

Panel Discussion: Commercialization of Carbon Ore Processing Technologies



Panel Discussion Outline



10:15 – 10:20

Overview and Introductions

10:20 – 10:30

Discussion of Commercialization Efforts

Randall Atkins – Ramaco

Daniel Connell – Consol Innovations

William Easter -- Semplastics, X-MAT, X-BATT

10:30 – 11:00

Moderated Q&A with Audience



RAMACO



Coal/Carbon Ore-derived
Rare Earths & Carbon Products



2024 NETL Resource Sustainability Project Review Meeting
April 2, 2024

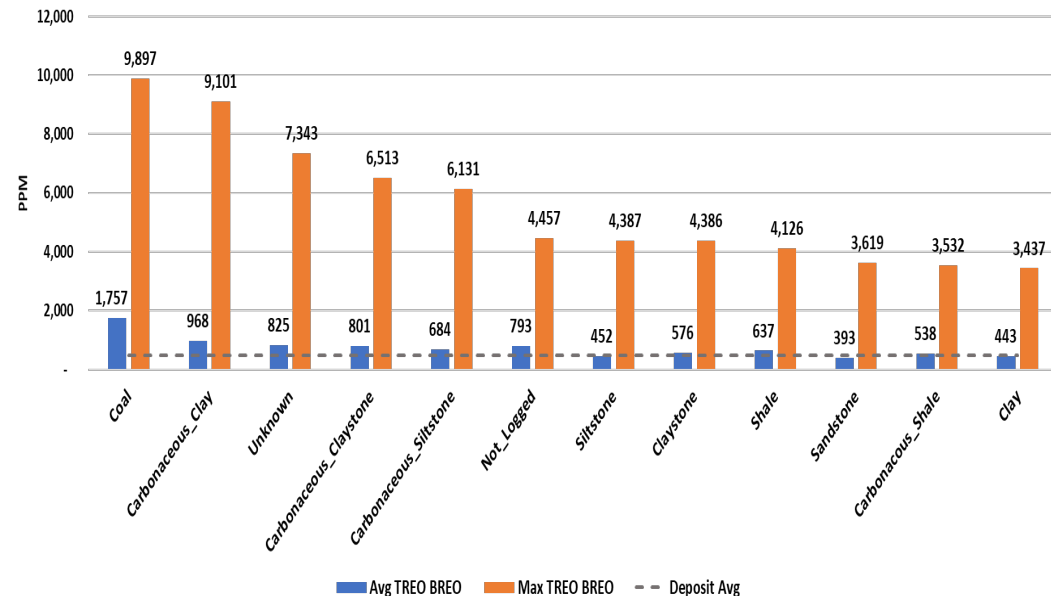
The Brook Mine- Preliminary Assessment



Brook Mine In-Place REO Exploration Target Tonnage and Grade Estimate - New												
Range	Total		Primary Magnetics		Secondary Magnetics		Heavy		Light		Ga and Ge	
	Tons ('000)	Grade (ppm)	Tons ('000)	Grade (ppm)	Tons ('000)	Grade (ppm)	Tons ('000)	Grade (ppm)	Tons ('000)	Grade (ppm)	Tons ('000)	Grade (ppm)
	Low	1,220	439	260	93	72	26	39	14	853	301	114
High	1,525	548	325	116	90	32	49	17	1,066	377	143	59

- ~5,000 permitted acres, ~16,000 total – all private land. Only 1/3 tested at shallow depths,
- 1.5 million tons TREO + Average concentration ~550 ppm (max ~10,000 ppm).
- Based on 1,950 ICP-MS tests from over 100 cores. and should continue to increase as we test additional coal seams.
- No meaningful radioactive elements associated with the deposit.

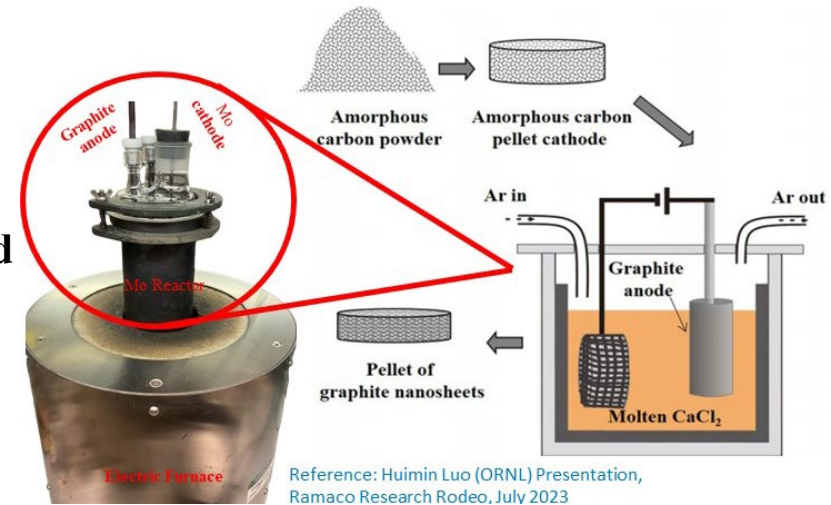
Max and Average TREO and BREO Ash Basis by Rock Type



A Cure for Coal: Coal-Derived Carbon Products With Scale and Growth

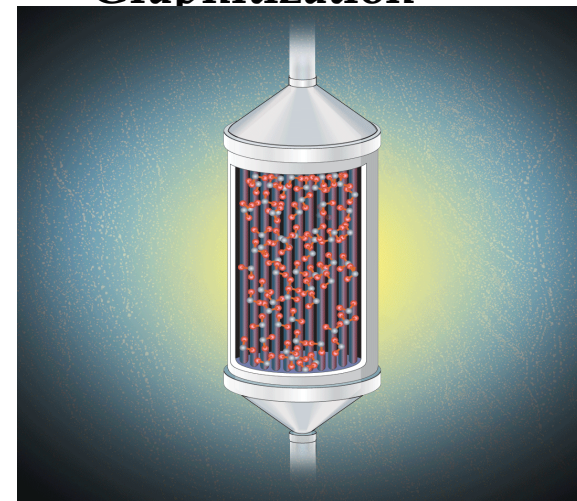
■ Synthetic Graphite

- 25-50% Lower-cost/energy consumption electrochemical graphitization in molten salt.
- Applications in grid storage, lithium-ion batteries and other high growth applications.
- \$30B 2023 market growing to \$43B in 2030
- Pilot facility in development with up to 10kg per day capacity.



■ Activated Carbon Fiber (ACF)

- A superior form of activated carbon – in a \$7B market growing at 10% CAGR
- Dramatically improved Capex cost (50-90%) and energy Opex (40-50%) manufacturing process
- Applications in emerging markets with rapid growth:
 - CO₂, H₂ and CH₄ removal and storage
 - Solvent recovery and separation processes.
 - Air and water purification.



ACF Cartridge Depiction

Commercialization of Carbon Ore Technologies

Dan Connell, Senior Vice President – CONSOL Innovations
April 2, 2024

Disclaimer

This presentation includes statements about the Company's business and the Company's future business plans, initiatives, goals, and objectives. These statements, estimates, and projections are "forward-looking statements" within the meaning of the federal securities laws and speaks only as of the date of this presentation. While these forward-looking statements reflect CEIX expectations at the date of this presentation, they are not guarantees or predictions of future performance or statements of fact. Except for historical matters, the matters discussed in this supplement are forward-looking statements (as defined in Section 21E of the Securities and Exchange Act of 1934, as amended) that involve risks and uncertainties that are unknown or out of our control and, therefore, could cause actual results, performance, or achievements to differ materially from results, goals and achievements projected in or implied by such forward-looking statements. Accordingly, investors should not place undue reliance on forward-looking statements as a prediction of actual results. The forward-looking statements may include projections and estimates concerning the timing and success of specific short term and long-term emission reduction targets, the role of specific technologies in reducing carbon emissions, and CEIX's role in contributing to global social and environmental goals. When we use the words "anticipate," "believe," "could," "continue," "estimate," "expect," "intend," "may," "plan," "predict," "project," "should," "will," or their negatives, or other similar expressions, the statements which include those words are usually forward-looking statements. All statements other than statements of historical facts included in this presentation are forward-looking statements. When we describe strategy that involves risks or uncertainties, we are making forward-looking statements. Past performance cannot be relied on as a guide to future performance. We have based these forward-looking statements on our current expectations and assumptions about future events. While our management considers these expectations and assumptions to be reasonable, they are inherently subject to significant business, economic, competitive, regulatory, and other risks, contingencies, and uncertainties, most of which are difficult to predict and many of which are beyond our control. Specific risks, contingencies, and uncertainties include but are not limited to changes in laws and regulations including international treaties and laws and regulations regarding greenhouse gas emissions and carbon costs actions, including changes with respect to tax policy, emissions credits, carbon offsets and carbon pricing; trade patterns and the development and enforcement of local, national and regional mandates; unforeseen technical or operation difficulties; the outcome of research efforts and future technology developments; the effectiveness of our risk management strategies, including mitigating climate-related risks; our ability to identify and execute opportunities, and the economic viability of those opportunities, including those relating to methane destruction, new technologies, and alternative uses of coal; the ability of our existing assets and expertise to support the growth of, and transition to, various energy opportunities, including through the positioning and optimization of our assets, our ability to efficiently reduce the carbon output (both on an absolute scale and relative intensity) of our operations (both Scope 1 and 2), including through the use of lower carbon power alternatives, management practices and system optimizations; the necessity to direct our focus on maintaining and enhancing our existing assets; the impacts of acquisitions or dispositions; changes in supply and demand and other market factors affecting future prices of coal; changes in the relative energy mix across activities and geographies; the actions of competitors; changes in regional and global economic growth rates and consumer preferences; the pace of regional and global recovery from the COVID-19 pandemic and actions taken by governments and consumers resulting from the pandemic; changes in population growth, economic development or migration patterns; and other factors discussed in this presentation and in Item 1-A of CONSOL's Annual Report on Form 10-k for 2023 and subsequent Quarterly Reports on Form 10-Q. The forward-looking statements in this presentation speak only as of the date of this presentation and CEIX disclaims any intention or obligation to update publicly or review any forward-looking statements, whether in response to new information, future events, or otherwise, except as required by applicable law. In this presentation, we refer to direct operating greenhouse gas emissions (inclusive of Scope 1 and Scope 2 emissions). We note that direct operating greenhouse gas emissions does not refer to our carbon emissions associated with the use of energy products we sell (referred to as Scope 3 emissions). CEIX only controls its direct operating emissions. This statement is not intended to suggest that CEIX is addressing the emissions from use of its energy products in its net zero plan.

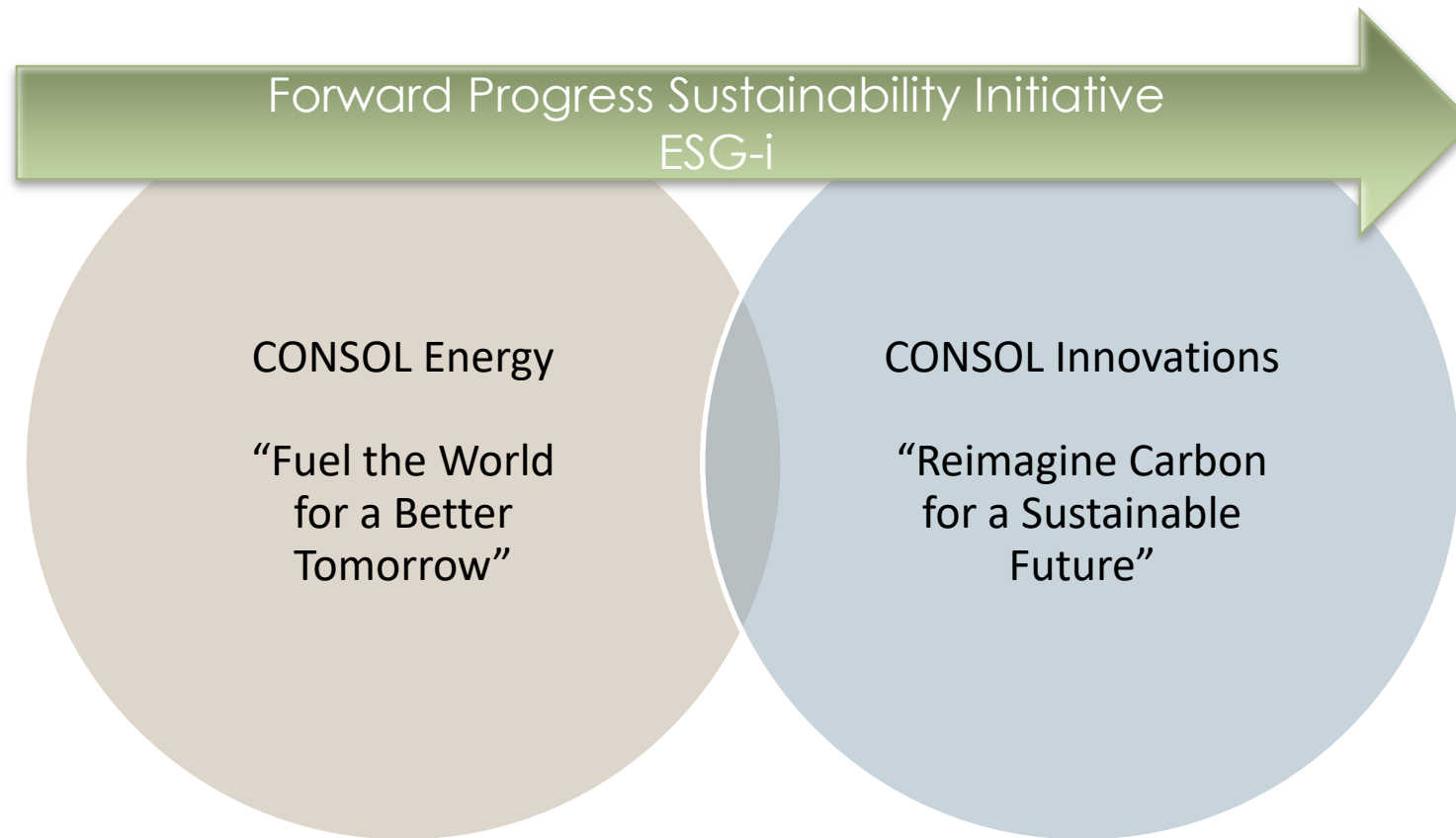
About CONSOL Energy

- Publicly-traded (NYSE:CEIX) coal producer and exporter based in Canonsburg, PA
 - \$2.6 billion total revenue in 2023
 - ~2,000 employees
- Major Assets Include:
 - Pennsylvania Mining Complex (PAMC) largest underground coal mining complex in North America
 - CONSOL Marine Terminal (CMT) in Baltimore, MD
 - Itmann low-vol metallurgical coal complex in Wyoming County, WV
- Together with our predecessors, have been mining coal since 1864
- Our Legacy is built on Safety, Compliance, and Continuous Improvement
 - First U.S. coal company to operate privately-funded R&D facility (1940s)
 - Strong ESG emphasis
- Our Future is based on Efficiency, Technology, and Innovation
 - Targeting 50% reduction in Scope 1 and 2 greenhouse gas emissions by 2026 (vs. 2019 baseline), and net zero Scope 1 and 2 greenhouse gas emissions by 2040
 - CONSOL Innovations formed in 2022 with focus on carbon materials and carbon management



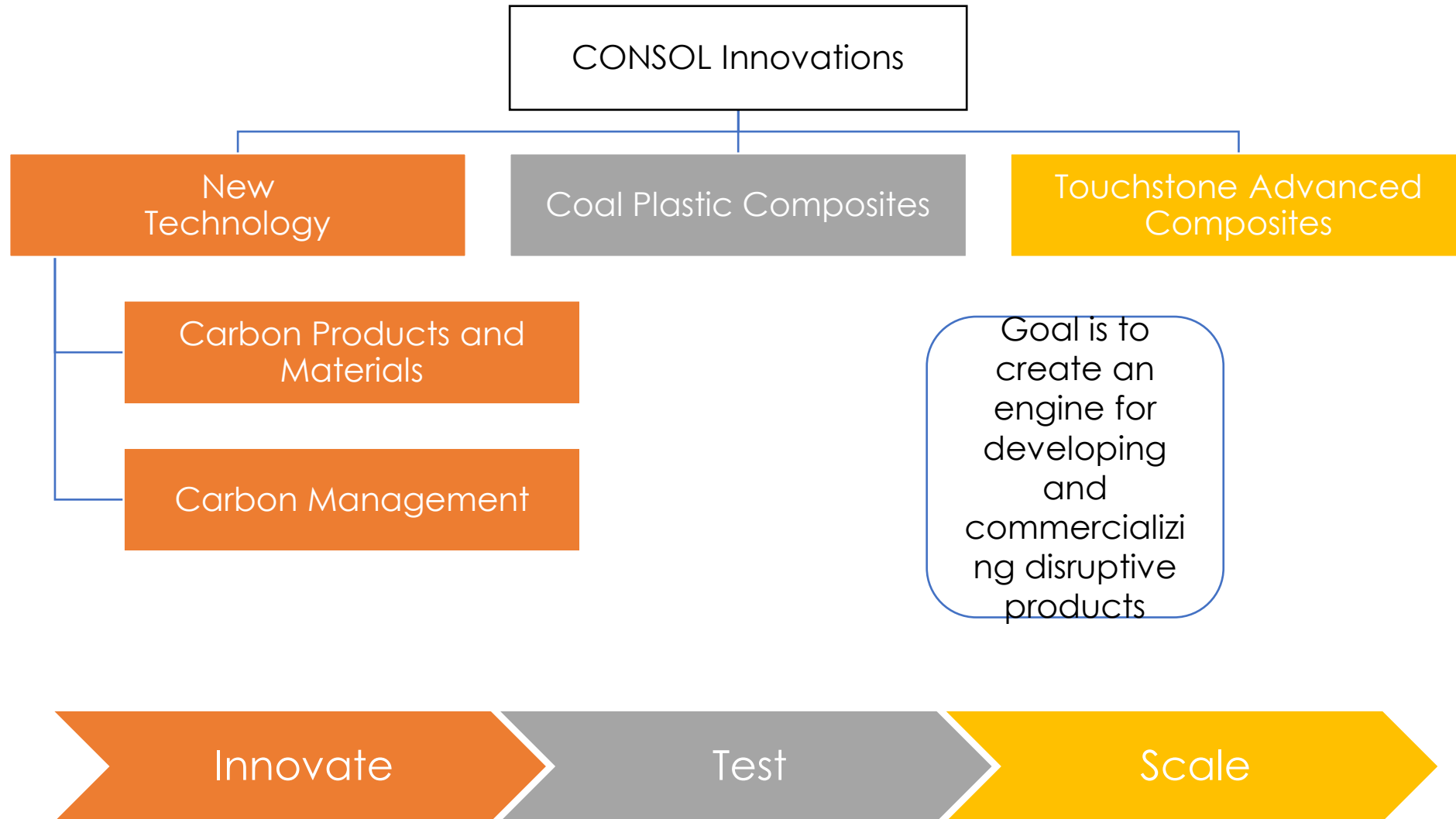
We are focused on **sustainably leading** the transformation of a mature industry that still holds high potential to **benefit society** going forward.

CONSOL's Strategic Framework



Carbon, which has fueled human progress since the Industrial Revolution, can serve as the building block for our sustainable future as well.

CONSOL Innovations Focus Areas



Touchstone Advanced Composites



Coal Plastic Composite Building Products



COMPOSITE DECKING PROTOTYPE

Passes international building codes



Panel: Commercialization of Carbon Ore Processing Technologies

Bill Easter



Commercialization Funnel



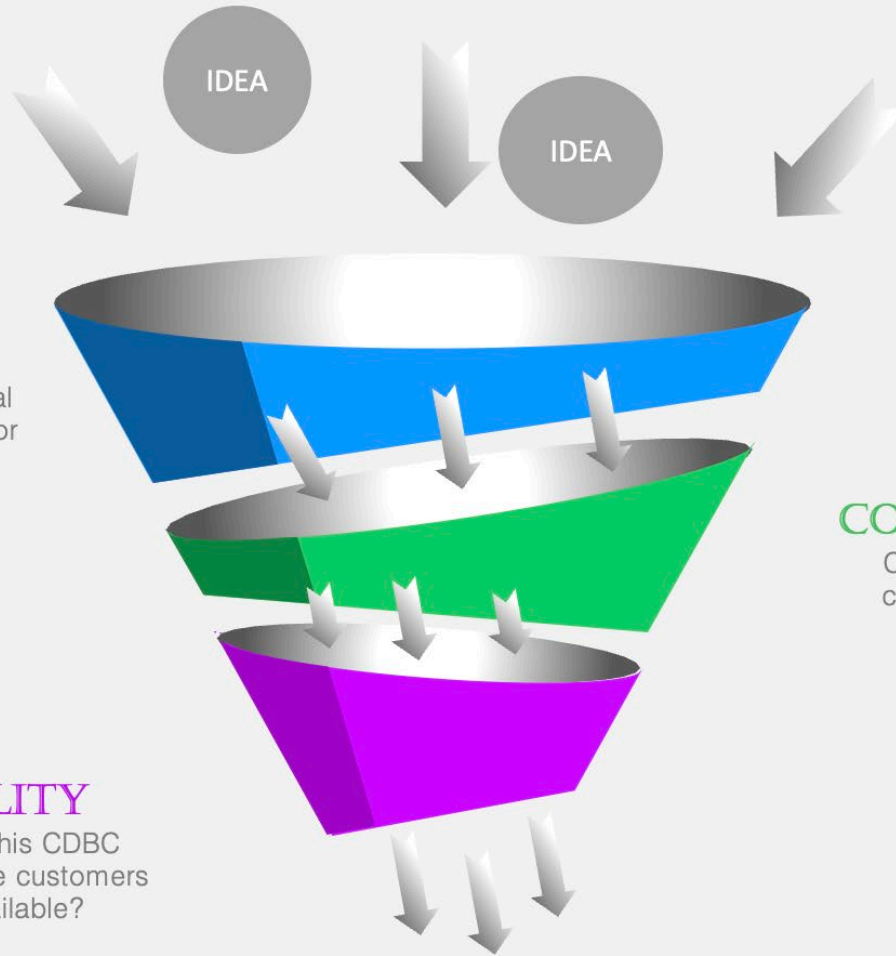
IDEAS

Could this work with our material systems? Could this fill a need or add value?



ECONOMIC FEASIBILITY

Is there a profitable market for this CDBC product? What are the gaps? Have customers been acquired? Is capital available?



COAL-BUILDING POTENTIAL

Can this be used in a coal-derived building component (CDBC) demonstration building



CASH FLOW POSITIVE BUSINESSES

Businesses created to supply commercial products that can be used in a building, produced at a competitive price, add long-term value and create jobs.

Carbon Ore Anodes, a Department of Energy Project

Completed a 3-Year \$1M DOE NETL contract to research utilizing coal in anode materials for Lithium-Ion Batteries.

Accomplishments:

- Developed viable coal composite anodes
- Anode capacities of >700 mAh/g compared to standard battery grade graphite at 372 mAh/g
- Testing showed improvements in capacity and cycle life compared to the current state of the art



Started with Coin Cell Testing – 7 mAh Capacity



Intermediate testing in 50 mAh Capacity Pouch Cells



Scaled up to 1.6Ah Capacity 18650 Cells

Formed C-BATT Innovations LLC, a Joint Venture between X-BATT[®] and CONSOL Innovations.