



Australia



New York



Australia



New York



Binghamton



New York



New York



New York

ADVANCED MECHANICAL SOLUTIONS

45+ Strategic Partners

Global



IMPERIUM3 NEW YORK INCORPORATED

Collaborative Approach to Build Smart Giga Machines

Shailesh Upreti

Maximizing Potential

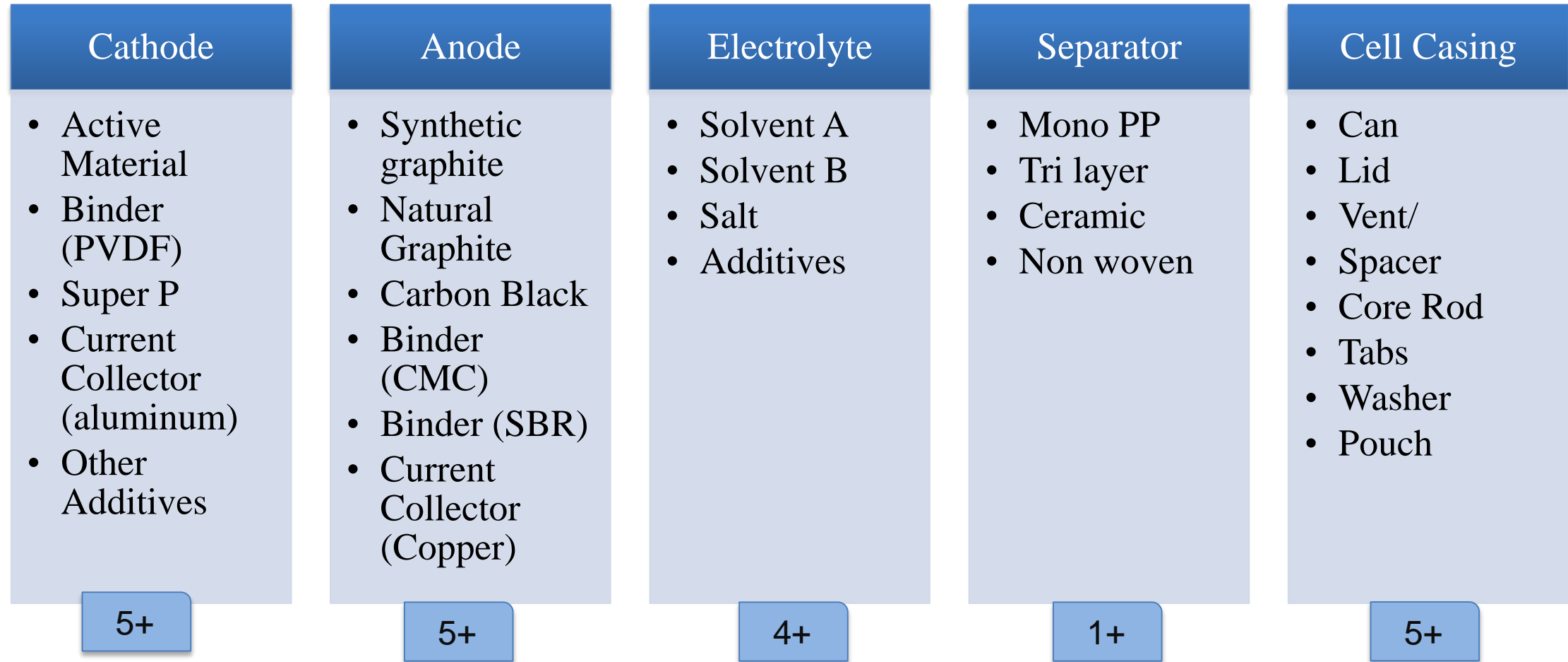
Creating World-Leading and sustainable LIB manufacture in New York for manufacturing revitalization and establishment of the sunrise industries of tomorrow

Key ingredients to a win-win relationship:

- ✓ Highly compatible existing industrial infrastructure
- ✓ Expert technical team located at leading battery development center (Binghamton University)
- ✓ Experienced project execution team
- ✓ Sustainable and ethically sourced supply chain
- ✓ Proximity to renewable and e-mobility market (fits very well to **NY 50by30** program)
- ✓ Financial Capital
- ✓ Proven Technology (IP)

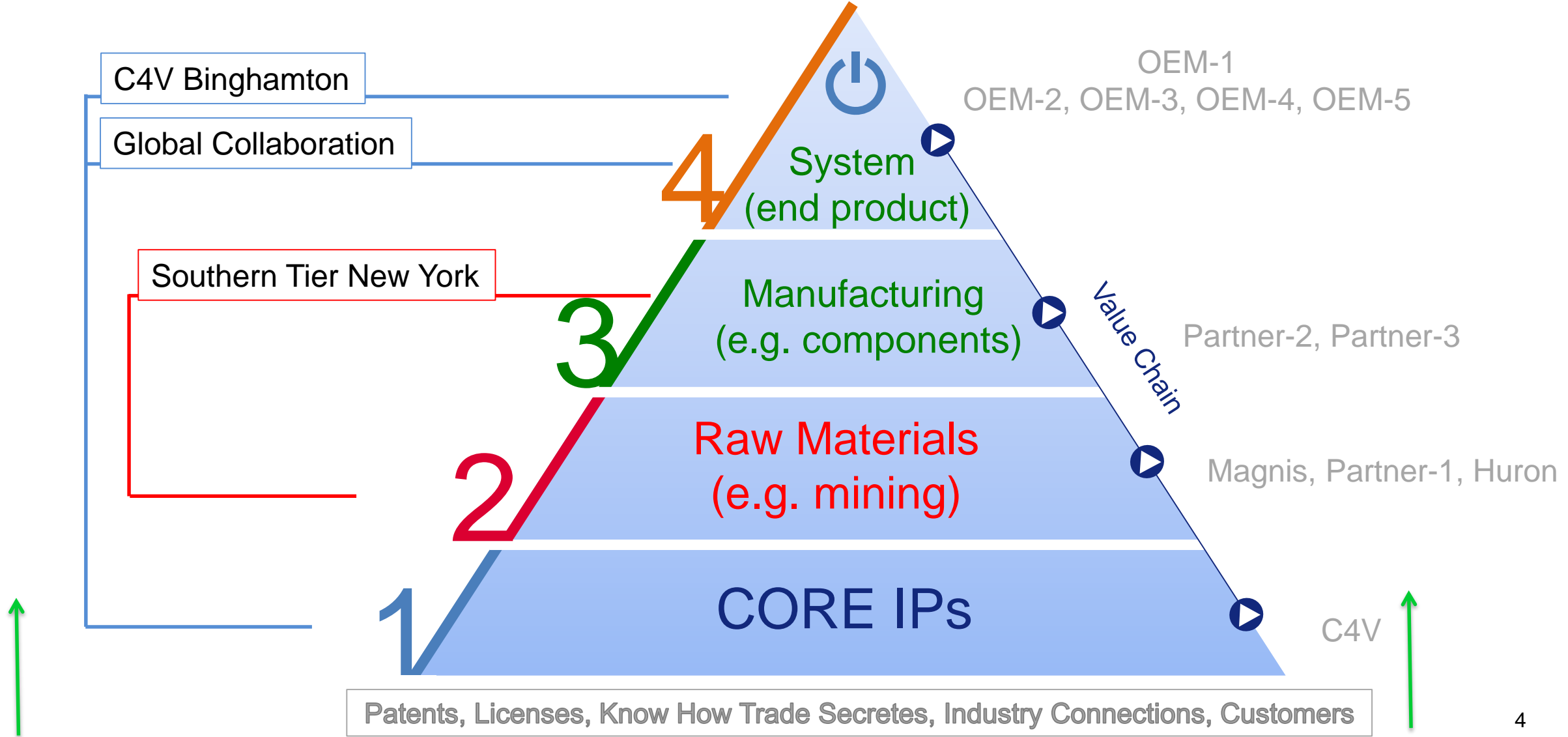
Supply Chain for Cell Manufacturing

20+ Components = High (Precision + Throughput) Manufacturing



A Bottom Up Approach: Must Happen In New York

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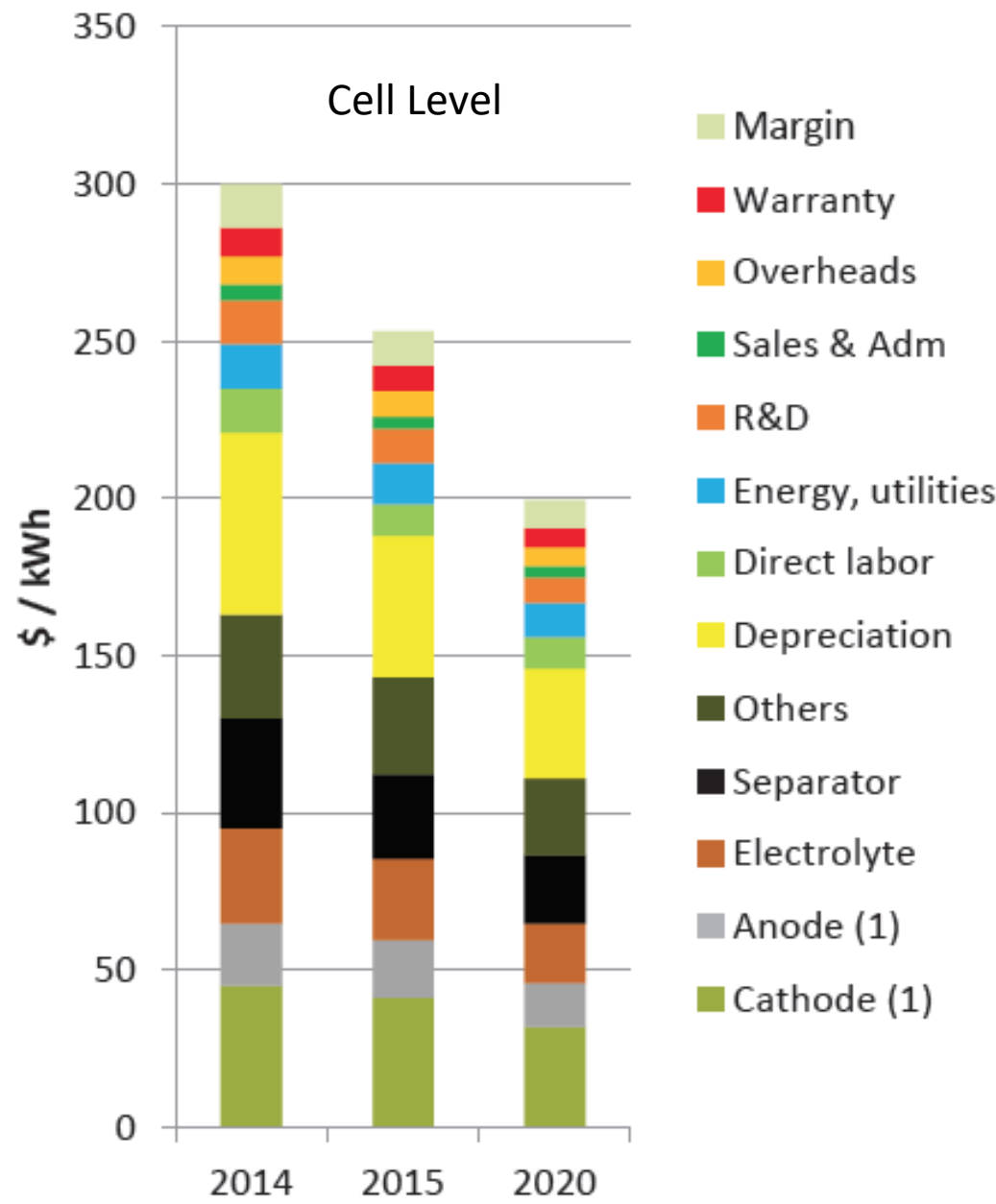
Key Questions??

2020
<\$200/kWh

>55% Raw
Material

Heavy CAPEX

Yield
80%



Ref: Avicenne Energy (1) Active materials only

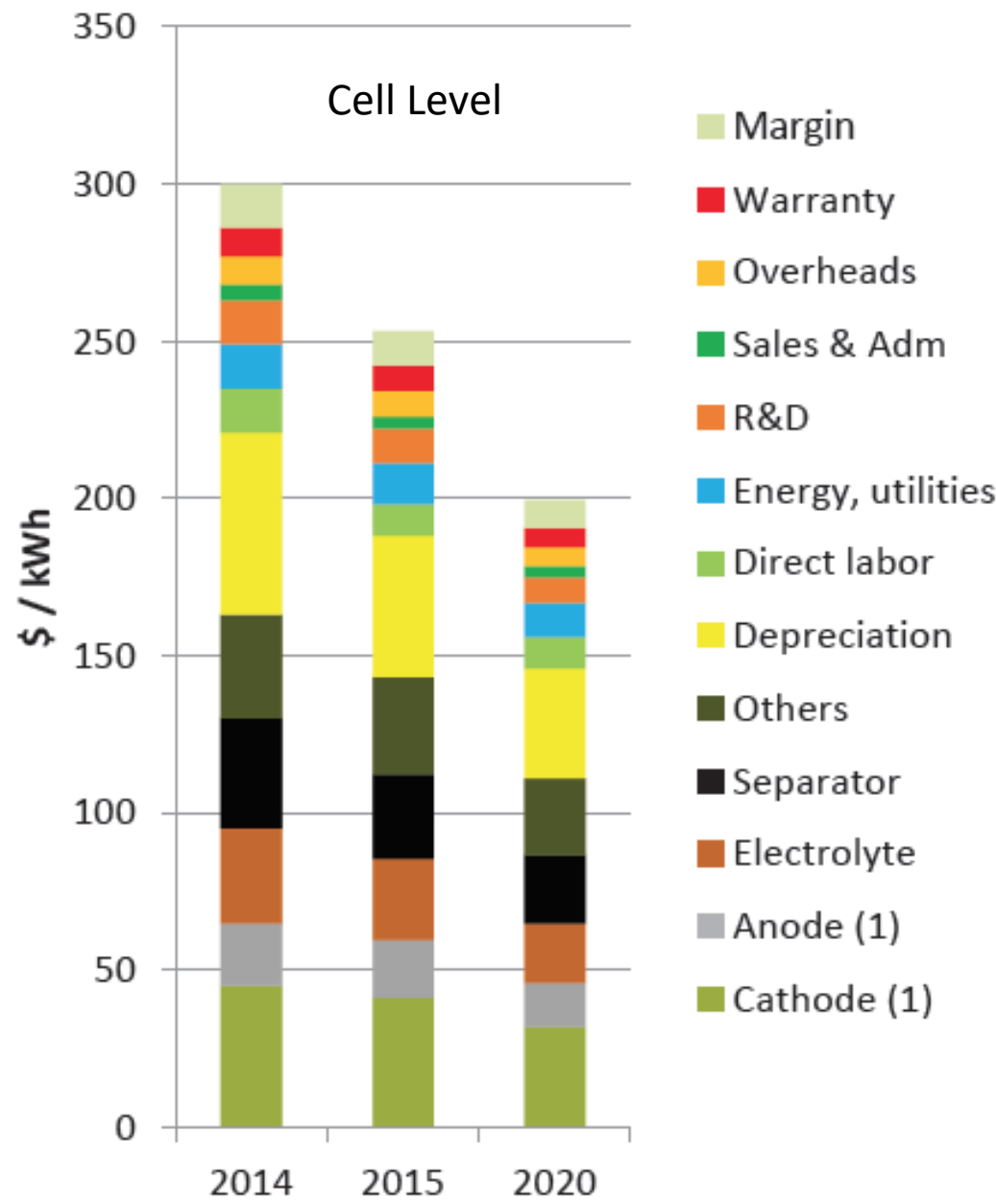
Better [CAPEX + OPEX]

2020
<\$200/Kwh

1
<40% Raw
Material

2
Simplified
CAPEX

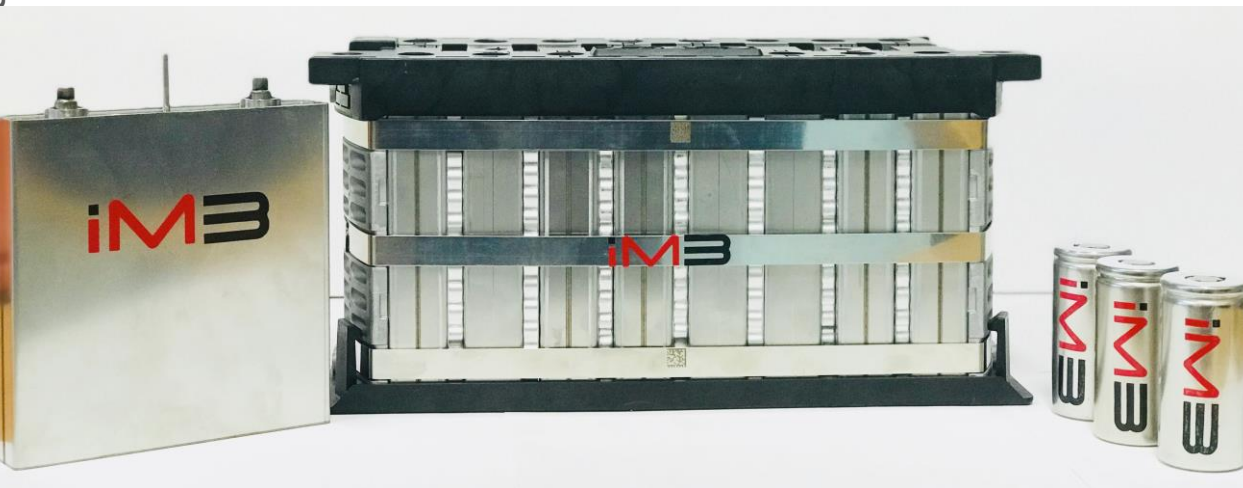
3
Yield
>95%



Ref: Avicenne Energy (1) Active materials only

1 Li-ion Battery: A Winner All The Way

4 key components: (i) control the battery performance
(ii) contribute >80% of the material cost at the cell level



Anode

C4V

Copper

Separator



Electrolyte

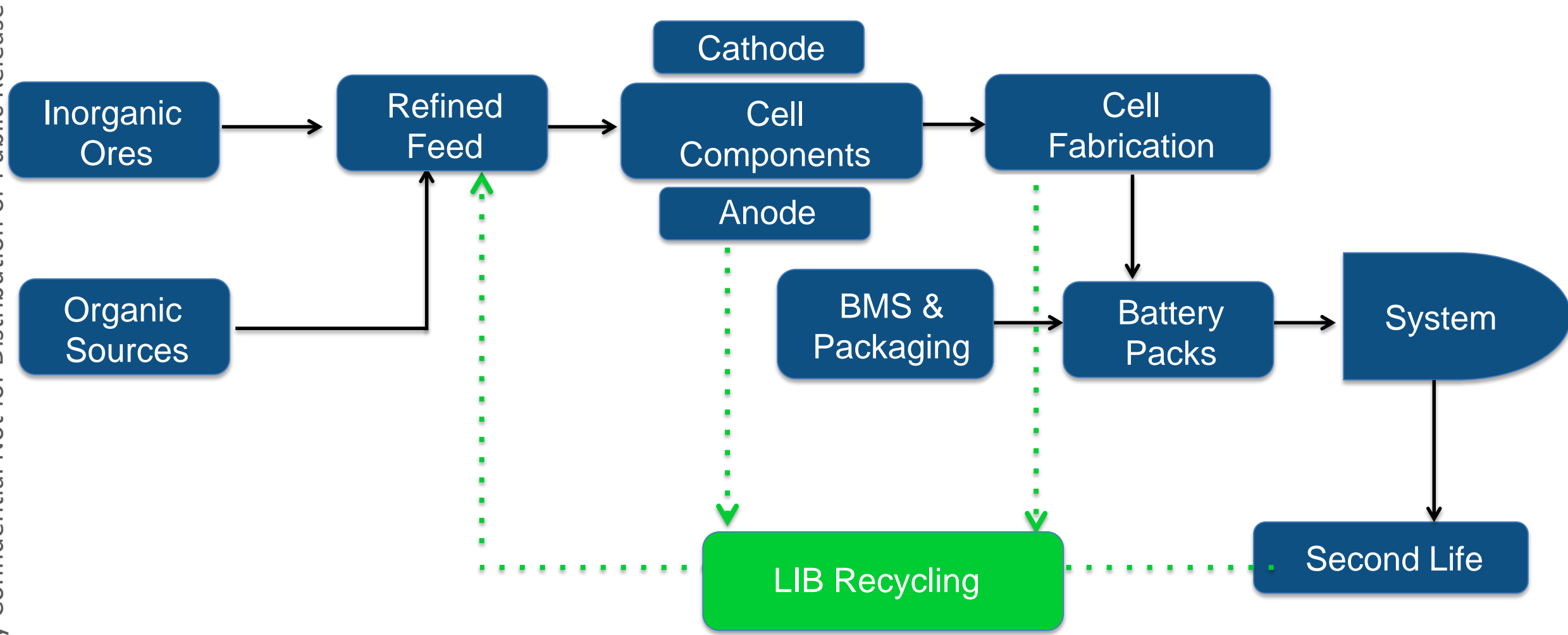


Aluminum

Cathode

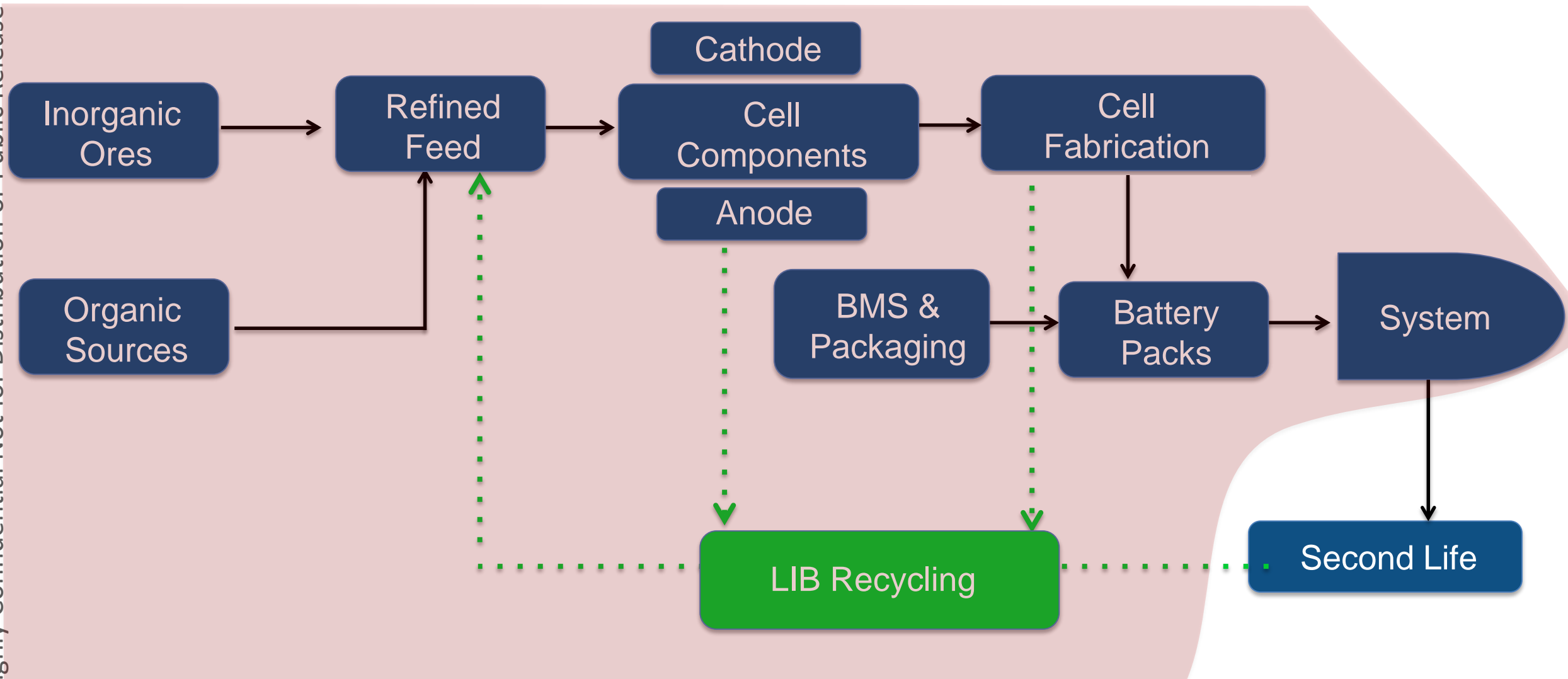
C4V

1 LIB Value Chain



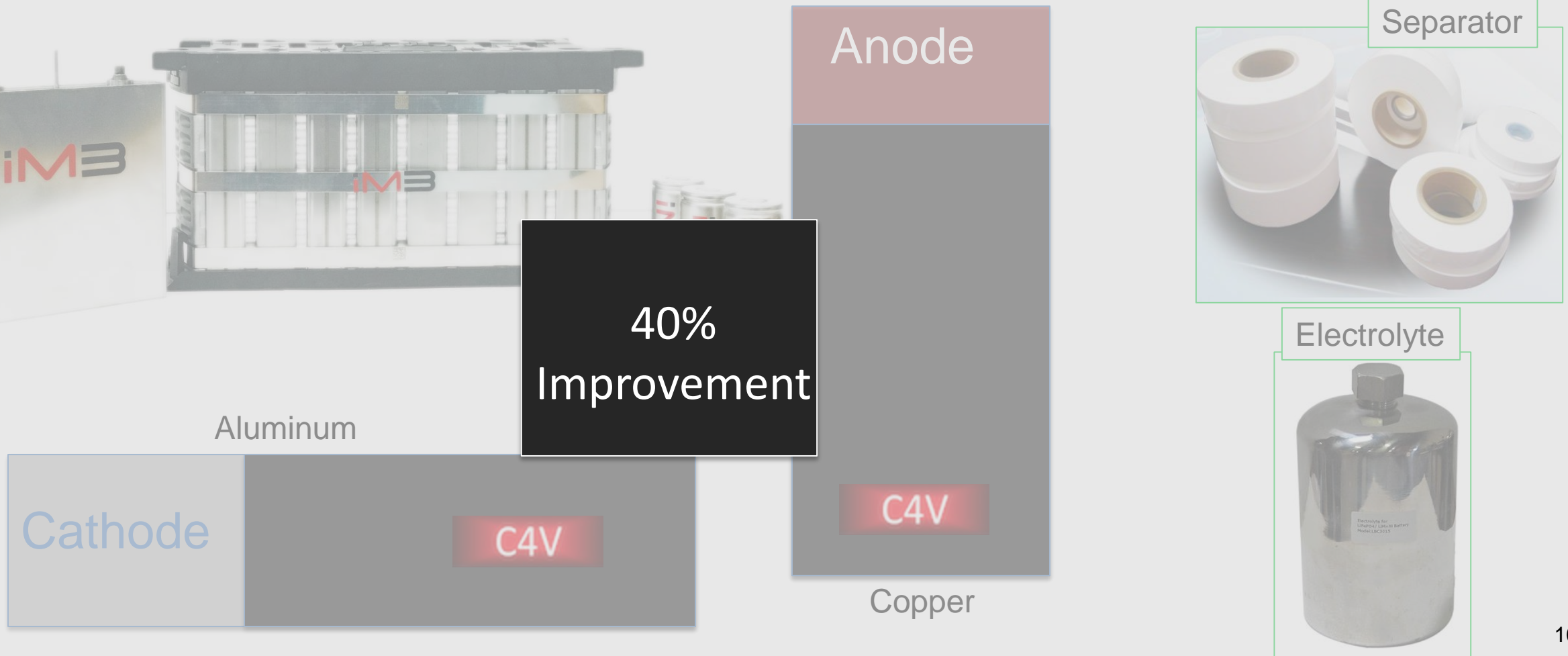
1 LIB Value Chain: Holistic Approach

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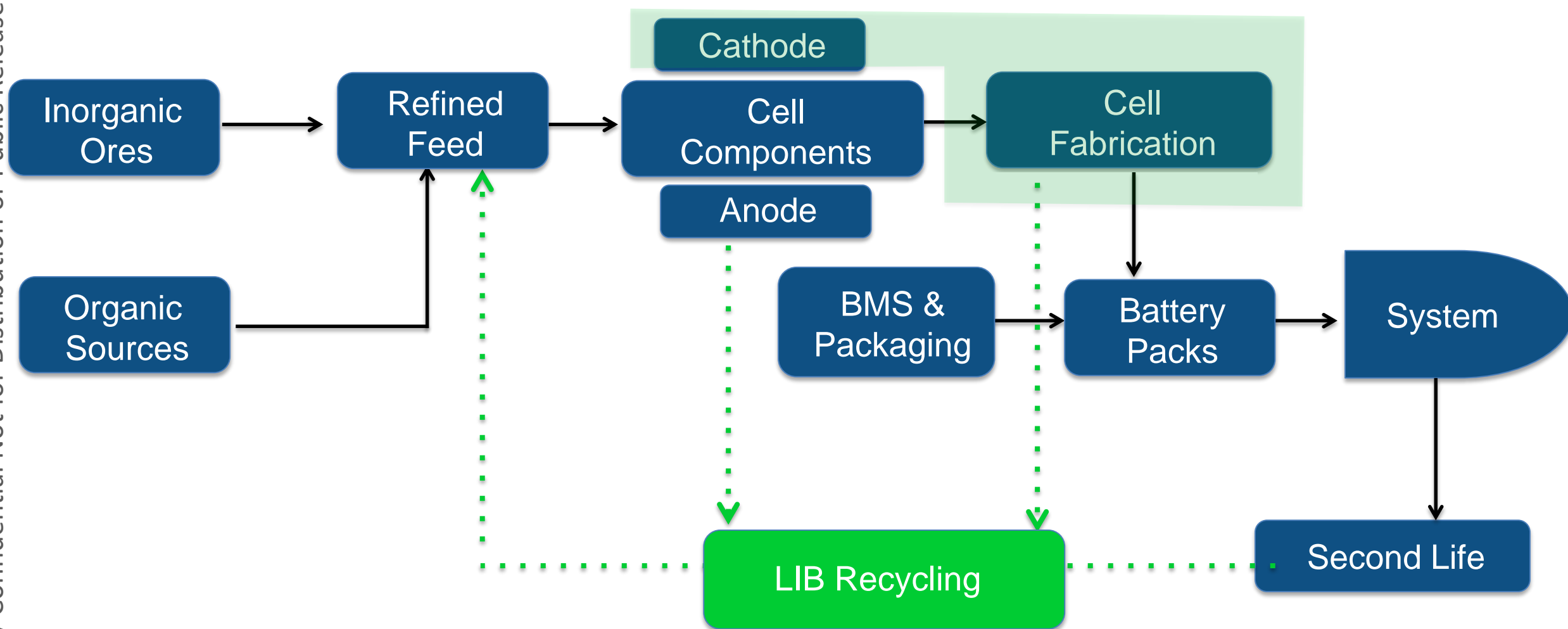
1 Cost Improvement: From Materials

4 key components: (i) control the battery performance
(ii) contribute >80% of the material cost at the cell level



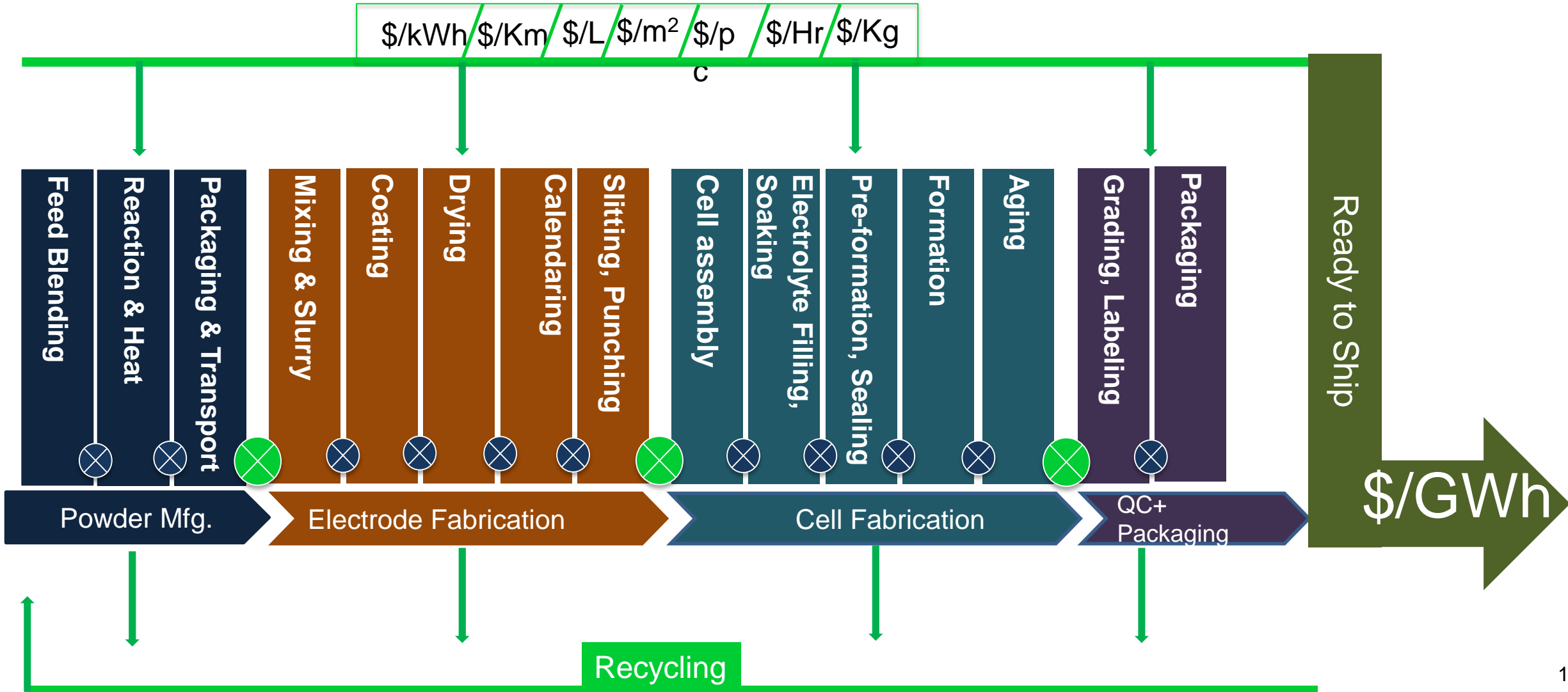
2

Cell Manufacturing: Low (CapEx+OpEx) Model



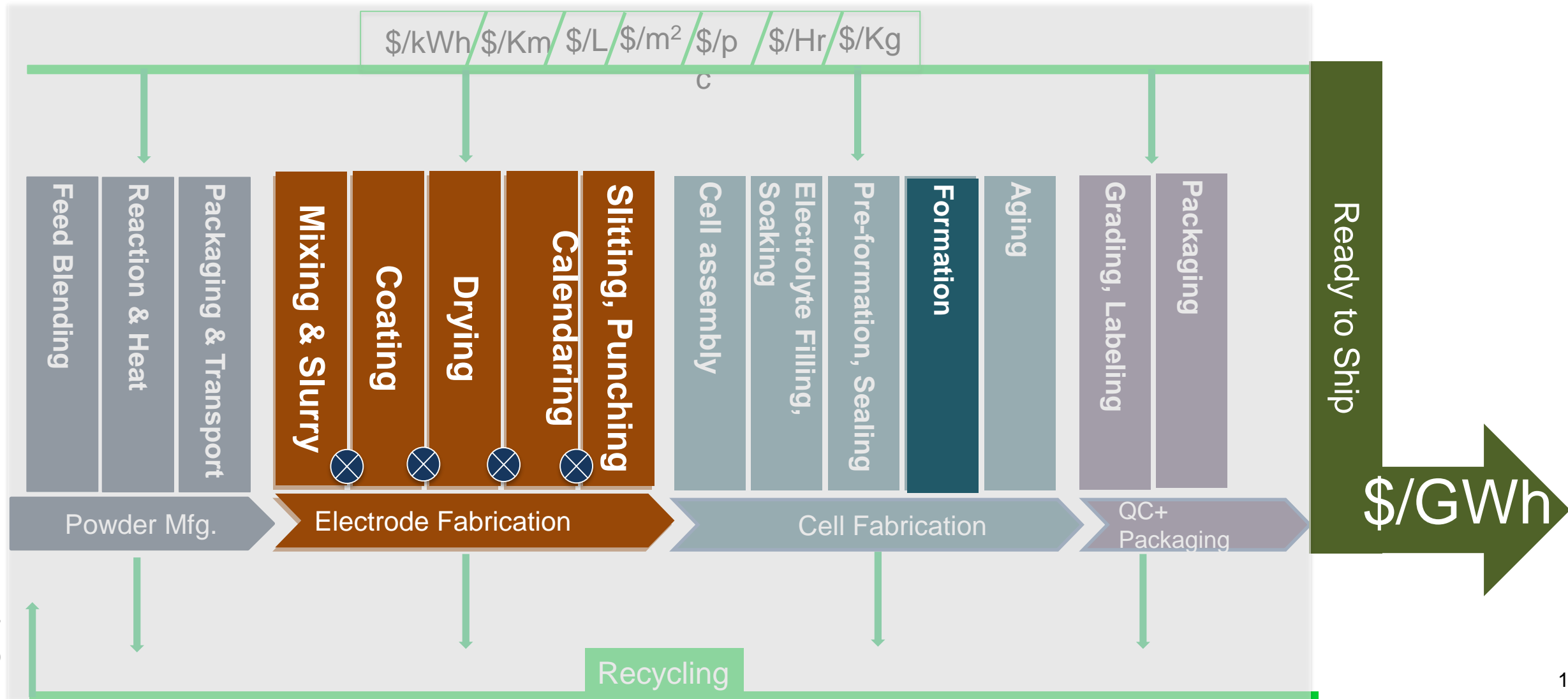
2 True Inline Integration for a Better Economic Conversion

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2 True Inline Integration: Examples

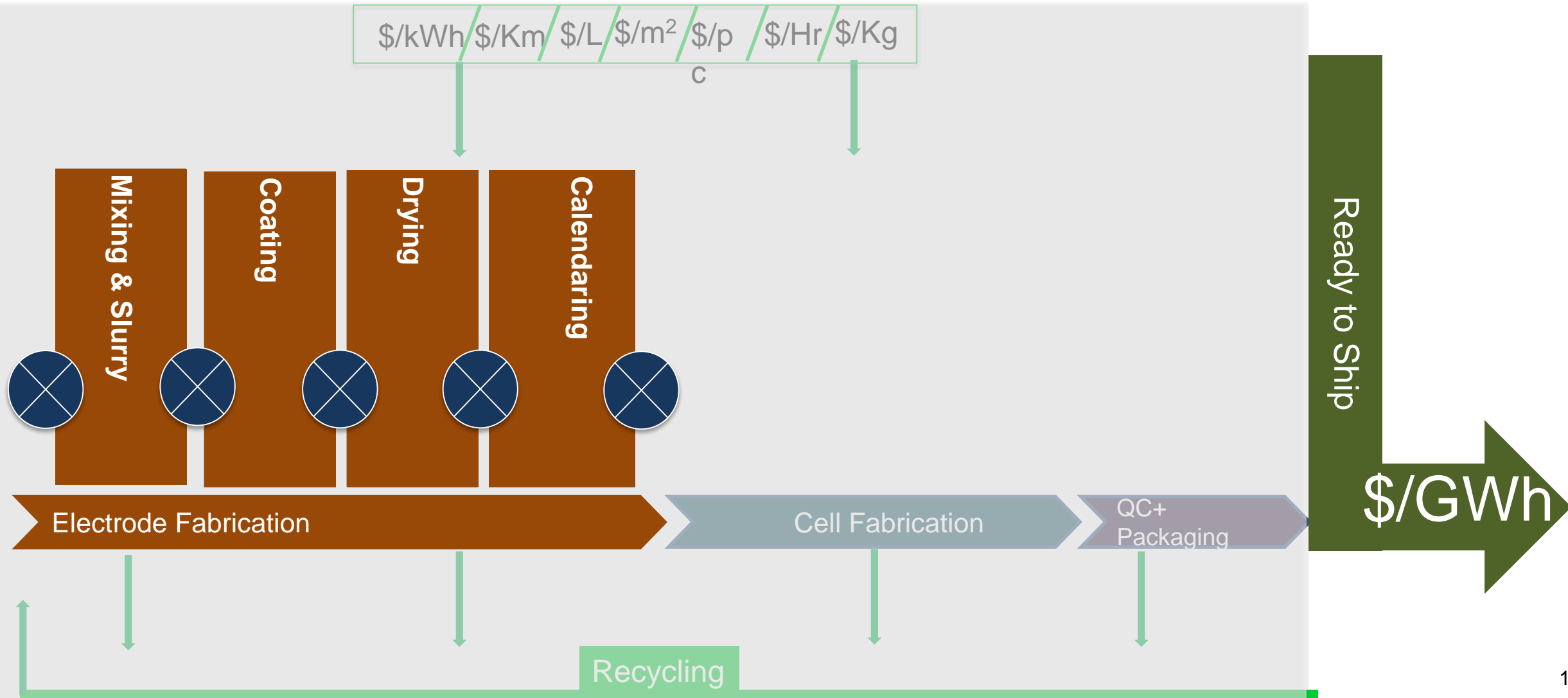
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2

True Inline Integration: Electrode Fabrication

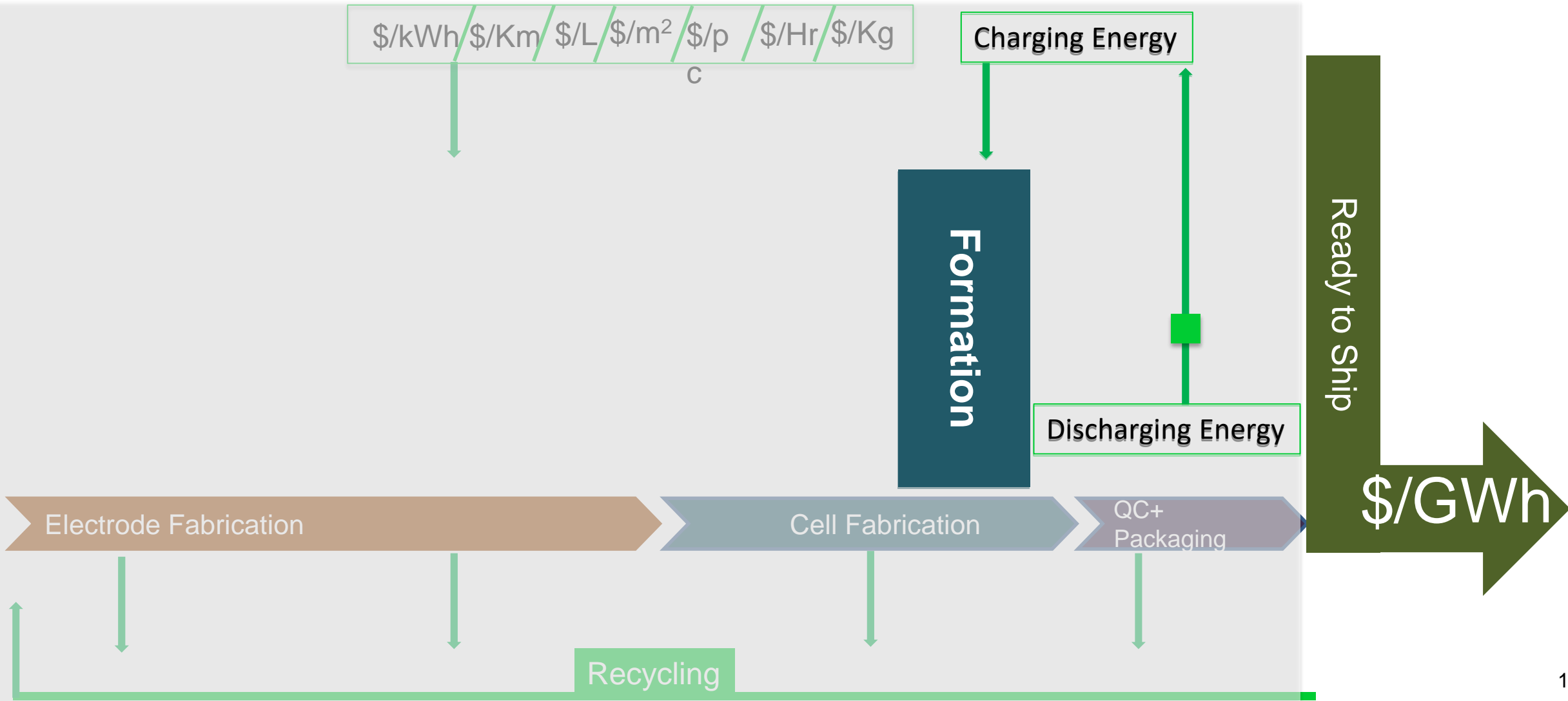
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2

Formation: Energy Recycling (Close loop or F2G)

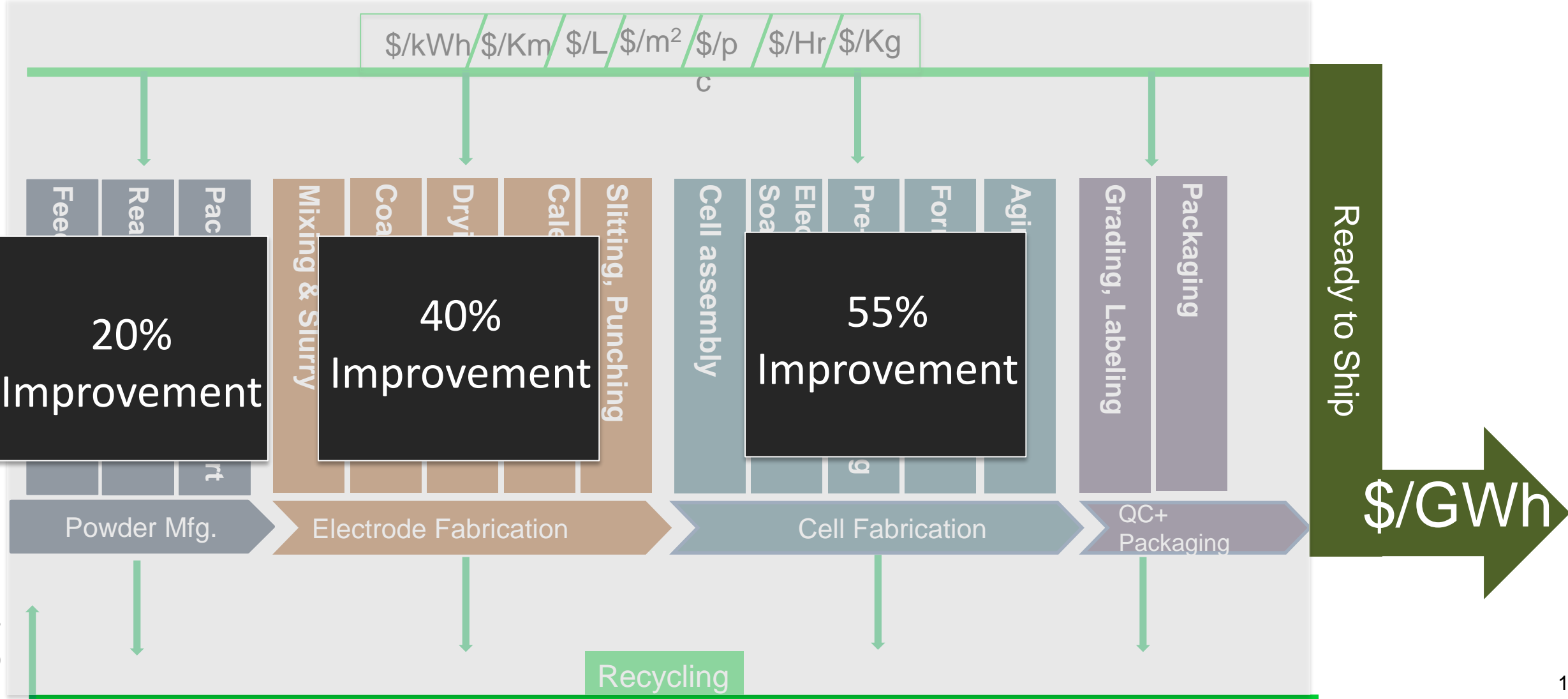
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2

Cost Improvement: From Process

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Summary: Proudly Happening in New York

- Acquired existing manufacturing lines to accelerate the production
- 15GWh by 2025 in New York : >1800 Direct + 3000 Indirect jobs
- Could play key role in NY50by30 with significant local content
 - Solar, Charging Stations, Electric Mobility, Distributed Grid, Electronics
- Scale, Inline Integration (Digitization, IOT, Robotics, Automation)
- **Stable Supply Chain is Crucial to Succeed**
 - Timely decisions
 - Faster qualifications

Sincere thanks to:

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Contact

Shailesh Upreti

President

C4V

85 Murray Hill Rd, Vestal, New York 13850, USA

Ph: +1 607 224 2225

ChargeCCCV@gmail.com