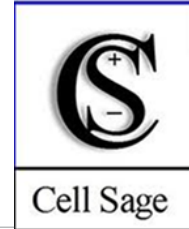




CellSage™

Battery Health Analysis and Prognostics Software



More than 20 environmental and operational parameters, including battery chemistry, State-of-Charge (SoC), thermal cycling, and detailed cycling conditions are taken into account.

n Powerful software analysis covering annual temperature profiles in over 130 U.S. cities, and can easily expand the list to include any global geographic region.



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CellSage Applications

Commercial Impact

Targeted within several different energy storage sectors, there is a pressing need for innovative tools like CellSage involving grid/micro-grid systems, electric vehicles, critical military assets, and other applications where high-fidelity evaluations of battery health is required.

By utilizing a proven scientific and mathematical approach to both battery diagnostics and prognostics, CellSage helps battery engineers and researchers determine optimal BMS strategies and replacement schedules for large expensive battery systems. In addition to helping with the early determination of such large expenditures, its small computing footprint also makes it feasible for use on laptop PCs, desktops, and other architectures for greater commercialization options.

CellSage specifications include:

Parameter	Specification
Characterization:	Capacity fade over recharge cycles
Battery Performance	Aging of cells
Environmental Factors:	130 default U.S. cities and ability to easily import more
Temperature and Climate	Lithium Ion chemistries of various types
Electrochemical Model Builder	NiCd Other battery types

About Ridgetop Group

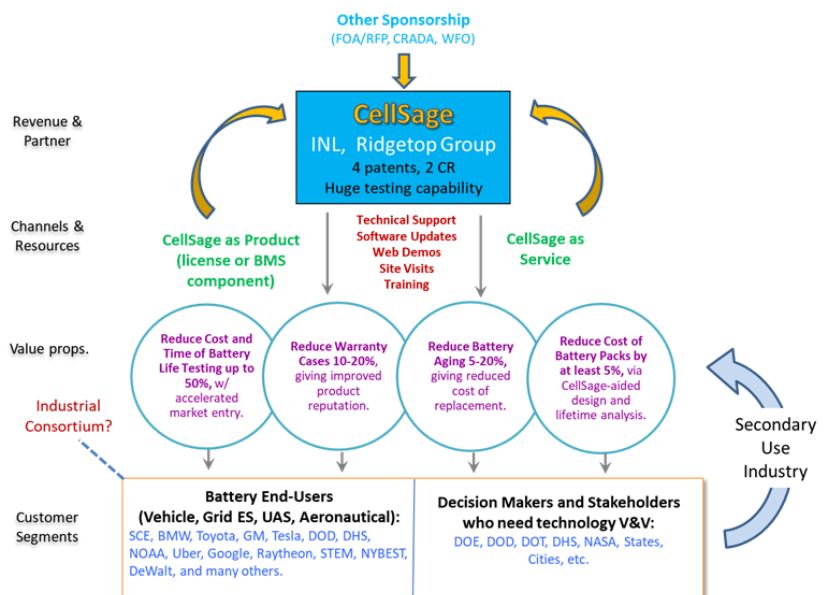
Founded in 2000, Ridgetop Group, Inc. (Ridgetop) is a well-established engineering and technology firm that provides advanced Condition-based Maintenance (CBM), Prognostic Health Management (PHM), and reliability engineering solutions for its customers. Ridgetop's solutions aim to increase safety, efficiency, and operational performance while also reducing maintenance and sustainment costs with the most innovative products and technology for aerospace, defense, transportation, energy, and industrial applications.

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Commitment to Industry

Ridgetop Group, Inc. is a technology leader in advanced diagnostics and prognostic solutions for complex systems. In order to cover an exponentially growing list of broad commercial applications, Ridgetop Group has worked closely with industry partners to modify and enhance CellSage to meet diverse application needs and requirements.

As a result of these engagements with industry, Ridgetop is proud to offer CellSage as one of the first commercially available software simulation tools that can accurately model and predict how a particular battery cell and chemistry will age and degrade under real world operating conditions. The technology core is covered by 5 U.S. Patents, and supported by nearly two decades of research and development at Idaho National Laboratory (INL) and Ridgetop. CellSage simulation results have been proven to provide key diagnostics of aging mechanisms, predictions of RUL, evaluation of kinetic (power) performance, and determination of mitigating conditions for extending battery life and operational performance. Ridgetop Group will continue its commitment to industry as we aim to set CellSage as an industry standard for battery diagnostics and prognostics.



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