



CONNECTICUT ACADEMY OF SCIENCE AND ENGINEERING

February 19, 2013

To: Senator Toni N. Harp, Co-Chair, Appropriations Committee
Representative Toni E. Walker, Co-Chair, Appropriations Committee
Senator Robert J. Kane, Ranking Member, Appropriations Committee
Representative Craig A. Miner, Ranking Member, Appropriations Committee
Senator Beth Bye, Co-Chair, Legislative Sub-Committee, Appropriations Committee
Representative Matt Lesser, Co-Chair, Legislative Sub-Committee, Appropriations Committee

Please find attached a copy of the Connecticut Academy of Science and Engineering's (CASE) testimony to be presented to the Appropriations Committee at its Public Hearing on February 19, 2013.

In addition to the testimony, the information provided includes:

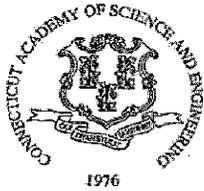
- ◆ Connecticut Academy of Science and Engineering: Funding Request
 - ✓ FY14/FY15 Funding to Conduct Studies for the General Assembly
 - ✓ Carryover of FY13 Funding to FY14 for two studies currently in-process
 - Disparity Study
 - Health Impact Assessment Study
- ◆ Connecticut Academy of Science and Engineering: An Overview
- ◆ Recent CASE Studies Conducted on Behalf of the General Assembly

Thank you for your time and consideration.

Best Regards,

Richard H. Strauss
Executive Director
Email: 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 19, 2013

Chairman Harp, Chairman Walker 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, it is requested that the General Assembly consider funding for CASE to continue work on current projects and to conduct new in-depth studies on science and technology issues on behalf of the General Assembly for FY14 and FY15:

1. Provide funding to conduct new studies on science and technology issues at \$100,000 per year as specified in the Governor's proposed budget.
2. Carryover and Additional Funding for Current Studies
 - a. Disparity Study: This study is currently under contract at \$500,000 in accordance with Public Act 12-104, Section 12. It is expected that work on this project will continue for several years based on initial research and findings. Therefore, for the FY14/FY15 biennial budget:
 - i. For FY14: a carryover of unexpended FY13 funds into FY14 is requested.
 - ii. For FY15: A sum of \$300,000 should be budgeted to continue work on data collection and analysis for this project.
 - b. Health Impact Assessment Study: This study was selected as the project to be conducted for the General Assembly with funding authorized by Public Act 12-104, Section 1. Total project cost is \$77,050. For FY14, a carryover of unexpended FY13 funds into FY14 is requested to enable project completion in the event that work is not completed by the FY13 deadline for processing invoices.

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 307 of Connecticut's most esteemed scientists, physicians, and engineers elected by the membership of the Academy.

Since 1976, the Academy has completed approximately 85 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.

For the new studies proposed for FY14 and FY15, the Academy will engage in a consultative process for the selection of a study topic with the leadership of up to eight committees of the General Assembly. CASE will identify a timely topic of high interest to the General Assembly and worthy of Academy study. The work of committees throughout each 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 projects would be administered by the Office of Legislative Management.

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 is attached.

Thank you for your time and consideration.

Respectfully Submitted,

Richard H. Strauss
Executive Director
Email: rstrauss@ctcase.org



CONNECTICUT ACADEMY OF SCIENCE AND ENGINEERING

CONNECTICUT ACADEMY OF SCIENCE AND ENGINEERING FUNDING REQUEST FOR FY14 AND FY15

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 37 years experience in providing expert, third party, objective perspectives and information to the General Assembly, state agencies and others.

PROPOSED GENERAL ASSEMBLY ACTION:

- 1. Provide funding in the General Assembly's FY14/FY15 Legislative Management Budget for CASE to conduct a study each year for the General Assembly:** The Governor's proposed FY14/FY15 budget includes \$100,000 per year (FY14 and FY15) for CASE to conduct studies for the General Assembly.
 - A.** It is expected that the requested funding, pending project scoping, will be adequate to conduct one study each year. A consultative process will be utilized to select the study topic.
 - B.** 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 General Assembly funding and CASE study. Potential topics will be identified through discussions with committee leadership, and others, of up to eight General Assembly committees. CASE will prioritize and propose the selected study topic for contracting.
 - C.** CASE 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.
 - D.** For budgeting and administrative purposes, funding would be provided through the Office of Legislative Management; with content-related project oversight provided through the committee(s) with cognizance on the study topic.
- 2. Provide a Carryover and Additional Funding for Current Studies**
 - a.** Disparity Study: This study is currently under contract (OLMM1-0000013908; dated 9/19/12) at \$500,000 in accordance with Public Act 12-104, Section 12. It is expected that based on initial research and findings work effort on the project will continue for several years and will require additional funding. Therefore, for the FY14/FY15 biennial budget:
 - For FY14: a carryover of unexpended FY13 funds into FY14 is requested.
 - For FY15: A sum of \$300,000 should be budgeted to continue work on data collection and analysis for this project.
 - b.** Health Impact Assessment Study: This study was selected as the project to be conducted for the General Assembly with funding authorized by Public Act 12-104, Section 1. Work on the project started on 10/9/12 (Agreement #: OLMM1-0000013955). Total project cost is \$77,050. Best efforts are being made to complete the study by the FY13 deadline for processing invoices. However, due to the delayed start date for the project in the current fiscal year, which was primarily due to availability of FY13 funds for contracting a carryover of funds is requested. Therefore,
 - For FY14, a carryover of unexpended FY13 funds into FY14 is requested to enable project completion in the event that work is not completed by the FY13 deadline for processing invoices.

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 37 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 85 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

- ◆ **General Assembly: Disparity Study – Set-Aside Program/Minority Business Enterprise Program**
- ◆ **General Assembly: Health Impact Assessments**
- ◆ DPH and the Connecticut Stem Cell Research Advisory Committee (SCRAC) – *Responsible for managing and overseeing the CT Stem Cell Research Program's Peer Review Process.*
- ◆ ConnDOT: Economic Value of Transportation Projects
- ◆ ConnDOT: Benchmarking Connecticut's Transportation Infrastructure Capital Program with Other States
- ◆ Albertus Magnus College (*on behalf of the Office of Financial and Academic Affairs for Higher Education*): External Evaluation of Project Algebra: Preparing College Ready Students Using a Standards-Based Curriculum Examining Professional Development – An Observational Framework
- ◆ Connecticut Medals of Science and Technology – responsible for selection of the Medal winners (*on behalf of Office of Higher Education*)
- ◆ Hartford Courant: Partner in producing *Science Matters* series for the Courant's *Newspapers in Education* Program
- ◆ Academy Bulletin – published quarterly

➤ Completed Studies

- ◆ DPH & Connecticut Innovations: Stem Cell Research Program Accomplishments (2013)
- ◆ **General Assembly: Workforce Alignment Study (*"Strategies for Evaluating the Effectiveness of Programs and Resources for Assuring Connecticut's Skilled Workforce meets the Needs of Business and Industry Today and in the Future"*) (2012)**
- ◆ ConnDOT: Benchmarking Connecticut's Transportation Infrastructure Capital Program with Other States
- ◆ ConnDOT: Alternative Methods for Safety Analysis and Intervention for Use by ConnDOT for Contracting Vehicles and Drivers for Transportation Projects and Services (2012)
- ◆ Office of Consumer Counsel/PURA: Guidelines for the Development of a Strategic Plan for Accessibility to and Adoption of Broadband Services in Connecticut (2011)
- ◆ CEAB: Advances in Nuclear Power Technology (2011)
- ◆ OPM: Energy Emergency Assurance Planning, Capabilities and Resources – *A multi-year project funded by the U.S. Department of Energy that involved assisting OPM's Energy Office (DEEP as of 7/1/12) in revising the state's Energy Assurance Plan (formerly Energy Emergency Preparedness Plan), developing an energy supply disruption tracking process, participating in an interstate energy emergency exercise and planning for an intrastate exercise*
- ◆ ConnDOT: Environmental Mitigation Alternatives for Transportation Projects (2010)

CONNECTICUT ACADEMY OF SCIENCE AND ENGINEERING: *AN OVERVIEW*

- ◆ ConnDOT: Design-Build: A Transportation Project Methodology for Connecticut's Consideration (2010)
- ◆ 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)**
- ◆ 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)**
- Technical Reviews and Assessments
 - ◆ 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* (2012, 2011, 2010, 2009)
 - ◆ 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" (2010)
 - ◆ 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
 - ◆ Serving on executive advisory boards for: CT FIRST; Connecticut Junior Science and Humanities Symposium; and Connecticut Association for Mathematically Precocious Youth. Also, serving as a member of the advisory board for the University High School of Science and Engineering
 - ◆ 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; Westinghouse Electric Company; Connecticut Career Choices (Office for Workforce Competitiveness)

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CONNECTICUT ACADEMY OF SCIENCE AND ENGINEERING

RECENT CASE STUDIES/PROJECTS CONDUCTED ON BEHALF OF THE GENERAL ASSEMBLY (NOVEMBER 2005 – FEBRUARY 2013)

CURRENT STUDIES

Disparity Study of the State's Set-Aside/Minority Business Enterprise Program

Project Start Date: 9/19/12; Project Completion Date: Phase 1: 6/30/12

In accordance with Public Act 12-1 and Public Act 12-104, the Academy was named to conduct a Disparity Study of the state's set-aside program. Public Act 12-1 provides an overview of the scope of work to be included in the study, and Public Act 12-104 provides for the funding of the project. The study shall provide an analysis of existing statistical data concerning the state's current set-aside program, established under section 4a-60g of the general statutes, to determine whether its current form achieves the goal of facilitating the participation in state contracts of small contractors and minority business enterprises. The study shall include a review of Connecticut's current set-aside program practices and the best practices of other states or governmental entities. The study is being conducted in consultation with CHRO and other state agencies/branches of state government.

Health Impact Assessments

Project Start Date: 10/9/12; Projected Completion Date: 6/30/13

A health impact assessment (HIA) is commonly defined as "a combination of procedures, methods, and tools by which a policy, program, or project may be judged as to its potential effects on the health of a population, and the distribution of those effects within the population." The study will provide the General Assembly and state agencies with information about HIAs for the purpose of assessing their value for use in Connecticut. The study will include: an introduction to HIAs, tools and methods used for conducting HIAs, use of evidence in the development of HIAs, use of HIAs for public policy development, relationship of HIAs with and use in conjunction with environmental impact assessments, best practices that can serve as models for Connecticut's use, and findings and recommendations. The study is being conducted on behalf of the Public Health Committee.

COMPLETED STUDIES

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>

Strategies for Evaluating the Effectiveness of Programs and Resources for Assuring Connecticut's Skilled Workforce Meets the Needs of Business and Industry Today and in the Future

Project Start Date: 12/27/11; Project Completion Date: 12/28/12

Connecticut has been known as a national leader in providing business and industry with an educated and skilled workforce. However, reportedly the state's national ranking has been declining. Connecticut has multiple state agencies (and organizations) involved in projecting demand, identifying the current state of the workforce, and funding programs for a variety of workforce development initiatives. The study identified strategies and mechanisms to assess and evaluate the value and effectiveness of state programs and resources with a goal of providing businesses and industries in Connecticut with a skilled workforce (*focus on science, technology, engineering and mathematics related fields*) that meets the needs and expectation of employers, and at the same time, seeks to insure our students that they are receiving the education they need and should expect in order to successfully work in today's jobs/careers and in the jobs/careers of the future.

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 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.

CONNECTICUT ACADEMY OF SCIENCE AND ENGINEERING

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 provided guidance that shaped discussions in support of 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 both in-state and national experts on energy efficiency, conservation, and alternative energy. Energy legislation adopted in 2007 included several recommendations included: 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 within 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."

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.

