



A partnership between

SLAC-Stanford Battery Center

&

Precourt Institute for Energy



Stanford | ENERGY

Architecting the energy transition
by guiding “What to build”

Aug 9, 2024 | ESGC Summit | Manufacturing & Supply Chain



STEER | Overview

Working backwards from TWh-deployment to guide R&D directions, investment decisions, and policy agendas



Sally Benson
Co-PI

Precourt Family Professor | Energy Science & Engineering, Stanford University

Former Chief Strategist of Energy Transition | White House Office of Science & Technology Policy



William Chueh
Co-PI

Director | Precourt Institute for Energy

Director | SLAC-Stanford Battery Center

Associate Professor | Materials Science & Engineering, Stanford University



Adrian Yao
Founder & Team Lead

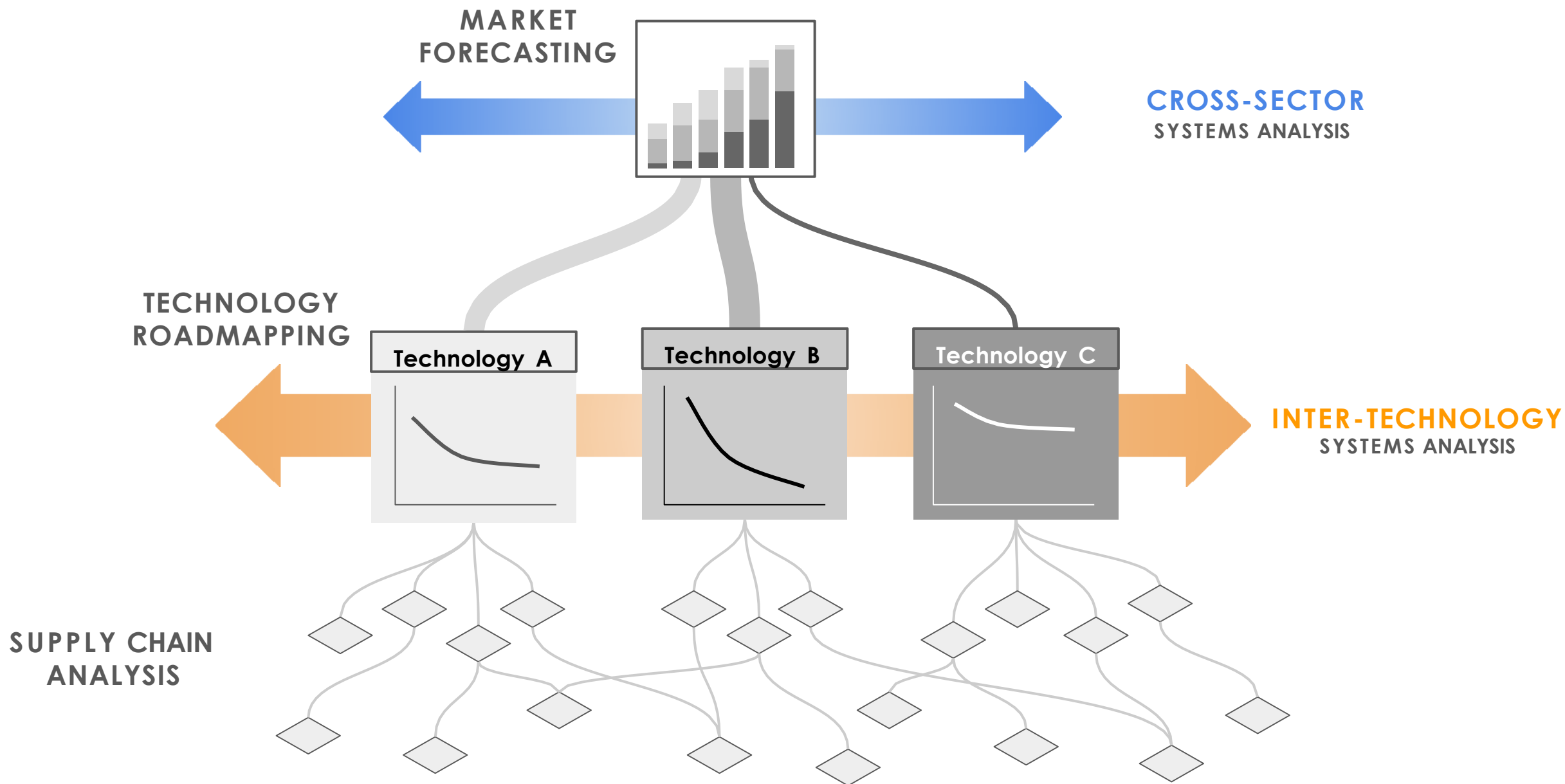
Co-founder & former CTO | EnPower, Inc.

PhD Candidate | Materials Science & Engineering, Stanford University

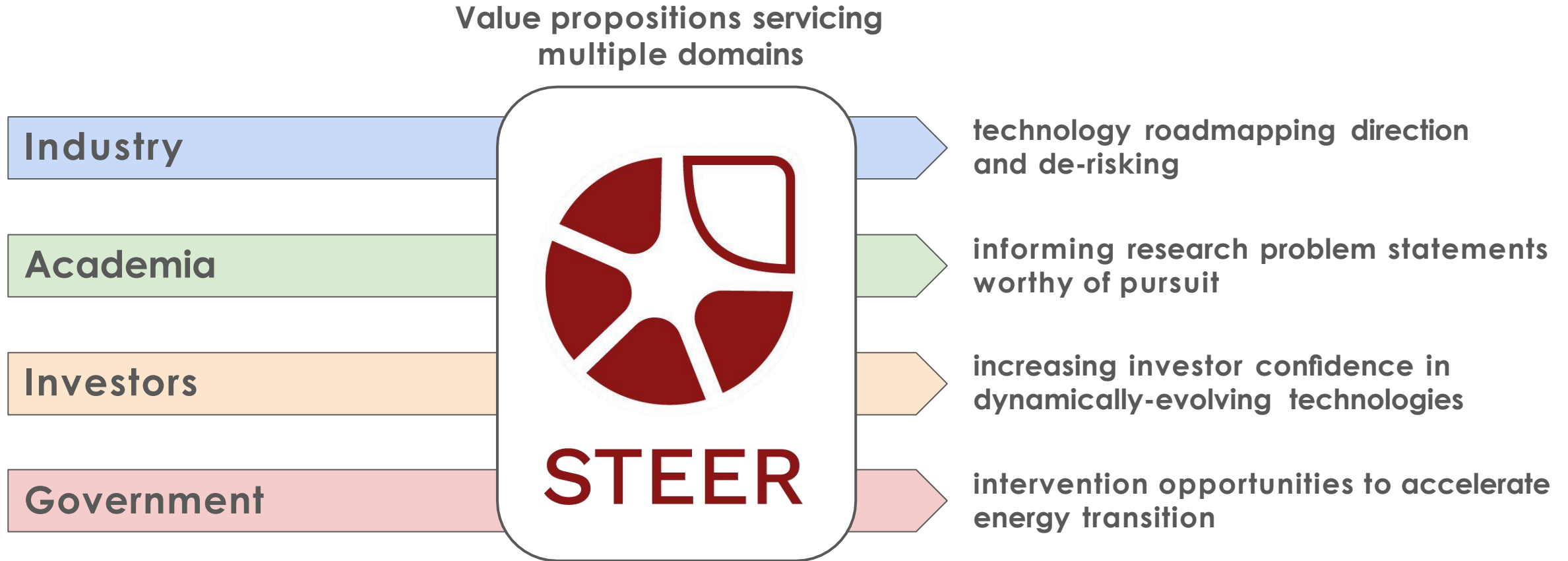
Support & Key Stakeholders



STEER | Architecting the energy transition by guiding “What to build”



A vision for **global, multi-domain impact**



ENPOWER

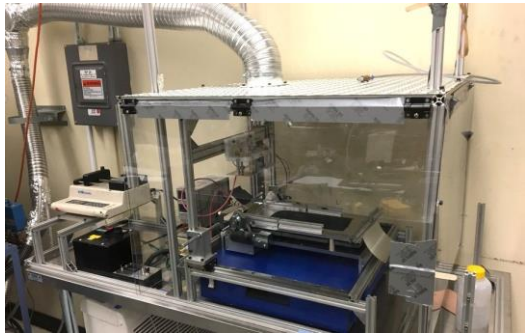
Founder & former CTO

2014 – 2022

*Giga-scale drop-in multi-layered electrode architectures
for hi-energy, hi-power Li-ion cells*

Houston, TX

Lab Scale



Phoenix, AZ

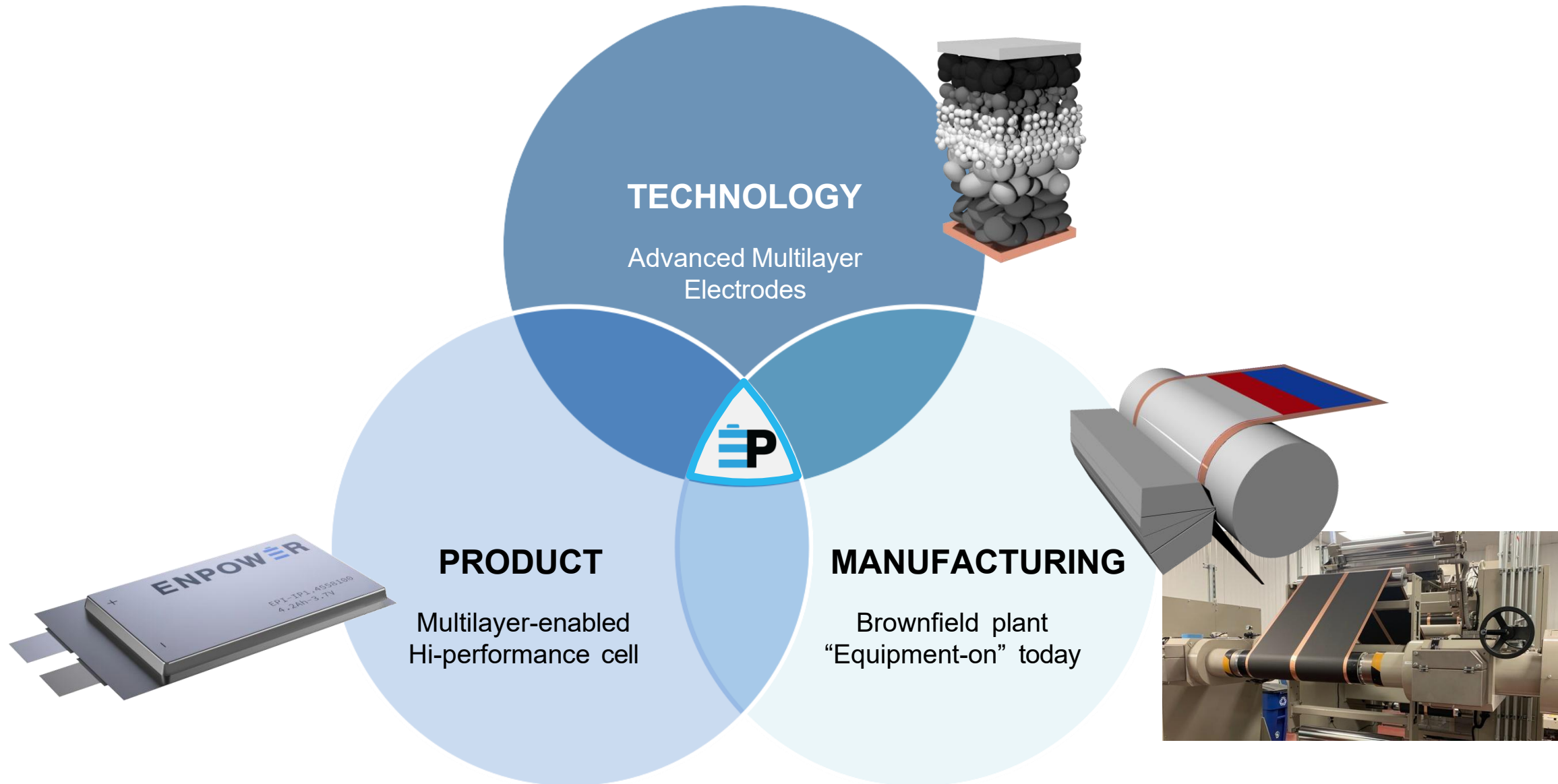
Pilot Scale



Indianapolis, IN
Production Scale



Uniquely positioned as leading American performance battery company



Building Batteries is Hard

BMW cancels \$2 bln battery cells contract with Northvolt

By Reuters

June 20, 2024 8:08 AM PDT · Updated 13 days ago

The Electric

The Electric: Freyr Takes Drastic Action After Trouble Scaling Up 24M's Battery

The Electric

The Electric: Half the West's Planned Gigafactories Are Uncertain to Be Built



Tesla employees say to expect more Model 3 delays, citing inexperienced workers, manual assembly of batteries

POLITICO

Britishvolt bankruptcy exposes Britain's battery bluff

The UK is falling far behind in the global race to build batteries.

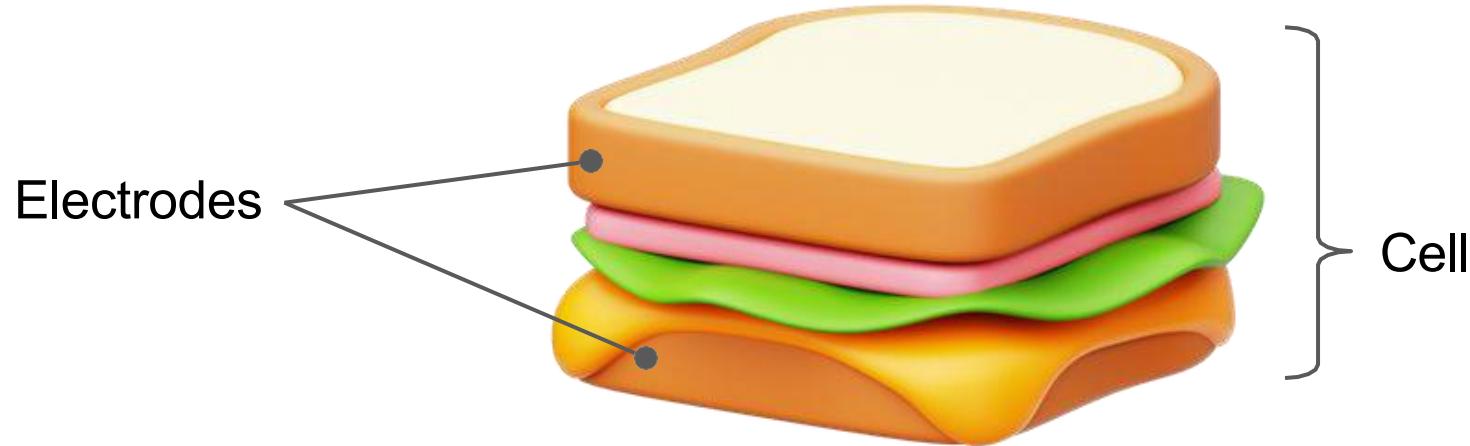
FINANCIAL TIMES

Northvolt considers cutting back aggressive expansion plans

Europe's leading battery maker recently lost a \$2bn BMW contract as it struggles to produce at scale

Core Strategy: An “Electrode-first” Philosophy

The Li-ion Sandwich Analogy



> **70%** of BOM

> **50%** of labor hours

> **40%** of plant footprint

> **30%** of energy input

~ **30%** of total CapEx

“Electrode-first” throughout:

Technology: Electrode-level innovations at core of EnPower

Product: Hi-performance cells enabled by multilayer advantage

Manufacturing: State-of-art electrode processing equipment

Go-to-market: Superior electrode capabilities enable early revenue