

The background features a repeating pattern of light blue icons. Each icon depicts a battery with a plus sign on top and a minus sign on the bottom, enclosed within a circular arrow that indicates a clockwise cycle, symbolizing the recycling process.

**OnTo Technology
Lithium-ion Appropriate
Advanced Battery Recycling**

**Steve Sloop, President
OnTo Technology LLC
Bend, OR**



**OnTo
Technology
LLC**

OnTo Technology

The most comprehensive technology portfolio for lithium-ion recycling



➤ Core Business Areas

Direct Recycling Cathode-Healing™, and Battery Decommissioning
Scale development of these technologies for commercial use.

➤ Founded 2004

Most experienced, best depth of technologies

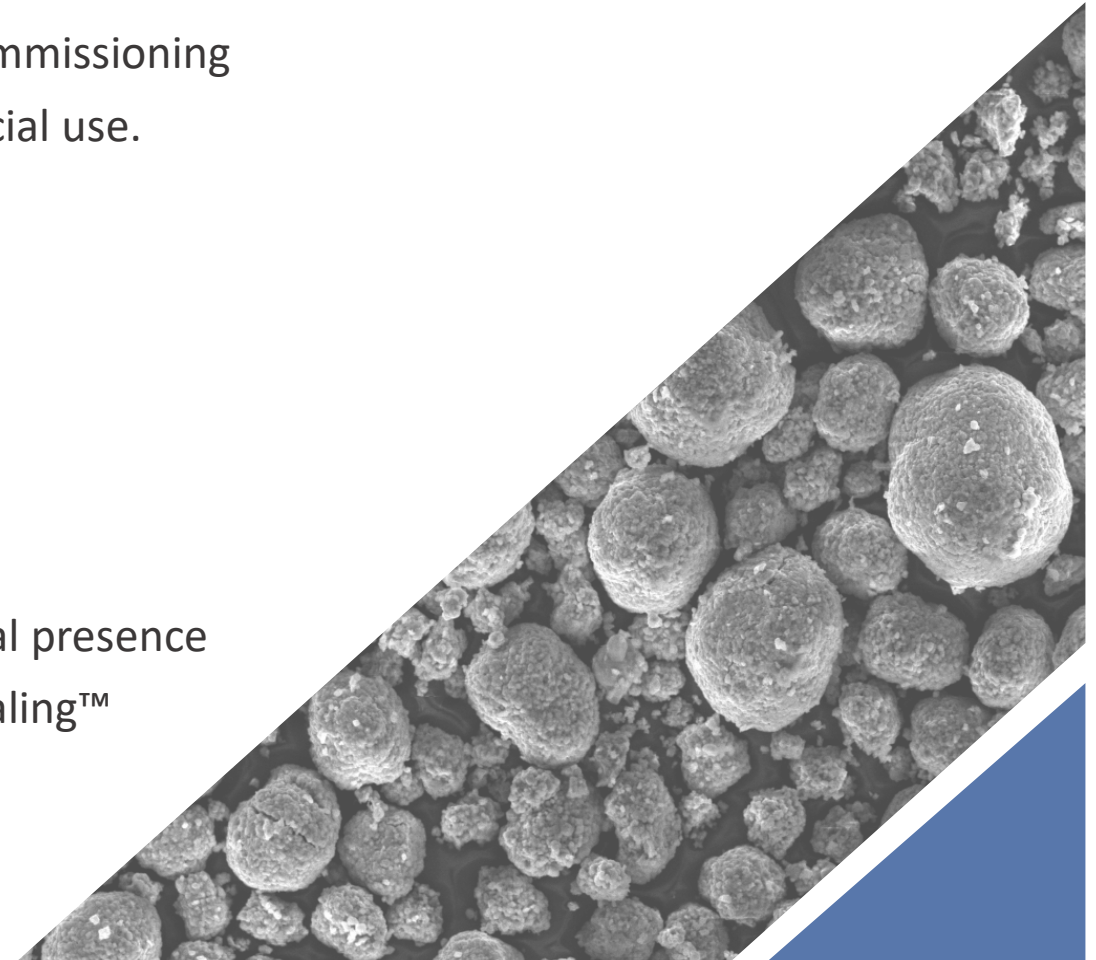
➤ Located, Bend, Oregon, USA

➤ Patented Technology

Comprehensive portfolio, 19 patents with international presence
Battery deactivation & discharge, sorting, cathode-healing™

➤ Pilot/Pre-pilot

Various technologies and Partners



Recycling is not getting cheaper....why?

Transporting end-of-life lithium-ion batteries is costly and dangerous.



**Shipment + disposal + environmental..
\$3800**

- Safety: Shipping and storage of batteries that can catch fire is expensive.
 - 30%-60% of the cost of recycling.
 - Approach is backwards for the future large market.
- Efficiency: Hydro and Pyro losses and limitations.
 - Purification of metal-sulfate or precursor mixed-metal sulfate.
- Scale: it is a relatively small tonnage.
 - Small and large scale is difficult for incumbent tech.
- The Incumbent “Plan”:
 - Cobalt recovery from a dilute and contaminated source.
 - Lithium recovery from a solid.
 - Packaging of end-of-life batteries.

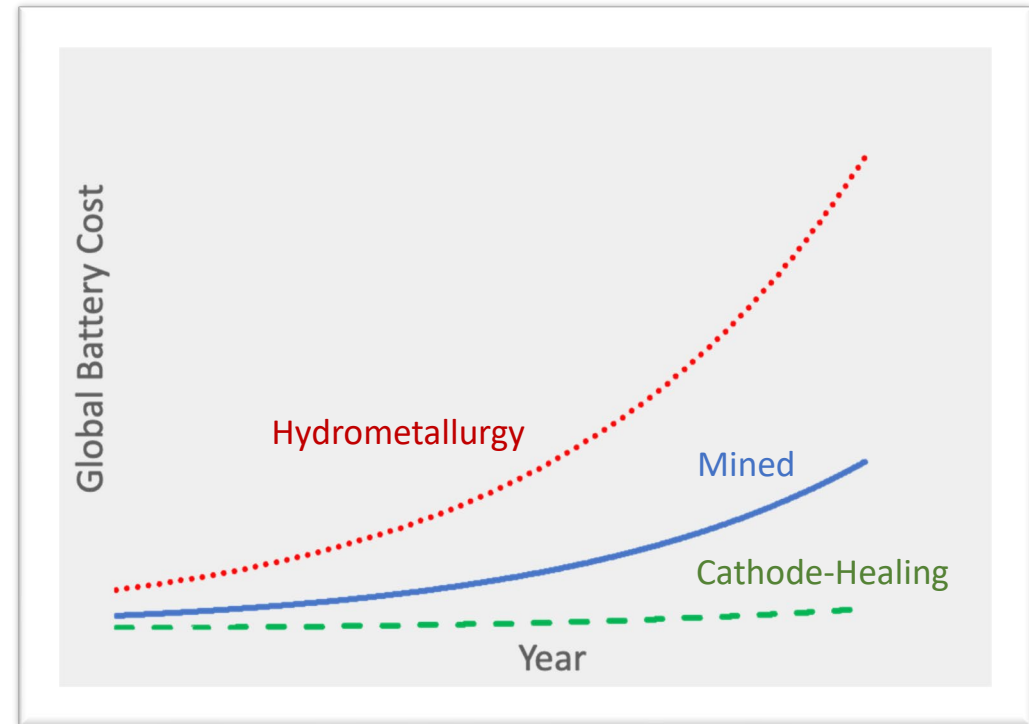
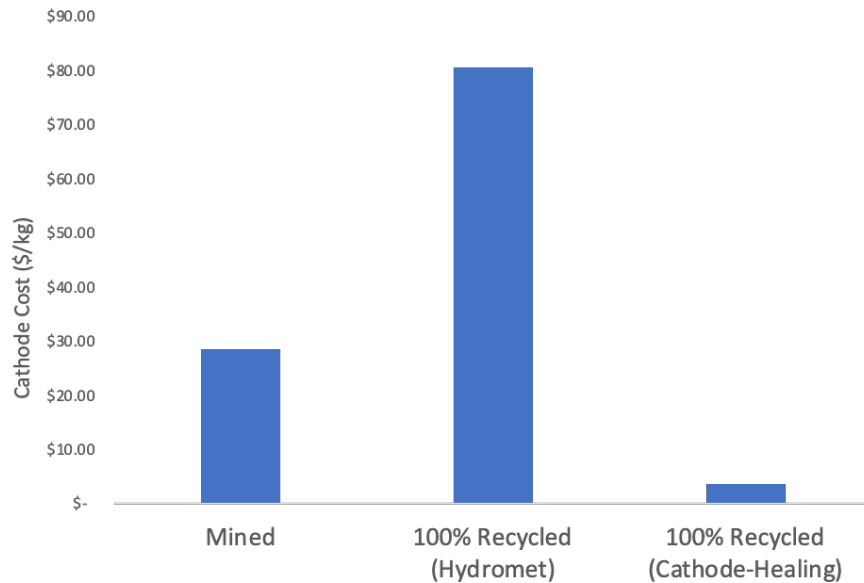
Opportunity or Crisis

the existential challenge for large format LiB and EV industry



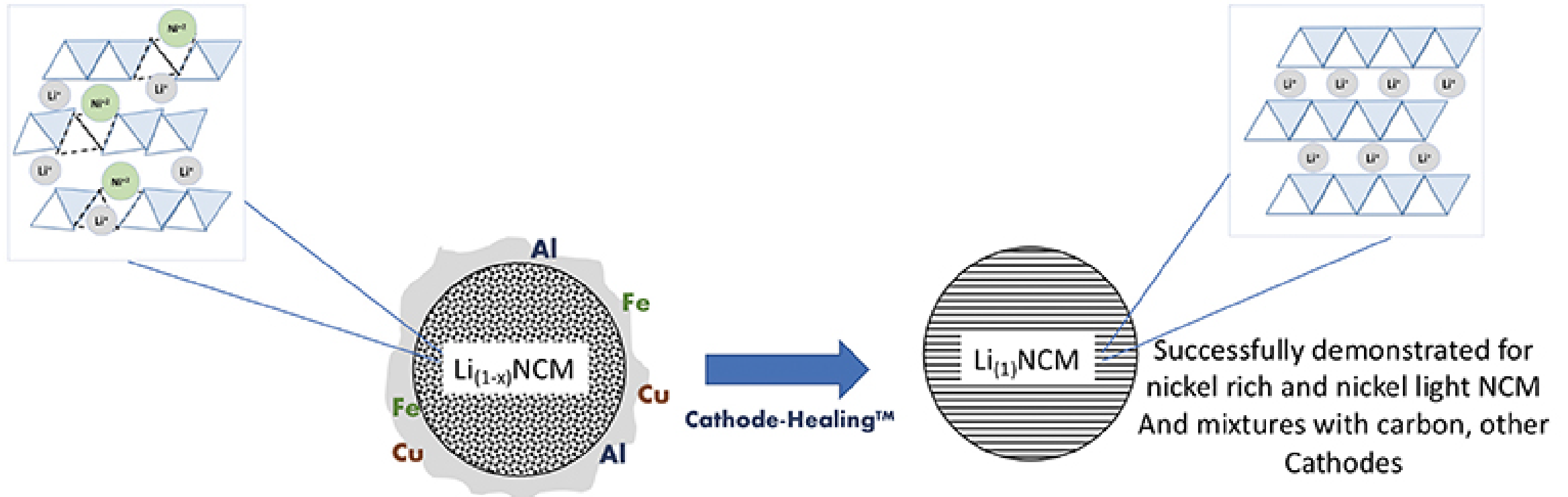
Current recycling produces materials that are more *expensive* than mining

Technical mismatch leads to spiraling cost



The industry needs to address this problem with innovation...

Innovation: Cathode-Healing® Direct Recycling



The only recycling designed for lithium-ion

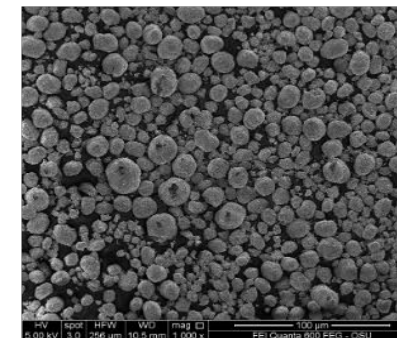
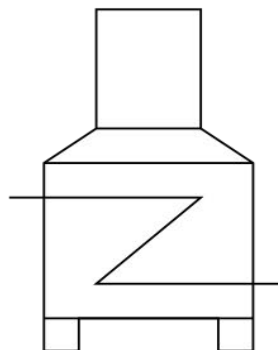
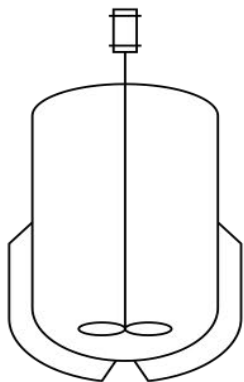
Closed-Loop Roll-out: Efficient Manufacturing



Cathode-Healing™ Direct Recycling



Harvest cathode material



Manufacturing-ready cathode



Manufacturing Scrap

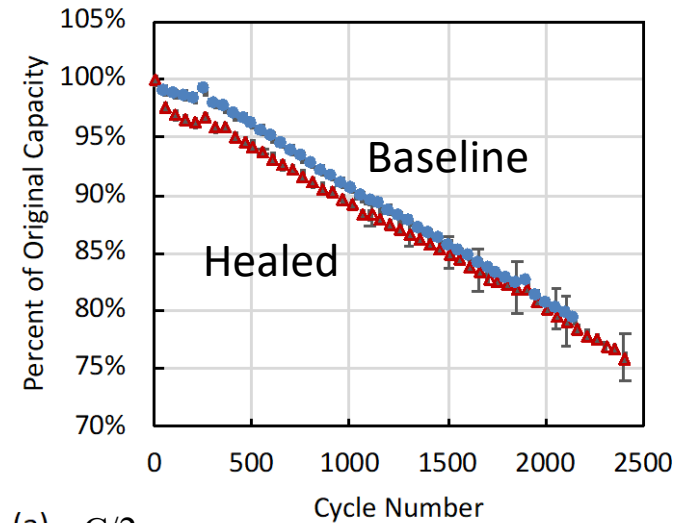
End-of-life

100% Recycled EV NMC

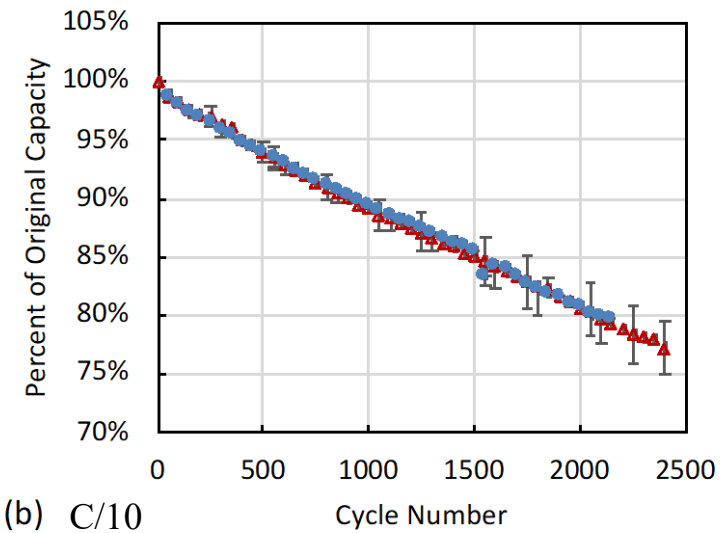
World's first from end-of-life battery



Cells made from 100% healed material



(a) C/2



(b) C/10

OnTo Team



Steve Sloop, Ph.D.
Founder and President of OnTo
Pioneer in direct recycling
14 patents



Lauren Crandon, Ph.D.
Chemical & Environmental engineer
Expert in nano-particulate
environmental health & safety

Robert Parker
Engineering & business advisor
Invented & licensed state-of-
charge tester to Duracell.

Joon Kim Ph.D.
Industrial battery manufacturing
World Leader
Builds batteries with recycled
material.



OnTo Technology LLC
www.onto-technology.com
sales@onto-technology.com
(541)389-7897



OnTo
Technology
LLC