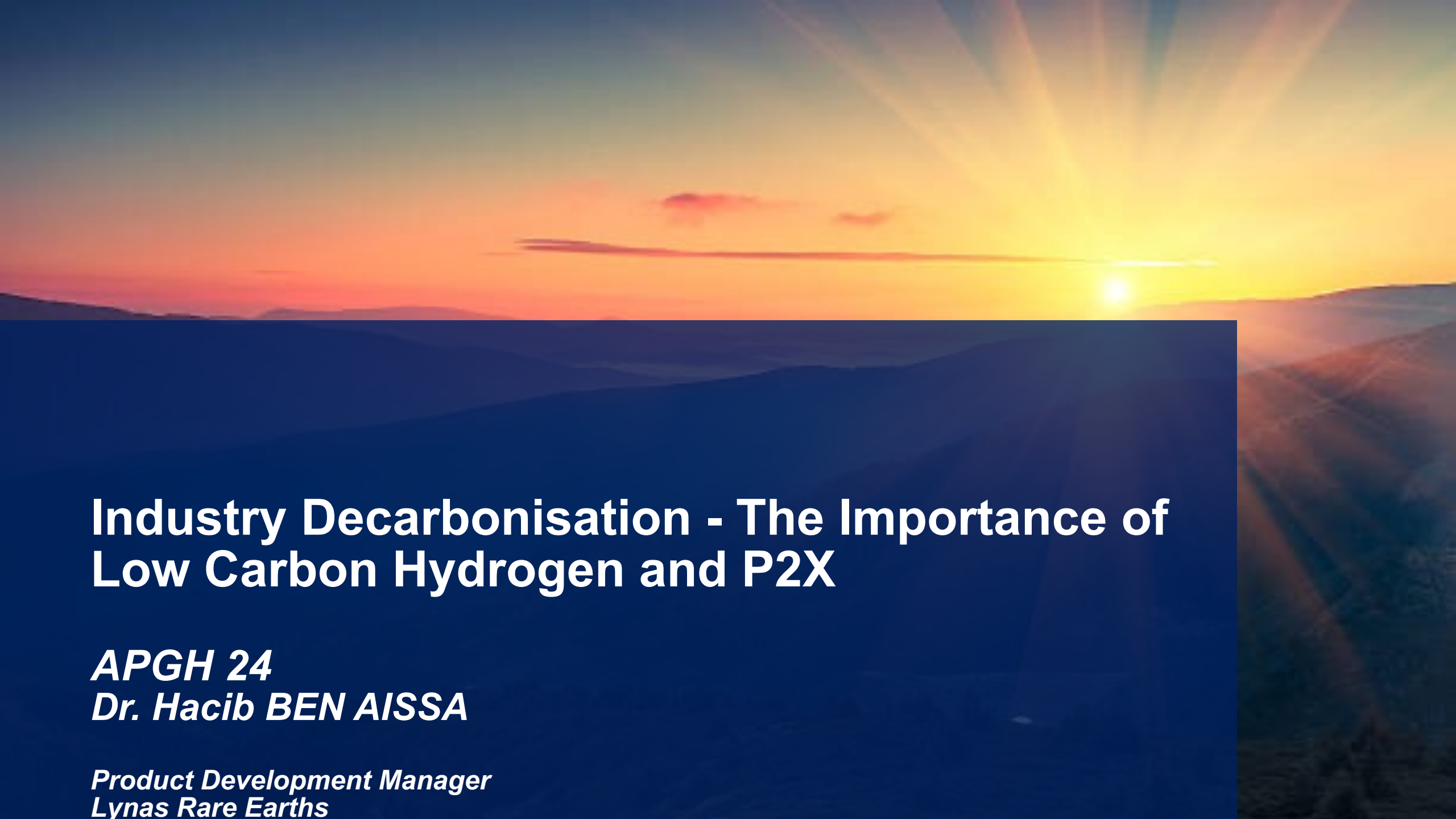


Industry Decarbonisation - The Importance of Low Carbon Hydrogen and P2X

APGH 24

Dr. Hacib BEN AISSA

Product Development Manager
Lynas Rare Earths

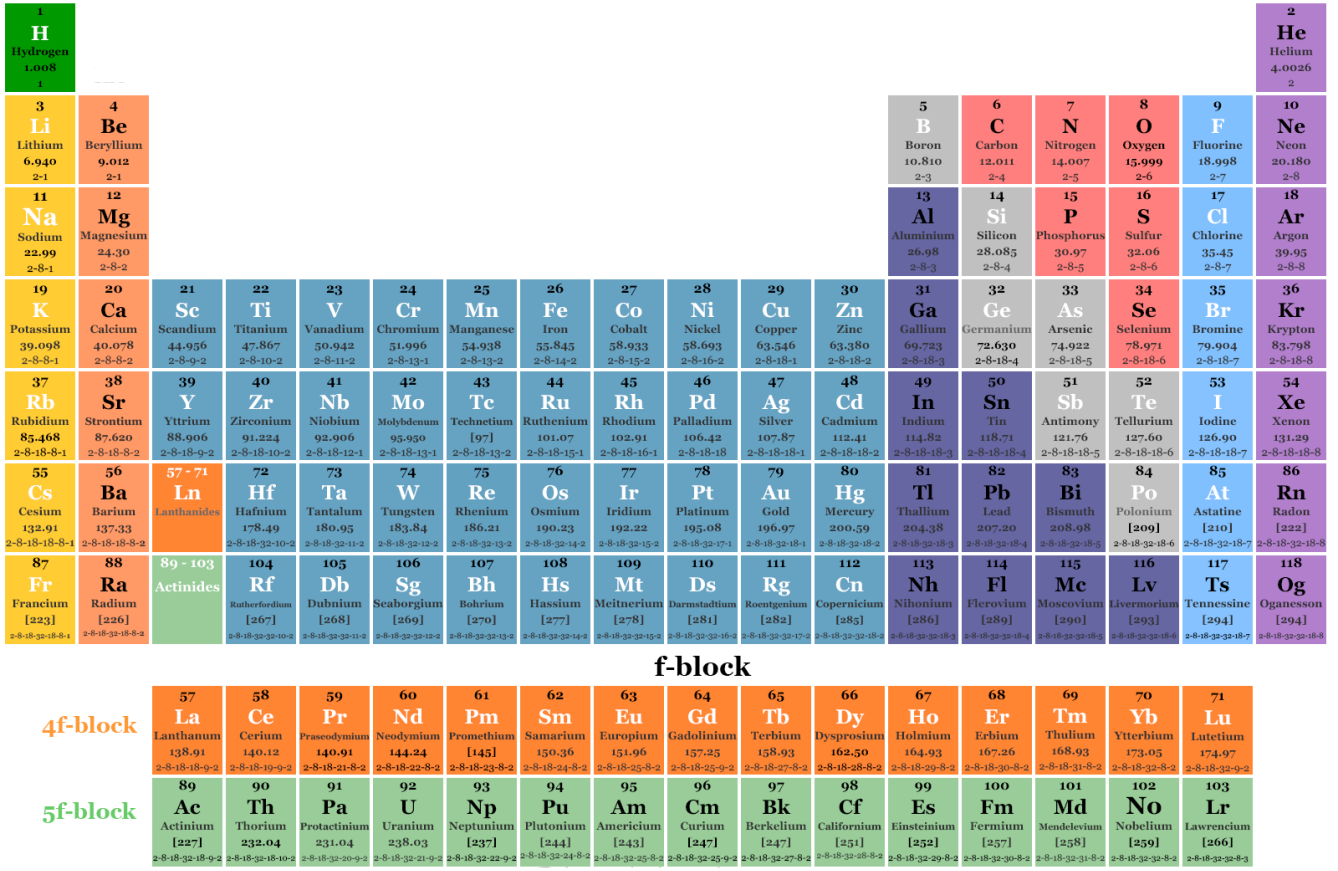
Lynas and Relevance to Green Energy Value Chains

- An Australian company listed on the ASX
- Operating in both Australia and Malaysia for over 10 years
- Ethical and environmentally responsible producer of rare earth materials
- World's only significant producer of separated rare earth materials outside of China

- Expertise in Solid Oxide Formulation, Synthesis and Characterization (Rare Earths and Zr based materials)
- **Unique Capability to produce a variety of Solid Oxides, from Mining to End Products**
- Deep understanding of relevant raw material markets
- Expanding Refining and Manufacturing Capabilities
- Ability to respond to fast moving situations
- **Willingness to Collaborate with the Industry To establish a Diverse, Sustainable and Resilient Supply Chain**

Rare Earths

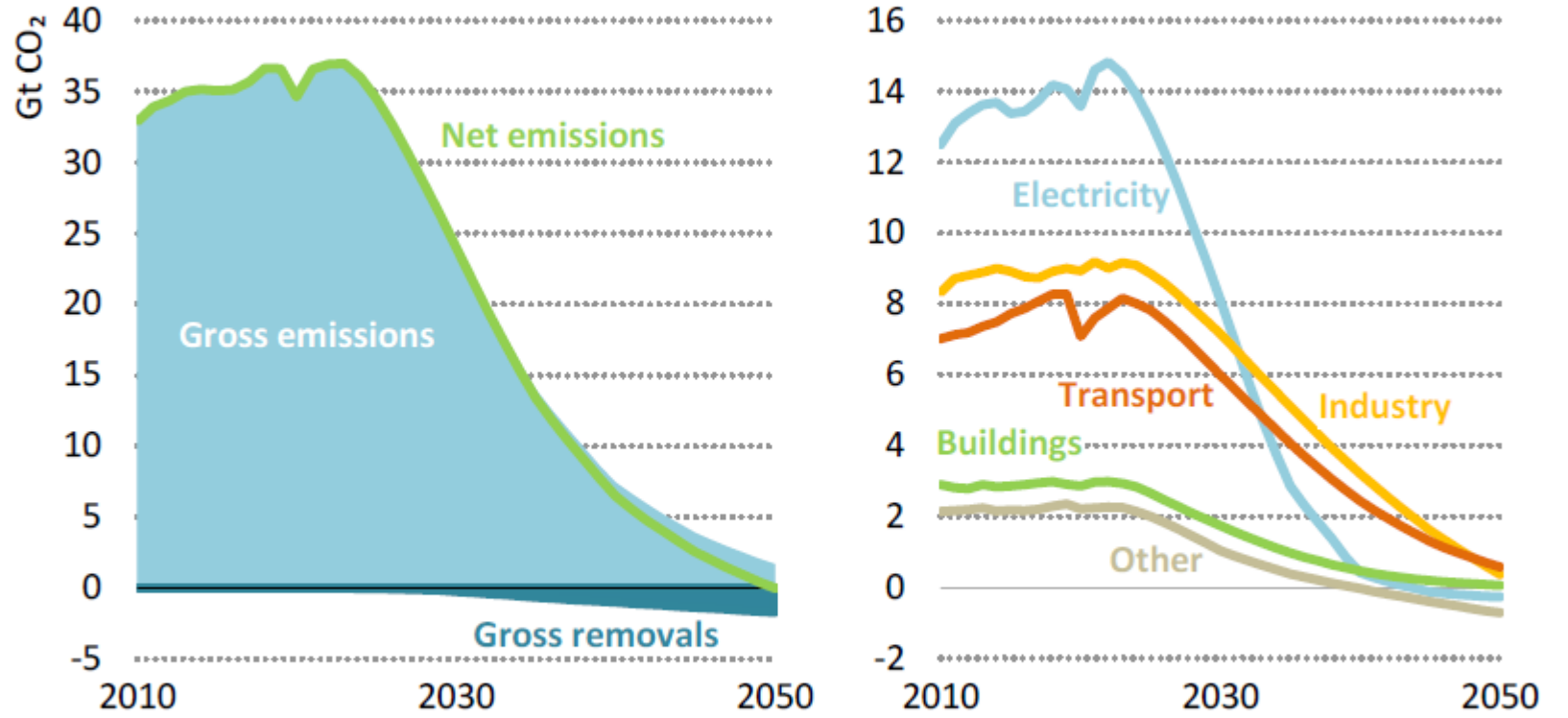
- Include all the 15 elements in the lanthanoid group
- Originally thought to be rare, however many of them are fairly abundant
- Cerium is the 25th most abundant material in the Earth's crust
- Geochemical tendency to co-exist in very small amounts attached to common ores and elements.
- Became popular when they could help greatly reduce the size of the brick-sized old cell phones.
- Since then, implemented in all sorts of new technology and have also become important in the creation of powerful rare earth magnets.



The nature and Scale of the task

* *IEA 2023*

Energy sector gross emissions and removals, total net CO_2 emissions, and net emissions by sector in the NZE Scenario, 2010-2050



Energy sector CO_2 emissions are reduced 65% by 2035 and reach net zero by 2050, with residual emissions of 1.7 Gt balanced by atmospheric removals of the same magnitude

Hydrogen and Power to X Value Chains