V.A.7 Chattanooga Fuel Cell Demonstration Project (New Project)*

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Subcontractors:
Ion America of Mountain View, California
City of Chattanooga

** Congressionally directed project*

Objective

- Develop a commercial solid oxide fuel cell (SOFC) working prototype capable of being readily scaled from 5 to 100 kW.

Technical Barriers

This project addresses the following technical barrier from the Technology Validation section of the Hydrogen, Fuel Cells and Infrastructure Technologies Program Multi-Year Research, Development and Demonstration Plan:

- I. Hydrogen and Electricity Coproduction

Approach

Through The Enterprise Center and its "Connect the Valley Initiative", the City of Chattanooga plans to facilitate cooperative efforts between Ion America of Mountain View, California, the City of Chattanooga and The University of Tennessee at Chattanooga (UTC) to develop a commercial solid oxide fuel cell working prototype capable of being readily scaled from 5 to 100 kW. When the working prototype is ready for testing, the UTC Applied Technology Lab will place the prototype into a regimen of testing to prove it is ready to be utilized to provide power. It is proposed that the installation be configured to simultaneously and efficiently produce hydrogen in addition to electricity for a cost less than that of gasoline. This ability to produce both hydrogen and electricity at the point of use provides an early and economical pathway to hydrogen production.

Significant tasks are to be accomplished in the course of developing the SOFC commercial prototype and preparing for its regimen of testing at UTC. Ceramic processing and high-temperature metal forming issues and challenges in the manufacturing process of SOFCs will be addressed utilizing the relationship both UTC and The Enterprise Center have with Oak Ridge National Laboratory (ORNL). ORNL is widely recognized as having expertise in ceramic processing and high-temperature metal forming as well as manufacturing processes.