



CONNECTICUT ACADEMY OF SCIENCE AND ENGINEERING

February 18, 2010

To: Senator Toni N. Harp, Co-Chair, Appropriations Committee and Co-Chair, Legislative Management Sub-Committee of the Appropriations Committee
Representative John C. Geragosian, Co-Chair, Appropriations Committee
Senator Dan Debicella, Ranking Member, Appropriations Committee
Representative Craig A. Miner, Ranking Member, Appropriations Committee
Representative Juan R. Candelaria, Co-Chair, Legislative Management Sub-Committee of the Appropriations Committee

Please find attached a copy of the Connecticut Academy of Science and Engineering's testimony to be presented to the Appropriations Committee at its Public Hearing on February 18, 2010.

In addition to the testimony, the information provided includes:

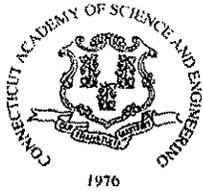
- ◆ Request to Retain CASE Funding for FY11
- ◆ Connecticut Academy of Science and Engineering: An Overview
- ◆ Recent Studies Completed on Behalf of the General Assembly

Thank you for your time and consideration.

Best Regards,

Richard H. Strauss
Executive Director
E-mail: rstrauss@ctcase.org

Cc: Members of the Legislative Management Sub-Committee of the Appropriations Committee



CONNECTICUT ACADEMY OF SCIENCE AND ENGINEERING

TESTIMONY OF THE CONNECTICUT ACADEMY OF SCIENCE AND ENGINEERING BEFORE THE APPROPRIATIONS COMMITTEE OF THE CONNECTICUT GENERAL ASSEMBLY FEBRUARY 18, 2010

REQUEST TO RETAIN FY11 FUNDING TO CONDUCT STUDIES ON BEHALF OF THE GENERAL ASSEMBLY

Chairman Harp, Chairman Geragosian and members of the committee, my name is Rick Strauss; I am the Executive Director of the Connecticut Academy of Science and Engineering (CASE).

On behalf of the Academy and its membership, I would like to request your consideration of our proposal to have the General Assembly retain funding for the Academy to conduct in-depth studies on science and technology issues for this coming fiscal year at a fee of \$100,000.

The Academy is a non-profit organization patterned after the National Academy of Sciences and created by special act of the General Assembly in 1976 to provide expert guidance on science and technology to the people and to the state of Connecticut. Our membership is comprised of 250 of Connecticut's most esteemed scientists, physicians, and engineers elected by the membership of the Academy.

Since 1976, the Academy has completed over 70 studies on a variety of issues, many on behalf of the General Assembly and others for state agencies. The Academy's convening authority enables us to have access to a wide range of independent expertise from technical experts from Connecticut and across the nation to address issues of concern to Connecticut. We are able to provide perspectives that are not bound by organizational structure and culture. Many of the Academy's projects have and will continue to provide the General Assembly and state agencies with guidance and advice regarding issues about which they may not be knowledgeable. Additionally, our projects seek to provide third party independent review for verification and confirmation of proposed solutions for guidance to create better policy and law. Members of the Academy and others from Connecticut and around the nation serve on our study committees on a pro-bono basis offering their expertise to help develop recommendations and solutions to pressing scientific and technical matters.

The key is to identify a timely topic of high interest to the General Assembly and worthy of Academy study. The Academy will engage in a consultative process for the selection of a study topic with the leadership of up to 8 committees of the General Assembly. The work of committees throughout the legislative session will provide the foundation for discussion of potential topics. The selected study will be overseen by leadership of committees with cognizance over the study subject. For budgeting purposes, the project would be administered by the Office of Legislative Management, similar to the process utilized to oversee the projects recently completed in 2008 and 2009 on behalf of the General Assembly.

A copy of our request and backup information about the Academy including a summary of recent CASE studies conducted for the General Assembly, state agencies and others has been included in our testimony package.

Thank you for your time and consideration.

Respectfully Submitted,

Richard H. Strauss
Executive Director
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CONNECTICUT ACADEMY OF SCIENCE AND ENGINEERING

ATTACHMENT TO:

**TESTIMONY OF THE CONNECTICUT ACADEMY OF SCIENCE AND ENGINEERING
BEFORE THE APPROPRIATIONS COMMITTEE & LEGISLATIVE MANAGEMENT SUB-COMMITTEE OF
THE CONNECTICUT GENERAL ASSEMBLY
FEBRUARY 18, 2010**

**REQUEST TO RETAIN FUNDING FOR THE ACADEMY TO CONDUCT STUDIES/PROJECTS ON BEHALF
OF THE GENERAL ASSEMBLY FOR FY11**

Please find attached:

1. Request to Retain FY11 Funding for the Connecticut Academy of Science and Engineering
2. Backup Information
 - a. Connecticut Academy of Science and Engineering: An Overview
 - b. Recent Studies Completed of Behalf of the General Assembly



CONNECTICUT ACADEMY OF SCIENCE AND ENGINEERING

REQUEST TO RETAIN FY11 FUNDING FOR THE CONNECTICUT ACADEMY OF SCIENCE AND ENGINEERING

PROVIDING A UNIQUE VALUE-ADDED SERVICE TO THE GENERAL ASSEMBLY

Purpose: *Provide objective, scientific and technical support to assist the General Assembly in their legislative mission.* Many public policy issues today have strong and, often, complex technical components that need to be carefully understood in crafting effective legislative initiatives. An important need for General Assembly members is their ability to obtain objective, non-advocacy advice on technically complicated issues impacting the development of policies and law. The Connecticut Academy of Science and Engineering (CASE), founded in 1976 by act of the General Assembly, has legislatively mandated convening authority, expertise, and 34 years experience in providing expert, third party, objective perspectives and information to the General Assembly, state agencies and others.

Proposed Action: *RETAIN FY11 funding at \$100,000 for the Academy to conduct studies to support committees of the General Assembly facing complex technical issues.* It is proposed that the General Assembly retain funding in the FY11 budget for the Academy to conduct in-depth studies for its legislative committees a fee of \$100,000. Pending project scoping it is expected that funding will be adequate to conduct one study. A consultative process will be utilized to select study topics.

- ◆ **TOPIC SELECTION:** *It is intended that the topic selected for study will be based upon issues raised before committees of the General Assembly. This will help assure that the selected topic is of high interest, timely, and worthy of Academy study.* Potential topics will be identified through discussions with committee leadership, and others, of up to 8 General Assembly committees. Academy Technical Boards will also be consulted for input. The Academy will prioritize and select a topic that is most suited for Academy study.
- ◆ Academy will offer representatives of the committees of cognizance relative to the study topic an opportunity to review and provide feedback on the study's scope of work.
- ◆ For budgeting purposes, it is suggested that funding be provided through the Office of Legislative Management; with content-related project oversight provided through the committee(s) with cognizance over the topic for study.

The Connecticut Academy of Science and Engineering: *A value-added contributor*

The Academy's services are complementary to those available to legislators through the Legislative Program Review and Investigations Committee and Office of Legislative Research. The Academy's major contribution is to assist in articulating the state-of-knowledge on a technical topic when:

- ◆ there are rapidly changing science and technology developments in underlying related topics
- ◆ the topic is formative, with undefined, even somewhat vague, dimensions and scope, e.g., understanding the ramifications and impacts of indoor air quality in schools
- ◆ one does not even know the proper questions to ask, what the state of knowledge on a subject is, and what related topics must be considered
- ◆ decision makers need access to the best technical minds to help frame an independent, balanced, reliable, broad-scope technical perspective on related issues and topics as a rational starting point for the development of a program, policy or law
- ◆ a neutral environment is needed for airing disparate stakeholder views on complex technical topics, especially those that are highly visible and sensitive

The Academy's Capabilities: The Academy provides Connecticut access to capabilities similar to those provided by the National Academies for the federal government.

- ◆ A membership of approximately 250 of Connecticut's best technical professionals covering science, medicine, and technology and a positive reputation and stature in the technical community at large.
- ◆ Access to and the capability to locate and engage the best technical experts from Connecticut, across the nation to address issues of concern to Connecticut.

Background:

- ◆ *In FY09 the General Assembly contracted with the Academy to continue its work with respect to Phase 2 of the Independent Monitor Project regarding the implementation of the UCHC Study Recommendations.* The Phase 2 Independent Monitoring project and presentation was completed in February 2009. Cost: \$45,000
- ◆ *In FY09 the General Assembly named the Academy in legislation, PA 08-168, to conduct a study that was funded through the Connecticut Clean Energy Fund regarding the value of creating a department of clean or renewable energy.* The study scope was subsequently expanded based on discussions with the Clean Energy Fund to explore the best way for Connecticut to address energy issues comprehensively. The study was completed in December 2008 with a briefing being conducted for the General Assembly's Energy and Technology Committee in January 2009. Cost: approximately \$126,000.
- ◆ *In FY08 the General Assembly named the Academy in legislation to conduct a Needs Based Analysis of the University of Connecticut Health Center Facilities Plan.* The adopted legislation provided for the Academy to conduct the study, which included securing a nationally recognized consultant to assist with the project's technical analysis. The project was completed in March 2008, with the Academy subsequently being named in legislation, Special Act 08-4 to serve as Independent Monitor on behalf of the General Assembly to report on progress with respect to the implementation of study recommendations in a two-step process. Phase 1 of this project was completed in June 2008. Cost: approximately \$382,000.
- ◆ *In FY06 a grant of \$150,000 was provided to the Academy to undertake four studies on behalf of the General Assembly.* Topics were selected following discussions with Chairs of 8 committees. One study, An Evaluation of the Geotechnical Engineering & Limited Environmental Assessment of the Beverly Hills Development, New Haven, Connecticut, was completed in May 2006. The 3 remaining studies, covering Advanced Communications Technologies, Energy Alternatives and Conservation, and Evaluating the Impact of Supplementary Science, Technology, Engineering and Mathematics Educational Programs were completed in December 2006, with project briefings conducted for interested committees in January/February 2007.

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Date: February 18, 2010

CONNECTICUT ACADEMY OF SCIENCE AND ENGINEERING

AN OVERVIEW

Background:

The Connecticut Academy of Science and Engineering is a non-profit institution patterned after the National Academies that was created in 1976 by Special Act of the General Assembly. The Academy's membership is limited to 400 distinguished Connecticut scientists, physicians, and engineers that are elected by its membership. The Academy's legislatively mandated mission is to provide expert guidance on science and technology to the people and to the state of Connecticut, and promote the application of science and technology to human welfare and economic well being by:

- Advising government leaders
- Strengthening Connecticut's student science and technology programs
- Informing Connecticut's citizenry on science and technology topics

The Academy's Added-Value:

For 34 years, the Academy has provided the state with a readily available resource for timely access to sound objective technical advice, guidance and leadership. During this period, the Academy has performed over 70 in-depth studies for the Connecticut General Assembly and/or state agencies—many of which have resulted in either policy or law changes. The Academy's convening authority allows it to engage the best technical experts from Connecticut, across the nation to address issues of concern to Connecticut.

Sample Recent Activities:

➤ In-Process Studies and Projects

- ◆ ConnDOT: Analysis of the Impact of Salt Runoff from I-95 – *A multi-year project that involves a 1-year study to determine if modeling impacts of salt runoff is feasible; and 3-year technical support for review of USGS water quality monitoring in support of a ConnDOT environmental impact study*
- ◆ ConnDOT: Design-Build: A Transportation Project Methodology for Connecticut's Consideration
- ◆ ConnDOT: Environmental Mitigation Alternatives for Transportation Projects
- ◆ DEP/DPH/UCHC/CT Agricultural Experiment Station: Peer Review of the state's "Evaluation of the Health and Environmental Impacts Associated with Synthetic Turf Playing Fields" study
- ◆ DPH: Biomedical Grant Proposal Review Project – *Assistance to DPH for the review of research grant proposals in the fields of heart disease and cancer, as well as other tobacco-related diseases. Funding for this grant program is provided through the state's Tobacco Fund*
- ◆ OPM: Energy Emergency Assurance Planning, Capabilities and Resources – *A multi-year project funded by the U.S. Department of Energy that involves assisting OPM in revising the state's Energy Assurance Plan (formerly Energy Emergency Preparedness Plan), developing an energy supply disruption tracking process, and conducting intrastate and interstate energy emergency exercises*
- ◆ CT Medals of Science and Technology – responsible for selection of winners of CT Medals on behalf of Department of Higher Education
- ◆ Publish Quarterly Academy Bulletin

➤ Completed Studies

- ◆ CEAB: Feasibility of Utilizing Waste Heat from Power Plants for a Useful Purpose (2009)
- ◆ **General Assembly: Independent Monitor – Implementation of UCHC Study Recommendations (2008/2009)**
- ◆ **CT Clean Energy Fund on behalf of the General Assembly: Preparing for Connecticut's Energy Future (2009)**
- ◆ **General Assembly: A Needs Based Analysis of the UCHC Facilities Plan (2008)**
- ◆ ConnDOT: Weigh Station Technologies and Practices(2008)
- ◆ ConnDOT: Applying Transportation Asset Management in Connecticut (2008)
- ◆ OPM: Development of a Real-Time Energy Report - *to encourage energy conservation (2008)*
- ◆ **ConnDOT on behalf of the General Assembly: The Feasibility of Utilizing Fuel Cells to Generate Power for the New Haven Rail Line (2007)**

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CONNECTICUT ACADEMY OF SCIENCE AND ENGINEERING

AN OVERVIEW

- ◆ DPH/Stem Cell Research Advisory Committee: Guidelines for Developing a Strategic Plan for Connecticut's Stem Cell Research Program (2007)
 - ◆ **General Assembly: Energy Alternatives and Conservation (2006)**
 - ◆ **General Assembly: Evaluating the Impact of Supplementary STEM Educational Programs (2006)**
 - ◆ **General Assembly: Advanced Communications Technologies (2006)**
 - ◆ ConnDOT: Preparing for the Hydrogen Economy (2006)
 - ◆ ConnDOT: Improving Winter Highway Maintenance – Case Studies for CT's Consideration (2006)
 - ◆ ConnDOT: Information Technology Systems for Use in Incident Management & Work Zones (2006)
 - ◆ DECD: Assessment of a Connecticut Technology Seed Capital Fund/Program (2005)
 - ◆ ConnDOT/CTTransit: Demonstration & Evaluation of Hybrid Diesel-Electric Transit Buses (2005)
 - ◆ DPH – An Evaluation of Asbestos Exposures in Occupied Space (2005)
 - ◆ CEAB – Long Island Sound Symposium – A Study of Benthic Habitats (2004)
- Technical Reviews and Assessments
- ◆ DPH: Peer Review of Biomedical Research Grant Proposals (2009)
 - ◆ Clean Energy Fund: Hydro Tidal Turbine Technology Proposal Review (2008); Solar Thermal Technology Proposal Review (2007); Low-Head Hydro Power Proposal Review (2007)
 - ◆ Connecticut Innovations: Extended-Life Oil Filter Technical Review (2007)
 - ◆ Connecticut Center for Advanced Technology: Review Draft Fuel Cell/Hydrogen Economic Development Plan (2007)
- Strengthen Connecticut's Student Science and Technology Programs:
- ◆ Celebrating the achievements of young scientists and engineers through the Academy's Annual Student Awards Program
 - ◆ Assisted the Stepping Stones Museum for Children in the development of a new Energy Exhibit that will be, as well as the development of a related traveling Energy Exhibit for use in schools around the state and at the One Thing Energy Exposition in the Fall 2008.
 - ◆ Conducted exciting science pilot programs on behalf of Connecticut Science Center and the Connecticut Department of Education
 - Coordinating hands-on in-class science activities in Hartford Elementary Schools presented by Mad Science (Spring 2005; Fall 2005; Spring 2006; Winter 2007)
 - ◆ Engaging youth in extracurricular science and technology activities
 - Westinghouse Science Program – Metropolitan Learning Center Magnet School, Bloomfield, plus middle schools in Windsor and South Windsor.
 - Connecticut Career Choices Program - extracurricular activities in Middletown, Portland, Stamford, and Waterbury

CONNECTICUT ACADEMY OF SCIENCE AND ENGINEERING
RECENT STUDIES/PROJECTS
CONDUCTED ON BEHALF OF THE GENERAL ASSEMBLY
(NOVEMBER 2005 – FEBRUARY 2009)

The following summary describes the three studies completed by the Connecticut Academy of Science and Engineering (CASE) on behalf of committees of the General Assembly over the past several years. Executive Summaries and the complete study reports are available in PDF format on the Academy's website at:
<http://www.ctcase.org/index.html#sciencenews>

Independent Monitor for the Implementation of UCHC Study Recommendations

Phase 1- Released 6/11/08; Phase 2 – Released 1/30/09; Briefing Conducted for the Appropriations; Finance, Revenue and Bonding; Higher Education and Employment Advancement; and Public Health Committees on 2/3/09

The Academy was named in Special Act 08-4 to serve as independent monitor to report on progress of the two-phase process for the implementation of recommendations of the 2008 UCHC study. Phase 1 involved the development of a Vision and Guiding Principles and Solicitation of Interest documents by UCHC with input from its prospective regional hospitals. The Academy provided comments to UCHC with respect to these documents and reported on Phase 1 progress to the committees of cognizance. The Phase 2 process involved the Solicitation of Interest process which resulted in receipt of proposals from regional hospitals in which the hospitals were offered the opportunity to propose their interest in serving as hospital partners to support UCHC's education and research missions, as well as to state their interest in serving as a principal clinical hospital partner for UCHC through the operation and management of clinical facilities to be constructed on the UCHC campus as a replacement for John Dempsey Hospital. The Academy provided periodic reports to the committees of cognizance throughout the Phase 2 process and provided a final report that offered comments with respect to the proposed principal clinical partnership between UCHC and Hartford Healthcare Corporation, as well as the development of the Connecticut Health Education and Research Collaborative that includes UCHC regional hospital partners.

A Needs Based Analysis of the University of Connecticut Health Center's Facilities Plan

Released 3/18/08; Briefing Conducted for the Appropriations, Commerce, Finance, Revenue and Bonding, Higher Education and Employment Advancement, and Public Health Committees on 3/18/08

This study was commissioned under legislation adopted in 2007 by the Connecticut General Assembly as a result of a proposal presented to the General Assembly by UCHC to construct a 352-bed hospital to replace the aging 224-bed John Dempsey Hospital (JDH) that met with concern about the financial implications for hospitals in the Greater Hartford area. Guiding themes that emerged through the study process included: Commitment to a common vision and mission between UCHC and its clinical hospital partners for academic medicine (medical and dental education, clinical care, and biomedical research); awareness of historical perspectives; development of sustainable effective collaborative relationships; access to state-of-the-art clinical care facilities; and accountability to the General Assembly. The study's recommendations are intended to be useful in shaping and motivating discussions with a goal of developing a productive regional environment for academic medicine. As a result of this study the General Assembly enacted Special Act 08-4 which established a two-phase process for UCHC to implement the recommendations of the study and the naming of an independent monitor to report on progress of the process to the General Assembly.

Energy Alternatives and Conservation

Released 12/31/06; Briefing Conducted for the Commerce and Environment Committees on 2/22/07

The Commerce, Energy and Technology, and Environmental Committees of the Connecticut General Assembly asked CASE to conduct an assessment of energy alternatives and conservation actions which have the potential to reduce reliance on oil and other fossil fuels over the next ten years; which are applicable to Connecticut; and which would spur innovation, diversity and consumer choice. To conduct this assessment, CASE assembled a Study Committee of

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CONNECTICUT ACADEMY OF SCIENCE AND ENGINEERING

both in-state and national experts on energy efficiency, conservation, and alternative energy. Energy legislation adopted in 2007 included several suggestions from this study including: development of a real-time energy report for use on TV; development of email and cell phone energy alert systems; electricity summer savings program; and municipality option to provide property tax abatement for fuel efficient vehicles.

Evaluating the Impact of Supplementary Science, Technology, Engineering and Mathematics Educational Programs

Released 12/22/06; Briefing conducted for the Education Committee on 2/9/07

The Education Committee of the Connecticut General Assembly asked CASE to conduct a study to identify the best practice characteristics of supplementary science, technology, engineering, and mathematics (STEM) programs outside the formal education environment, or Out-of-School Time (OST). The Education Committee also noted an interest in learning about existing cost-benefit analysis procedures and teacher training activities for OST STEM-related programs. OST programs and activities represent a critical set of supplemental learning assistance — non-school support for children and families that can enhance and promote learning and development by complementing school-day efforts. The CASE Committee agreed that to achieve the goals of this study, it would develop a framework from which the General Assembly can reliably measure the effectiveness of programs seeking funding, rather than to develop a program and cost-benefit analysis for any specific program. The Committee decided to look at “indicators” in a broad, generalized sense and then consolidate them into what is feasible with a “Connecticut Context.” The study’s “Findings and Suggestions” are based on a review of the relevant evaluation and continuous improvement literature, and interviews with key professionals involved in the design and use of evaluation and continuous improvement strategies in after-school programs. The state Department of Education posted the study on their website as a resource for organizations submitting proposals to the department to use in considering evaluation methodologies for their projects.

Advanced Communications Technologies

Released 12/15/06; Briefing Conducted for the Commerce and Energy & Technology Committees on 1/25/07

During the past several years, Connecticut has identified and implemented strategies for growing its economic base and for achieving a leadership position in the rapidly evolving global economy. As part of that effort, the Energy & Technology Committee of the Connecticut General Assembly asked CASE to “conduct an assessment of the benefits of creating a world-class digital/communications infrastructure (WCCI) for businesses and individuals in Connecticut, and to identify what needs to be done to accomplish that goal.” This report reflects the findings of the CASE Study Committee on Advanced Communications Technologies. Legislation was adopted in 2007 that created a Broadband Internet Coordinating Council was a direct result of this study.

ADDITIONAL STUDIES CONDUCTED FOR OTHERS ON BEHALF OF THE GENERAL ASSEMBLY

➤ **Preparing for Connecticut’s Energy Future**

Released 12/27/08; Briefing Conducted for the Energy & Technology Committee on 1/22/09

The Academy was named in legislation, PA 08-168, to conduct the study through the Connecticut Clean Energy Fund.

➤ **A Study of the Feasibility of Utilizing Fuel Cells to Generate Power for the New Haven Rail Line**

Released 8/29/07; Briefing Conducted for the Energy & Technology Committees on 10/10/07

The Academy was named by ConnDOT to conduct the study in accordance with PA 06-136.

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