SwRI®

SOUTHWEST RESEARCH INSTITUTE

Electrified Vehicle & Energy Storage Evaluation-II (EVESE-II) Consortium

The Electrified Vehicle and Energy Storage Evaluation-II (EVESE-II) Consortium, hosted by Southwest Research Institute®, is the next evolution of SwRI's long-running energy storage research consortia, which began with the 2011 Energy Storage System Evaluation and Safety (EssEs) Consortium.

EVESE-II will build on SwRI's established expertise in battery cell research and expand the program focus to include module and pack research, with an emphasis on immersion cooling, test standards, safety testing, and applications beyond electric vehicles, such as charging and V2X (vehicle-to-everything) systems.

Three interrelated research areas are planned. Topics can be selected and prioritized based on input from members. New topics can be introduced and considered by consensus or voting.

Battery Cell Research

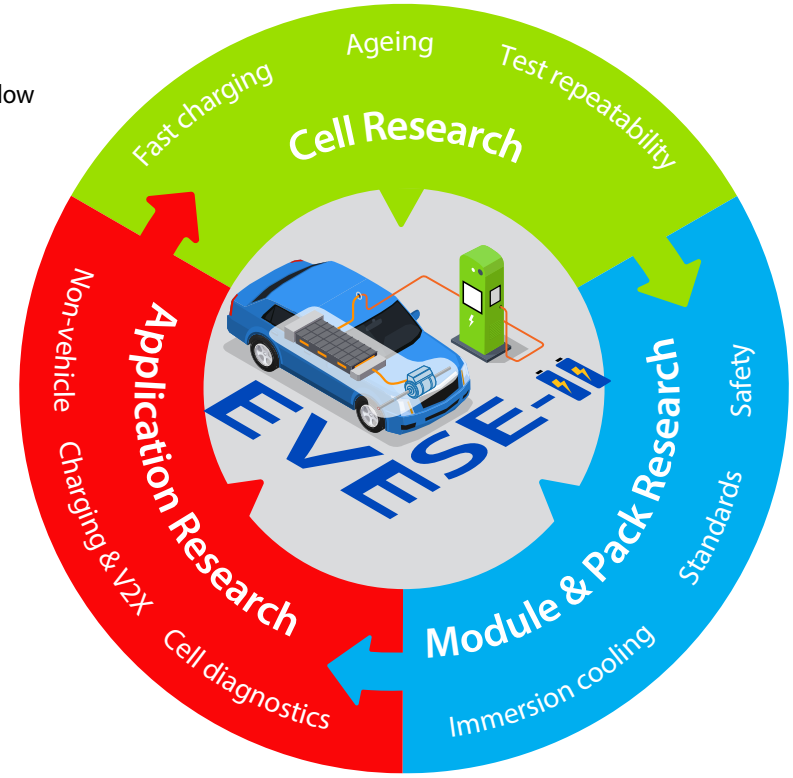
- Focus on larger capacity cells and emerging cell chemistries
- Improve repeatability of safety testing on cells
- Improve repeatability of cycle/performance testing on ultra-low resistance cells
- Expand life modeling beyond current methods and models
- Implement SwRI's adaptive lithium-plating detection algorithm on new chemistries, form factors, etc.
- Extend pseudo electrochemical impedance spectroscopy (pEIS) to cells in series and parallel

Module & Pack Research

- Compare and contrast current test standards for lithium-ion batteries
- Develop methods to extrapolate single-cell safety tests to full pack
- Improve safety for immersed cooling of large format pouch or prismatic cells
- Determine design limitations for improved safety
- Measure materials compatibility & interaction and chemical stability
- Calculate effectiveness of cooling system (impact of mass/volume on the system)

Application Research

- Key performance metrics for charging
- Comparison of charging performance in different vehicles
- Diagnostics for in-vehicle battery state-of-health (SOH) determination
- Effect of V2X on battery pack age
- Correlation between real vehicle aging data and battery life models
- Diversification including light-duty, medium-duty, heavy-duty, and off-highway vehicles

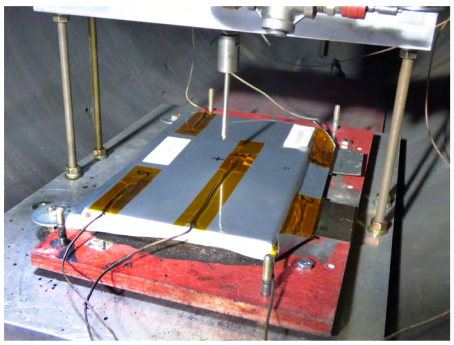


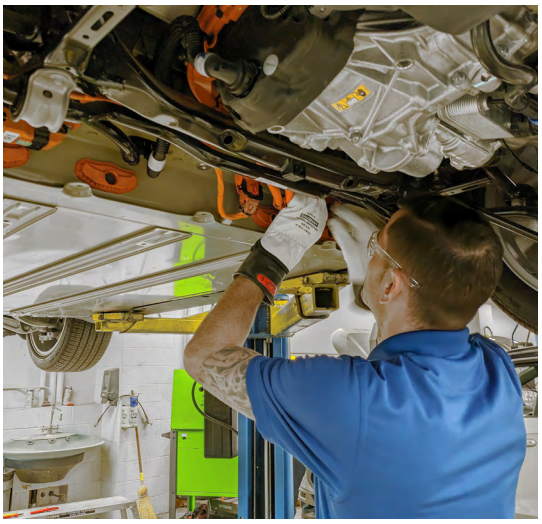
Deliverables and Member Benefits

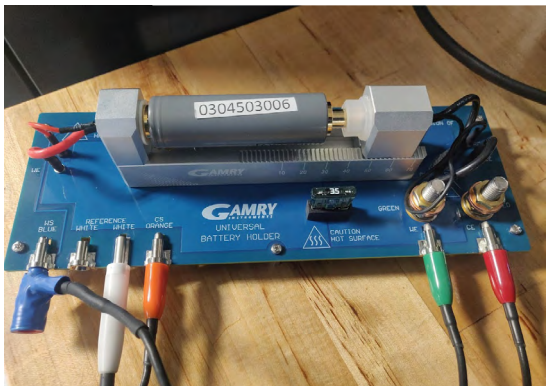
- Monthly and final reports on research progress and findings
- Monthly updates and bi-annual face-to-face meetings
- Royalty-free license for patents generated by the consortium
- Briefings on regulatory, market and research trends from industry conferences
- Preferential access to SwRI internal research methodologies and results
- Preferential use of consortium-developed methodologies
- Access to all consortium data, with confidentiality restrictions for a predetermined time

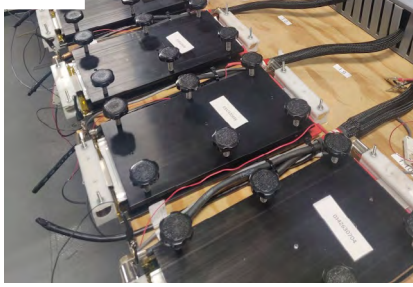
Timeline

- August 2024 to August 2028
- Program start with minimum of 10 member organizations









ELECTRIFIED VEHICLE & ENERGY STORAGE EVALUATION-II

A Consortium of SwRI

We welcome your inquiries. For more information, please contact:

Andre Swarts
Staff Engineer
210.522.6631
andre.swarts@swri.org

Automotive Propulsion Systems Department
Powertrain Engineering Division

evese.swri.org

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