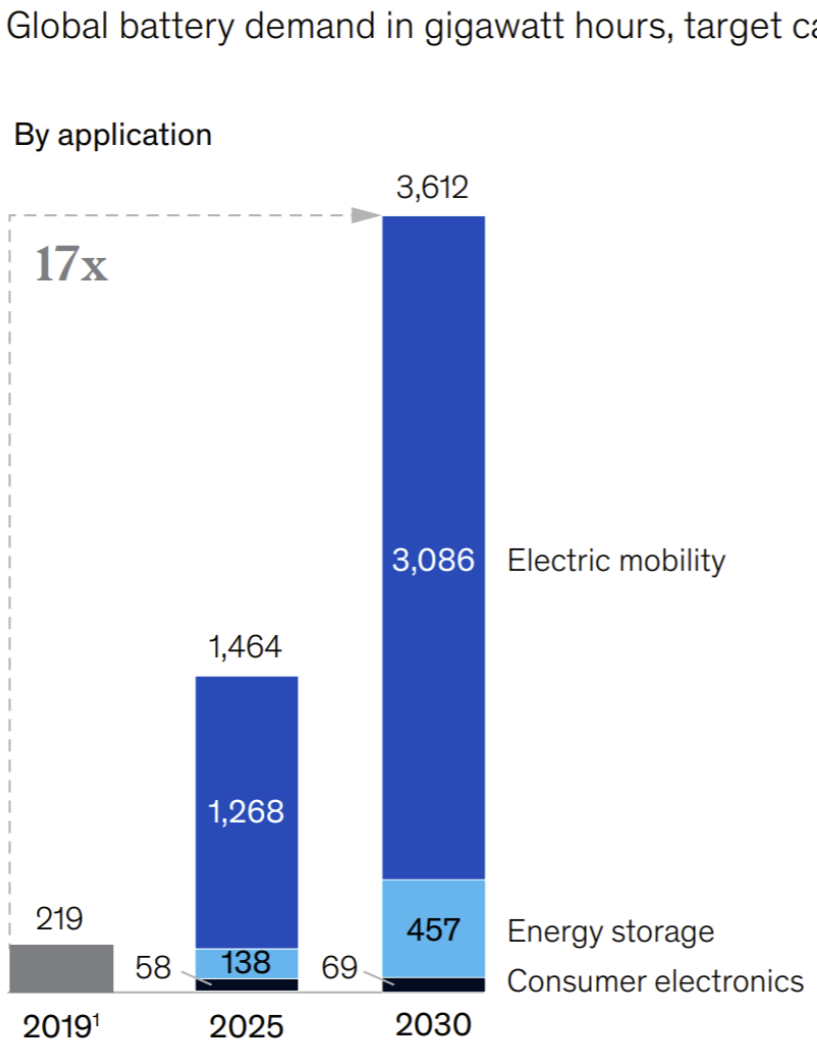
AM Batteries

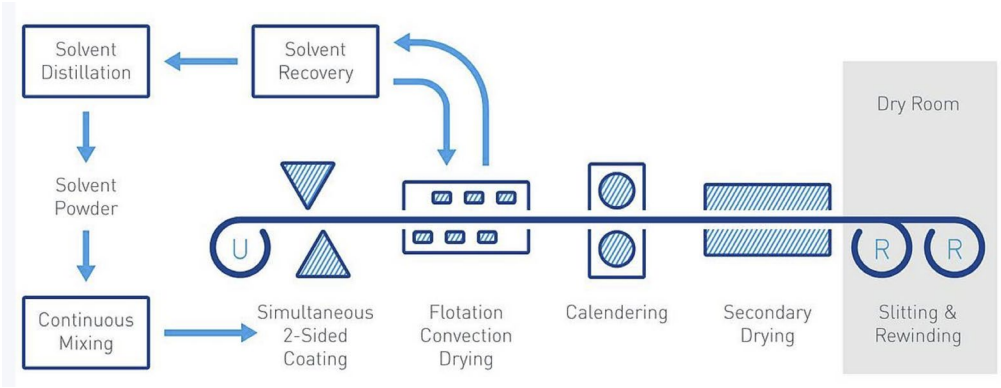
AM Batteries Inc

Yan Wang, Ph.D

AMB's Mission: Building More Sustainable Li-Ion Battery Manufacturing



Industry Pain Point: Solvent based electrode production



Solvent based electrode production is a key challenge facing all battery manufacturers

- Drying and solvent recovery accounts for **~47% energy consumption**
- Slurry mixing, coating, drying and solvent recovery accounts for **~30% manufacturing cost**
- Capital Equipment investment is **~ $66M for 5GWh Plant**
- **~$45B** market potential by 2030 in equipment sales

References:

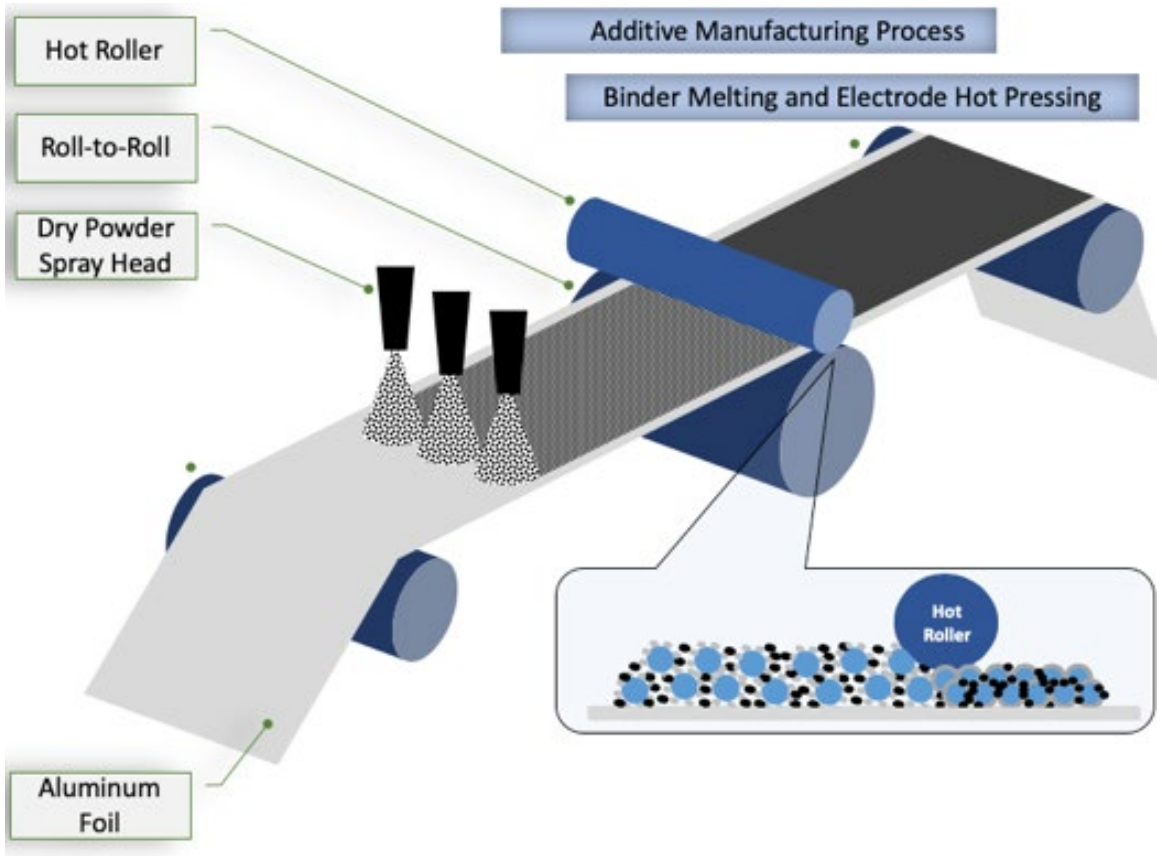
Heid, Bernd, et al. Mckinsey & Co, 2020, Building a More Sustainable Battery Industry, https://www.mckinsey.com/~/media/McKinsey/Business%20Functions/Sustainability/Our%20Insights/Powering%20up%20sustainable%20energy/Powering-up-sustainable-energy.ashx. Accessed 5 Oct. 2021

"Li-Ion Battery Electrode Manufacturing." Li-Ion Battery Electrode Manufacturing - Dürr Megtec, https://www.durr-megtec.com/en/industries/li-ion-battery-electrode-manufacturing.

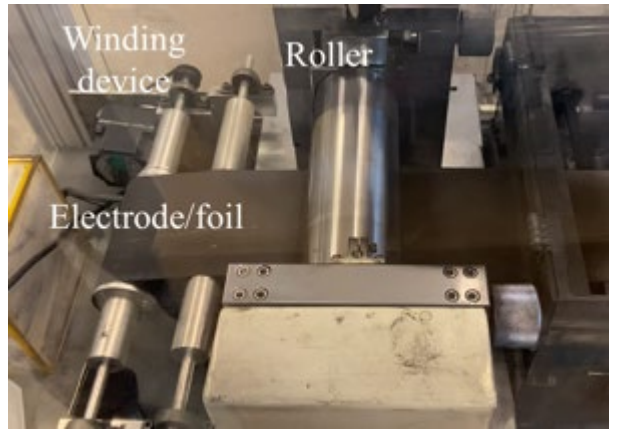
Liu, Yangtao, et al. "Current and Future Lithium-Ion Battery Manufacturing." *IScience*, vol. 24, no. 4, 23 Apr. 2021, p. 102332., doi:10.1016/j.isci.2021.102332..

AMB Solvent Free Electrode Technology

AMB Coating Process Overview



Single-sprayer Prototype Demonstration



Roll to roll system

- Compatibility with commercial cathode and anode materials
- Thick electrode (up to 500 µm)
- Layered electrode
- Ultra-low binder electrode

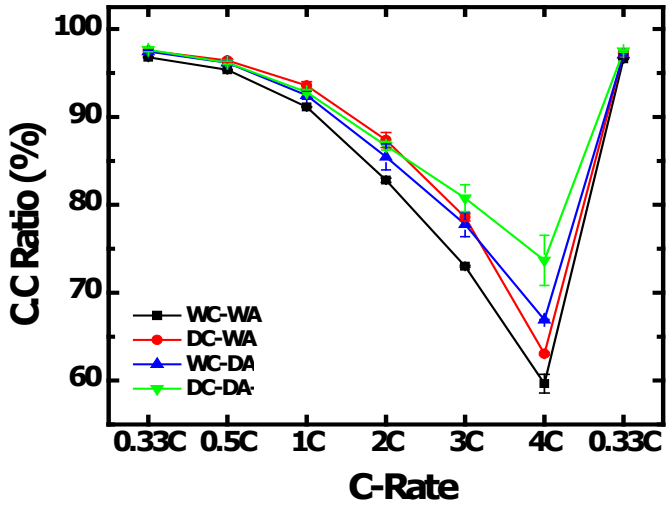
References:
Dry powder based electrode additive manufacturing. US 10,547,044
Ludwig, et al, Solvent-free manufacturing of electrodes for lithium-ion batteries, Scientific Reports, 2016

AMB Technology Value Proposition

Compared to the current state-of-the-art (slurry casting) method adopted widely in the battery industry, AM Batteries offers:

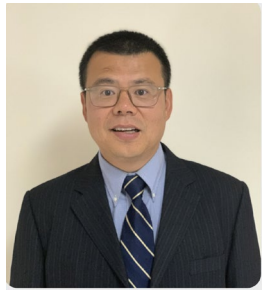
- 41% CAPEX savings due to lower equipment cost
- 47% OPEX savings due to the removal drying and solvent recovery step
- 47% CO2 reduction due to less energy usage
- Potentially enable next generation battery technologies (advanced LIBs, solid state and sodium ion)
- Potentially higher energy density batteries

30cmx30cm cathode
Composition: 96% NMC622, 2wt% carbon, 2wt% PVDF



Pouch Rate Test: Various C-rates charge, CV 15min cut-off, 0.33C discharge, 2.7 V to 4.3V

AMB Team and Its Investors



Yan Wang, Co-Founder and Interim CEO, WPI Professor, Co-Founder of Battery Resourcers
Background: Lithium ion battery materials, manufacturing and recycling

Jay Shi, CTO
Background: 30+ years Lithium-ion battery technology

Heng Pan, Co-Founder and Chief Scientist, Texas A&M University Professor
Background: Advanced Manufacturing

Omri Flaisher, Director of Technology Development
Background: Technology industrialization, and process automation

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VINFAST