



# INVESTING IN LITHIUM & BATTERY TECHNOLOGY

Amplify Lithium & Battery Technology ETF  
(NYSE: BATT)

Q2 2023



- Amplify has over **\$4.4 billion** in assets across a suite of **core**, **income**, and **thematic/growth** ETFs.<sup>1</sup>
- Amplify senior leadership brings an innovation heritage of nearly **three decades** providing many **first to market** ETFs and other investment solutions.
- Committed to staying at the **forefront of advancement** aimed to **capitalize on market shifts** and **anticipate investment themes/catalysts**.

<sup>1</sup> Amplify ETFs is sponsored by Amplify Investments. Data as of 6/30/2023



INCOME



CORE



GROWTH

We provide a **range of ETFs** addressing challenges and opportunities.

Thematic/Growth ETFs	Ticker	Income ETFs	Ticker
Lithium & Battery Technology ETF	BATT	CWP Enhanced Dividend Income ETF	DIVO
Transformational Data Sharing ETF	BLOK	International Enhanced Dividend Income ETF	IDVO
Seymour Cannabis ETF	CNBS	Natural Resources Dividend Income ETF	NDIV
Emerging Markets FinTech ETF	EMFQ	High Income ETF	YYY
Online Retail ETF	IBUY	Core ETFs	Ticker
		BlackSwan ISWN ETF (International)	ISWN
		Inflation Fighter ETF	IWIN
		Thematic All-Stars ETF	MVPS
		BlackSwan Tech & Treasury ETF	QSWN
		BlackSwan Growth & Treasury Core ETF	SWAN

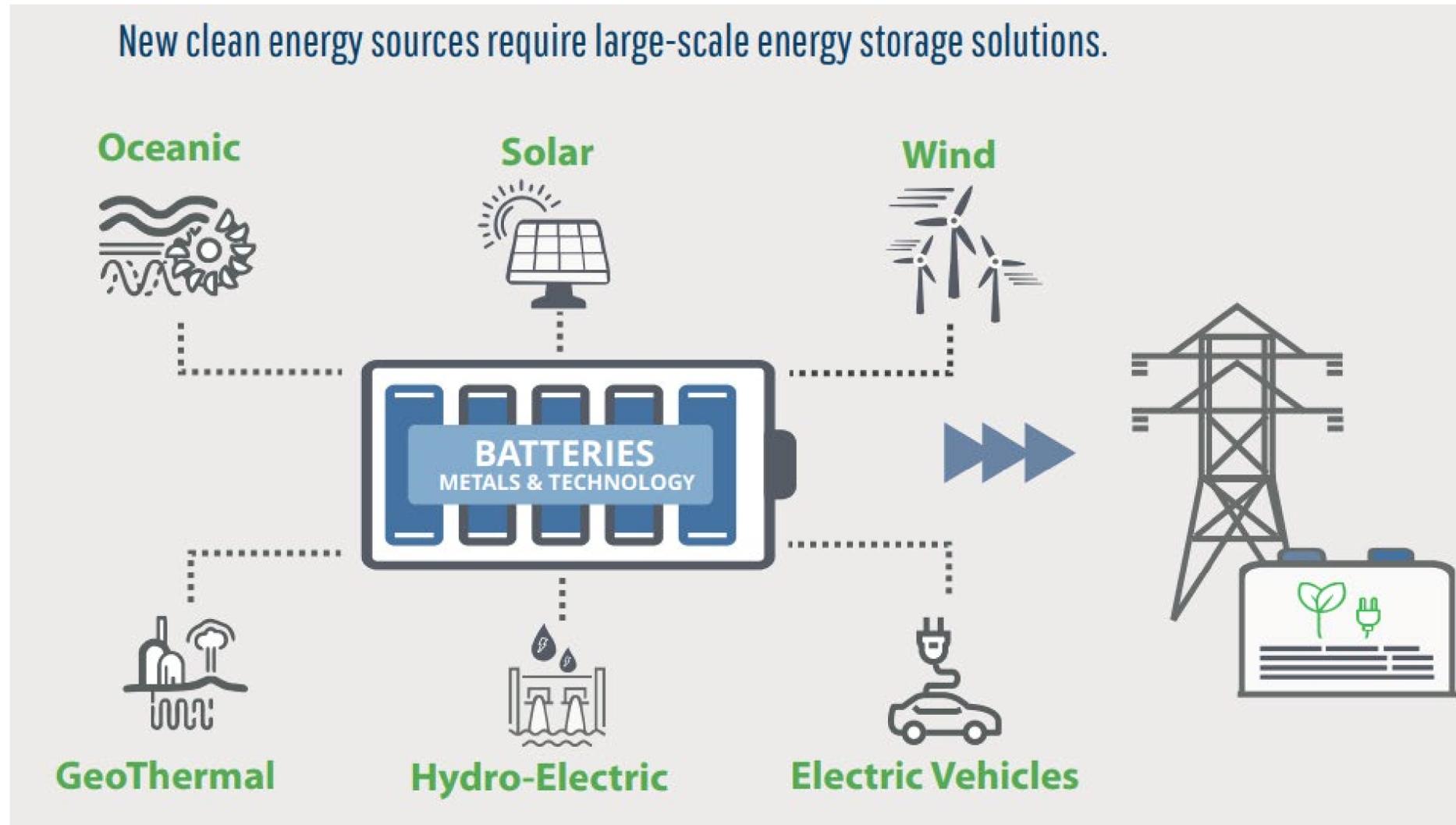
- Powering a Clean Energy Revolution
- Global Drivers of Electric Vehicle Adoption
- Supply/Demand Dynamics for Battery Metals
- Investment Case
- BATT – Lithium & Battery Technology ETF Overview
- About Amplify ETFs

## When Spending Aligns, Themes May Benefit

Government

Corporate

Consumer



- Renewable energy recently surpassed fossil fuels in Europe.\*
- Biden Administration unveiled a \$1.7 trillion climate plan to end U.S. carbon emissions by 2050
- National Green Bank Bill targets \$100B for business sectors key to Biden’s climate agenda
- The Chinese National Energy Administration (NEA) announced total wind and solar capacity additions of over 120 gigawatts in 2022.\*\*

\*Annual report from Ember and Agora Energiewende, Jan. 2021

\*\*South China Morning Post, Jan. 2023

## Tax Credits of \$260 Billion Anchor US Climate Bill: BNEF Chart

Estimated 2022–31 energy transition spend in Inflation Reduction Act, Bipartisan Infrastructure Law

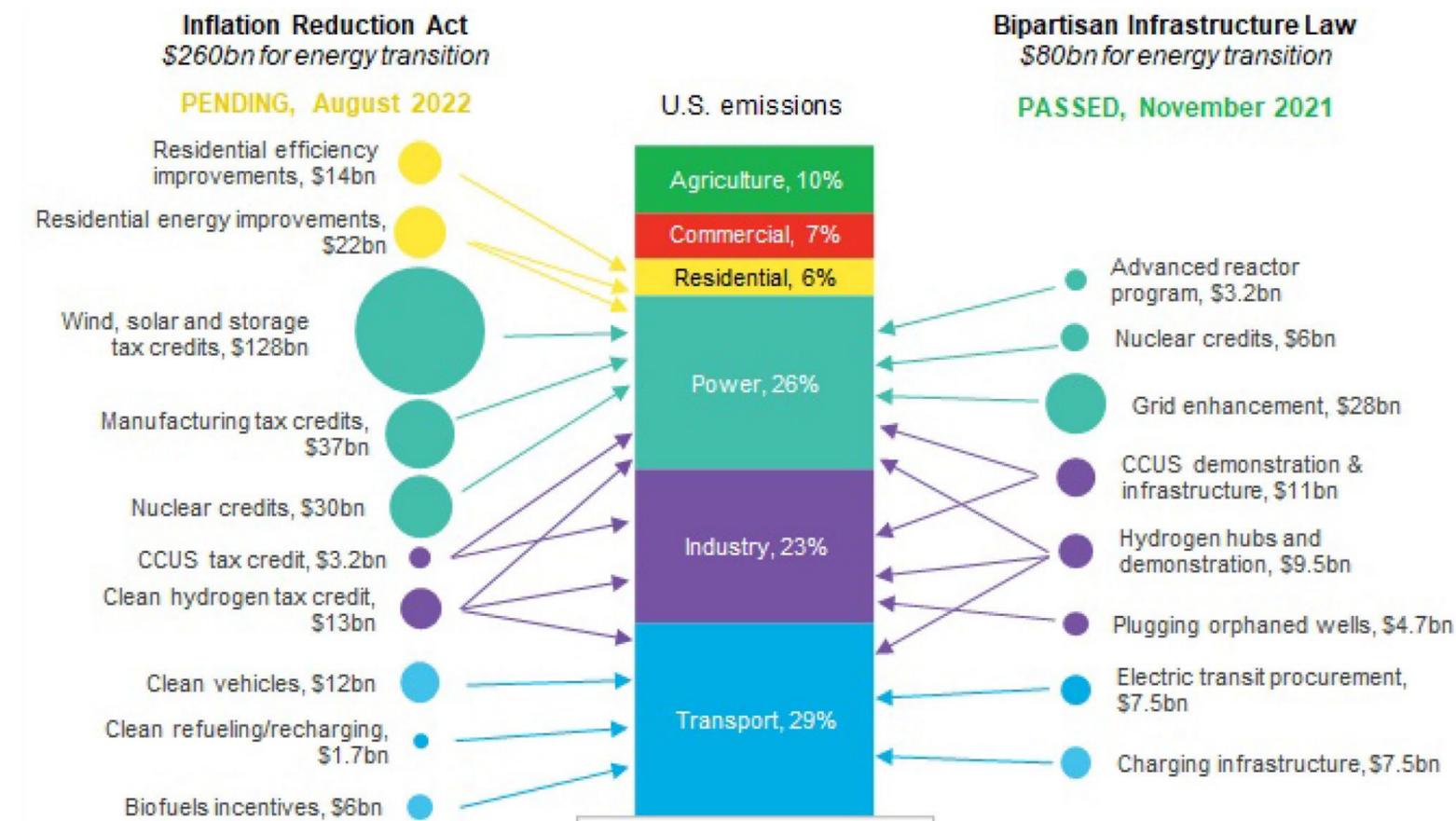


Chart only captures tax credits and incentives, not grant programs or loans. Bn is billion. CCUS is carbon capture, utilization and storage. EIA, EPA, Joint Committee on Taxation, BloombergNEF.

As of August 17, 2022

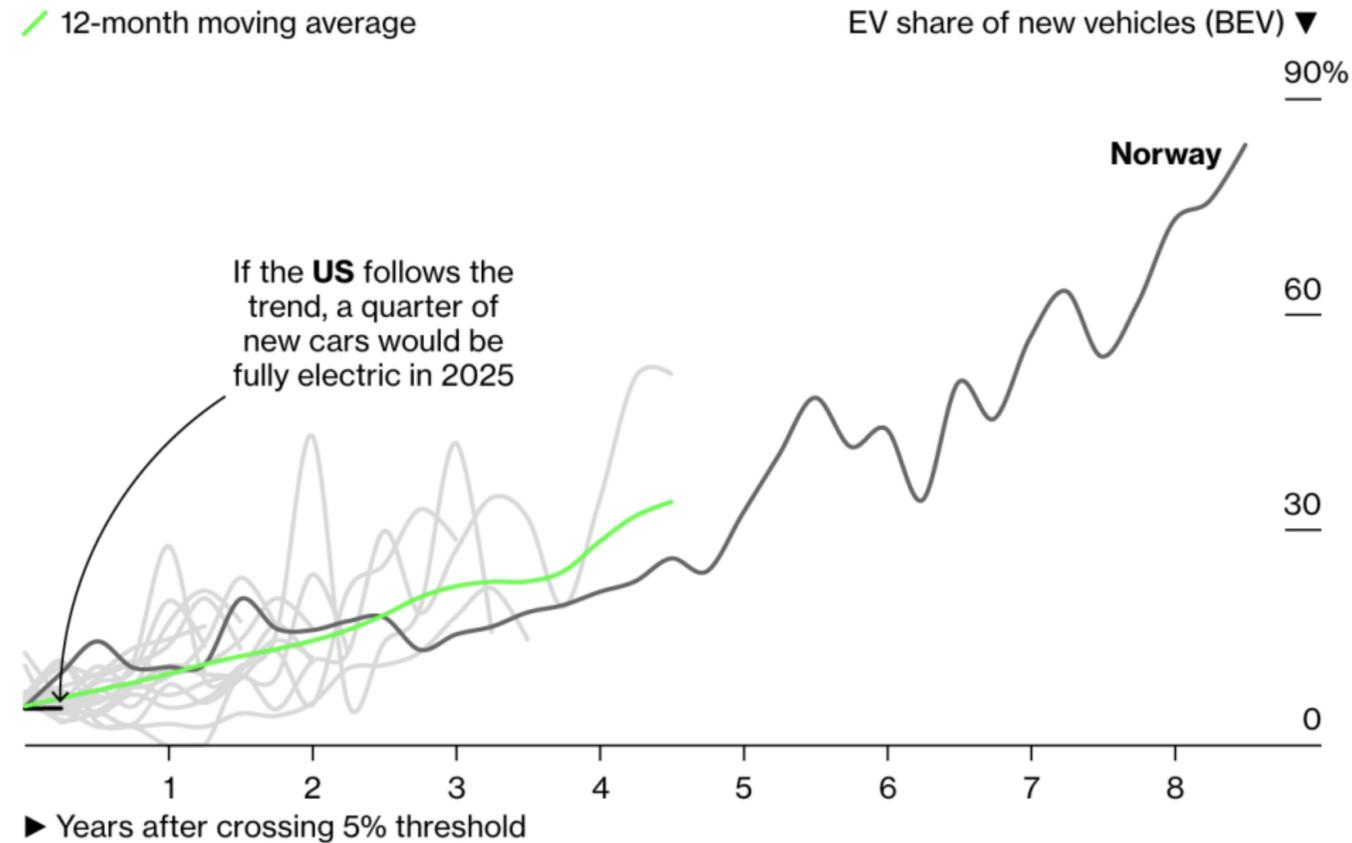
- Goal that 50% of new vehicles sold be zero emission by 2030.
- \$174 billion “investment to win the EV market” including supply chains and raw materials, retooling of factories, and support of workers to make batteries and electric vehicles.
- Restore full federal tax credit of \$7,500 for electric vehicle purchases (or potentially point-of-sale rebates)
- Ambitious target that 50% of all new vehicles sold in 2030 be electric.

# U.S. AND OTHER COUNTRIES HIT "TIPPING POINT" OF MASS ADOPTION.

## How Fast Is the Switch to Electric Cars?

19 countries have reached the 5% tipping point—then everything changes

12-month moving average



Sources: BloombergNEF; Bloomberg Intelligence; ACEA; CATARC; OFV; New Zealand Ministry of Transport

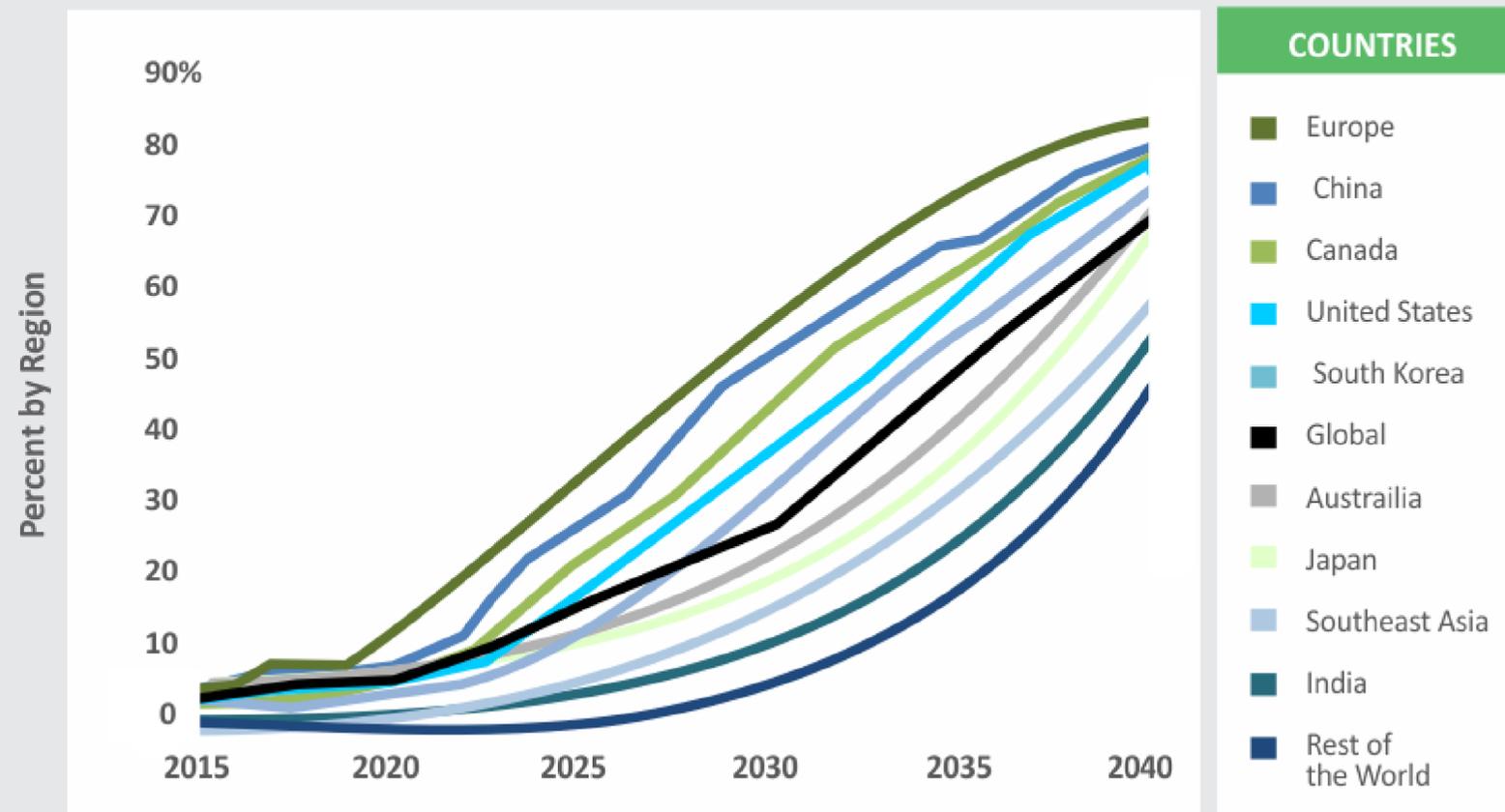
July 9, 2022

- U.S. is the most recent addition to a growing list of 18 nations where fully electric vehicles make up 5% of new vehicle sales.
- Following this mass adoption S-curve "tipping point", a quarter of U.S. car sales could be electric by 2025, two years ahead of schedule.
- Globally, EV's hit a record 10% of share in 2022.\*

\* Wall Street Journal, EVs Made up 10% of All New Cars Sold Last Year, Jan. 2023

Compound annual growth rate (**CAGR**) is the rate of return that would be required for an investment to grow from its beginning balance to its ending balance, assuming the profits were reinvested at the end of each year of the investment's lifespan.

Economic Transition Scenario: By 2025, EV's will be 16% of global vehicle passenger sales, rising to 34% in 2030 and 68% in 2040.



- By 2025, EV's are expected to be 16% of global vehicle sales, rising to 34% in 2030 and 68% in 2040.\*
- Electric vehicle sales reached a milestone in 2022, accounting for approx. 10% of global auto sales.\*\*

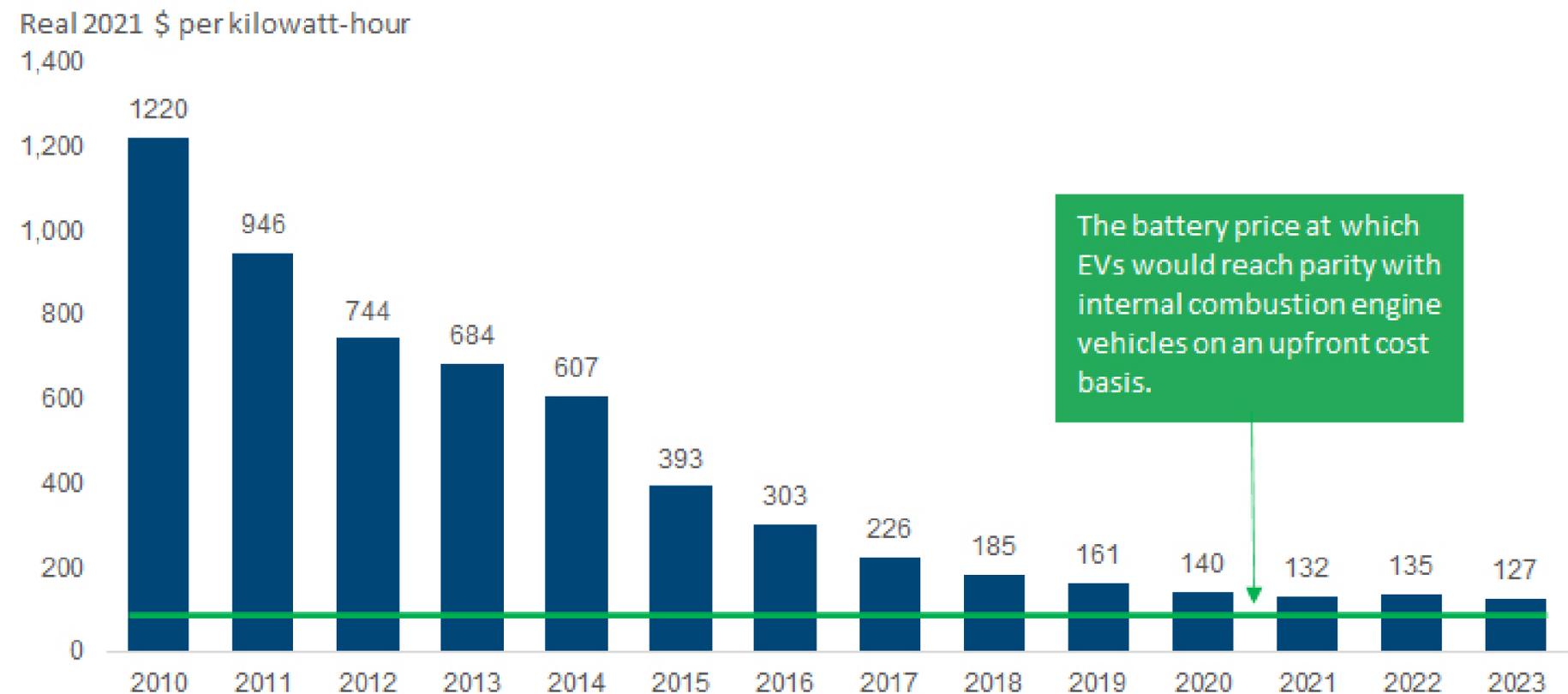
\*Bloomberg New Energy Finance Electric Vehicle Outlook 2021, EQM Indexes  
\*\*Wall Street Journal EVs Made up 10% of All New Cars Sold Last Year, Jan. 2023

After more than a decade of declining cost, this year lithium-ion battery pack prices went up to \$135/kWh after ending 2021 at \$132/kWh.

The average price of a lithium-ion battery pack has dropped nearly 90% from 2010 to 2020, with the \$100 the magical level needed for price parity with internal combustion engine vehicles.

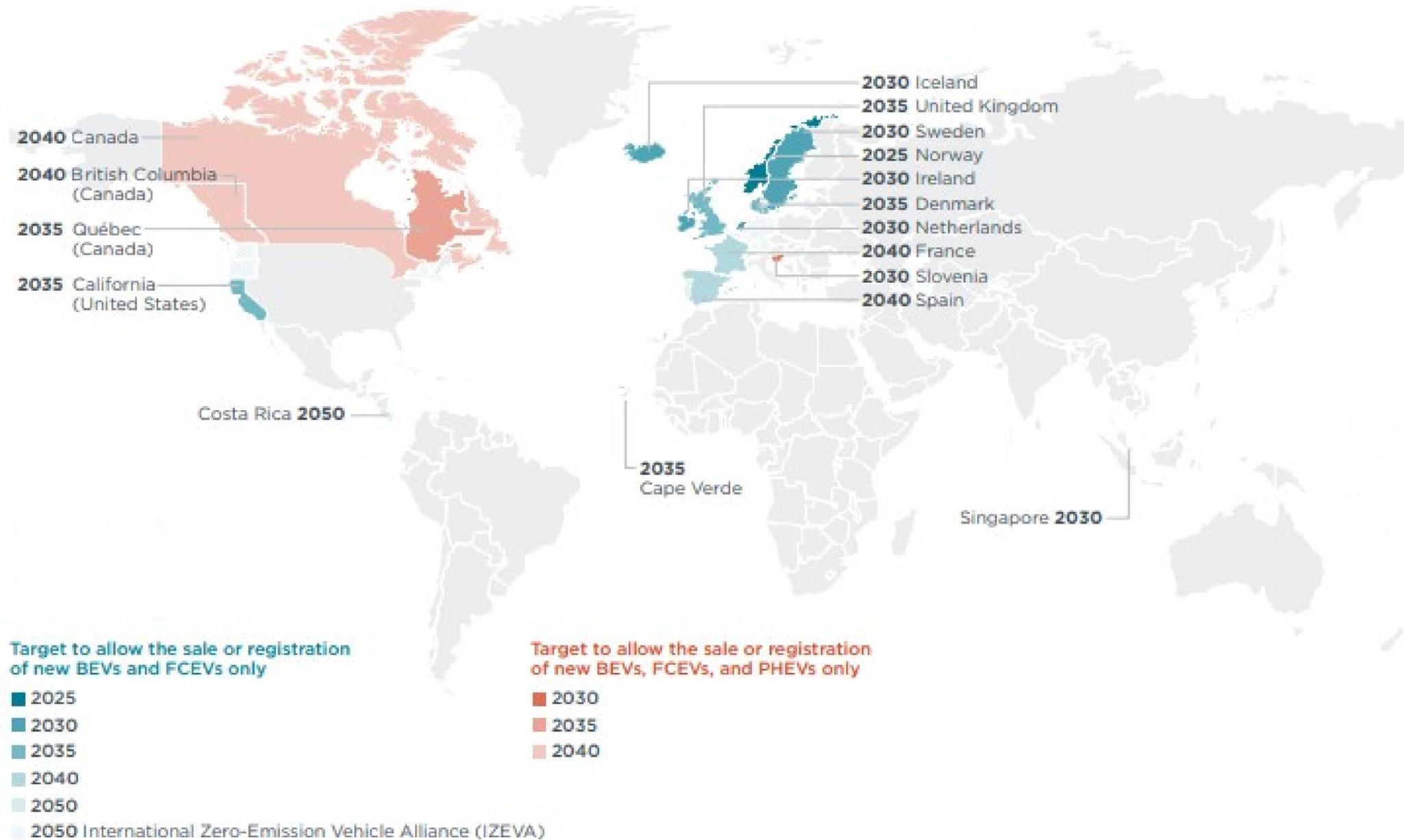
## Hit the Brakes

Battery prices could rise for the first time since at least 2010 this year



Source: BloombergNEF. Note: Forecast prices are in nominal terms, observed prices are in real 2021 \$ per kilowatt-hour

As of July 15, 2022



- Due to rising policy pressures, 13 countries and 31 cities and regions have announced plans to phase out internal combustion engines.
- Europe and China, and now the United States, are leading the way to zero carbon emissions.

Source: [theicct.org](http://theicct.org)

As of June 2021

# UNDERLYING METALS FOR LITHIUM-ION BATTERIES

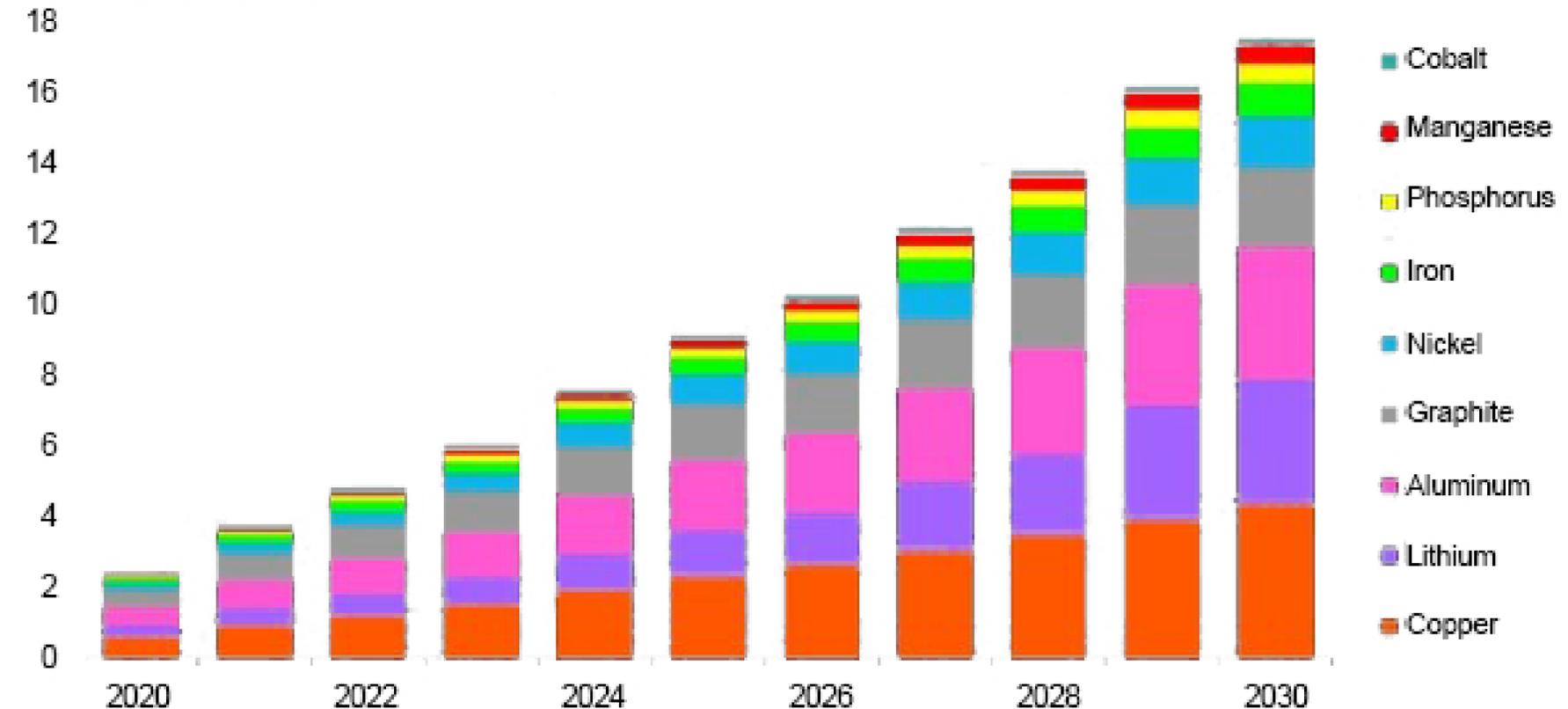
				
<p>Atomic Number <b>3</b> Alkali Metal</p> <p>Atomic Mass 6.94</p> <p><b>Lithium [Li]</b></p> <p>A soft, silvery-white alkali metal. Lithium is the lightest of all metals, has the greatest electrochemical potential, and provides the largest specific energy per weight.</p>	<p>Atomic Number <b>27</b> Transitional Metal</p> <p>Atomic Mass 58.93</p> <p><b>Cobalt [Co]</b></p> <p>Hard, lustrous silver-gray metal extracted as a by-product when mining nickel and copper. Used as a cathode material in Li-ion batteries, but is very expensive.</p>	<p>Atomic Number <b>28</b> Transitional Metal</p> <p>Atomic Mass 58.68</p> <p><b>Nickel [Ni]</b></p> <p>A silvery-white lustrous metal with a slight gold tinge that can be traced back to 3500 B.C. Found in large nickel-iron meteorites on earth and found in combination with iron.</p>	<p>Atomic Number <b>25</b> Transitional Metal</p> <p>Atomic Mass 54.94</p> <p><b>Manganese [Mn]</b></p> <p>Produced by mining iron and other minerals, it is relatively abundant. Steel manufacturing uses roughly 90% of manganese production. Also used as a cathode material.</p>	<p>Atomic Number <b>6</b> Metalloid</p> <p>Atomic Mass 12.01</p> <p><b>Graphite [C]</b></p> <p>Graphite is an allotrope and stable form of carbon. Used as an anode, it is heat-resistant, electrically and thermally conductive, chemically passive, and lighter than aluminum.</p>
<p><b>BATTERY USE</b> [ LCO - LMO - LFP - NMC - NCA ]</p>	<p><b>BATTERY USE</b> [ LCO - NMC - NCA ]</p>	<p><b>BATTERY USE</b> [ NMC - NCA ]</p>	<p><b>BATTERY USE</b> [ LCO - NMC ]</p>	<p><b>BATTERY USE</b> [ LCO - LMO - LFP - NMC - NCA ]</p>
<p>BATTERY TYPE: LCO - Lithium Cobalt Oxide / LMO - Lithium Cobalt Oxide / LFP – Lithium Iron Phosphate / NMC – Lithium Nickel Manganese Cobalt Oxide / NCA – Lithium Nickel Cobalt Aluminum Oxide</p>				

Source: EQM Indexes

## Accelerating Demand

Metals demand from lithium-ion batteries is expected to top 17 million tons in 2030

Million metric tons



Source: BloombergNEF. Note: Metals demand occurs at the mine mouth, one year before battery demand.

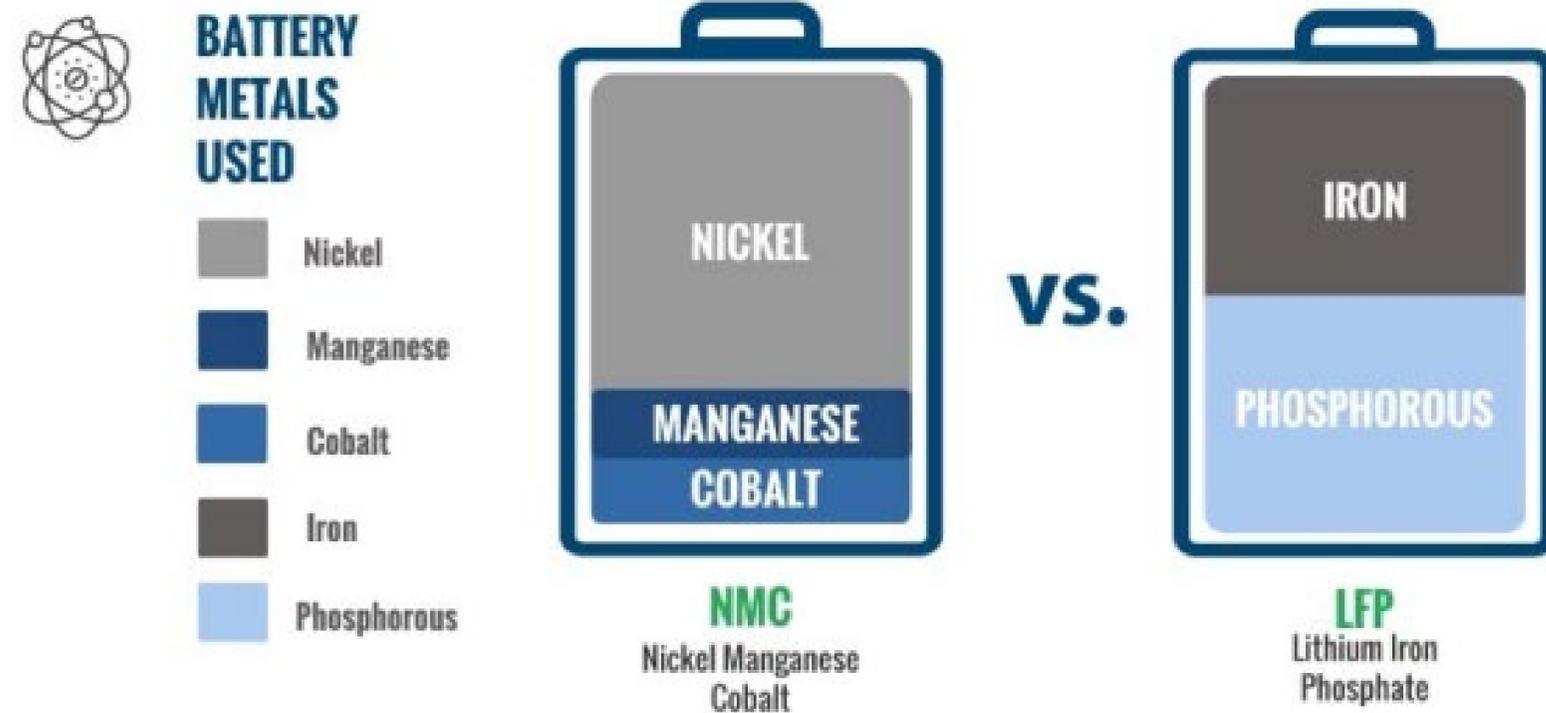
As of July 21, 2022 Data from 2022-2030 is estimated.

Until recently, weak metal prices were not supportive of new mining development.

As a result, battery metal demand is expected to exceed current supply.

- Currently there are two main battery chemistries competing for market share for EVs:
  - low-cost LFP (Model 3 in China)
  - high-performance (high nickel) NMC
- Cobalt is expensive due to its scarcity but is required in higher performance chemistries.

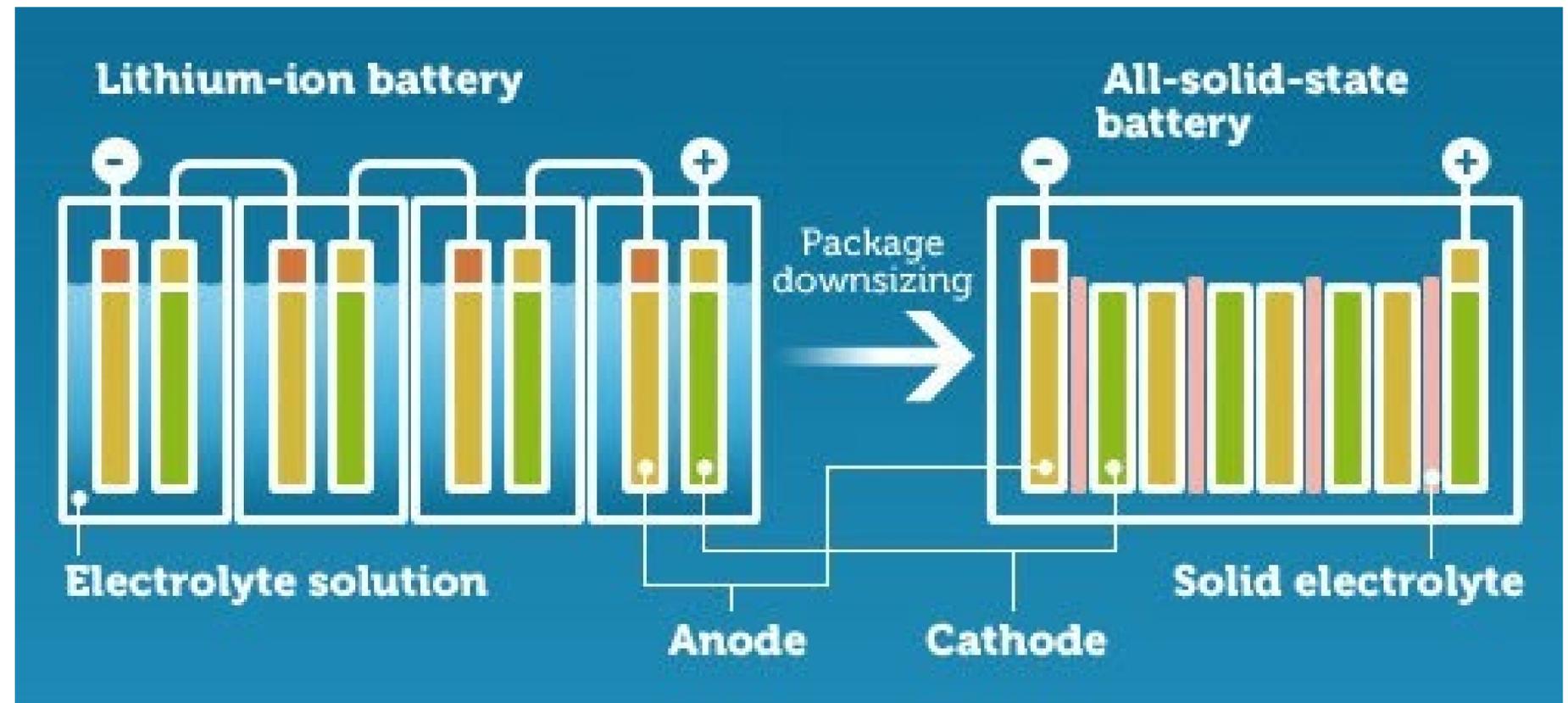
## LFP vs NMC: Cost vs. Energy Density



Source: Nickel Institute, EQM Indexes

- The magic number of \$100 per kWh may be the price “tipping point” for mass EV adoption, but current lithium-ion battery technology has technological limitations.
- Solid state batteries replace the liquid or polymer electrolyte found in current batteries with a solid, meaning they require **less space** and are **denser**.
- Increased density also means they carry **more power (longer range)**, packing 2X the energy of lithium-ion batteries, and solid-state electrolytes are **less reactive**, and are therefore **less degradation (last longer)** and they are **safer**.

## Solid State Batteries: The Next Revolution



Source: Clean Technica, EQM Indexes

Growing global demand for lithium-ion batteries to power consumer devices, grid storage, and electric vehicles, coupled with constrained supply and capacity has created favorable conditions for companies associated with the lithium and battery technology supply chain.

- **Growing Global Opportunity** - The global lithium-ion battery market size is expected to reach USD 182.5 billion by 2030, according to a new report by Grand View Research, Inc. It is expected to expand at a CAGR of 18.1% from 2022 to 2030.
- **Multiple Drivers of Demand** - A number of factors continue to fuel growth in lithium-ion batteries, including continued demand for mobile devices, the accelerating pace of global electric vehicle adoption and a rising need for green energy storage solutions.
- **Constrained Supply Conditions** - Automakers are accelerating their planned electric vehicle launch plans to comply with increasingly stringent regulations in Europe and China. While COVID-19 has delayed some of these plans, and disrupted supply chains, we believe government incentives, evolving consumer preference, price parity, and a slate of new innovative models, will fuel accelerating EV growth in the post pandemic world.

Compound annual growth rate (**CAGR**) is the rate of return that would be required for an investment to grow from its beginning balance to its ending balance, assuming the profits were reinvested at the end of each year of the investment's lifespan.



1

HOW CAN INVESTORS  
POTENTIALLY CAPITALIZE ON  
THE BATTERY TECHNOLOGY  
TREND?

**BATT** is a portfolio of companies generating significant revenue from the development, production and use of lithium battery technology, including: 1) battery storage solutions, 2) battery metals & materials, and 3) electric vehicles. BATT seeks investment results that correspond generally to the EQM Lithium & Battery Technology Index.

## Why Invest in BATT?

- **Growing Global Opportunity:** The lithium-ion battery market is expected to grow from an estimated \$48.1 billion in 2022 to \$182.5 billion by 2030, a compound annual growth rate (CAGR) of 18.1%.<sup>1</sup>
- **Multiple Drivers of Demand:** A number of factors continue to fuel growth in lithium-ion batteries, including continued demand for mobile devices, electric vehicle adoption, and a rising need for energy storage solutions.

Ticker: [BATT](#)

Inception: [6/6/18](#)

Assets: [\\$159,653,975](#)

Number of Holdings: [102](#)

90-Day Average Daily Volume (shares): [54.61K](#)

Index-based or Active? [Index-based](#)

Index: [EQM Lithium & Battery Technology Index](#)

Weighting: [Modified Market Cap](#)

Rebalance: [Quarterly](#)

Expense Ratio: [0.59%](#)

<sup>1</sup> <https://www.grandviewresearch.com/industry-analysis/lithium-ion-battery-market>

Compound annual growth rate (CAGR) is the rate of return that would be required for an investment to grow from its beginning balance to its ending balance, assuming the profits were reinvested at the end of each year of the investment's lifespan.

Data as of 7/27/23

**The Index** seeks to provide exposure to global companies associated with the development, production, and use of lithium battery technology, including:

Companies deriving more than 50% of their revenue from the development and production of lithium battery technologies and/or battery storage solutions

Companies in the battery metals & materials supply chain that demonstrate beneficial interest in lithium battery technology

Companies deriving 90% of their revenue from the development and production of electric vehicles

# BATT PORTFOLIO ALLOCATION

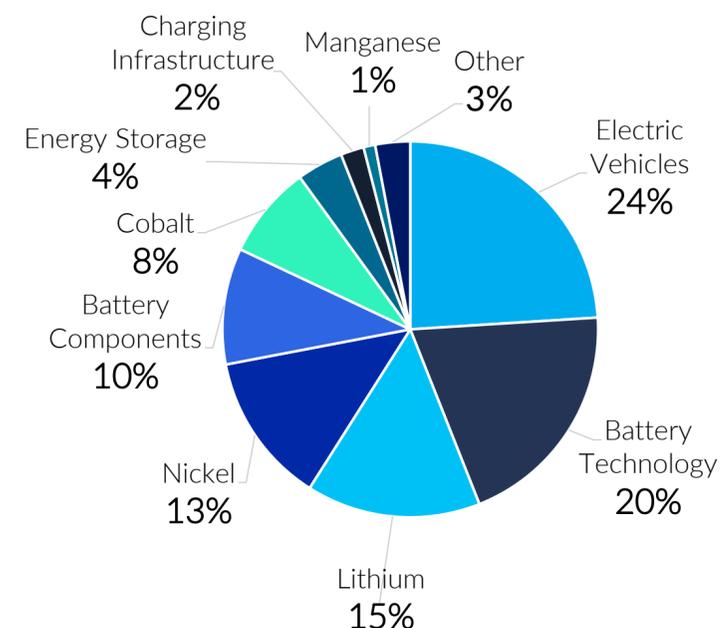
## TOP 10 HOLDINGS (as of 6/30/2023)

Ticker	Company	Weight %
TSLA	TESLA INC	9.97
BHP	BHP GROUP LTD	6.51
300750 C2	CONTEMPORARY AMPER	6.34
1211 HK	BYD COMPANY LTD	6.24
GLEN LN	GLENCORE PLC	4.38
051910 KS	LG CHEMICAL	2.41
006400 KS	SAMSUNG SDI	2.38
LI	LI AUTO INC	2.15
6752 JP	PANASONIC HLDGS CO	2.15
ALB	ALBEMARLE CORP	1.90

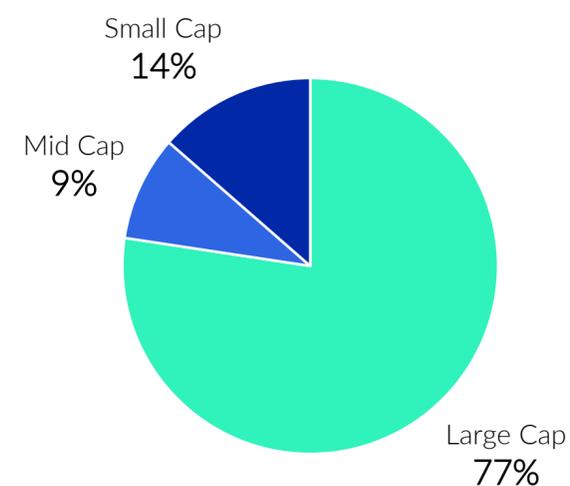
## COUNTRY ALLOCATION (as of 6/30/2023)

	Weight %
CHINA	29
UNITED STATES	20
AUSTRALIA	15
SOUTH KOREA	9
JAPAN	7
CANADA	5
SWITZERLAND	4
CHILE	1
TAIWAN	1
OTHER COUNTRIES	9

## INDUSTRY ALLOCATION (as of 6/30/2023)



## MARKET CAPITALIZATION (as of 6/30/2023)



Holdings and allocations are subject to change at any time and should not be considered a recommendation to buy or sell a security.

# BATT PERFORMANCE

As of 6/30/2023	CUMULATIVE (%)					ANNUALIZED (%)		
	1 Mo.	3 Mo.	6 Mo.	YTD	Since Inception (6/6/18)	1 Yr.	3 Yr.	Since Inception (6/6/18)
Fund NAV	8.03%	1.67%	11.32%	11.32%	-27.23%	-6.57%	15.68%	-6.08%
Closing Price	8.62%	1.79%	11.87%	11.87%	-27.21%	-6.75%	15.57%	-6.07%
EQM Lithium & Battery Tech Index	8.20%	1.68%	11.49%	11.49%	N/A	-6.65%	N/A	N/A

Source: US Bancorp Fund Services. The starting price for the Since Inception cumulative return is \$25.00

The performance data quoted represents past performance. Past performance does not guarantee future results. The investment return and principal value of an investment will fluctuate so that an investor's shares, when sold or redeemed, may be worth more or less than their original cost and current performance may be lower or higher than the performance quoted. Short-term performance, in particular, is not a good indication of the fund's future performance, and an investment should not be made based solely on returns. Brokerage commissions will reduce returns. For the most recent month-end performance, please visit the Fund's website at [AmplifyETFs.com/BATT](https://AmplifyETFs.com/BATT).

***Carefully consider the Fund's investment objectives, risk factors, charges and expenses before investing. This and additional information can be found in the Fund's prospectus, which may be obtained by calling 855-267-3837 or visiting AmplifyETFs.com. Read the prospectus carefully before investing.***

Investing involves risk, including the possible loss of principal. Shares of any ETF are bought and sold at market price (not NAV), may trade at a discount or premium to NAV and are not individually redeemed from the Fund. The Fund is not actively managed. The Fund invests in securities included in its Index regardless of their investment merit. Narrowly focused investments typically exhibit higher volatility. A portfolio concentrated in a single industry, such as lithium battery technology, makes it vulnerable to factors affecting the companies.

The Fund may face more risks than if it were diversified broadly over numerous industries or sectors. The Fund has become more susceptible to potential operational risks through breaches in cybersecurity. The Fund invests in securities that are issued by and/or have exposure to, companies primarily involved in the metals and mining industry. Investments in metals and mining companies may be speculative and subject to greater price volatility than investments in other types of companies. The exploration and development of metals involves significant financial risks over a significant period of time, which even a combination of careful evaluation, experience and knowledge may not eliminate. Rare earth metals have more specialized uses and are often more difficult to extract. The increased demand for these metals has strained supply, which could adversely affect the companies in the Fund's portfolio. Some of the companies in which the Fund will invest are engaged in other lines of business unrelated to the mining, refining and/or manufacturing of metals and these lines of business could adversely affect their operating results.

The Fund's assets are concentrated in the materials sector, which means the Fund will be more affected by the performance of the materials sector than a fund that is more diversified. The Fund currently has fewer assets than larger funds, and like other relatively new funds, large inflows and outflows may impact the Fund's market exposure for limited periods of time. The Fund will invest in the securities of non-U.S. companies. Investments in emerging market issuers are subject to a greater risk of loss than investments in issuers located or operating in more developed markets. The mining, refining and/or manufacturing of metals may be significantly affected by regulatory action and changes in governments. Small and/or mid-capitalization companies may be more vulnerable to adverse general market or economic developments. Electric vehicle technology is relatively new and is subject to risks associated with a developing industry.

The EQM Lithium & Battery Technology Index (BATTIDX) seeks to provide exposure to global companies associated the development and production of lithium battery technology and/or battery storage solutions; the exploration, production, development, processing, and/or recycling of the materials and metals used in lithium battery chemistries such as Lithium, Cobalt, Nickel, Manganese, Vanadium and/or Graphite; and/or the development and production of electric vehicles.

Amplify Investments LLC is the Investment Adviser to the Fund, and Toroso Investments, LLC serves as the Investment Sub-Adviser.

Amplify ETFs are distributed by Foreside Fund Services, LLC.



## Contact Us

### Address:

3333 Warrenville Road  
Suite 350  
Lisle, Illinois 60532

### Contact Info:

[www.amplifyetfs.com](http://www.amplifyetfs.com)  
Email: [info@amplifyetfs.com](mailto:info@amplifyetfs.com)

### Telephone:

Toll Free: (855) 267 3837

