

Development of Membraneless Redox Flow Battery



Athanasios Stergiou^{1*}, Andinet Ejigu¹, Lewis W Le Fevre¹, Amr Elgendy¹, Robert Dryfe²

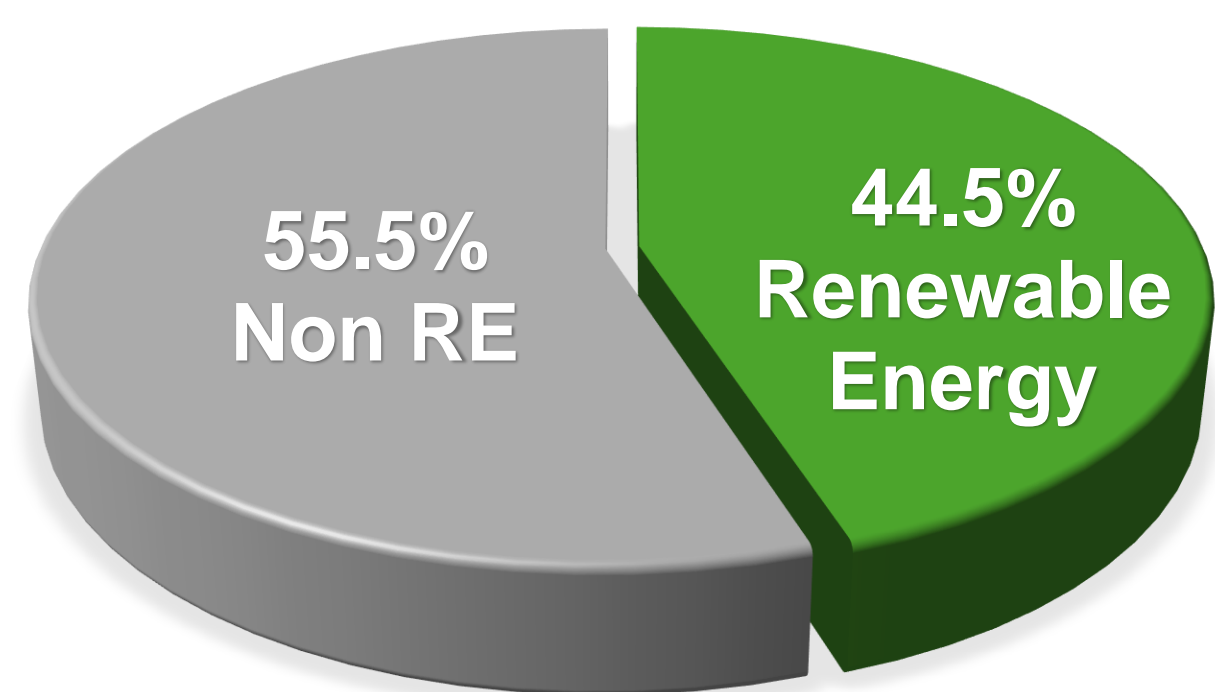
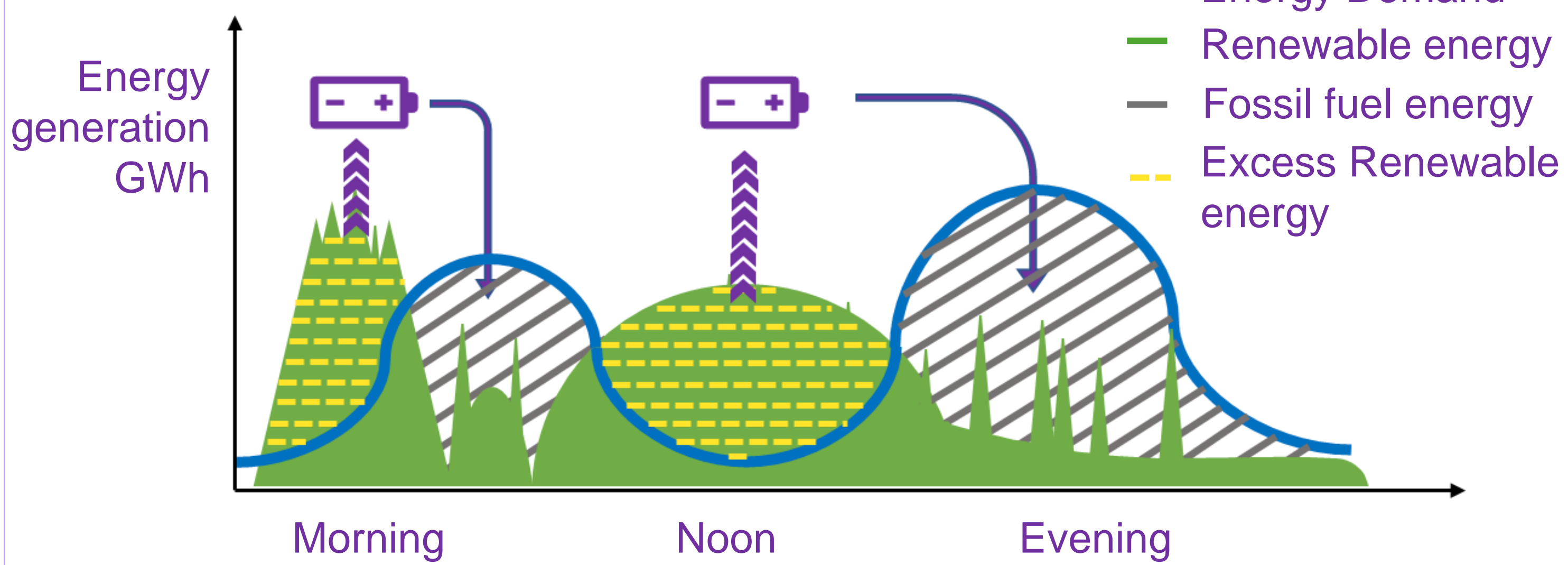
¹ Haliogen Power, Manchester, UK

² School of Chemistry, University of Manchester, Manchester, UK

Email: thanasis.stergiou@haliogen-power.com

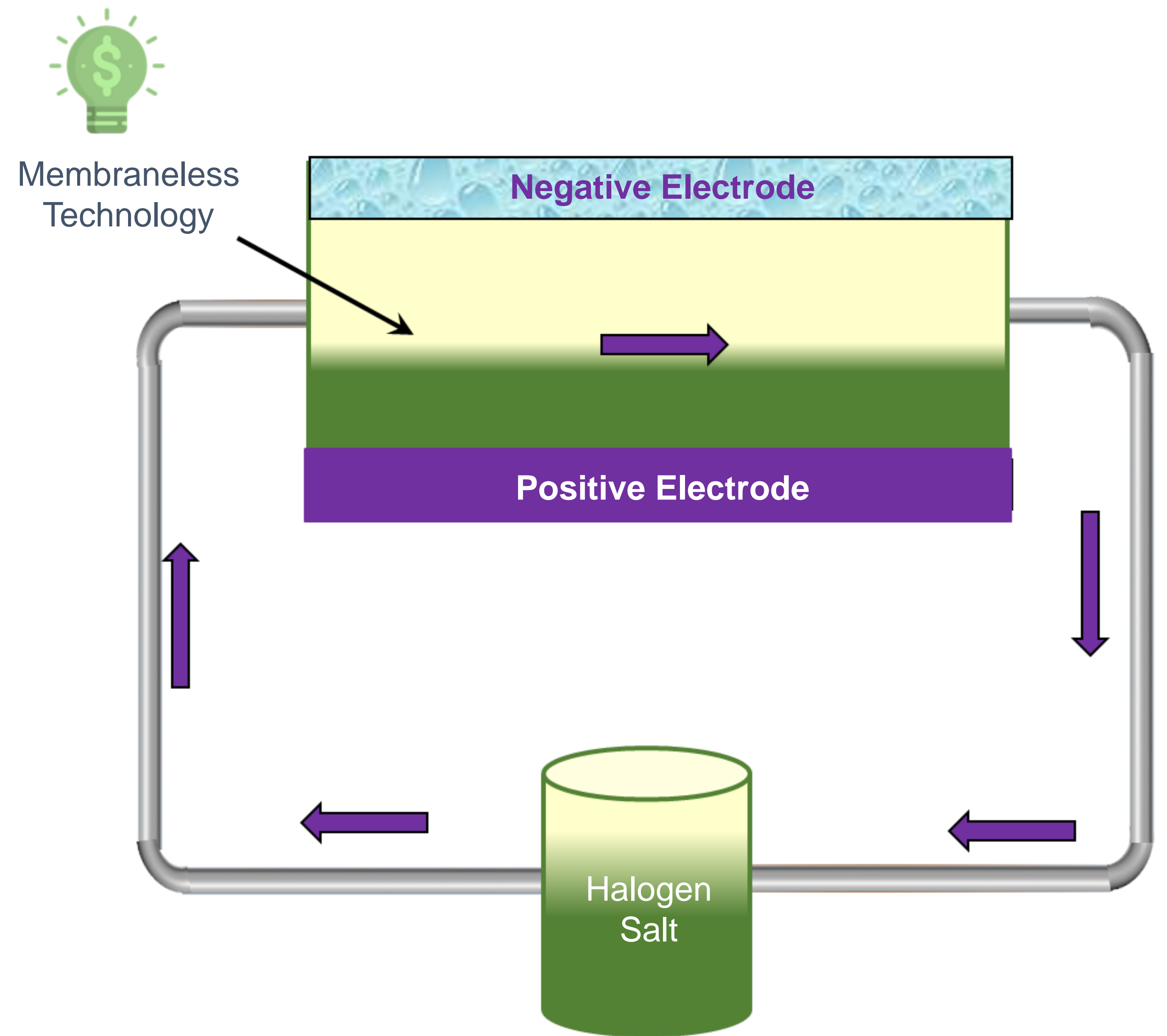


Introduction



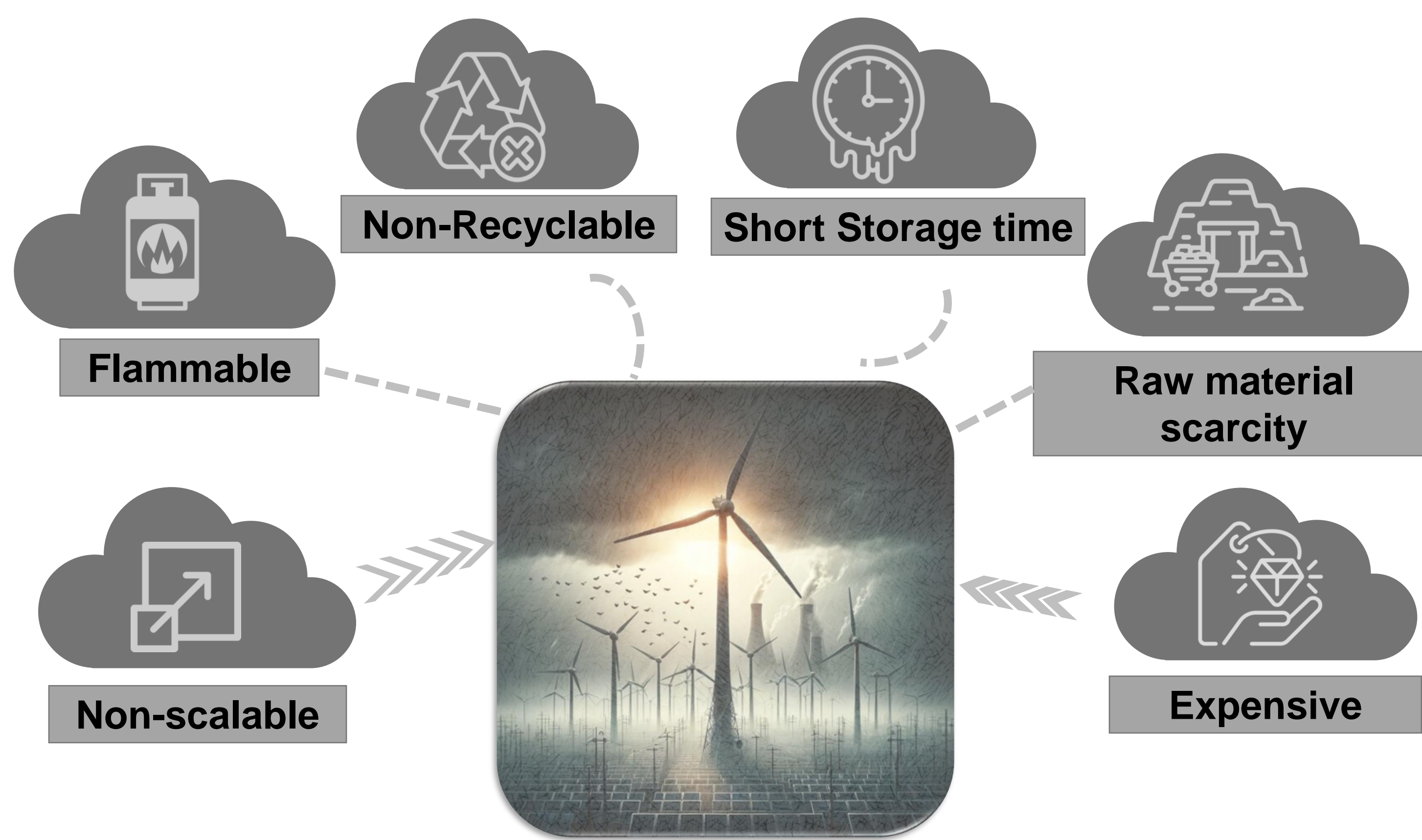
UK Energy Generation 2023 (Gov, 2024)

Our Technology



- Abundant raw material
- Longer time of storage
- Higher efficiency
- 100% recyclable
- Non-flammable
- IP Protected

Current Limitations



Current energy storage systems are insufficient, unprofitable, or not scalable.

Due to the lack of energy storage in the UK, 5% of the renewable energy generated was wasted (Electrical Review, 2023)

Conclusions

- Low CAPEX and OPEX requirements
- Sustainable and recyclable materials
- Static or flowing option
- Non-flammable
- 3 times reduction in battery footprint/volume
- Potential CO₂ savings: ~0.9 ton/hour at total capacity
- Higher efficiency than Vanadium RFB
- Higher energy density than Vanadium RFB

Partners

