EXHIBIT G

UCI Statement of Work (SOW) for the Sub-Contract to Cabot Corp.

"*Scalable, innovative manufacturing process for novel carbon supports for metal catalysts for MDV/HDV PEM fuel cells*"
DOE Award: DE-EE0011347

UCI Performing Organization:	National Fuel Cel Research Center
UCI Team:	Prof. Plamen Atanassov – PI UCI subcontract
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Project Objectives (from the SOPO):

The objective of this project is to develop a scalable and innovative manufacturing process to produce carbon catalyst supports for the oxygen reduction cathode, which can enable high catalyst utilization and enhanced durability at low cost in Medium-Duty Vehicle/Heavy-Duty Vehicle Proton Exchange Membrane Fuel Cells (MDV/HDV PEMFCs). The expected outcome will be a scaled process that can produce 1200 kg/year of novel carbon support. The fuel cell Membrane Electrode Assembly (MEA) using the novel carbon catalyst support will reach power output of 1.07 A/cm^2 at 0.7 V (equivalent to 2.5 kW/gPGM) after M2FCT's heavy-duty accelerated stress test (AST), which is equivalent to 25,000 hours operation. The process will be demonstrated for commercial path towards 10 MT/year carbon support through production trials.

Technical Scope Summary (from the SOPO):

The stated objectives will be accomplished by: (1) developing and demonstrating a pilot-scale carbon support production line; (2) developing carbon support accelerated stress test (C-AST) to differentiate corrosion resistance of different carbons; (3) optimizing catalyst deposition process; (4) performing in-depth analysis of carbon support and MEA performance to provide feedback to the process design; and (5) optimizing the steam etching and graphitization process to increase process versatility, reduce production cost and minimize environmental impact.

This **UCI Statement of Work** is to be treated and understood as a contributed component effort of the **Statement of Project Objectives** (SOPO) for DOE Award: DE-EE0011347, negotiated by the Cabot Corp. as the Prime on this project.

Budget Period 1: UCI collaborates with Cabot on carbon AST development and catalyzation

Task 2.0: Carbon support accelerated stress test (C-AST) development. [M4-M12]
Task Summary: A carbon support accelerated stress test (C-AST) will be developed at UCI that can differentiate the corrosion resistance of different carbon supports.
Subtask 2.1: Develop C-AST test using Cabot provided carbon supports. [M4-M9]
Subtask Summary: C-AST test protocols development will be started with Cabot-provided existing steam etched graphitized carbon support .
Subtask 2.2: C-AST test protocol validation using carbon supports from task 1. [M6-M9]
Subtask Summary: After completion of subtask 1.3, the C-AST test will be further finetuned and validated using the carbon support produced in Task 1.

Subtask 2.3: Work with the Million Mile Fuel Cell Truck (M2FCT) Consortium and provide input to optimize AST. [M10-M12]
Subtask Summary: Working closely with M2FCT and provide input to optimize C-AST.
Milestone 2.1: C-AST protocol developed and validated. [M9]

Task 3.0: Catalysation process development by UCI in collaboration with JM and ink formulation optimization.
Task Summary: There is a risk that the current Pt deposition process and ink formulation will not be suitable for the novel carbon supports produced during this project. This task will tune existing and develop new wet chemical Pt catalysation processes suitable for large volume manufacturing of cathode catalysts using the new carbons created in Task 1. In addition, catalyst ink formulation will be optimized for the catalyst using the novel carbon support. Catalyst coated membranes (CCM) will be produced both at UCI and JM for MEA assembly and performance testing.
Subtask 3.1: Catalysation process optimization. [M4-M9]
Subtask Summary: This task will tune existing and develop new wet chemical Pt catalysation processes suitable for large volume manufacturing of cathode catalysts using the new carbons created by Cabot. The variables that will be closely controlled and quantified include: the carbon support surface area and porosity, the location of the Pt catalyst particles on the support, the particle size distribution of the Pt particles and, as a non-independent variable, the corrosion resistance of the carbon support.
Subtask 3.2: Ink formulation optimization. [M4-M9]
Subtask Summary: This task will optimize of catalyst ink formulation for the catalyst using the novel carbon support**.**
Subtask 3.4: MEA assembly and performance testing. [M10-M12]
Subtask Summary: MEA will be assembled using CCM from subtext 3.3 and performance testing will be carried out at UCI, JM and Bosch (validation).
Milestone 3.1: MEA with the carbon support has power output of 0.57 A/cm^2 at 0.7 V (equivalent to 1.25 kW/gPGM) after M2FCT's heavy-duty AST equivalent to 25,000 hours. (M12)

Subtask 4.3: Carbon catalyst support characterization. [M7-M12]
Subtask Summary: Key material characteristics including Brunauer-Emmett-Teller surface area (BET SA), total pore volume, pore size distribution (PSD) and crystallinity as defined by Lc and La value derived from X-ray diffraction (XRD) and Raman measurement respectively will be characterized at UCI.

Budget Period 2: UCI collaborates with Cabot, JM and Bosch on CCM and MEA development

Subtask 7.3: Optimized CCM production.
Subtask Summary: This task will finetune the catalysation process and catalyst ink formulation developed in task 3 to produce optimized CCM.
Subtask 7.4: MEA fabrication and testing.
Subtask Summary: The CCM from Subtask 7.2 will be used by UCI to fabricate MEAs for performance testing.
Subtask 7.5: MEA performance validation and aging mode modeling.
Subtask Summary: Several MEAs will be down selected based on their performance and performance verification and aging mode modeling will be performed.
Subtask 7.5.1: MEA performance evaluation and preliminary AST evaluation.
Subtask Summary: MEA performance evaluation will be carried out to provide baseline for 7.5.2

Subtask 7.5.2: Develop realistic aging protocols for stack-level degradation phenomena and parameterize aging model.
Subtask Summary: the following tasks will be performed: (1) Start-up cycling on SU/SD test stand. (2) Relevant load/unload aging, with LPT/drive cycle. (3) Parameterization of existing aging models and lifetime prediction modeling to demonstrate improvement in stack longevity.
Milestone 7.1: MEA with novel carbon support reaches power output of 0.76 A/cm^2 at 0.7 V (equivalent to 1.75 kW/gPGM) after heavy-duty AST equivalent to 25,000 hours. (M21)

Budget Period 3: UCI collaborates with Cabot in QC and aging models development

Subtask 8.3: Production quality control method development. [M37-M39]
Subtask Summary: Production quality control method will be developed (Subtask 8.3) which will include measurement of tapped density, BET SA, XRD, and Raman to quantify the variability in production.
Milestone 8.2: Carbon support production quality control method established (M39).

Task 9.0: stack-relevant aging characterization and lifetime prediction modeling. [M36-M42]
Task Summary: Stack-relevant aging characterization and parameterization of new aging models and lifetime prediction modeling will be developed to demonstrate improvement in stack longevity.
Subtask 9.1: Stack-relevant aging characterization. [M36-M41]
Subtask Summary: Stack-relevant aging characterization, model refinement, and lifetime prediction will be performed using MEAs from Subtask 8.1.
Subtask 9.2: Aging models and lifetime prediction model development. [M41-M42]
Subtask Summary: The aging model will be parameterized and exercised to predict lifetime and demonstrate improvement in stack longevity.
Milestone 9.1: Aging models and lifetime prediction models developed. [M42]