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Utilising resources are for as long as possible, extracting the maximum value from them while in use, and then recovered and regenerated at the end of their service life. Applying this to hydrogen verticals involves several key aspects:

Sustainable Production:

• Producing hydrogen - minimizes waste and environmental impact, e.g. using renewable energy to power electrolysis....

Efficient Production, Use and Reuse:

• Utilizing hydrogen efficiently across various sectors, e.g. transportation, industry, power generation, and developing systems to recapture and reuse accommodating resources – Oxygen and Heat!

End-of-Life Management:

• Designing hydrogen-based products and infrastructure with their end-of-life in mind, ensuring they can be easily disassembled, recycled, or repurposed, e.g. designing fuel cells and hydrogen storage tanks that can be efficiently recycled.

Integrated Systems:

• Developing integrated systems where hydrogen production and usage are linked with other sustainable practices. For example, using excess renewable energy (which cannot be stored on the grid) to produce hydrogen, or using hydrogen as a storage medium to balance energy grids.

Collaboration Across Sectors:

• Encouraging collaboration across different sectors and industries to create a more interconnected and efficient use of hydrogen and its derivatives. This might involve industries that require energy, oxygen, and/ or heat



Collaboration Across Sectors:

Necessities:

- Renewables
- Electrolysis
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Opportunities:

- Aquaculture
- District heating
- Oxy-fuel and CCS
- Frequency reserves
- **-** ...

Challenges:

Cross-sectorial:

- Communication barriers
- Misalignments
 - Objectives/ priorities
 - Expectations
 - Compatibility
- Trust and relationship
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Funding cross-sectorial:

- Diverse market dynamics
- Risk diversification
- Communication/ technological understanding
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