

Testimony of

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before

Commerce Committee

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regarding

Raised Senate Bill No. 555

An Act Concerning Connecticut's Hydrogen Roadmap

Introduction

The Connecticut Center for Advanced Technology, Inc. ("CCAT"), offers this testimony in support of Raised Senate Bill 555 - An Act Concerning Connecticut's Hydrogen Roadmap.

CCAT is a non-stock, tax-exempt Connecticut corporation that works in partnership with industry, government, and academia to strengthen technology-led economic competitiveness. The Energy Initiative of CCAT has been established to improve the economic competitiveness of the region through solutions that lower energy costs and increase long-term energy reliability. CCAT administers the Connecticut Hydrogen-Fuel Cell Coalition, undertakes energy planning, and promotes renewable energy, including advanced technologies and sustainable fuels. CCAT, in partnership with the Department of Economic and Community Development (DECD), the Department of Transportation, the Connecticut Hydrogen-Fuel Cell Coalition, and the Renewable Energy Investment Fund, developed the state's Plan for Fuel Cell Economic Development (Hydrogen Roadmap). This Hydrogen Roadmap was accepted by DECD and submitted to the General Assembly on February 4, 2008.

The Hydrogen Roadmap identified and quantified the benefits of Connecticut's hydrogen and fuel cell industry, including an assessment of the potential of the state's industry to enhance economic development and increase employment in Connecticut, as outlined below:

- Presently, Connecticut's hydrogen and fuel cell industry employs 1,156 employees; an increase of 229 jobs since early 2006. Under existing trends, it is projected that by the year 2010, Connecticut would be positioned to increase direct employment to over 1,600 jobs.
- It has been estimated that the global fuel cell/hydrogen market, when mature, could generate between \$43 billion and \$139 billion annually. If fuel cells are deployed as distributed generation and if Connecticut's fuel cell and hydrogen

industry captures a significant share of the transportation market, revenues to Connecticut companies in a mature global market could be between approximately \$14 billion and \$54 billion annually, which would require an employment base of tens of thousands.

- The “current state” of the Connecticut fuel cell supply chain can be best explained as one of low volume production and high costs. There are over 40 companies identified in the current Connecticut fuel cell supply chain that are classified as a material supplier, component supplier, or involved with fuel and infrastructure. The future state of a Connecticut fuel cell industry supply chain can conceivably consist of hundreds of suppliers and tens of thousands of employees. This fuel cell industry supply chain will include suppliers of fuel, fuel storage, fuel processing, fuel cell stack manufacturing, peripherals and controls manufacturing, power conditioning and management and fuel cell applications, plus all the integration, service and support that goes along with a power generation industry.

The Hydrogen Roadmap further identified and quantified the benefits of using hydrogen and fuel cell technology for stationary and transportation applications to improve efficiency and reliability, provide Class I renewable energy capacity, reduce consumption of fuel, and improve the environment, as outlined below:

- Fuel cells and hydrogen technology are clean and nearly emission free;
- Fuel cells and hydrogen technology are efficient, will conserve fuel and reduce the import of foreign oil, and reduce energy costs;
- Fuel cells can function as a bridge that can lead to widespread use of renewable fuels including methane, ethanol, biomass or biomass wastes and hydrogen produced by solar and wind energy;
- Fuel cells in stationary power applications will increase Connecticut’s Class I renewable energy capacity;

- Fuel cells will conserve water resources when compared with base load generation;
- Fuel cells will improve reliability with uninterrupted power to critical load centers without the need to build and rely on electric transmission lines; and
- Fuel cells operating as distributed resources can reduce transmission congestion that results in Federally Mandated Congestion Charges.

Finally, the Hydrogen Roadmap identified and quantified mechanisms to enhance the development of the fuel cell/hydrogen market, counter market obstacles which are impeding growth, and ensure that Connecticut maintains and increases its position as a world leader in the industry. Investment in Connecticut's hydrogen and fuel cell industry will result in a favorable return on investment. State investment in Connecticut's hydrogen and fuel cell industry could provide an attractive return on investment that may exceed \$4 for every \$1 of state investment.

Conclusion

While CCAT is supportive of the intent of the legislation to develop a detailed plan for the implementation of recommendations identified in the state's Hydrogen Roadmap, it believes that the recently completed plan, through its detailed recommendations, can be used as the pathway for implementation. It is imperative that Connecticut not delay, and act thoughtfully and expeditiously to implement strategies to retain and expand Connecticut's hydrogen and fuel cell industry. Without such state action, Connecticut may face loss of sales, missed opportunities to capture R&D funding, and emigration of employment as other states and countries compete for fuel cell and hydrogen development activities.

Having developed the Hydrogen Roadmap on behalf of the state, CCAT is uniquely qualified and well staffed with the technical expertise to coordinate and implement

recommendations identified in the state's Hydrogen Roadmap, in cooperation with DECD, the Connecticut Department of Transportation, the hydrogen and fuel cell industry, and other interested stakeholders in the state.

CCAT will make itself available to the Committee and legislature upon request to provide or clarify information in the state's Hydrogen Roadmap or to assist in the refinement of this legislation. CCAT would be pleased to be considered a resource to coordinate and implement the recommendations identified in the state's Hydrogen Roadmap.

Respectfully submitted,

CONNECTICUT CENTER FOR ADVANCED TECHNOLOGY, INC.

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