

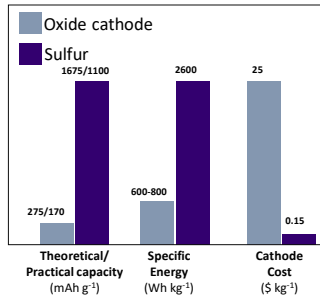
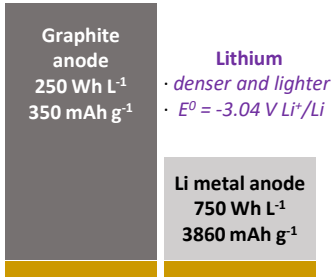
## Introduction

Lithium Sulfur (LiS) batteries to double the cell energy of Li-ion batteries for EV applications.

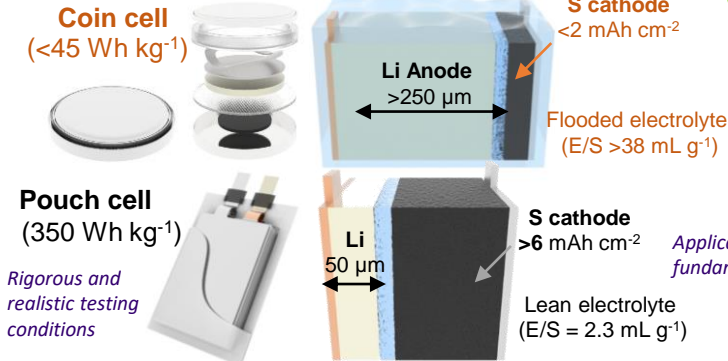
Transportation accounts for 23% of global energy related emissions.

Current gaps slowing progress towards electrification of vehicles:

1. Supply chain and high battery cost
2. Low practical energy density
3. Short cycle life



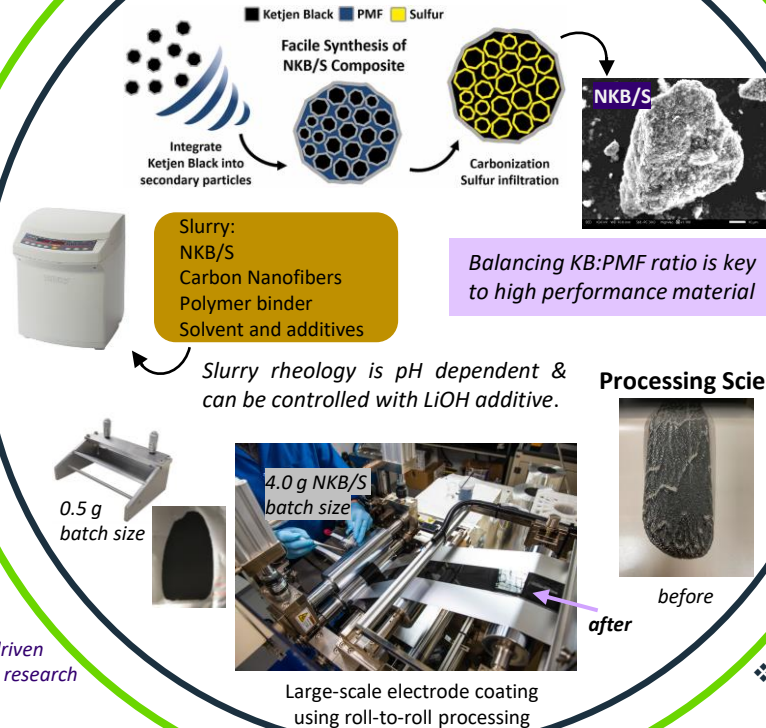
## Methods and Approach



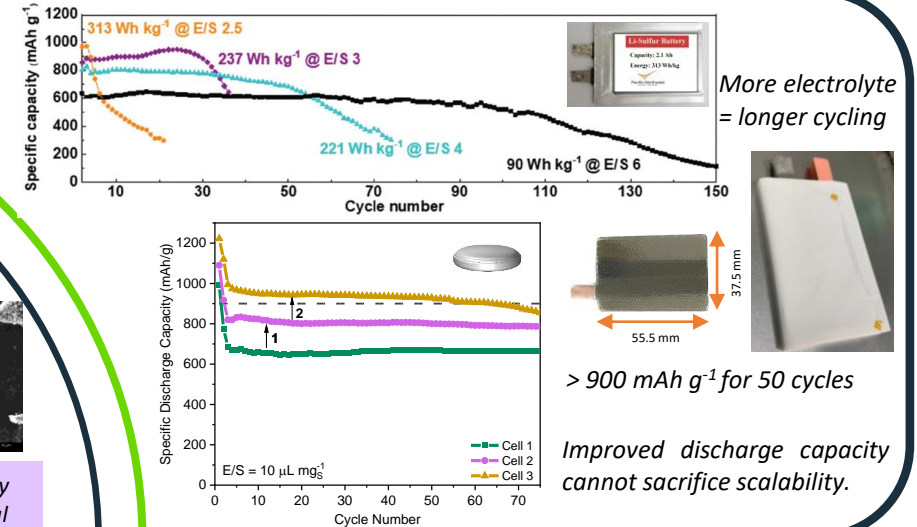
S cathode materials and electrode need: → Innovations to be **scalable** and industry **relevant**

- Most publications use coin cell test at “ideal” conditions.
- S cathode materials are not commercially available.
- Screen coin/pouch cells with lower E/S (<10 mL g<sup>-1</sup>) ratio & high-loading S cathodes (>4 mAh cm<sup>-2</sup>)

## Research Highlights

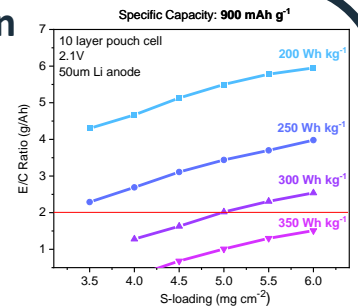


## Results



## Discussion/Conclusion

- ❖ For high energy pouch cells, high mass loading cathodes with low porosity are required.
- ❖ NKB/S cathodes was developed and scaled up for practical pouch cell fabrication and demonstration.
- ❖ Coupling materials synthesis and processing innovations, discharge capacity improved 26% while simultaneously creating scalable electrode fabrication



## Acknowledgments

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## References

Feng, et al. *Nano Energy*. 2022. Shi, et al. *Energy & Environ. Sci.* 2020, 13, 3620