



U.S. DEPARTMENT
of **ENERGY**

Office of Critical Minerals
and Energy Innovation



2025 Annual Merit Review Vehicle Technologies Office

Results Report

December 2025

2. Electrification R&D

The Vehicle Technologies Office (VTO) funds research and development (R&D) of engines, batteries, power electronics, motors, materials, and transportation systems. VTO leverages the unique capabilities and world-class expertise of the national laboratory system to innovate new vehicle technologies. VTO is uniquely positioned to accelerate innovative transportation technologies due to strategic public-private research partnerships with industry (e.g., the U.S. DRIVE Partnership, the 21st Century Truck Partnership) that leverage relevant expertise. These partnerships prevent duplication of effort, focus U.S. Department of Energy (DOE) research on critical R&D barriers, and accelerate progress.

The VTO Electrification Technologies subprogram has two distinct activities:

The Electric Drive R&D activity accelerates domestic electric drive technology with secure supply chains and good paying jobs through early-stage R&D on high-power density motors that have the potential to enable radical new vehicle architectures by dramatic volume/space reductions and increased durability and reliability, while realizing electric drive motors with reduced or zero heavy rare earth (HRE) magnet materials; reducing the cost of electric traction drive systems. These objectives are pursued through core research of motors, high-density integration technologies, leveraging high performance computing for modeling and optimization, and utilizing new materials for high-density electric motors.

The Grid and Infrastructure R&D activity supports seamless integration of innovative transportation solutions with the grid while advancing U.S. energy affordability, reliability, and resilience. Key activities include developing Smart Charge Management technologies to provide more grid services that improve electricity affordability, grid resilience, enable emergency response, and maintain continuity of charging network operations during disruptive events. Additionally, research will inform the development of communication and cybersecurity protocols; enable industry to enhance the interoperability between charging equipment, the on-board vehicle charger, and charging networks; and foster technology innovations to improve plug-in electric vehicle refueling through extreme fast charging. Core research focuses on developing smart charging, extreme fast charging, and wireless charging technologies for reliable and cost-effective charging of light-, medium-, and heavy-duty electric vehicles. This includes the research of technologies related to cybersecurity of electric vehicle charging/supply equipment, and integration with the electric grid.

Project Feedback

In this merit review activity, each reviewer was asked to respond to a series of questions, involving multiple-choice responses, expository responses where text comments were requested, and numeric score responses (on a scale of 1.0 to 4.0). In the pages that follow, the multiple choice and numeric score questions will be presented in graph form for each project. A table presenting the average numeric score for each question for each project is presented below.

Table 2-1 – Project Feedback

Presentation ID	Presentation Title	Principal Investigator (Organization)	Page Number	Approach	Technical Accomplishments	Collaboration	Future Research	Weighted Average
ELT236	Direct-Current Conversion Equipment Connected to the Medium-Voltage Grid for Extreme Fast Charging Utilizing Modular and Interoperable Architecture	Watson Collins (Electric Power Research Institute)	2-8	3.33	3.17	3.00	3.17	3.19
ELT239	High-Power Inductive Charging System Development and Integration for Mobility	Omer Onar (Oak Ridge National Laboratory)	2-9	3.63	3.75	3.63	3.00	3.67
ELT262	Long-Range, Heavy-Duty Battery-Electric Vehicle with Megawatt Wireless Charging	Ryan Reed (Kenworth)	2-10	3.00	2.83	2.83	2.75	2.88

Presentation ID	Presentation Title	Principal Investigator (Organization)	Page Number	Approach	Technical Accomplishments	Collaboration	Future Research	Weighted Average
ELT275	Low-Cost Rare-Earth Free Electric Drivetrain Enabled by Novel Permanent Magnets, Inverter, Integrated Design and Advanced Thermal Management	Ayman El-Refaie (Marquette University)	2-11	3.83	3.00	3.50	3.33	3.31
ELT285	Development and Demonstration of Zero-Emission Technologies for Commercial Fleets (SuperTruck 3)	Maarten Meijer (PACCAR Inc.)	2-12	3.50	3.25	3.75	3.25	3.38
ELT286	A Zero Emission Freight Future (SuperTruck 3)	Eric Bond (Volvo)	2-13	3.50	3.50	3.17	3.17	3.42
ELT287	Cummins High Power Density Inverter	Santhosh Krishnamoorthi (Cummins Inc.)	2-14	2.50	2.50	3.17	2.67	2.60
ELT290	Behind-the-Meter Storage	Anthony Burrell (National Renewable Energy Laboratory)	2-15	3.13	3.38	3.13	3.00	3.23
ELT293	Ruggedized Mobile Fast Charger for Off-Road Vehicles	Brij Singh (John Deere)	2-16	3.50	3.40	3.30	3.30	3.40
ELT295	EVs@Scale VGI & SCM	Jesse Bennett (National Renewable Energy Laboratory)	2-17	3.33	3.00	2.67	3.33	3.08

Presentation ID	Presentation Title	Principal Investigator (Organization)	Page Number	Approach	Technical Accomplishments	Collaboration	Future Research	Weighted Average
ELT296	Charging Infrastructure Interconnection Simplification Resource (CIISR)	Watson Collins (Electric Power Research Institute)	2-18	3.08	3.25	3.33	3.10	3.20
ELT299	EVs@Scale High Power Charging Pillar	John Kisacikoglu (National Renewable Energy Laboratory)	2-19	3.17	3.50	3.50	3.33	3.40
ELT300	EVs@Scale Codes and Standards Pillar	Ted Bohn (Argonne National Laboratory)	2-20	3.50	3.67	3.83	3.17	3.58
ELT301	EVs@Scale Cyber-Physical Security Pillar	Lori Ross-O'Neil (Pacific Northwest National Laboratory)	2-21	3.50	3.63	3.38	3.38	3.53
ELT302	EVs@Scale EV Modeling Toolkit	Andrew Satchwell (Lawrence Berkeley National Laboratory)	2-22	3.33	3.33	3.50	3.00	3.31
ELT310	Multi-Input Integrated Smart Charger-Inverter System with Galvanic Isolation	Sandun Kuruppu (Western Michigan University)	2-23	3.25	3.25	3.38	3.25	3.27
ELT311	Innovative Integrated 3-in-1 Inverter/On Board Charger/Auxiliary DC Converter for Electrified Vehicles Applications	Dhrubo Rahman (Ricardo, Inc.)	2-24	3.67	3.50	2.83	3.33	3.44

Presentation ID	Presentation Title	Principal Investigator (Organization)	Page Number	Approach	Technical Accomplishments	Collaboration	Future Research	Weighted Average
ELT312	Ultra-low Cost, All-SiC Modular Power Converters for DCFC, Connected to MV Distribution System	Srdjan Lukic (North Carolina State University)	2-25	3.25	3.50	3.13	3.50	3.39
ELT313	Rural Electric Utility Workflow Improvements for Rapid EVSE Deployment (REWired)	Jennah Denney (National Rural Electric Cooperative Association)	2-26	3.30	3.70	3.40	3.30	3.51
ELT314	Electric Vehicle Smart Program Management Interstate Renewable Energy Council (IREC)	Ed Gilliland (Interstate Renewable Energy Council)	2-27	3.50	3.50	3.20	3.50	3.46
ELT315	EPRI GridFAST Express: Roadmap and Actions to Address Key Challenges to the Utility Interconnection Process and Supporting Supply Chain	Watson Collins (Electric Power Research Institute)	2-28	2.67	2.50	2.67	3.17	2.65
ELT317	NEXT DRIVE Task 1: Power Semiconductor Devices	Andrew Binder (Sandia National Laboratories)	2-29	3.50	3.38	3.00	3.25	3.34
ELT318	NEXT DRIVE Task 2: Electric Drive Components – Power Electronics/ Power Modules	Doug DeVoto (National Renewable Energy Laboratory)	2-30	3.25	3.00	3.50	3.50	3.19

Presentation ID	Presentation Title	Principal Investigator (Organization)	Page Number	Approach	Technical Accomplishments	Collaboration	Future Research	Weighted Average
ELT319	NEXT DRIVE Task 2: Electric Drive Components – Motor Materials and Components	Jun Cui (Oak Ridge National Laboratory)	2-31	3.33	3.00	3.33	3.17	3.15
ELT320	NEXT DRIVE Task 3: High Voltage, High Power Traction Inverters	Gui-Jia Su (Oak Ridge National Laboratory)	2-32	2.88	3.25	3.25	3.38	3.17
ELT321	NEXT DRIVE Task 4: High Torque Heavy Rare Earth Free Motors	Vandana Rallabandi (Oak Ridge National Laboratory)	2-33	3.33	3.00	3.00	3.17	3.10
ELT322	NEXT DRIVE Task 5: Digital Twin Diagnostics and Prognostics	Praveen Kumar (Oak Ridge National Laboratory)	2-34	3.00	2.88	2.88	3.13	2.94
ELT323	GaN-Enabled Dual Multilevel Inverter Integrated Electric Drive System	Khorshed Alam (General Motors)	2-35	3.50	3.50	2.83	3.50	3.42
ELT324	Integrated Three-Level GAN Inverter and PMSYNRM Motor for Electric Passenger Vehicles and Medium/Heavy Duty Trucks (GANIN_PMSYNRM)	Kevin Bai (The University of Tennessee, Knoxville)	2-36	3.67	3.67	3.17	3.17	3.54
ELT325	Stationary Polyphase Wireless Charging for Heavy-Duty Vehicles	Minyu Cai (Cummins Inc.)	2-37	3.38	3.13	3.13	3.13	3.19

Presentation ID	Presentation Title	Principal Investigator (Organization)	Page Number	Approach	Technical Accomplishments	Collaboration	Future Research	Weighted Average
ELT326	Freight Emissions Reduction from Medium-Duty, Battery Electric and Hydrogen Fuel Cell Trucks with Green Hydrogen Production via a New Electrolyzer Design and Electrical Utility Grid Coupling	Jacob Lozier (General Motors)	2-38	3.67	3.50	3.83	3.33	3.56
ELT327	High Efficiency Fuel Cell Application for Medium Duty Truck Vocations	Stan Bower (Ford Motor Company)	2-39	3.83	3.83	3.83	3.67	3.81
ELT328	Ultra-Efficient Long-Haul Hydrogen Fuel Cell Tractor	Darek Villeneuve (Daimler Truck North America)	2-40	3.75	3.75	4.00	3.50	3.75
Overall Average				3.35	3.30	3.27	3.24	3.30

Presentation Number:

ELT236

Presentation Title:

Direct-Current Conversion Equipment Connected to the Medium-Voltage Grid for Extreme Fast Charging Utilizing Modular and Interoperable Architecture

Principal Investigator:

Watson Collins, Electric Power Research Institute

Presenter

Krish Gomaton, Electric Power Research Institute

Reviewer Sample Size

A total of three reviewers evaluated this project.

Project Relevance and Resources

100% of reviewers felt that the project was relevant to current DOE objectives, 0% of reviewers felt that the project was not relevant, and 0% of reviewers did not indicate an answer. 100% of reviewers felt that the resources were sufficient, 0% of reviewers felt that the resources were insufficient, 0% of reviewers felt that the resources were excessive, and 0% of reviewers did not indicate an answer.

Presentation Link:

https://www1.eere.energy.gov/vehiclesandfuels/downloads/2025_AMR/ELT236_Collins_2025_o.pdf

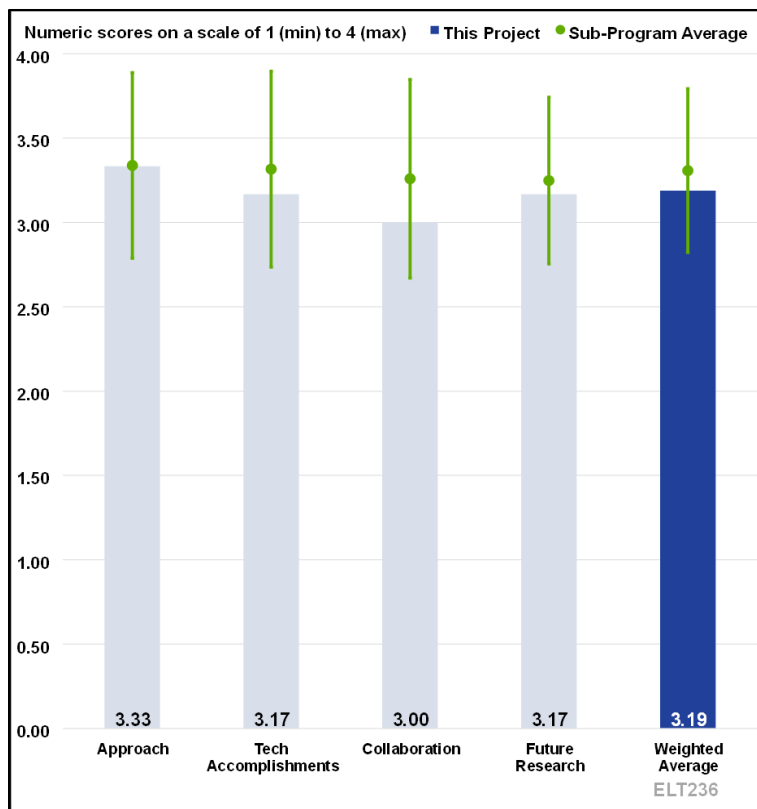


Figure 2-1 - Presentation Number: ELT236 Presentation Title: Direct-Current Conversion Equipment Connected to the Medium-Voltage Grid for Extreme Fast Charging Utilizing Modular and Interoperable Architecture Principal Investigator: Watson Collins, Electric Power Research Institute

Presentation Number:

ELT239

Presentation Title:

High-Power Inductive Charging System Development and Integration for Mobility

Principal Investigator:

Omer Onar, Oak Ridge National Laboratory

Presenter

Omer Onar, Oak Ridge National Laboratory

Reviewer Sample Size

A total of four reviewers evaluated this project.

Project Relevance and Resources

100% of reviewers felt that the project was relevant to current DOE objectives, 0% of reviewers felt that the project was not relevant, and 0% of reviewers did not indicate an answer. 100% of reviewers felt that the resources were sufficient, 0% of reviewers felt that the resources were insufficient, 0% of reviewers felt that the resources were excessive, and 0% of reviewers did not indicate an answer.

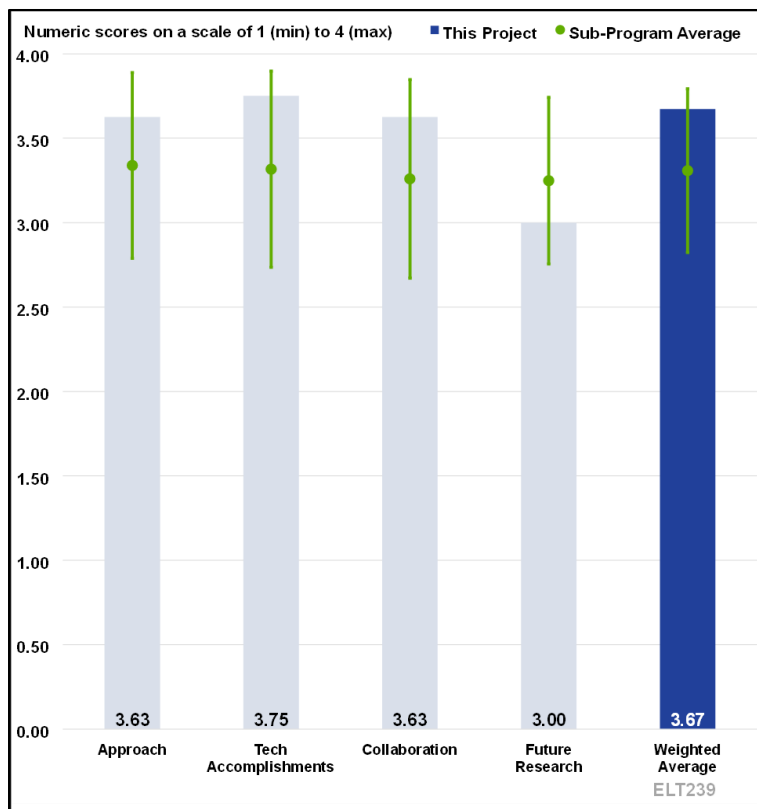


Figure 2-2 - Presentation Number: ELT239 Presentation Title: High-Power Inductive Charging System Development and Integration for Mobility Principal Investigator: Omer Onar, Oak Ridge National Laboratory

Presentation Link:

https://www1.eere.energy.gov/vehiclesandfuels/downloads/2025_AMR/ELT239_Onar_2025_o.pdf

Presentation Number:

ELT262

Presentation Title:

Long-Range, Heavy-Duty Battery-Electric Vehicle with Megawatt Wireless Charging

Principal Investigator:

Ryan Reed, Kenworth

Presenter

Ryan Reed, Kenworth

Reviewer Sample Size

A total of three reviewers evaluated this project.

Project Relevance and Resources

100% of reviewers felt that the project was relevant to current DOE objectives, 0% of reviewers felt that the project was not relevant, and 0% of reviewers did not indicate an answer. 100% of reviewers felt that the resources were sufficient, 0% of reviewers felt that the resources were insufficient, 0% of reviewers felt that the resources were excessive, and 0% of reviewers did not indicate an answer.

Presentation Link:

https://www1.eere.energy.gov/vehiclesandfuels/downloads/2025_AMR/ELT262_Reed_2025_o.pdf

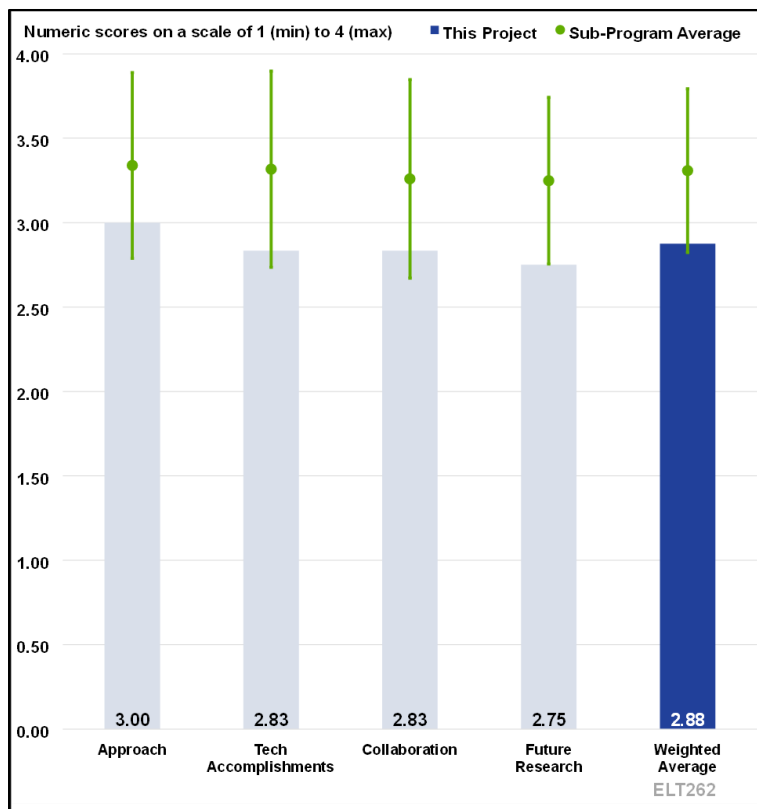


Figure 2-3 - Presentation Number: ELT262 Presentation Title: Long-Range, Heavy-Duty Battery-Electric Vehicle with Megawatt Wireless Charging Principal Investigator: Ryan Reed, Kenworth

Presentation Number:

ELT275

Presentation Title:

Low-Cost Rare-Earth Free Electric Drivetrain Enabled by Novel Permanent Magnets, Inverter, Integrated Design and Advanced Thermal Management

Principal Investigator:

Ayman El-Refaie, Marquette University

Presenter

Ayman El-Refaie, Marquette University

Reviewer Sample Size

A total of three reviewers evaluated this project.

Project Relevance and Resources

100% of reviewers felt that the project was relevant to current DOE objectives, 0% of reviewers felt that the project was not relevant, and 0% of reviewers did not indicate an answer. 67% of reviewers felt that the resources were sufficient, 33% of reviewers felt that the resources were insufficient, 0% of reviewers felt that the resources were excessive, and 0% of reviewers did not indicate an answer.

Presentation Link:

https://www1.eere.energy.gov/vehiclesandfuels/downloads/2025_AMR/ELT275_El-Refaie_2025_o.pdf

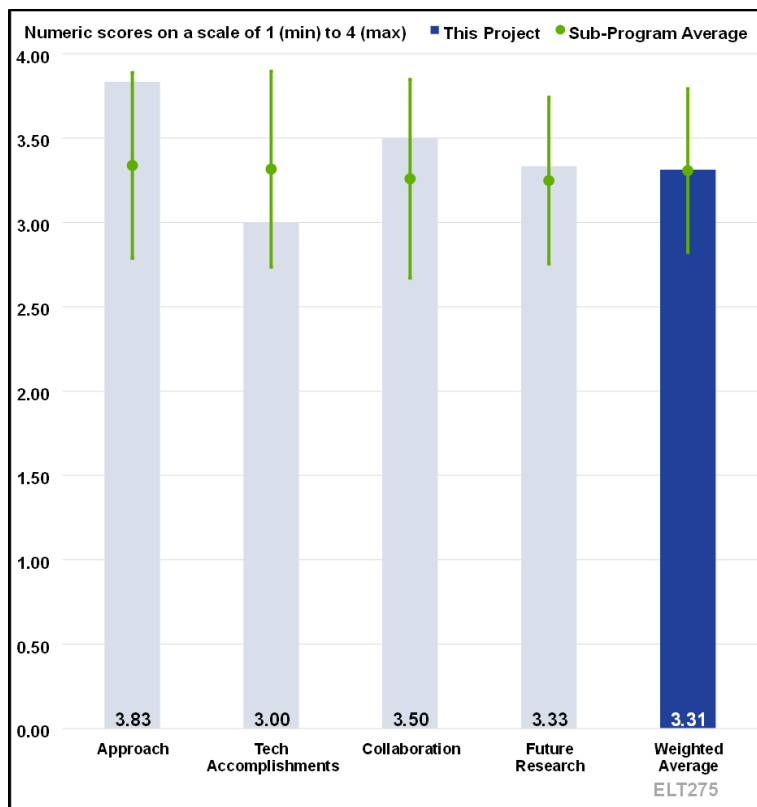


Figure 2-4 - Presentation Number: ELT275 Presentation Title: Low-Cost Rare-Earth Free Electric Drivetrain Enabled by Novel Permanent Magnets, Inverter, Integrated Design and Advanced Thermal Management Principal Investigator: Ayman El-Refaie, Marquette University

Presentation Number:

ELT285

Presentation Title:

Development and Demonstration of Zero-Emission Technologies for Commercial Fleets (SuperTruck 3)

Principal Investigator:

Maarten Meijer, PACCAR Inc.

Presenter

Maarten Meijer, PACCAR Inc.

Reviewer Sample Size

A total of two reviewers evaluated this project.

Project Relevance and Resources

100% of reviewers felt that the project was relevant to current DOE objectives, 0% of reviewers felt that the project was not relevant, and 0% of reviewers did not indicate an answer. 50% of reviewers felt that the resources were sufficient, 50% of reviewers felt that the resources were insufficient, 0% of reviewers felt that the resources were excessive, and 0% of reviewers did not indicate an answer.

Presentation Link:

https://www1.eere.energy.gov/vehiclesandfuels/downloads/2025_AMR/ELT285_Meijer_2025_o.pdf

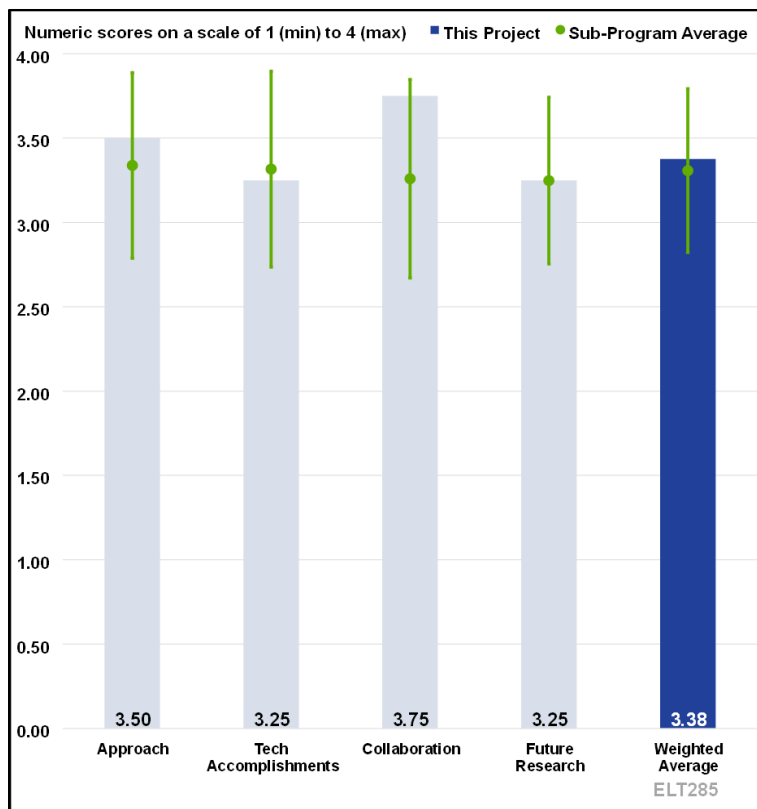


Figure 2-5 - Presentation Number: ELT285 Presentation Title: Development and Demonstration of Zero-Emission Technologies for Commercial Fleets (SuperTruck 3) Principal Investigator: Maarten Meijer, PACCAR Inc.

Presentation Number:

ELT286

Presentation Title:

A Zero Emission Freight Future
(SuperTruck 3)

Principal Investigator:

Eric Bond, Volvo

Presenter

Eric Bond, Volvo

Reviewer Sample Size

A total of three reviewers evaluated this project.

Project Relevance and Resources

100% of reviewers felt that the project was relevant to current DOE objectives, 0% of reviewers felt that the project was not relevant, and 0% of reviewers did not indicate an answer. 100% of reviewers felt that the resources were sufficient, 0% of reviewers felt that the resources were insufficient, 0% of reviewers felt that the resources were excessive, and 0% of reviewers did not indicate an answer.

Presentation Link:

https://www1.eere.energy.gov/vehiclesandfuels/downloads/2025_AMR/ELT286_Bond_2025_o.pdf

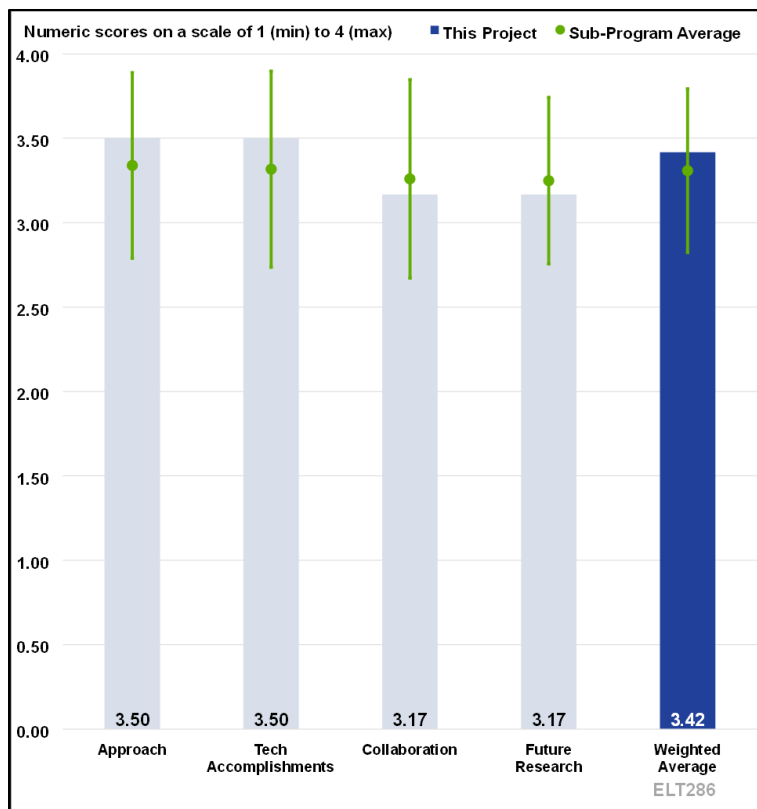


Figure 2-6 - Presentation Number: ELT286 Presentation Title: A Zero Emission Freight Future (SuperTruck 3) Principal Investigator: Eric Bond, Volvo

Presentation Number:

ELT287

Presentation Title:

Cummins High Power Density Inverter

Principal Investigator:

Santhosh Krishnamoorthi, Cummins Inc.

Presenter

Santhosh Krishnamoorthi, Cummins Inc.

Reviewer Sample Size

A total of three reviewers evaluated this project.

Project Relevance and Resources

100% of reviewers felt that the project was relevant to current DOE objectives, 0% of reviewers felt that the project was not relevant, and 0% of reviewers did not indicate an answer. 100% of reviewers felt that the resources were sufficient, 0% of reviewers felt that the resources were insufficient, 0% of reviewers felt that the resources were excessive, and 0% of reviewers did not indicate an answer.

Presentation Link:

https://www1.eere.energy.gov/vehiclesandfuels/downloads/2025_AMR/ELT287_Krishnamoor_2025_o.pdf

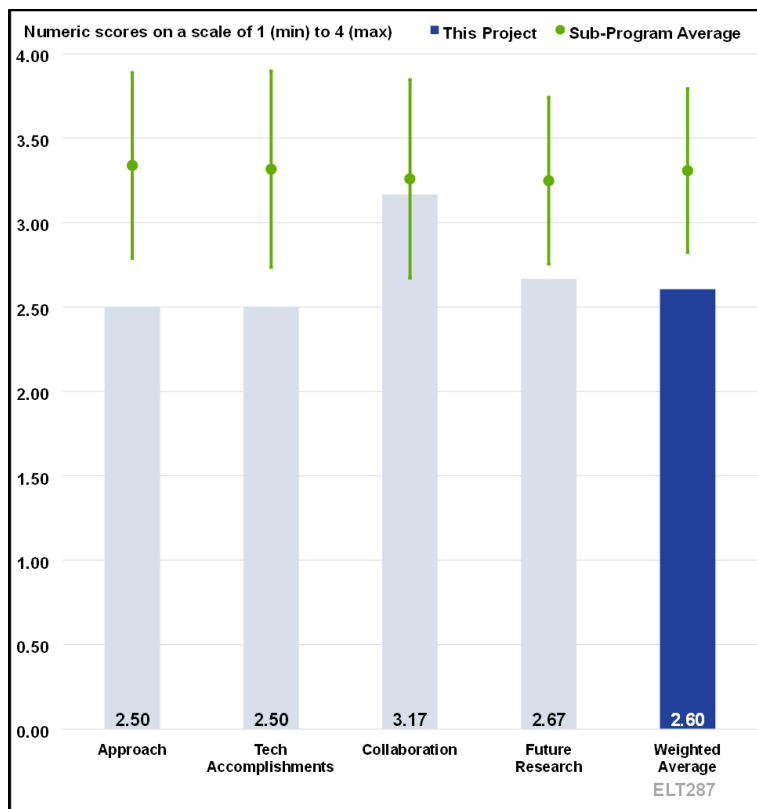


Figure 2-7 - Presentation Number: ELT287 Presentation Title: Cummins High Power Density Inverter Principal Investigator: Santhosh Krishnamoorthi, Cummins Inc.

Presentation Number:

ELT290

Presentation Title:

Behind-the-Meter Storage

Principal Investigator:

Anthony Burrell, National Renewable Energy Laboratory

Presenter

John Kisacikoglu, National Renewable Energy Laboratory

Reviewer Sample Size

A total of four reviewers evaluated this project.

Project Relevance and Resources

100% of reviewers felt that the project was relevant to current DOE objectives, 0% of reviewers felt that the project was not relevant, and 0% of reviewers did not indicate an answer. 75% of reviewers felt that the resources were sufficient, 0% of reviewers felt that the resources were insufficient, 25% of reviewers felt that the resources were excessive, and 0% of reviewers did not indicate an answer.

Presentation Link:

https://www1.eere.energy.gov/vehiclesandfuels/downloads/2025_AMR/ELT290_Burrell_2025_o.pdf

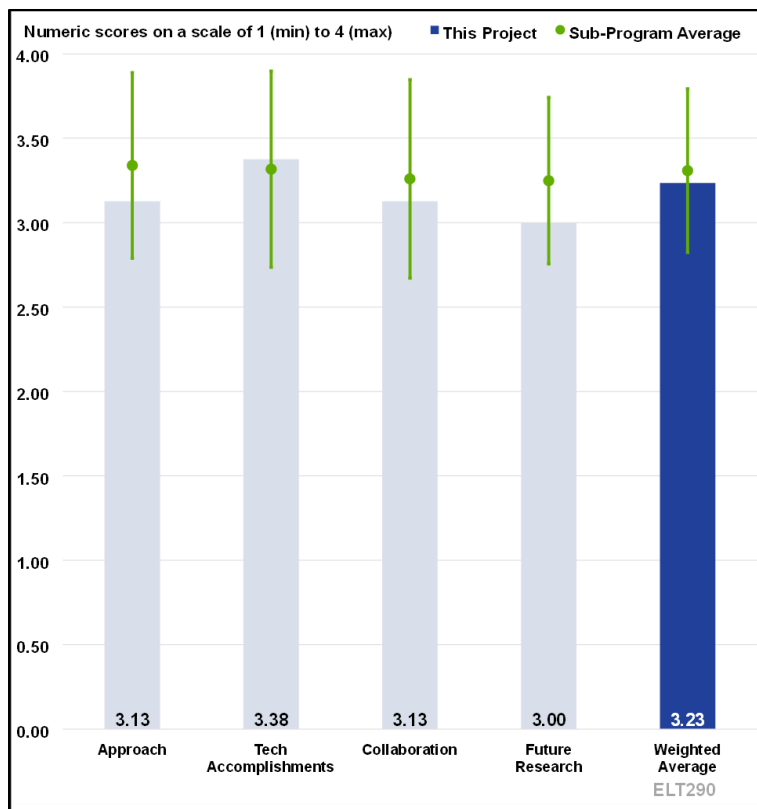


Figure 2-8 - Presentation Number: ELT290 Presentation Title: Behind-the-Meter Storage Principal Investigator: Anthony Burrell, National Renewable Energy Laboratory

Presentation Number:

ELT293

Presentation Title:

Ruggedized Mobile Fast Charger for Off-Road Vehicles

Principal Investigator:

Brij Singh, John Deere

Presenter

Brij Singh, John Deere

Reviewer Sample Size

A total of five reviewers evaluated this project.

Project Relevance and Resources

100% of reviewers felt that the project was relevant to current DOE objectives, 0% of reviewers felt that the project was not relevant, and 0% of reviewers did not indicate an answer. 100% of reviewers felt that the resources were sufficient, 0% of reviewers felt that the resources were insufficient, 0% of reviewers felt that the resources were excessive, and 0% of reviewers did not indicate an answer.

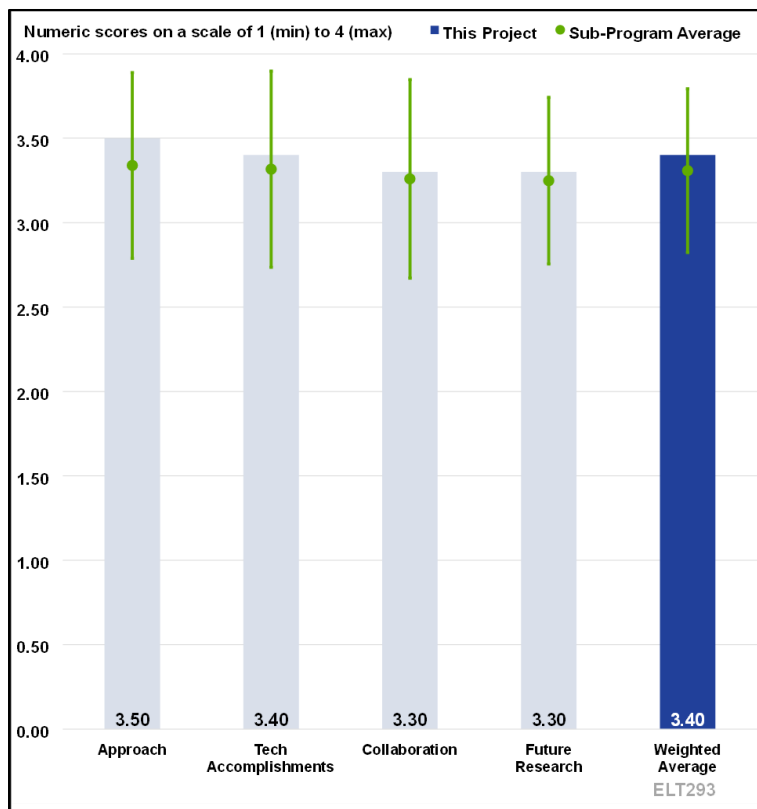


Figure 2-9 - Presentation Number: ELT293 Presentation Title: Ruggedized Mobile Fast Charger for Off-Road Vehicles Principal Investigator: Brij Singh, John Deere

Presentation Link:

https://www1.eere.energy.gov/vehiclesandfuels/downloads/2025_AMR/ELT293_Singh_2025_o.pdf

Presentation Number:

ELT295

Presentation Title:

EVs@Scale VGI & SCM

Principal Investigator:

Jesse Bennett, National Renewable Energy Laboratory

Presenter

Jesse Bennett, National Renewable Energy Laboratory

Reviewer Sample Size

A total of three reviewers evaluated this project.

Project Relevance and Resources

67% of reviewers felt that the project was relevant to current DOE objectives, 33% of reviewers felt that the project was not relevant, and 0% of reviewers did not indicate an answer. 67% of reviewers felt that the resources were sufficient, 0% of reviewers felt that the resources were insufficient, 33% of reviewers felt that the resources were excessive, and 0% of reviewers did not indicate an answer.

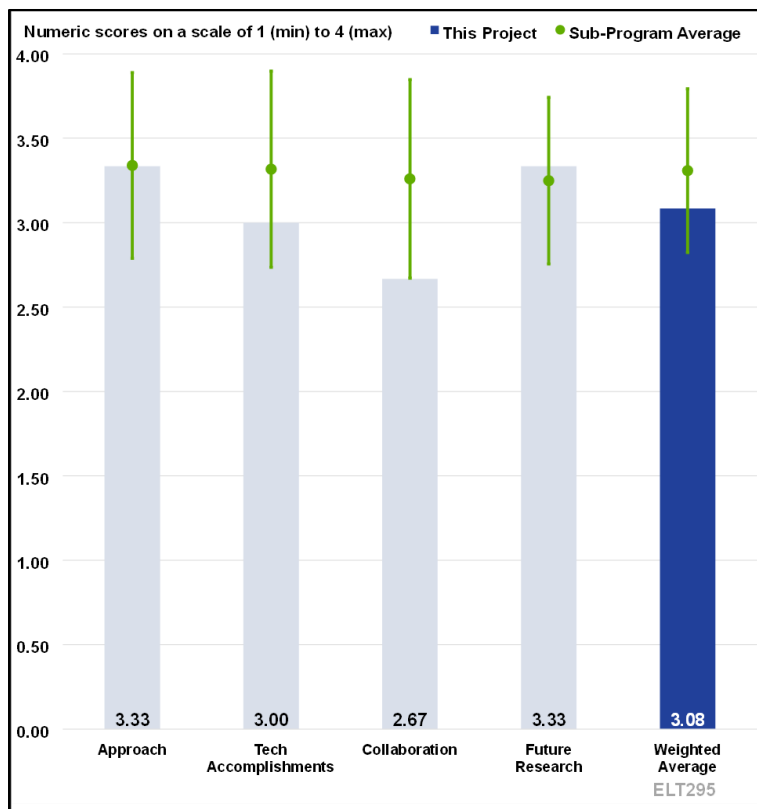


Figure 2-10 - Presentation Number: ELT295 Presentation Title: EVs@Scale VGI & SCM Principal Investigator: Jesse Bennett, National Renewable Energy Laboratory

Presentation Link:

https://www1.eere.energy.gov/vehiclesandfuels/downloads/2025_AMR/ELT295_Bennett_2025_o.pdf

Presentation Number:

ELT296

Presentation Title:

Charging Infrastructure
Interconnection Simplification
Resource (CIISR)

Principal Investigator:

Watson Collins, Electric Power
Research Institute

Presenter

Watson Collins, Electric Power
Research Institute

Reviewer Sample Size

A total of six reviewers evaluated
this project.

Project Relevance and Resources

100% of reviewers felt that the
project was relevant to current DOE
objectives, 0% of reviewers felt that
the project was not relevant, and
0% of reviewers did not indicate an
answer. 100% of reviewers felt that
the resources were sufficient, 0%
of reviewers felt that the resources
were insufficient, 0% of reviewers
felt that the resources were
excessive, and 0% of reviewers did not indicate an answer.

Presentation Link:

https://www1.eere.energy.gov/vehiclesandfuels/downloads/2025_AMR/ELT296_Collins_2025_o.pdf

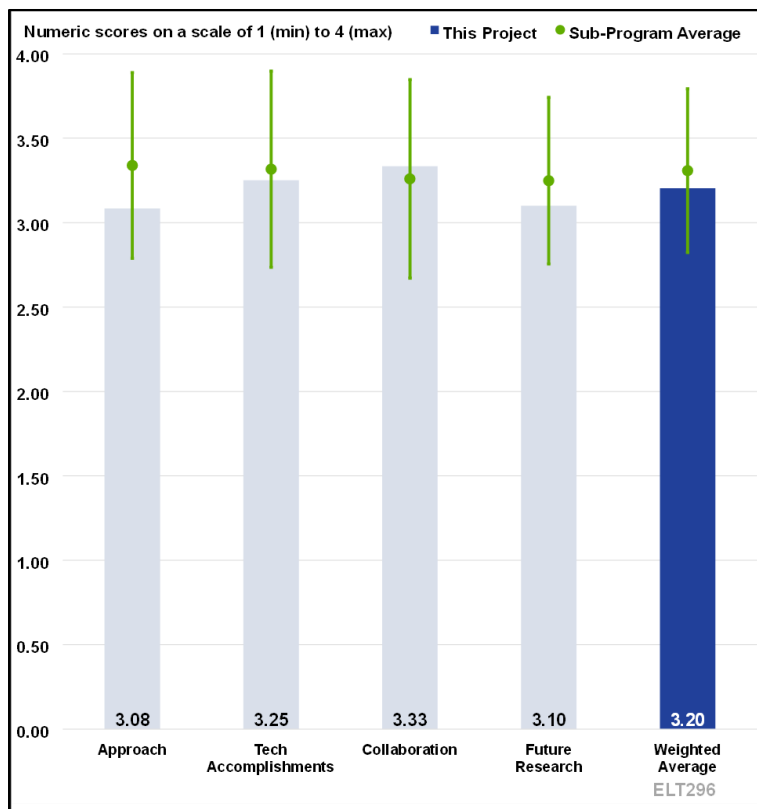


Figure 2-11 - Presentation Number: ELT296 Presentation Title: Charging Infrastructure Interconnection Simplification Resource (CIISR) Principal Investigator: Watson Collins, Electric Power Research Institute

Presentation Number:

ELT299

Presentation Title:

EVs@Scale High Power Charging Pillar

Principal Investigator:

John Kisacikoglu, National Renewable Energy Laboratory

Presenter

Alastair Thurlbeck, National Renewable Energy Laboratory

Reviewer Sample Size

A total of three reviewers evaluated this project.

Project Relevance and Resources

100% of reviewers felt that the project was relevant to current DOE objectives, 0% of reviewers felt that the project was not relevant, and 0% of reviewers did not indicate an answer. 100% of reviewers felt that the resources were sufficient, 0% of reviewers felt that the resources were insufficient, 0% of reviewers felt that the resources were excessive, and 0% of reviewers did not indicate an answer.

Presentation Link:

https://www1.eere.energy.gov/vehiclesandfuels/downloads/2025_AMR/ELT299_Kisacikoglu_2025_o.pdf

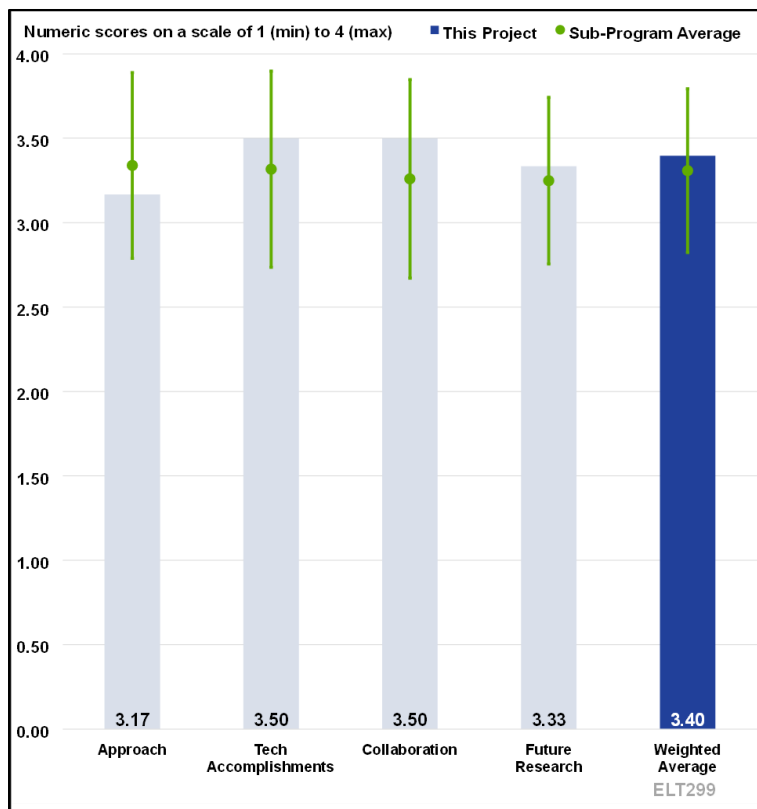


Figure 2-12 - Presentation Number: ELT299 Presentation Title: EVs@Scale High Power Charging Pillar Principal Investigator: John Kisacikoglu, National Renewable Energy Laboratory

Presentation Number:

ELT300

Presentation Title:

EVs@Scale Codes and Standards Pillar

Principal Investigator:

Ted Bohn, Argonne National Laboratory

Presenter

Ted Bohn, Argonne National Laboratory

Reviewer Sample Size

A total of three reviewers evaluated this project.

Project Relevance and Resources

100% of reviewers felt that the project was relevant to current DOE objectives, 0% of reviewers felt that the project was not relevant, and 0% of reviewers did not indicate an answer. 67% of reviewers felt that the resources were sufficient, 33% of reviewers felt that the resources were insufficient, 0% of reviewers felt that the resources were excessive, and 0% of reviewers did not indicate an answer.

Presentation Link:

https://www1.eere.energy.gov/vehiclesandfuels/downloads/2025_AMR/ELT300_Bohn_2025_o.pdf

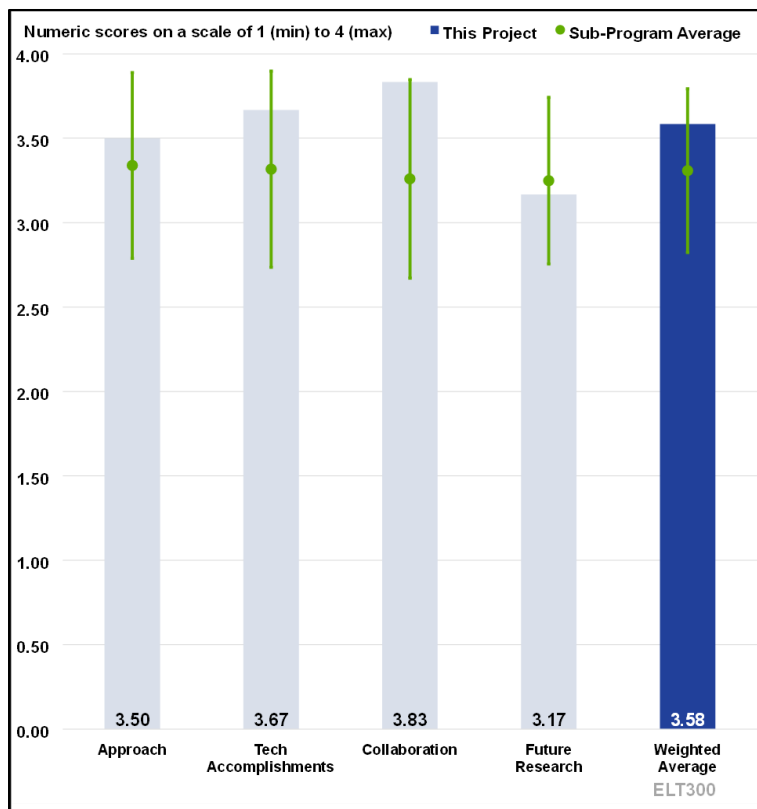


Figure 2-13 - Presentation Number: ELT300 Presentation Title: EVs@Scale Codes and Standards Pillar Principal Investigator: Ted Bohn, Argonne National Laboratory

Presentation Number:

ELT301

Presentation Title:

EVs@Scale Cyber-Physical
Security Pillar

Principal Investigator:

Lori Ross-O'Neil, Pacific Northwest
National Laboratory

Presenter

Lori Ross-O'Neil, Pacific Northwest
National Laboratory

Reviewer Sample Size

A total of four reviewers evaluated
this project.

Project Relevance and Resources

100% of reviewers felt that the
project was relevant to current DOE
objectives, 0% of reviewers felt that
the project was not relevant, and
0% of reviewers did not indicate an
answer. 75% of reviewers felt that
the resources were sufficient, 25%
of reviewers felt that the resources
were insufficient, 0% of reviewers
felt that the resources were
excessive, and 0% of reviewers did
not indicate an answer.

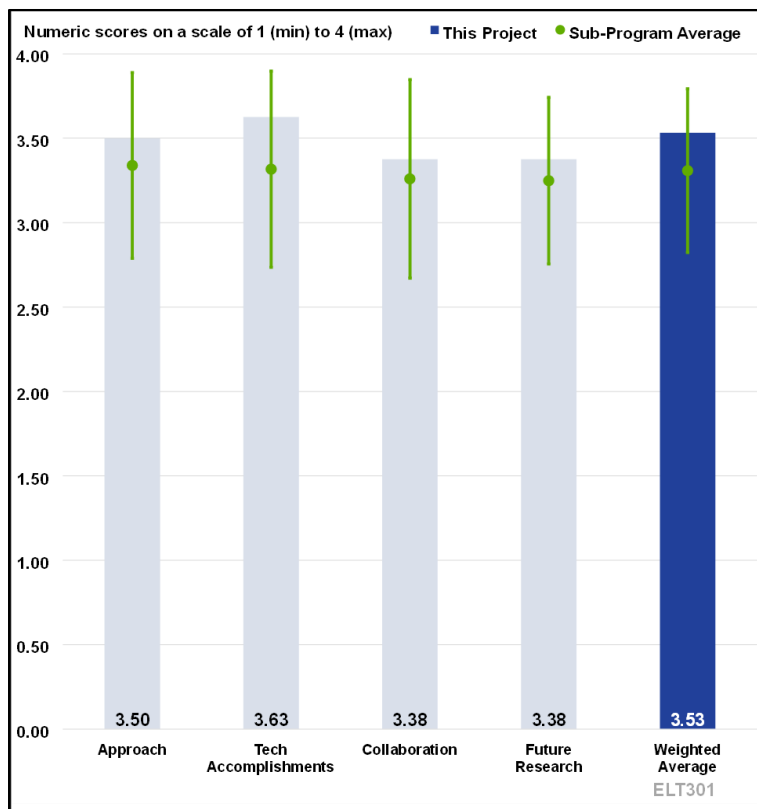


Figure 2-14 - Presentation Number: ELT301 Presentation Title:
EVs@Scale Cyber-Physical Security Pillar Principal
Investigator: Lori Ross-O'Neil, Pacific Northwest National
Laboratory

Presentation Link:

https://www1.eere.energy.gov/vehiclesandfuels/downloads/2025_AMR/ELT301_ONeill_2025_o.pdf

Presentation Number:

ELT302

Presentation Title:

EVs@Scale EV Modeling Toolkit

Principal Investigator:

Andrew Satchwell, Lawrence Berkeley National Laboratory

Presenter

Eric Wood, National Renewable Energy Laboratory

Reviewer Sample Size

A total of three reviewers evaluated this project.

Project Relevance and Resources

100% of reviewers felt that the project was relevant to current DOE objectives, 0% of reviewers felt that the project was not relevant, and 0% of reviewers did not indicate an answer. 100% of reviewers felt that the resources were sufficient, 0% of reviewers felt that the resources were insufficient, 0% of reviewers felt that the resources were excessive, and 0% of reviewers did not indicate an answer.

Presentation Link:

https://www1.eere.energy.gov/vehiclesandfuels/downloads/2025_AMR/ELT302_Wood_2025_o.pdf

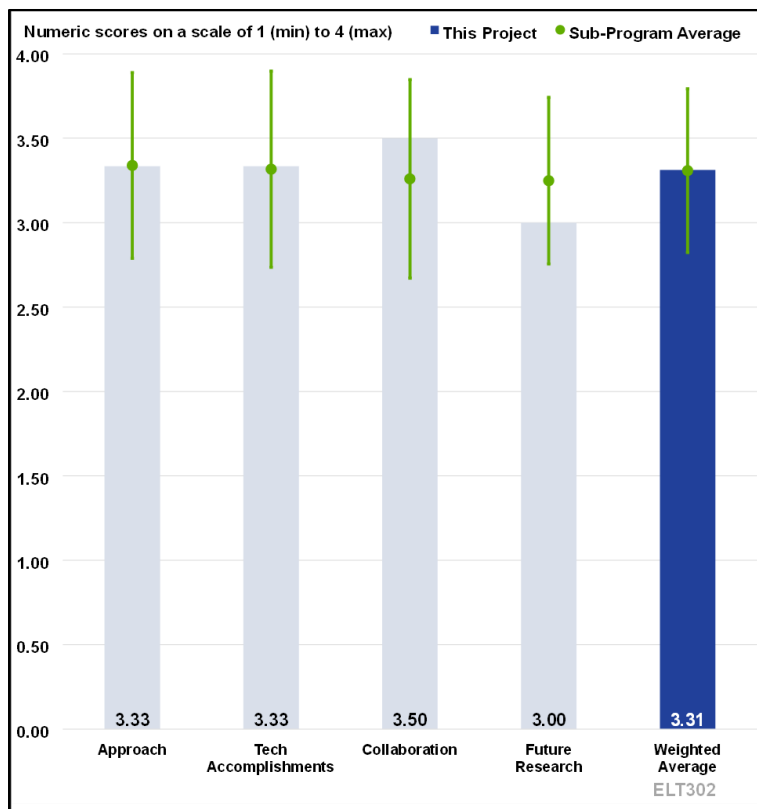


Figure 2-15 - Presentation Number: ELT302 Presentation Title: EVs@Scale EV Modeling Toolkit Principal Investigator: Andrew Satchwell, Lawrence Berkeley National Laboratory

Presentation Number:

ELT310

Presentation Title:

Multi-Input Integrated Smart Charger-Inverter System with Galvanic Isolation

Principal Investigator:

Sandun Kuruppu, Western Michigan University

Presenter

Sandun Kuruppu, Western Michigan University

Reviewer Sample Size

A total of four reviewers evaluated this project.

Project Relevance and Resources

100% of reviewers felt that the project was relevant to current DOE objectives, 0% of reviewers felt that the project was not relevant, and 0% of reviewers did not indicate an answer. 100% of reviewers felt that the resources were sufficient, 0% of reviewers felt that the resources were insufficient, 0% of reviewers felt that the resources were excessive, and 0% of reviewers did not indicate an answer.

Presentation Link:

https://www1.eere.energy.gov/vehiclesandfuels/downloads/2025_AMR/ELT310_Kuruppu_2025_o.pdf

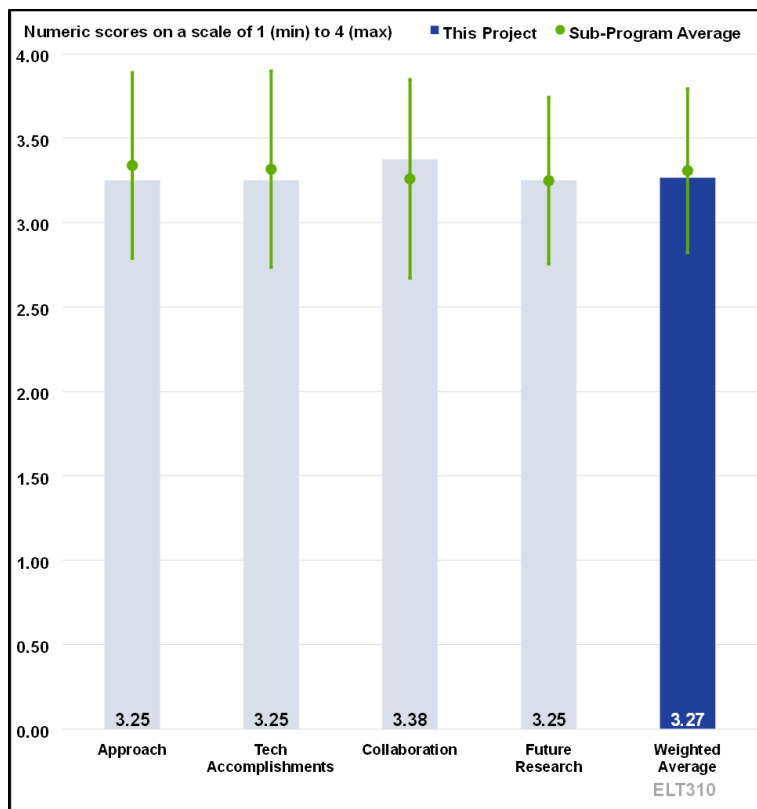


Figure 2-16 - Presentation Number: ELT310 Presentation Title: Multi-Input Integrated Smart Charger-Inverter System with Galvanic Isolation Principal Investigator: Sandun Kuruppu, Western Michigan University

Presentation Number:

ELT311

Presentation Title:

Innovative Integrated 3-in-1 Inverter/On Board Charger/Auxiliary DC Converter for Electrified Vehicles Applications

Principal Investigator:

Dhrubo Rahman, Ricardo, Inc.

Presenter

Dhrubo Rahman, Ricardo, Inc.

Reviewer Sample Size

A total of three reviewers evaluated this project.

Project Relevance and Resources

100% of reviewers felt that the project was relevant to current DOE objectives, 0% of reviewers felt that the project was not relevant, and 0% of reviewers did not indicate an answer. 100% of reviewers felt that the resources were sufficient, 0% of reviewers felt that the resources were insufficient, 0% of reviewers felt that the resources were excessive, and 0% of reviewers did not indicate an answer.

Presentation Link:

https://www1.eere.energy.gov/vehiclesandfuels/downloads/2025_AMR/ELT311_Rahman_2025_o.pdf

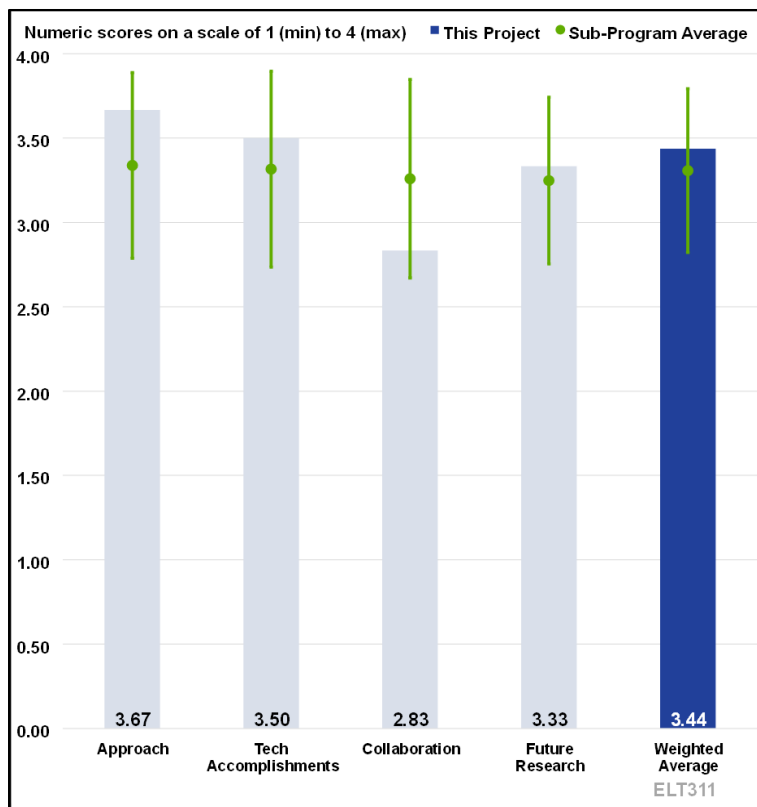


Figure 2-17 - Presentation Number: ELT311 Presentation Title: Innovative Integrated 3-in-1 Inverter/On Board Charger/Auxiliary DC Converter for Electrified Vehicles Applications Principal Investigator: Dhrubo Rahman, Ricardo, Inc.

Presentation Number:

ELT312

Presentation Title:

Ultra-low Cost, All-SiC Modular Power Converters for DCFC, Connected to MV Distribution System

Principal Investigator:

Srdjan Lukic, North Carolina State University

Presenter

Srdjan Lukic, North Carolina State University

Reviewer Sample Size

A total of four reviewers evaluated this project.

Project Relevance and Resources

100% of reviewers felt that the project was relevant to current DOE objectives, 0% of reviewers felt that the project was not relevant, and 0% of reviewers did not indicate an answer. 100% of reviewers felt that the resources were sufficient, 0% of reviewers felt that the resources were insufficient, 0% of reviewers felt that the resources were excessive, and 0% of reviewers did not indicate an answer.

Presentation Link:

https://www1.eere.energy.gov/vehiclesandfuels/downloads/2025_AMR/ELT312_Lukic_2025_o.pdf

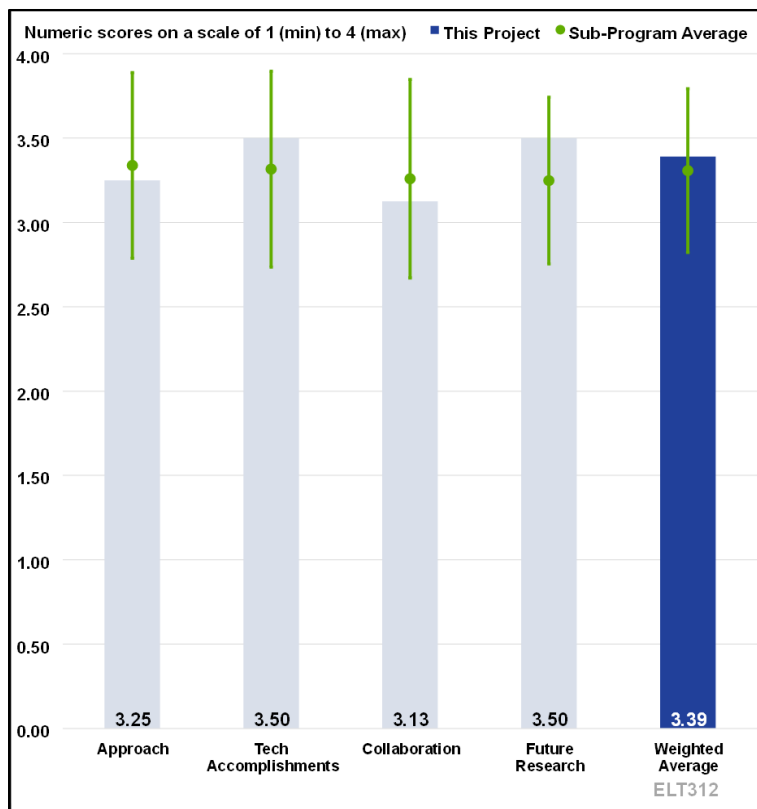


Figure 2-18 - Presentation Number: ELT312 Presentation Title: Ultra-low Cost, All-SiC Modular Power Converters for DCFC, Connected to MV Distribution System Principal Investigator: Srdjan Lukic, North Carolina State University

Presentation Number:

ELT313

Presentation Title:

Rural Electric Utility Workflow Improvements for Rapid EVSE Deployment (REWIREd)

Principal Investigator:

Jennah Denney, National Rural Electric Cooperative Association

Presenter

Jennah Denney, National Rural Electric Cooperative Association

Reviewer Sample Size

A total of five reviewers evaluated this project.

Project Relevance and Resources

100% of reviewers felt that the project was relevant to current DOE objectives, 0% of reviewers felt that the project was not relevant, and 0% of reviewers did not indicate an answer. 100% of reviewers felt that the resources were sufficient, 0% of reviewers felt that the resources were insufficient, 0% of reviewers felt that the resources were excessive, and 0% of reviewers did not indicate an answer.

Presentation Link:

https://www1.eere.energy.gov/vehiclesandfuels/downloads/2025_AMR/ELT313_Denney_2025_o.pdf

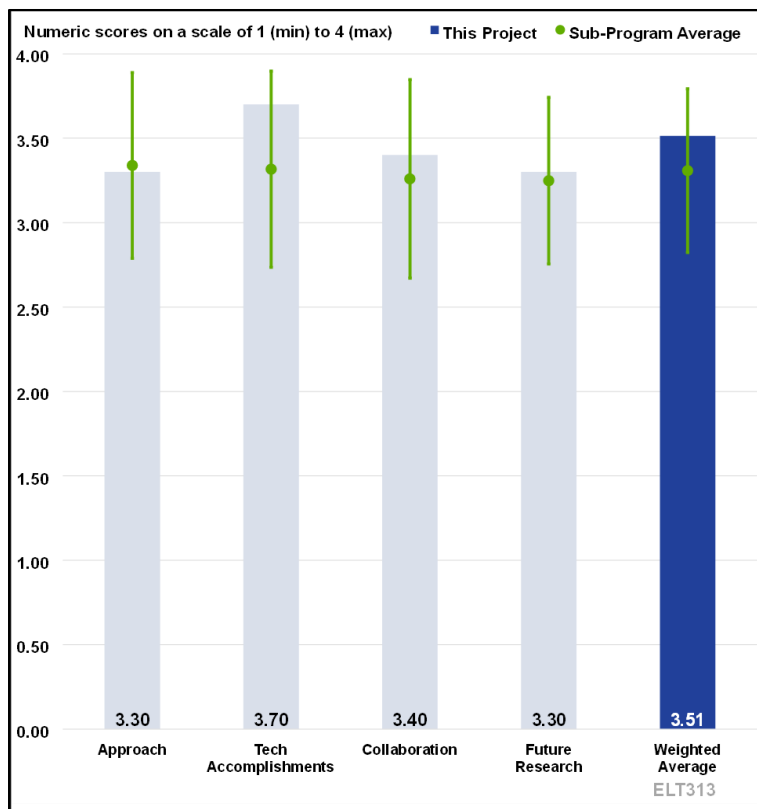


Figure 2-19 - Presentation Number: ELT313 Presentation Title: Rural Electric Utility Workflow Improvements for Rapid EVSE Deployment (REWIREd) Principal Investigator: Jennah Denney, National Rural Electric Cooperative Association

Presentation Number:

ELT314

Presentation Title:

Electric Vehicle Smart Program Management Interstate Renewable Energy Council (IREC)

Principal Investigator:

Ed Gilliland, Interstate Renewable Energy Council

Presenter

Ed Gilliland, Interstate Renewable Energy Council

Reviewer Sample Size

A total of five reviewers evaluated this project.

Project Relevance and Resources

100% of reviewers felt that the project was relevant to current DOE objectives, 0% of reviewers felt that the project was not relevant, and 0% of reviewers did not indicate an answer. 100% of reviewers felt that the resources were sufficient, 0% of reviewers felt that the resources were insufficient, 0% of reviewers felt that the resources were excessive, and 0% of reviewers did not indicate an answer.

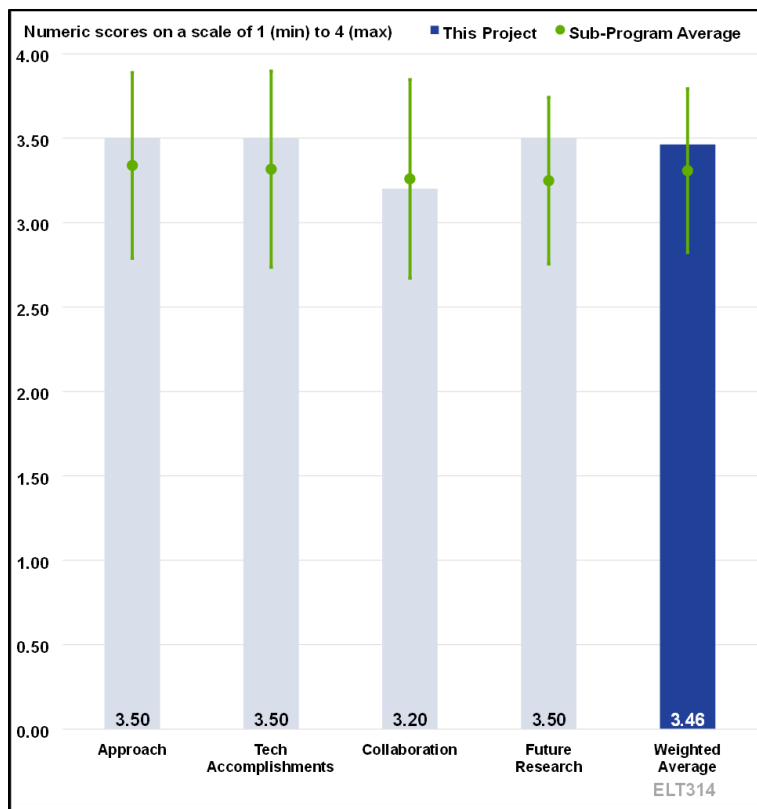


Figure 2-20 - Presentation Number: ELT314 Presentation Title: Electric Vehicle Smart Program Management Interstate Renewable Energy Council (IREC) Principal Investigator: Ed Gilliland, Interstate Renewable Energy Council

Presentation Link:

https://www1.eere.energy.gov/vehiclesandfuels/downloads/2025_AMR/ELT314_Gilliland_2025_o.pdf

Presentation Number:

ELT315

Presentation Title:

EPRIGridFAST Express: Roadmap and Actions to Address Key Challenges to the Utility Interconnection Process and Supporting Supply Chain

Principal Investigator:

Watson Collins, Electric Power Research Institute

Presenter

Watson Collins, Electric Power Research Institute

Reviewer Sample Size

A total of three reviewers evaluated this project.

Project Relevance and Resources

100% of reviewers felt that the project was relevant to current DOE objectives, 0% of reviewers felt that the project was not relevant, and 0% of reviewers did not indicate an answer. 67% of reviewers felt that the resources were sufficient, 0% of reviewers felt that the resources were insufficient, 33% of reviewers felt that the resources were excessive, and 0% of reviewers did not indicate an answer.

Presentation Link:

https://www1.eere.energy.gov/vehiclesandfuels/downloads/2025_AMR/ELT315_Collins_2025_o.pdf

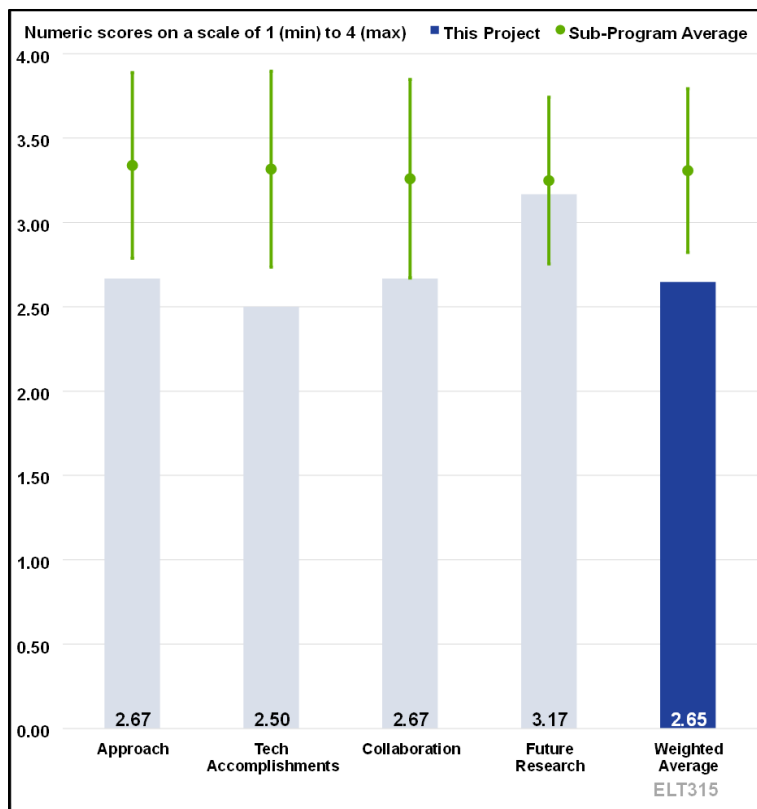


Figure 2-21 - Presentation Number: ELT315 Presentation Title: EPRIGridFAST Express: Roadmap and Actions to Address Key Challenges to the Utility Interconnection Process and Supporting Supply Chain Principal Investigator: Watson Collins, Electric Power Research Institute

Presentation Number:

ELT317

Presentation Title:

NEXT DRIVE Task 1: Power Semiconductor Devices

Principal Investigator:

Andrew Binder, Sandia National Laboratories

Presenter

Andrew Binder, Sandia National Laboratories

Reviewer Sample Size

A total of four reviewers evaluated this project.

Project Relevance and Resources

100% of reviewers felt that the project was relevant to current DOE objectives, 0% of reviewers felt that the project was not relevant, and 0% of reviewers did not indicate an answer. 100% of reviewers felt that the resources were sufficient, 0% of reviewers felt that the resources were insufficient, 0% of reviewers felt that the resources were excessive, and 0% of reviewers did not indicate an answer.

Presentation Link:

https://www1.eere.energy.gov/vehiclesandfuels/downloads/2025_AMR/ELT317_Binder_2025_o.pdf

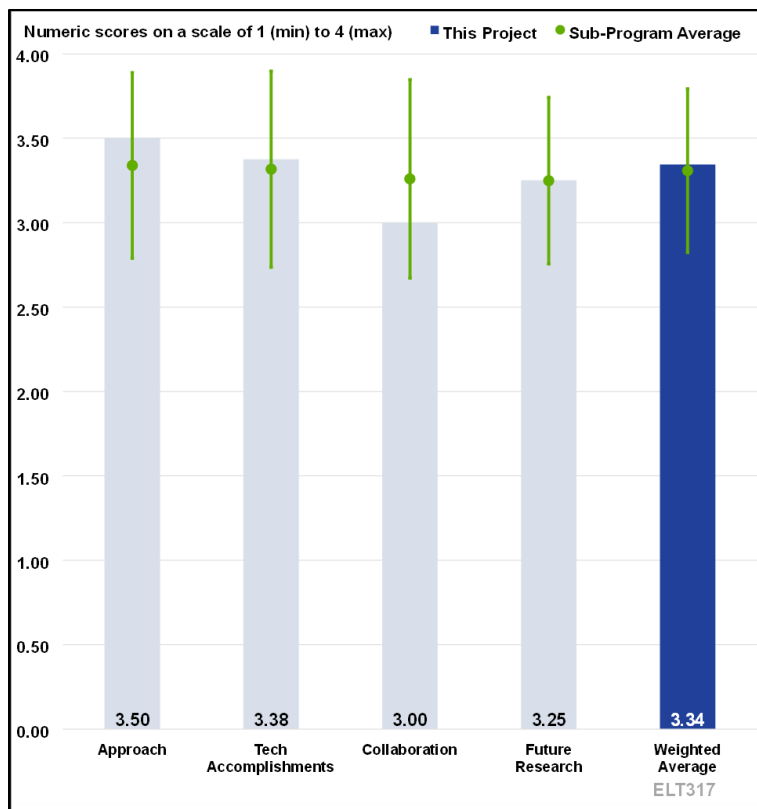


Figure 2-22 - Presentation Number: ELT317 Presentation Title: NEXT DRIVE Task 1: Power Semiconductor Devices Principal Investigator: Andrew Binder, Sandia National Laboratories

Presentation Number:

ELT318

Presentation Title:

NEXT DRIVE Task 2: Electric Drive Components – Power Electronics/ Power Modules

Principal Investigator:

Doug DeVoto, National Renewable Energy Laboratory

Presenter

Doug DeVoto, National Renewable Energy Laboratory

Reviewer Sample Size

A total of two reviewers evaluated this project.

Project Relevance and Resources

100% of reviewers felt that the project was relevant to current DOE objectives, 0% of reviewers felt that the project was not relevant, and 0% of reviewers did not indicate an answer. 100% of reviewers felt that the resources were sufficient, 0% of reviewers felt that the resources were insufficient, 0% of reviewers felt that the resources were excessive, and 0% of reviewers did not indicate an answer.

Presentation Link:

https://www1.eere.energy.gov/vehiclesandfuels/downloads/2025_AMR/ELT318_DeVoto_2025_o.pdf

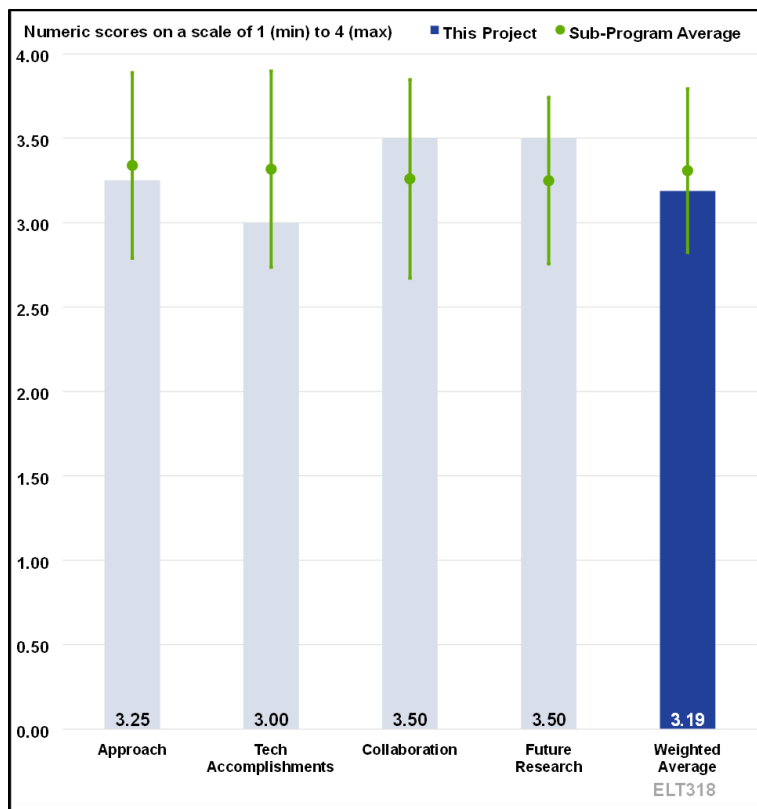


Figure 2-23 - Presentation Number: ELT318 Presentation Title: NEXT DRIVE Task 2: Electric Drive Components – Power Electronics/ Power Modules Principal Investigator: Doug DeVoto, National Renewable Energy Laboratory

Presentation Number:

ELT319

Presentation Title:

NEXT DRIVE Task 2: Electric Drive Components – Motor Materials and Components

Principal Investigator:

Jun Cui, Oak Ridge National Laboratory

Presenter

Jun Cui, Oak Ridge National Laboratory

Reviewer Sample Size

A total of three reviewers evaluated this project.

Project Relevance and Resources

100% of reviewers felt that the project was relevant to current DOE objectives, 0% of reviewers felt that the project was not relevant, and 0% of reviewers did not indicate an answer. 100% of reviewers felt that the resources were sufficient, 0% of reviewers felt that the resources were insufficient, 0% of reviewers felt that the resources were excessive, and 0% of reviewers did not indicate an answer.

Presentation Link:

https://www1.eere.energy.gov/vehiclesandfuels/downloads/2025_AMR/ELT319_Cui_2025_o.pdf

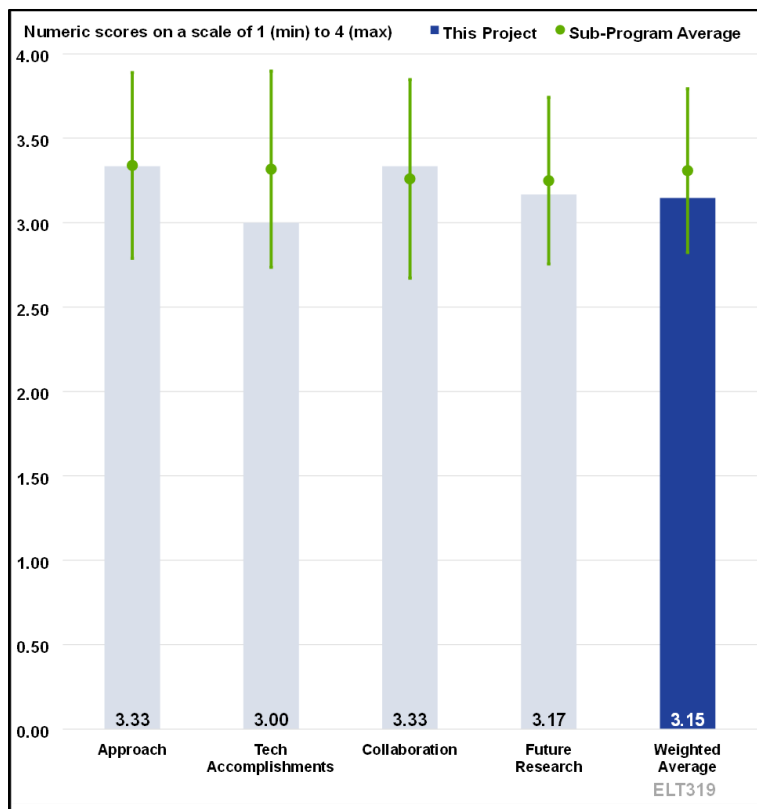


Figure 2-24 - Presentation Number: ELT319 Presentation Title: NEXT DRIVE Task 2: Electric Drive Components – Motor Materials and Components Principal Investigator: Jun Cui, Oak Ridge National Laboratory

Presentation Number:

ELT320

Presentation Title:

NEXT DRIVE Task 3: High Voltage, High Power Traction Inverters

Principal Investigator:

Gui-Jia Su, Oak Ridge National Laboratory

Presenter

Gui-Jia Su, Oak Ridge National Laboratory

Reviewer Sample Size

A total of four reviewers evaluated this project.

Project Relevance and Resources

100% of reviewers felt that the project was relevant to current DOE objectives, 0% of reviewers felt that the project was not relevant, and 0% of reviewers did not indicate an answer. 100% of reviewers felt that the resources were sufficient, 0% of reviewers felt that the resources were insufficient, 0% of reviewers felt that the resources were excessive, and 0% of reviewers did not indicate an answer.

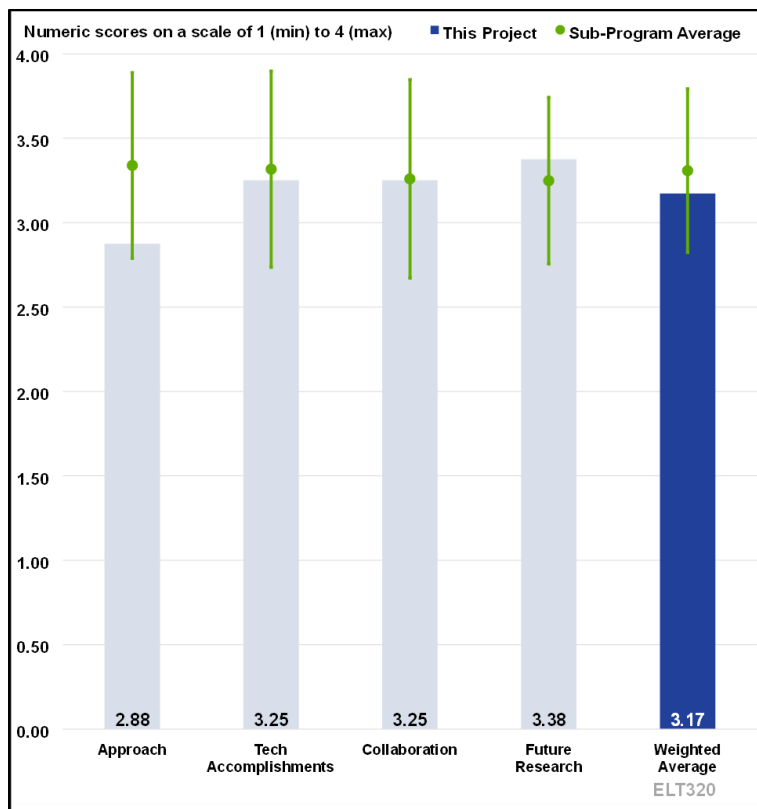


Figure 2-25 - Presentation Number: ELT320 Presentation Title: NEXT DRIVE Task 3: High Voltage, High Power Traction Inverters Principal Investigator: Gui-Jia Su, Oak Ridge National Laboratory

Presentation Link:

https://www1.eere.energy.gov/vehiclesandfuels/downloads/2025_AMR/ELT320_Su_2025_o.pdf

Presentation Number:

ELT321

Presentation Title:

NEXT DRIVE Task 4: High Torque Heavy Rare Earth Free Motors

Principal Investigator:

Vandana Rallabandi, Oak Ridge National Laboratory

Presenter

Vandana Rallabandi, Oak Ridge National Laboratory

Reviewer Sample Size

A total of three reviewers evaluated this project.

Project Relevance and Resources

100% of reviewers felt that the project was relevant to current DOE objectives, 0% of reviewers felt that the project was not relevant, and 0% of reviewers did not indicate an answer. 100% of reviewers felt that the resources were sufficient, 0% of reviewers felt that the resources were insufficient, 0% of reviewers felt that the resources were excessive, and 0% of reviewers did not indicate an answer.

Presentation Link:

https://www1.eere.energy.gov/vehiclesandfuels/downloads/2025_AMR/ELT321_Rallabandi_2025_o.pdf

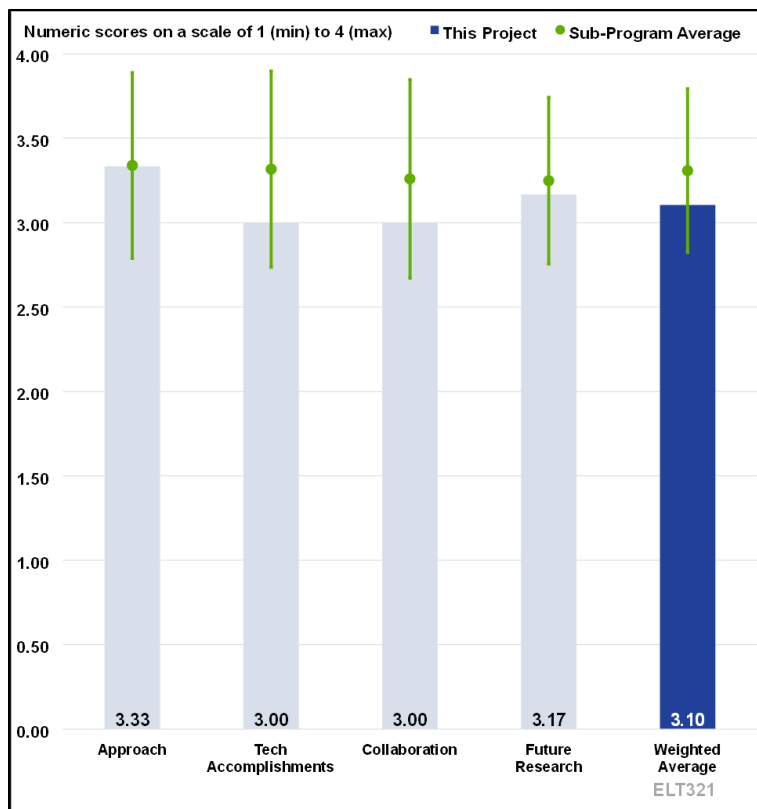


Figure 2-26 - Presentation Number: ELT321 Presentation Title: NEXT DRIVE Task 4: High Torque Heavy Rare Earth Free Motors Principal Investigator: Vandana Rallabandi, Oak Ridge National Laboratory

Presentation Number:

ELT322

Presentation Title:

NEXT DRIVE Task 5: Digital Twin Diagnostics and Prognostics

Principal Investigator:

Praveen Kumar, Oak Ridge National Laboratory

Presenter

Praveen Kumar, Oak Ridge National Laboratory

Reviewer Sample Size

A total of four reviewers evaluated this project.

Project Relevance and Resources

75% of reviewers felt that the project was relevant to current DOE objectives, 25% of reviewers felt that the project was not relevant, and 0% of reviewers did not indicate an answer. 75% of reviewers felt that the resources were sufficient, 0% of reviewers felt that the resources were insufficient, 25% of reviewers felt that the resources were excessive, and 0% of reviewers did not indicate an answer.

Presentation Link:

https://www1.eere.energy.gov/vehiclesandfuels/downloads/2025_AMR/ELT322_Kumar_2025_o.pdf

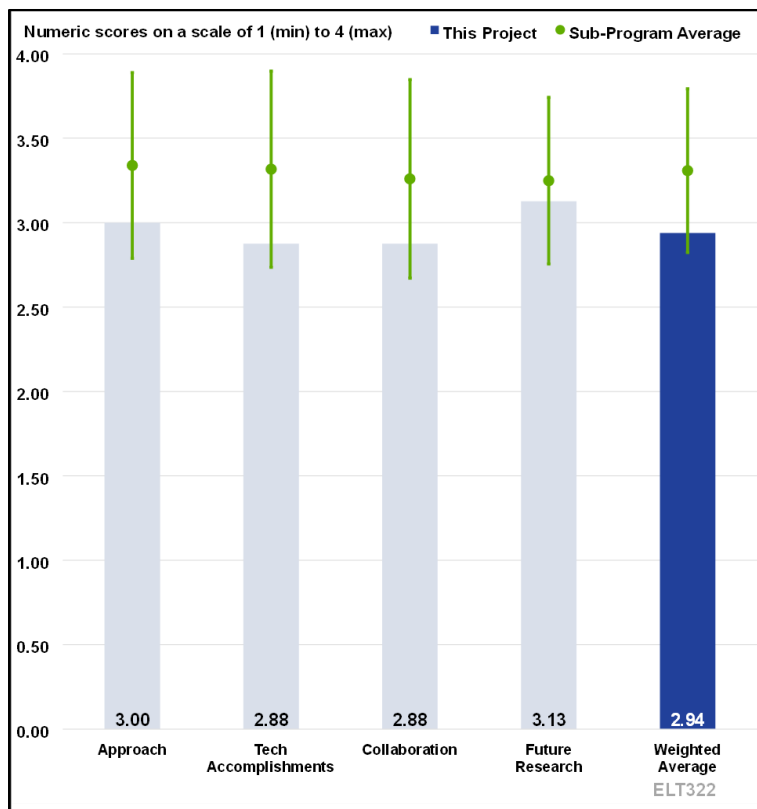


Figure 2-27 - Presentation Number: ELT322 Presentation Title: NEXT DRIVE Task 5: Digital Twin Diagnostics and Prognostics Principal Investigator: Praveen Kumar, Oak Ridge National Laboratory

Presentation Number:

ELT323

Presentation Title:

GaN-Enabled Dual Multilevel Inverter Integrated Electric Drive System

Principal Investigator:

Khorshed Alam, General Motors

Presenter

Khorshed Alam, General Motors

Reviewer Sample Size

A total of three reviewers evaluated this project.

Project Relevance and Resources

100% of reviewers felt that the project was relevant to current DOE objectives, 0% of reviewers felt that the project was not relevant, and 0% of reviewers did not indicate an answer. 100% of reviewers felt that the resources were sufficient, 0% of reviewers felt that the resources were insufficient, 0% of reviewers felt that the resources were excessive, and 0% of reviewers did not indicate an answer.

Presentation Link:

https://www1.eere.energy.gov/vehiclesandfuels/downloads/2025_AMR/ELT323_Alam_2025_o.pdf

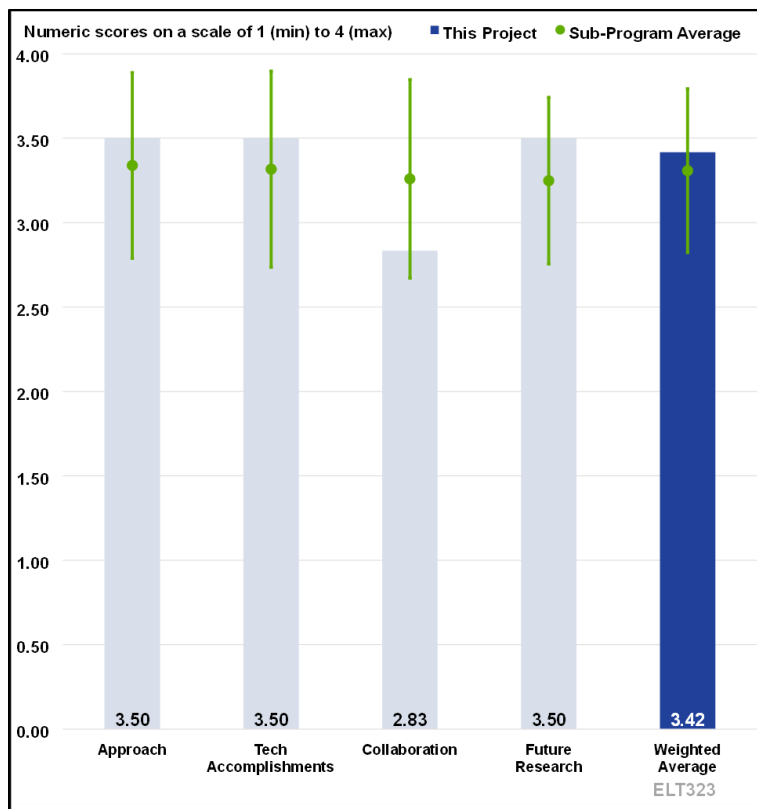


Figure 2-28 - Presentation Number: ELT323 Presentation Title: GaN-Enabled Dual Multilevel Inverter Integrated Electric Drive System Principal Investigator: Khorshed Alam, General Motors

Presentation Number:

ELT324

Presentation Title:

Integrated Three-Level GAN Inverter and PMSYNRM Motor for Electric Passenger Vehicles and Medium/Heavy Duty Trucks (GANIN_PMSYNRM)

Principal Investigator:

Kevin Bai, The University of Tennessee, Knoxville

Presenter

Kevin Bai, The University of Tennessee, Knoxville

Reviewer Sample Size

A total of three reviewers evaluated this project.

Project Relevance and Resources

100% of reviewers felt that the project was relevant to current DOE objectives, 0% of reviewers felt that the project was not relevant, and 0% of reviewers did not indicate an answer. 100% of reviewers felt that the resources were sufficient, 0% of reviewers felt that the resources were insufficient, 0% of reviewers felt that the resources were excessive, and 0% of reviewers did not indicate an answer.

Presentation Link:

https://www1.eere.energy.gov/vehiclesandfuels/downloads/2025_AMR/ELT324_Bai_2025_o.pdf

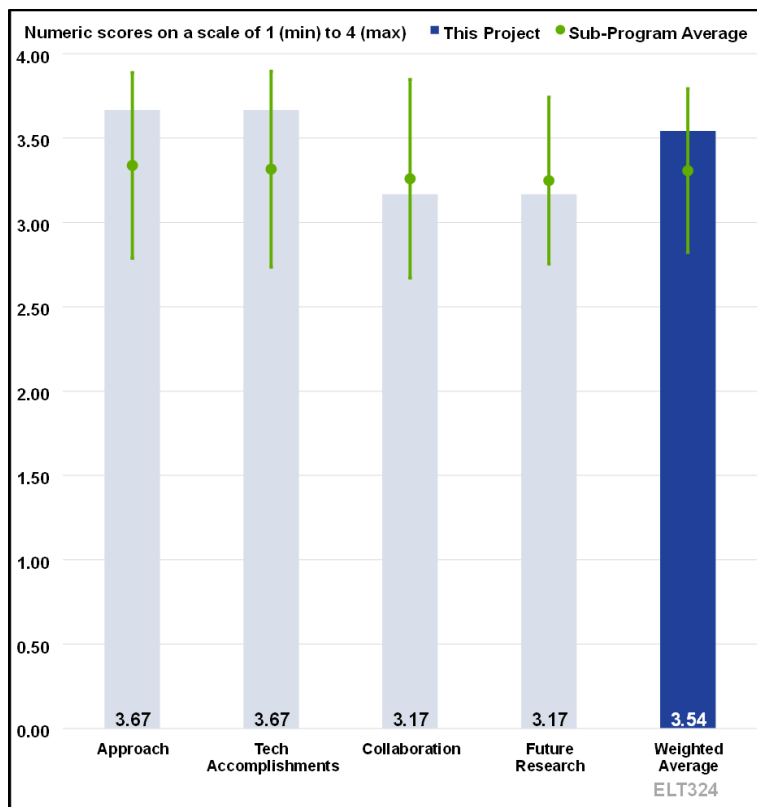


Figure 2-29 - Presentation Number: ELT324 Presentation Title: Integrated Three-Level GAN Inverter and PMSYNRM Motor for Electric Passenger Vehicles and Medium/Heavy Duty Trucks (GANIN_PMSYNRM) Principal Investigator: Kevin Bai, The University of Tennessee, Knoxville

Presentation Number:

ELT325

Presentation Title:

Stationary Polyphase Wireless Charging for Heavy-Duty Vehicles

Principal Investigator:

Minyu Cai, Cummins Inc.

Presenter

Minyu Cai, Cummins Inc.

Reviewer Sample Size

A total of four reviewers evaluated this project.

Project Relevance and Resources

100% of reviewers felt that the project was relevant to current DOE objectives, 0% of reviewers felt that the project was not relevant, and 0% of reviewers did not indicate an answer. 75% of reviewers felt that the resources were sufficient, 25% of reviewers felt that the resources were insufficient, 0% of reviewers felt that the resources were excessive, and 0% of reviewers did not indicate an answer.

Presentation Link:

https://www1.eere.energy.gov/vehiclesandfuels/downloads/2025_AMR/ELT325_Cai_2025_o.pdf

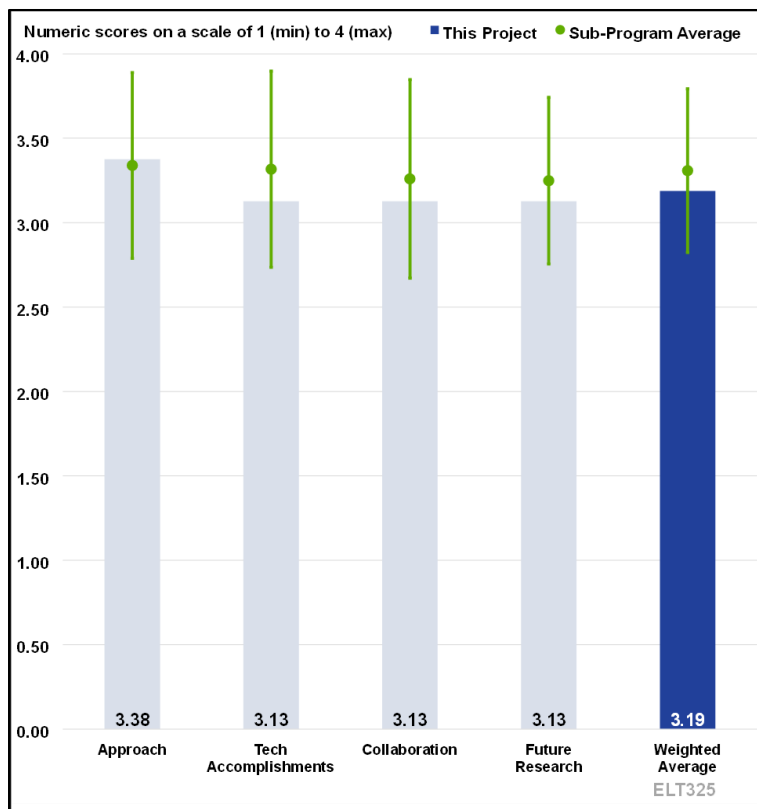


Figure 2-30 - Presentation Number: ELT325 Presentation Title: Stationary Polyphase Wireless Charging for Heavy-Duty Vehicles Principal Investigator: Minyu Cai, Cummins Inc.

Presentation Number:

ELT326

Presentation Title:

Freight Emissions Reduction from Medium-Duty, Battery Electric and Hydrogen Fuel Cell Trucks with Green Hydrogen Production via a New Electrolyzer Design and Electrical Utility Grid Coupling

Principal Investigator:

Jacob Lozier, General Motors

Presenter

Jacob Lozier, General Motors

Reviewer Sample Size

A total of three reviewers evaluated this project.

Project Relevance and Resources

100% of reviewers felt that the project was relevant to current DOE objectives, 0% of reviewers felt that the project was not relevant, and 0% of reviewers did not indicate an answer. 100% of reviewers felt that the resources were sufficient, 0% of reviewers felt that the resources were insufficient, 0% of reviewers felt that the resources were excessive, and 0% of reviewers did not indicate an answer.

Presentation Link:

https://www1.eere.energy.gov/vehiclesandfuels/downloads/2025_AMR/ELT326_Lozier_2025_o.pdf

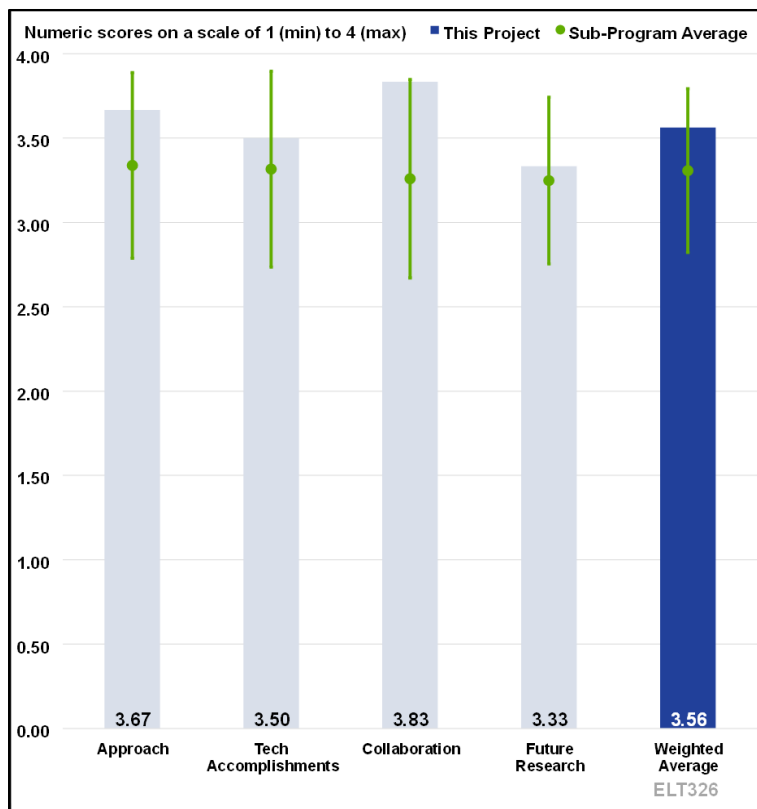


Figure 2-31 - Presentation Number: ELT326 Presentation Title: Freight Emissions Reduction from Medium-Duty, Battery Electric and Hydrogen Fuel Cell Trucks with Green Hydrogen Production via a New Electrolyzer Design and Electrical Utility Grid Coupling Principal Investigator: Jacob Lozier, General Motors

Presentation Number:

ELT327

Presentation Title:

High Efficiency Fuel Cell Application for Medium Duty Truck Vocations

Principal Investigator:

Stan Bower, Ford Motor Company

Presenter

Stan Bower, Ford Motor Company

Reviewer Sample Size

A total of three reviewers evaluated this project.

Project Relevance and Resources

100% of reviewers felt that the project was relevant to current DOE objectives, 0% of reviewers felt that the project was not relevant, and 0% of reviewers did not indicate an answer. 100% of reviewers felt that the resources were sufficient, 0% of reviewers felt that the resources were insufficient, 0% of reviewers felt that the resources were excessive, and 0% of reviewers did not indicate an answer.

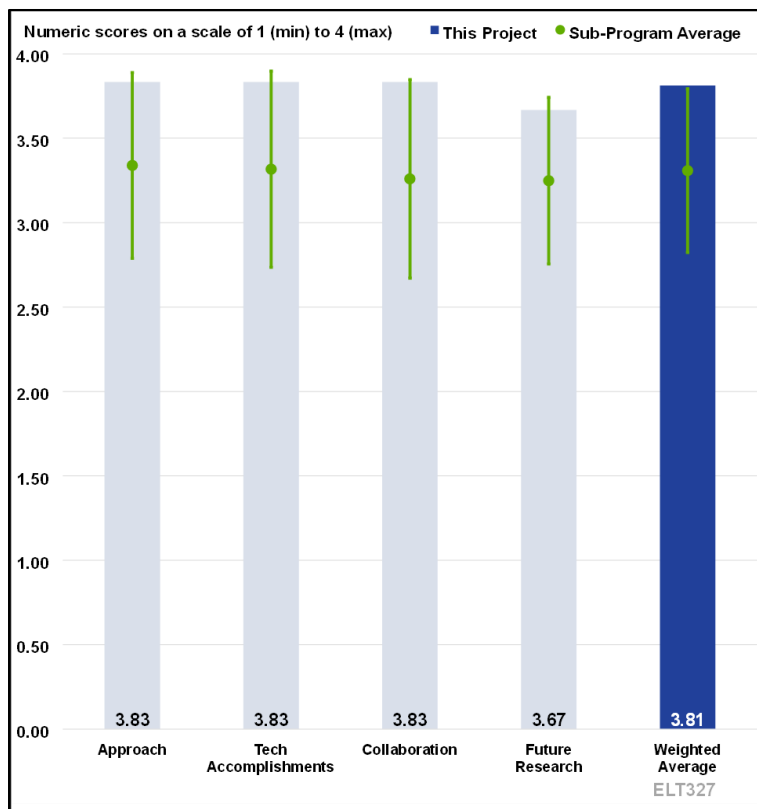


Figure 2-32 - Presentation Number: ELT327 Presentation Title: High Efficiency Fuel Cell Application for Medium Duty Truck Vocations Principal Investigator: Stan Bower, Ford Motor Company

Presentation Link:

https://www1.eere.energy.gov/vehiclesandfuels/downloads/2025_AMR/ELT327_Bower_2025_o.pdf

Presentation Number:

ELT328

Presentation Title:

Ultra-Efficient Long-Haul Hydrogen Fuel Cell Tractor

Principal Investigator:

Darek Villeneuve, Daimler Truck North America

Presenter

Darek Villeneuve, Daimler Truck North America

Reviewer Sample Size

A total of two reviewers evaluated this project.

Project Relevance and Resources

100% of reviewers felt that the project was relevant to current DOE objectives, 0% of reviewers felt that the project was not relevant, and 0% of reviewers did not indicate an answer. 100% of reviewers felt that the resources were sufficient, 0% of reviewers felt that the resources were insufficient, 0% of reviewers felt that the resources were excessive, and 0% of reviewers did not indicate an answer.

Presentation Link:

https://www1.eere.energy.gov/vehiclesandfuels/downloads/2025_AMR/ELT328_Villeneuve_2025_o.pdf

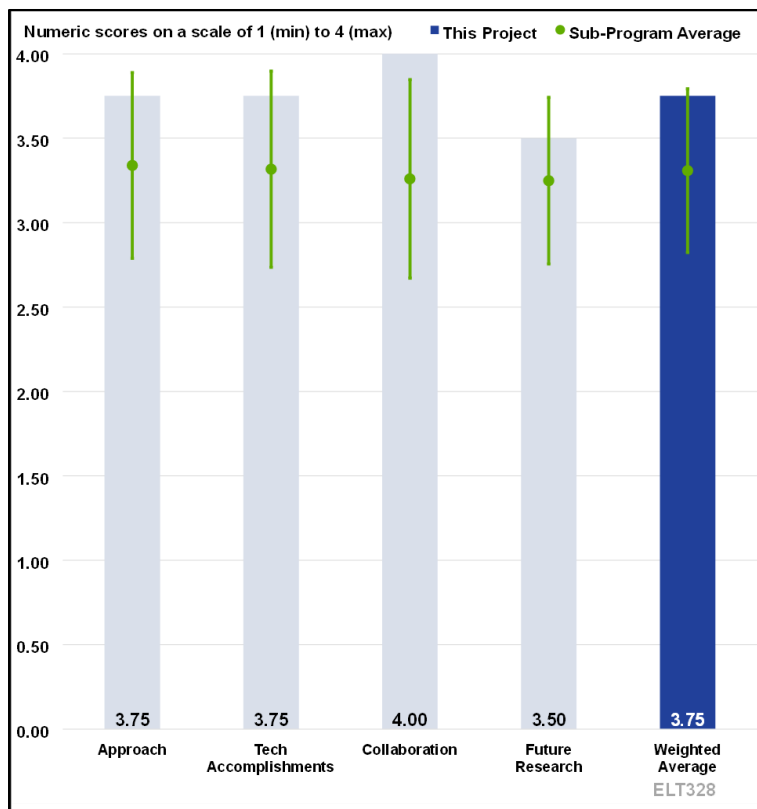


Figure 2-33 - Presentation Number: ELT328 Presentation Title: Ultra-Efficient Long-Haul Hydrogen Fuel Cell Tractor Principal Investigator: Darek Villeneuve, Daimler Truck North America

For more information, visit: energy.gov

DOE/EE-2989 • December 2025



U.S. DEPARTMENT
of **ENERGY**

Office of Critical Minerals
and Energy Innovation