



Business Overview

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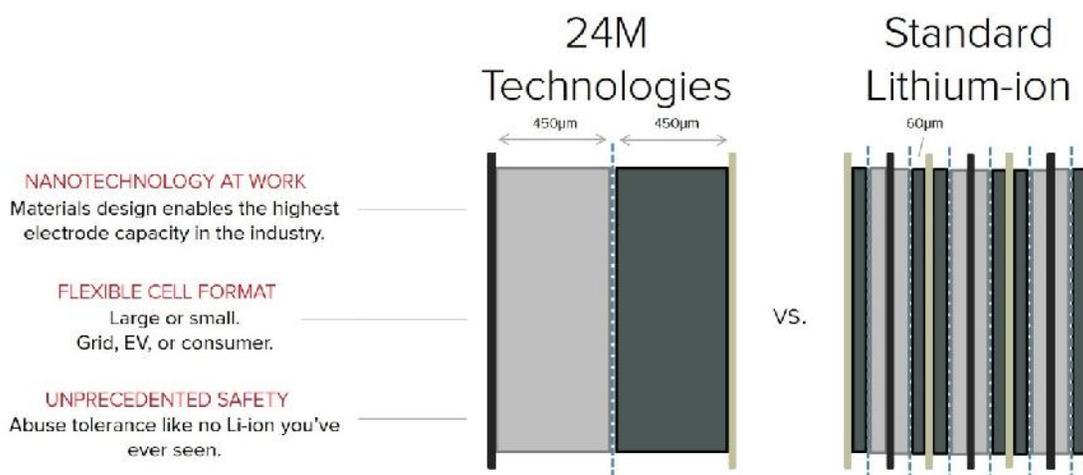
24M Technologies, Inc.
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Executive Summary

The global objective of economic growth fueled by clean, sustainable and secure energy sources is creating an enormous need for low-cost, plentiful energy storage systems. The “fuel” of electric transportation is stored energy in batteries. Solar and wind sources are only as valuable as fossil fuels when coupled with storage – in the absence of storage the power is unpredictable and mismatched to demand. “Five-nines” or 99.999% reliability in distributed generation or micro-grids is only possible with energy storage.

The world-wide market potential for energy storage is projected to grow to over \$100B by 2020. Of this total, advanced electrochemical batteries for the grid will constitute over \$30B; adding opportunities in EV will increase the number to well over \$40B per year by 2020. However, the energy storage industry today struggles to access the largest growth markets because its cost structure is too high, having been developed for high power applications and not for the long-duration “energy” applications that will experience the majority of the growth over the next five to ten years.

24M has developed a breakthrough battery technology that provides low-cost, high energy density, safe and long-life storage for transportation and grid markets. The 24M approach represents one of the most significant breakthroughs in the field in the last 25 years delivering the performance attributes of Li-ion at 40% the cost of conventional Li-ion. With a projected COGS below \$100/kWh at the cell level coupled to the value of energy storage in key grid, off-grid and mobility markets, 24M will be in a position to command industry-leading profitability.



The 24M technology is based on a series of inventions at MIT and 24M in the area of semi-solid electrodes and is incorporated in a novel design that reduces cell cost to under \$100/kWh. The manufacturing platform and cell design eliminates 80-90% of the inactive materials and does away with the entire electrode coating and drying process found in conventional factories. This radically simpler manufacturing model achieves its cost target at low scale (~120MWh per year) with capital requirements below \$20M as

opposed to multiple hundreds of millions required in conventional lithium-ion manufacturing. The technology itself is protected by a growing patent portfolio consisting of eight issued or allowed patents and an additional 75 applications across 20 patent families filed to date.

The 24M go-to-market strategy is to enable partner manufacturers to deliver products to a fast growing set of powerful global integrators and developers of energy storage for grid and off-grid opportunities. They are the trusted advisors to customers and have the balance sheet strength to provide the necessary long-term confidence. These integrators have developed deep expertise in building complete systems and have struggled to find cost-effective solutions for the most expensive part – the battery.

The platform nature of the 24M invention also enables far-reaching benefits for the EV industry. The company has proven multiple high energy density chemistries in its novel design and has demonstrated very high deformation/abuse tolerance, the ability to dramatically lower irreversible capacity loss and the simplest recyclability of any lithium ion cell ever made. The company is ramping up its activity in this area and intends to bring its EV energy storage to market via partnerships.

Finally, a key component of the 24M strength is its “fables” manufacturing strategy. 24M will enable manufacturing in industrial partners that have strategic advantages including access to geographic or application fields of use that are large but difficult for startups to access on their own. 24M has engaged in discussions with several Asian industrial giants interested in being our initial manufacturing partner. These companies have identified energy storage as a mega market of the future and recognize that 24M enables a market entry strategy with competitive advantage. For 24M, this highly capital-efficient business model enables the realization of the kinds of high returns for cleantech investors that proved so elusive in the first decade of the 21st century.

The 24M business strategy thus takes advantage of the widespread acceptance and appreciation of Li-ion performance in multiple markets that has occurred during the last ten years, but overcomes the main deficiency of high cost. By doing so, 24M aims to capitalize on Li-ion’s market momentum, avoid the adoption risk that competing untested chemistries will face, and satisfy the unmet need for compact, long duration (multi-hour) storage at the lowest cost the world has ever seen.

The 24M Team

24M was founded by two MIT professors – Dr. Yet-Ming Chiang and Dr. W. Craig Carter – and Throop Wilder, an entrepreneur from the field of Internet communications and networking. Dr. Chiang, the Kyocera Professor of Material Science, is one of the top battery scientists in the world and previously co-founded American Superconductor and A123 Systems. Dr. Carter is an applied mathematician with contributions in the field of theoretical and computational material science.

24M has assembled a world-class leadership team that combines the best of high-tech entrepreneurial talent with deep knowledge and experience in lithium-ion energy storage development and manufacture.