

Report on Connecticut's Future

Report Submitted by Commission on Connecticut's Future

December 2014

Report Contents

| | | |
|------|---|---------|
| I. | Executive Summary | Page 3 |
| II. | Public Act 13-19 and the Commission's Charge | Page 4 |
| III. | Assessment/Analysis | Page 6 |
| IV. | Recommendations | Page 13 |
| V. | Commission on Connecticut's Future Membership | Page 18 |
| VI. | Commission Overview and Process | Page 20 |
| VII. | Links and Endnotes | Page 23 |

Executive Summary

The Commission on Connecticut's Future was created by Public Act 13-19, legislation that was passed and signed into law in 2013. Per the legislation, the Commission on Connecticut's Future, a group with representatives from government, industry, academia, and non-profits, was tasked with producing this report in order to provide strategies to bolster Connecticut's economy. In addition to a general assessment of the Connecticut economy, the Commission was instructed by the legislation to focus on manufacturing, defense diversification, green technologies, and workforce development.

As with other areas of the country and the globe, Connecticut has recently experienced economic challenges requisite with the Great Recession. Some of the economic challenges in the state today stem from the decline in manufacturing in Connecticut, and across the nation, over the past several years. The manufacturing workforce declined by tens of thousands in the first several years of the 21st century.ⁱ In addition to devising strategies to address the manufacturing sector and workforce development issues, the Commission also examined the possibilities for diversification among defense-contracting companies in Connecticut and green technology sector expansion and development.

The Connecticut insurance and financial services sector has maintained its national and international prominence and is poised to continue to grow over the next several years. While the Commission did not devise any explicit recommendations for this sector, it acknowledges the major role that insurance and financial companies play in Connecticut's economy. The Commission also noted that while there have been investments in infrastructure upgrades in recent years, Connecticut's infrastructure is in need of further attention.

After hearing from a variety of experts on topics including defense contractor diversification, economic development, education, workforce development, manufacturing, and others, the Commission agreed that a focus on bolstering several strategic industries would be prudent, as outlined by the Department of Economic and Community Development's 2014 Strategic Plan. In addition to supporting the Department of Economic and Community Development's Strategic Plan, the Commission outlines several specific recommendations for the Manufacturing Innovation Fund's Advisory Board to consider. Although the recommendations are included in their entirety in Section IV of this report, they include:

- Continue to support the work of the growing manufacturing areas such as aerospace, medical devices, and green technology
- Place even more emphasis on development of innovative green and sustainable technology among existing defense contractors
- Continue to explore alternative energy sources and invest in infrastructure modernization
- Continue to invest in STEMM (second "M" stands for manufacturing) career education for students, parents and educators and expand academic and training program opportunities in these fields

Public Act 13-19 and the Commission's Charge

Public Act 13-19

In May of 2013, Public Act 13-19 was passed by the Connecticut General Assembly and signed into law by Governor Dannel P. Malloy. Public Act 13-19 (PA 13-19) was created in the spirit of legislation passed in Connecticut in 1991 that enacted a Commission on Business Opportunity, Defense Diversification, and Industrial Policy. In Section 1 of PA 13-19, "Section 32-245 of the general statutes is repealed," in order to allow the Commission on Connecticut's Future to replace the Commission on Business Opportunity, Defense Diversification, and Industrial Policy. Public Act 13-19 enacted the Commission on Connecticut's Future, composed of members from government, the private sector, academia, and the non-profit sector. The legislation charged the Department of Economic and Community Development with administration of the Commission on Connecticut's Future.

The Charge of the Commission on Connecticut's Future

Per Public Act 13-19, the Commission on Connecticut's Future is charged with producing this report "concerning the economic renewal of Connecticut."ⁱⁱ The legislation outlined that the report will contain strategies regarding:

"(1) the restoration and growth of manufacturing in the state, with the objective of ending the loss of manufacturing jobs and causing an increase in such jobs within five years following [development of the plan] preparation of the report; (2) the retention and expansion of the state's economic base industries; (3) the coordination of economic development policy with capital investment in both public and private sectors; [and (4) the need for regional approaches to economic development in the state] (4) the alignment of the state's educational institutions with its manufacturing base; and (5) the diversification or conversion of defense-related industries with an emphasis on encouraging environmentally sustainable and civilian product manufacturing."ⁱⁱⁱ

Additionally, PA 13-19 charged the Commission with advising the Connecticut General Assembly and the Department of Economic and Community Development on the issues outlined above.

Public Act 13-19 also instructed the Commission on Connecticut's Future to:

"(2) evaluate legislation which concerns the state's economy and the overall competitiveness thereof, the manufacturing and industrial sectors of the state's economy and businesses that are heavily dependent on prime defense contracts or subcontracts; (3) prepare and review the implementation of short-term and long-term strategies to assist businesses that are heavily dependent on prime defense contracts or subcontracts in modifying defense industry technology production capacity into nondefense related applications with an emphasis on environmentally-sustainable and civilian product manufacturing; (4) provide a forum that encourages public involvement to address and communicate business issues, including small

business issues, to the public and private sectors; (5) foster opportunities for the development of partnerships between government and private enterprise in areas that significantly affect the state's economy; and (6) stimulate and review public and private assistance and initiatives to improve the competitiveness of Connecticut's economy.”^{iv}

This report was produced in accordance with the charge of the Commission as outlined in PA 13-16 to address the areas outlined above.

Commission's Goals

The Commission on Connecticut's Future was tasked with completing a report due to the Governor of Connecticut and the Connecticut General Assembly on December 1, 2014. As outlined in Public Act 13-19, the Commission was charged with research and recommendations as related to manufacturing, Connecticut's base economic industries, educational opportunities aligned with industry needs, and the diversification and or conversion of defense-related industries with an emphasis on environmentally sustainable and civilian production.^v To that end, the Commission held meetings and heard presentations from public officials and academic experts in these fields. These open meetings also provided a forum for public feedback, another part of the Commission's charge.

The goals of this Commission were to assess the current strategic economic development plan and produce actionable and measurable recommendations, based on research and feedback received during the convening of the Commission, for next steps in:

- retaining and expanding the State of Connecticut's manufacturing base
- facilitating any potential conversion or diversification of defense contractors
- crafting academic and training programs more closely aligned with the specific future needs of Connecticut industries
- supporting environmentally sustainable industry

Ultimately, this report serves to inform further legislation, policy, and programming regarding several aspects of the Connecticut economy. The recommendations contained herein were crafted through deliberative consensus and a well-rounded and thorough process. We believe the Commission's goals of crafting recommendations to advise the Governor and the Connecticut General Assembly are realized in this report. The Commission intends for the recommendations contained herein to be given support by the appropriate agencies and/or governing body.

Assessment/Analysis

Economic Trends in the State of Connecticut

The past ten years have been marked with economic turbulence in the United States and internationally. The State of Connecticut similarly has experienced economic challenges requisite with the Great Recession. Certain sectors of the Connecticut economy, such as manufacturing, were more affected than others by the economic challenges of the past several years. However, the State of Connecticut has exhibited signs of economic recovery in recent years.

| Connecticut National Rankings | |
|-------------------------------|-----------------|
| Per Capita Income | 1 st |
| Healthy Residents | 1 st |
| Finance and Insurance Jobs | 2 nd |
| Production per Energy Unit | 2 nd |
| Advanced Degrees | 3 rd |
| Total State Productivity | 4 th |
| Research and Development | 4 th |
| Low Poverty Rate | 5 th |
| Scientists and Engineers | 5 th |
| Energy Efficiency | 5 th |
| Low Crime Rate | 6 th |
| World Wide Productivity | 7 th |
| Patents | 8 th |
| Technology & Science Capacity | 9 th |

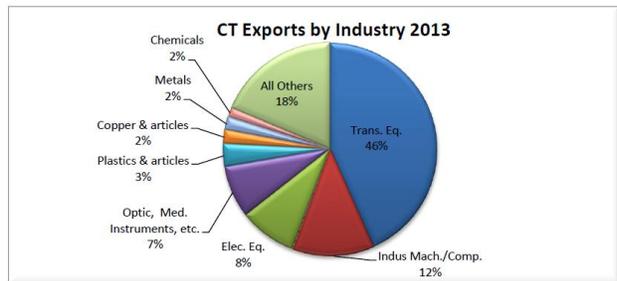
As of November 2014, Connecticut had recouped more than 70% of the jobs lost during the Great Recession, although there is still work to be done to reach full employment levels.^{vi} Additionally, the State of Connecticut continues to rank very highly in many indicators of economic strength. Connecticut workers, as a group, are the 7th most productive workforce in the world.^{vii} Connecticut also ranks in the top ten in the United States in foreign direct investment, educated workforce, manufacturing productivity, and per capita exports.^{viii}

The State of Connecticut’s economic development strategy is focused on six strategic industry clusters; advanced manufacturing, green technology, health and bioscience, insurance and finance, tourism and digital media.^{ix} Employment in these six clusters grew by 11% from 2002-2012, while growth across all industries was only 6%.^x

These clusters are also well-paying, with average annual wages of \$89,280 in 2012, more than \$25,000 more than the average annual wage across all sectors.^{xi} The strategy also recognizes that continuous improvement is needed in state operations, the cost of energy, and the creation of a capable workforce to create the kind of vibrant business climate that will attract and retain world class businesses.

Manufacturing

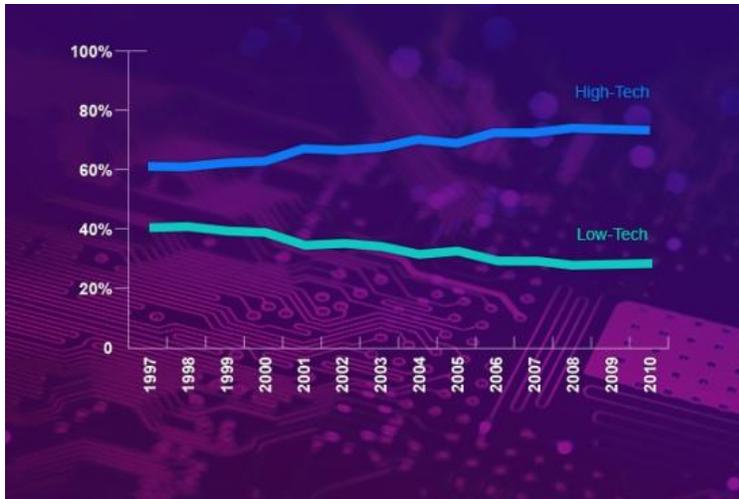
Among the sectors most important to the economy of Connecticut is the manufacturing sector. Manufacturing in Connecticut is seeing renewed investment after a difficult period from 2002-2012, when the manufacturing sector saw the loss of more than 40,000 jobs.^{xii} This was part of a broader national trend in the massive reduction in



Source: Connecticut’s Economic Development Strategy, Spring 2014

manufacturing jobs as many production activities were moved overseas. Despite these losses, manufacturing remains an integral part of the Connecticut economy, with more than 163,000 employed by this sector in 2014.^{xiii} Aerospace manufacturing, in particular, remains a strong industry in Connecticut. Aerospace exports in 2013 accounted for nearly half of all exports from the State.^{xiv}

And, while Connecticut manufacturers create what are considered to be more strategic products for the Department of Defense – products that meet the needs of their evolving strategy and thus make the risk of loss of funding less likely than other states - diversification of the



Source: Connecticut's Manufacturing Report Card, December 12, 2012

advantage of commercial airline growth. Commercial aerospace demand is expected to ramp up over the next two decades due to demand in emerging markets. Companies that are in the space at present, like General Dynamics, Boeing, and United Technologies Corporation are currently seeing strong demand.^{xvii}

Manufacturing, particularly precision manufacturing, continues to be a focal area for economic development in the State of Connecticut. This was made clear by three specific investments the State of Connecticut has made in the last few years. The Manufacturing Innovation Fund was created through the passage of Public Act 14-98 in 2014. The \$30 million fund is designated for investments made in small to mid-size manufacturing companies for new equipment, workforce and training, research and development, as well as for attracting manufacturers to the State of Connecticut.^{xviii} This fund strategically targets areas that demonstrate growth potential, including aerospace, medical devices, composite materials and digital manufacturing.^{xix} Another piece of legislation, Public Act 14-2, further bolstered the State of Connecticut's commitment to manufacturing by providing for United Technologies Corporation to expedite the use previously earned tax credits in exchange for the construction of new headquarter facilities and a commitment to remain in the state for up to 20 years. This win-win historic deal also supports the supply chain in the state, which touches approximately 75,000 jobs.^{xx} Additionally, the State of Connecticut's investment in the University of Connecticut's Technology Park, and specifically the Innovation Partnership Building, will be a center for industry partnerships with University of Connecticut scientists and engineer. The initial focus of this initiative will be advanced manufacturing technologies that will help keep Connecticut companies on the cutting-edge.

Defense-Related Industries

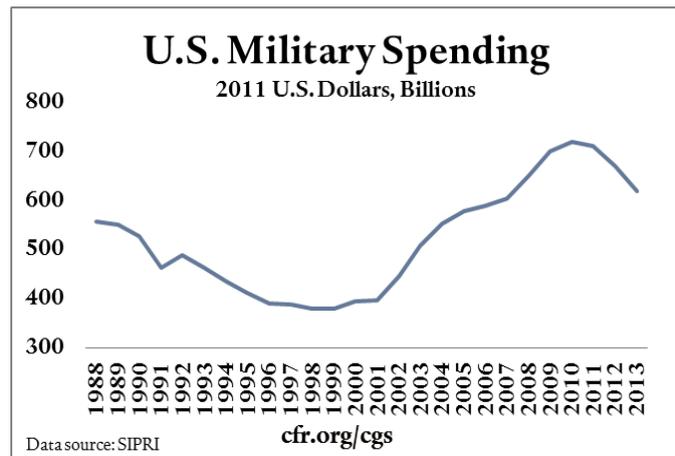
A related component of Connecticut's economy is defense-related production and contracting. In 2011, defense-related companies in Connecticut were awarded almost \$12.7 billion in federal contracts.^{xxi} Additionally, approximately 6.3% of the Connecticut workforce is employed by defense-related companies that contract with the United States federal government.^{xxii} Although federal defense-contracting has not

diminished significantly in the State of Connecticut, the total United States defense budget has been decreasing in recent years, putting the future growth of defense contractors at risk.^{xxiii}

In addition to larger companies with defense-related manufacturing assembly, Connecticut also houses many supply chain companies that contribute to the robust sector. Yet the creation of this Commission resulted from a concern that Connecticut's economic dependence on defense-related manufacturing puts Connecticut's economy at risk. The ten-year trajectory established by the Budget Control Act has begun to rein in the post-9-11 surge in defense spending, particularly as the federal budget has become tight and controversial. While few close to the process are predicting that the BCA framework will be repealed, risk remains in future funding for all defense initiatives. In this type of environment, some contractors may be protected and others will not.

Defense contractors in the State of Connecticut, however, largely work in the areas identified in the United States Department of Defense's strategic plan, thereby protecting the State of Connecticut from federal defense budget decreases to a greater extent than many other states. Recently (April of 2014), General Dynamics Electric Boat, a Connecticut company, signed a \$17.8 billion contract for the creation of ten submarines that spans 2014-2018.^{xxiv} Pratt & Whitney, another Connecticut company, recently signed a \$592 million contract for 36 F-35 engines.^{xxv}

Manufacturers in the aerospace industry in Connecticut have historically been diversified in both commercial and United States Department of Defense applications. The small to medium sized manufacturers, in particular, have been successful in supplying parts to all of the key global commercial aero-engine original equipment manufacturers, like Pratt & Whitney, General Electric, and others. These smaller manufacturers are now developing business strategies that allow them to supply directly to global original equipment manufacturers of airframes, as well. Aerospace companies are also at the forefront of innovation, with companies like Connecticut-based Pratt & Whitney currently investing millions in additive manufacturing research for production of some parts of its commercial engines.^{xxvi} The commercial aerospace market is



Source: The New England Defense Industry: Current Profile and Economic Significance, Connecticut Profile. November 2012.

poised for significant global growth as aircraft deliveries are expected to grow at a rate of at least 2.3% per year through 2023.^{xxvii} As aerospace production and manufacturing is a major industry in Connecticut, the potential for economic growth through expansion in commercial aviation is great. However, companies in the aerospace industry in Connecticut will need to expand their workforce in order to meet the increasing demand in the commercial market. In order to do so, partnerships with educational institutions will be critical to ensuring that training and curriculum is aligned with industry needs, but also to ensure a future recruitment pool as companies expand.

Green Technology

Expanding production and continuing innovation within the field of green technology is a focus for growth within the Connecticut economy. The State of Connecticut has led the nation in fuel cells, in particular, for several years. In 2013, the United States Department of Energy recognized Connecticut as one of the top five states for fuel cells in the country. Fuel cells contributed \$267 million to Connecticut's gross state product in 2010, as well as generating \$22 million in state and local tax revenue.^{xxviii} Connecticut also houses 30% of the jobs in this industry, nationally.^{xxix} Connecticut has demonstrated a commitment to clean and renewable energy sources through the enactment of the Clean Energy Finance and Investment Authority.^{xxx} The Clean Energy Finance and Investment Authority was recently renamed the Connecticut Green Bank and it will drive innovation and the usage of green technology in the State of Connecticut.

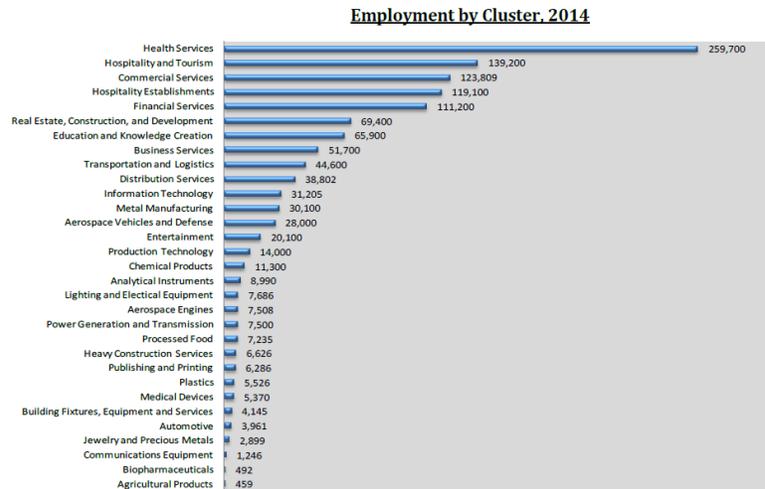
The demand for green and sustainable technologies is, in part, being driven by large users of energy like the United States' Department of Defense, as well as many states. The Department of Defense has expressed that its strategic goals include reducing dependence on traditional energy methods for field work and also to diversify and strengthen the power grid in the United States.^{xxxi} Additionally, states like Connecticut have set targets for alternative energy production as a percentage of total energy supply for the state, also raising the bar for industry to meet higher demand. The "Lead by Example" program, administered by the State of Connecticut's Department of Energy and Environmental Protection, has demonstrated the State's commitment to energy reduction by updating State-owned buildings to be more energy efficient.^{xxxii} This program also aids municipalities in sustainable energy upgrades, furthering the drive to convert to renewable or sustainable energy sources.

Connecticut is well-poised to take advantage of this growing demand for green energy given the focus of our policies and the cluster of companies already working in the state. But converting the strong demand for alternative energy into the creation of new green manufacturing businesses in the state will likely require additional incentives and a strategic focus.

Healthcare/Bioscience

The healthcare services sector in Connecticut employs more people than any other field. With longer lifespans and a large segment of the population entering senior citizenship, robust healthcare and bioscience industries are an asset to the State of Connecticut. In addition to a strong healthcare sector addressing the immediate healthcare needs of Connecticut residents, the

bioscience side of this industry cluster provides an opportunity for economic growth and global leadership. With the opening of the new Jackson Laboratory facility in Farmington, and the research at Connecticut's venerable universities, including Yale University and the University of Connecticut Health system, Connecticut is well-positioned to capitalize on the momentum in this exciting sector. Additionally, medical devices are already being manufactured in Connecticut and expanding this sector would offer opportunities for diversification and add skilled jobs.



Source: Connecticut's Economic Development Strategy, Spring 2014

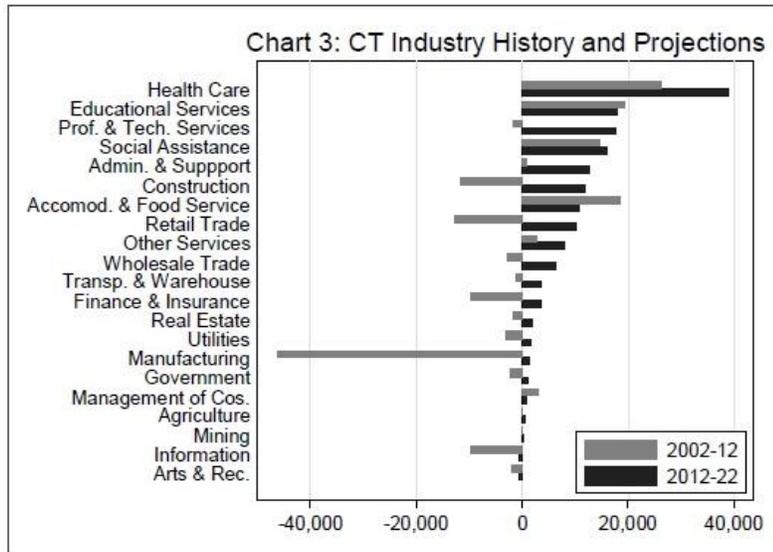
Insurance and Finance

The financial services and insurance sector is another strong area of Connecticut's economy. Financial and insurance services comprised more than 16% of Connecticut's economy in 2012.^{xxxiii} Adding to the strength of this sector in Connecticut is the diverse representation of financial institutions including banks, insurance companies, investment groups, venture capitalists, private equity funds, and many others. Among these diverse financial organizations exists a depth of expertise that has served to grow the industry in Connecticut by adding approximately 300,000 jobs between 1990 and 2009.^{xxxiv} Today, for example, Connecticut has the highest concentration of insurance industry workers in the United States.^{xxxv}

Connecticut is also currently in the top ten states for investment dollars per capita.^{xxxvi} Additionally, the expansion of the investment and venture capital industry in Connecticut presents the opportunity for innovation and growth in other industries, as Connecticut investors have recently focused increasingly on early stage investments.^{xxxvii} Investments and venture capital continue to be a strong part of Connecticut's financial industry and present an area with potential for further growth.

Workforce Development and Higher Education

Workforce development and higher education, especially as it relates to manufacturing and defense-related industry in Connecticut, was a focal point of the Commission on Connecticut's Future. Workforce development is a salient issue in the State of Connecticut, as it is elsewhere in the United States, particularly as the current workforce ages and, subsequently, younger workers need requisite skill-sets to replace those who retire. Indeed, the age of Connecticut workers is a concern as a large number of workers within certain sectors are currently at or nearing retirement age. The Connecticut Department of Labor statistics as of October 2014 show that among machine manufacturers, a third of the workforce is age 55 or



Source: The Connecticut Economic Digest, Vol. 19, No. 9.

older.^{xxxviii} This trend is constant among many professions in Connecticut, and if included in this group are those who are ages 45-54, the percentage of older workers nears two-thirds of the total in some categories.

Therefore, workforce demand in Connecticut is expected to expand in many sectors, such as health care and technical services, in part due to this transition in the workforce as well as the growth expected in some of the promising clusters. As mentioned, the

manufacturing sector has seen significant

declines in employment since 2000, and although Department of Labor projections show a small increase in the manufacturing workforce, there are currently hundreds of open job requisitions and expansion in the commercial sector for aerospace is likely to dramatically increase the demand for skilled labor in the manufacturing field.^{xxxix} Many of the currently open positions in the manufacturing sector are entry-level.^{xl} In addition to generally bolstering the manufacturing base in Connecticut, the Commission focused on aligning training, secondary education and higher education with current and projected industry needs.

Of particular concern to the Commission was increased awareness and expanded distribution of information and materials about careers in manufacturing among those in high school and middle school. In 2013 there were 146 graduates of the Manufacturing Technology program at Connecticut's Technical High Schools.^{xli} The current "Connecticut. Dream It. Do It." program is focused on expanding interest in pursuing manufacturing as a career choice in Connecticut.^{xlii}

Fundamental skills in science, technology, engineering, and math (STEM) will drive the workforce of the future in Connecticut. Already, the State of Connecticut is making tremendous investments in ensuring our educational systems are producing the workforce that our businesses will require for the future. For example, the Transform CSCU 2020 initiative, launched by the Connecticut Board of Regents, is currently working to align more closely the programming offered at the 12 community colleges with the needs of industry clusters and the advanced manufacturing industry, in particular. This initiative will also work to expand student capacity in existing programs and to allow for more incumbent worker training to be administered.^{xliii} Another program, CT-ECO, is an educational program aimed at helping ensure career placements for students in Connecticut. CT-ECO provides six year programs of study, developed in concert with industry partners, that provide for students to graduate with high school diplomas and Associate degrees, at no cost to the students. The State of Connecticut has also invested in establishing three Advanced Manufacturing Centers at Connecticut community colleges,^{xliv} as well as Connecticut's Technical High Schools. Additionally, the expansion of the undergraduate

programs in engineering at the University of Connecticut, as a part of the State of Connecticut's "Next Generation CT" initiative, is aimed at meeting the constantly growing demand for well-trained engineers in Connecticut.

Infrastructure and Transportation

The Commission also noted during its deliberation that the State of Connecticut's infrastructure currently presents challenges. In addition to vulnerabilities documented by organizations like the American Society of Civil Engineers, there is a perception that Connecticut is behind on maintaining and upgrading its infrastructure. Drinking and waste water, highways, bridges and dams may require serious upgrades that could incur substantial costs.^{xlv} As Connecticut continues to encourage local jobs and manufacturing, undertaking such upgrades could positively impact the in-state production of materials and devices needed to complete such project and could stimulate the creation of a diverse set of skilled jobs.

In response to these challenges, the Connecticut Department of Transportation has been making great strides in improving and updating bridges and roads, as well as modernizing storm responses. Additionally, Transit-Oriented Development has concentrated a focus on Connecticut's rail lines, aimed at alleviating traffic and transportation challenges on major Connecticut highways.^{xlvi} However, the Commission observed that additional focus be placed on public transportation to connect Connecticut's inner-city residents with manufacturing jobs and educational opportunities. Although the State of Connecticut is currently prioritizing updating infrastructure in Connecticut, there remains much more to be done.

Recommendations

As per Public Act 13-19, the Commission on Connecticut's Future has crafted the following recommendations to address the challenges facing the State of Connecticut as outlined in earlier sections of this report. In addition to identifying new opportunities for the State of Connecticut to pursue, the Commission also advises the continuance of many programs and strategies already underway that have proven to be effective.

Endorsement of the Connecticut Department of Economic and Community Development Strategic Plan:

The Commission would like to express its endorsement for the Connecticut Department of Economic and Community Development's Strategic Plan. In an effort to avoid duplication, the Commission believes that the strategy outlined in this plan is an appropriate one for addressing many of the challenges outlined in Public Act 13-19. The following recommendations should be considered within the context of this strategic plan and administered in concert with the strategic initiatives, including those that strengthen industrial clusters and encourage collaboration, put forth by the Department of Economic and Community Development.

The Commission also recommends the following:

- Complete the comprehensive website for businesses to access governmental support and incentive programs: the Department of Economic and Community Development-sponsored Business Portal, which is due for delivery in Quarter 1 of 2015.
- Continue to improve and simplify regulations. Continue to use LEAN and other tools to streamline permitting and other processes to ensure State-workforce efficiency.

Manufacturing

The Commission contends that Connecticut should facilitate, support, and diversify in our innovative industries, for example, additive manufacturing and composite materials, to maintain and expand Connecticut's national and global leadership status in many advanced manufacturing areas, such as aerospace and green technology.

- Continue to support the work of the growing manufacturing areas such as aerospace, medical devices, and green technology.
- Place even more emphasis on development of innovative green and sustainable technology among existing defense contractors with potential to benefit from diversification by developing specific incentives geared to this market. For example, angel investor tax credits could be expanded and targeted to focus on green technology. Other targeted incentives should be explored to encourage companies in the green technology space to start their business in or relocate to Connecticut.

- Request that Connecticut's Congressional delegation seek a contractual obligation from the federal government to guarantee defense contract funding, at least to allow for the recovery of ramp-up costs incurred should a contract be cancelled.
- Continue to explore alternative energy sources for the state; Create more diversified energy production sources by utilizing technology like micro grids and solar panels. As indicated in the Department of Economic and Community Development's Strategic Plan, a special emphasis should be put on fuel cells, as Connecticut is a global leader in this industry.
- Continue to expand CPACE program and explore new opportunities to bring benefits directly to consumers in a residential setting, thereby expanding employment in the sector.

Workforce Development

Because of the myriad impending challenges in Connecticut related to workforce demands, the Commission advises that manufacturing is incorporated much more robustly into mainstream education, as well as recommending continued dedication to specialized educational institutions that deal with manufacturing and other in-demand fields (information technology, etc.).

- Continue to invest in STEMM (second "M" stands for manufacturing) secondary schools, including private institutions, and community colleges with a globally competitive STEM-based curriculum that are equipped with digital modeling and simulation capabilities, adequate funding, and equipment. This could be established at Connecticut's Community Colleges or Technical High Schools through significant investment in equipment and staffing.
- Conduct more outreach at middle and high schools, aimed at cultivating interest in STEMM careers and business-based global career path opportunities. Update career information to reflect the high-tech and sophisticated environments that are manufacturing, information technology, and health care, as is done in the program "Connecticut. Dream It. Do It."
- Educate guidance counselors on manufacturing careers. Include manufacturing as part of the standard career advisement provided to all middle and high school students.

Infrastructure and Transportation

- Continue to invest in upgrades of infrastructure and expand infrastructure investments to include other components, such as rail. Encourage more participation in "Lead by Example" program to continue energy efficiency upgrades.
- Foster collaboration among neighboring and regional states, as well as among Connecticut municipalities, to modernize and improve infrastructure and to create a

critical mass of crucial business clusters so as to be more effective in aligning federal interests with ours.

Expansion of the Role of the Manufacturing Innovation Fund

The Commission also acknowledges the role that the Manufacturing Innovation Fund should have in the funding and implementation of certain recommendations related to manufacturing. In addition to the explicit recommendations listed below, the Commission recommends that the scope of the Manufacturing Innovation Fund be expanded to also include supporting manufacturing diversity and reduction of the State of Connecticut's economic reliance on federal defense contracting. Therefore, the Commission suggests the Governor and the Connecticut General Assembly implement the following recommendations:

- Add four new voting positions on the Manufacturing Innovation Fund Advisory Board. One position should be designated for a representative from an educational or training institution, one position should be designated for a representative from a business engaging in green technology production, one position should be designated for a representative of an organization representing the manufacturing workforce, and the last additional position should be designated for a representative of a community or peace organization.

For consideration by the MIF Advisory Board:

- In conjunction with educational leaders, create a defined manufacturing career pipeline program, with coordinated curriculum, starting with high schools, leading into community colleges, and finishing with public and private colleges and universities. Provide access points in pipeline program for adults who wish to change career paths or start a career in manufacturing.
- Create opportunity for current manufacturing job vacancies to be broadcast to a larger segment of the population.
- Provide funding to support low-cost educational pathways and scholarships for those pursuing a manufacturing career.
- Focus on inner city areas in training programs aimed at expanding the manufacturing workforce and providing increased opportunity for underserved populations. For instance, expand the “funnel” program run by the Department of Labor into manufacturing.
- Establish a program that pairs students with a mentor from the manufacturing industry to provide career guidance and “soft skill” coaching.
- Expand existing apprenticeship opportunities in the manufacturing sector. Continue to switch apprenticeship programs from a total-hours-accrued model to a skills mastery model.

- Expand incumbent worker training programs to address short term skills gap in existing and near future manufacturing workforce.

Recommendation Summary

In order to ease implementation, the Commission submits the following suggested parties and stakeholders for the above recommendations, along with potential sets of measures for each. The Commission suggests that the ultimate responsible parties define the most useful standards of measurement for a specific recommendation, including timelines, deliverables, and outcome measurements.

| Recommendation | Suggested Responsible Parties/Stakeholders | Possible Goals/Metrics |
|---|--|---|
| More emphasis on development of innovative green and sustainable technology | <ul style="list-style-type: none"> ▪ Department of Economic and Community Development ▪ Trade Associations ▪ Defense Contractors ▪ Department of Energy and Environmental Protection | <ul style="list-style-type: none"> ▪ New green products/technologies developed ▪ Less waste produced during manufacturing process ▪ Higher percentage of businesses' revenue from green production |
| Request that Connecticut's Congressional delegation seek improvements in federal defense contract funding | <ul style="list-style-type: none"> ▪ Governor's Office ▪ Members of the United States House of Representatives and Senate representing Connecticut's Congressional districts | <ul style="list-style-type: none"> ▪ Contractual obligation from the federal government for Department of Defense orders |
| Continue to explore alternative energy sources for the State | <ul style="list-style-type: none"> ▪ Department of Energy and Environmental Protection ▪ Department of Economic and Community Development ▪ Connecticut fuel cell companies ▪ Municipalities | <ul style="list-style-type: none"> ▪ Cleaner, cheaper, and more reliable energy ▪ Increasing percentage of energy that is needed produced by sustainable sources |
| Assess new tax credits to encourage green technology development and expansion | <ul style="list-style-type: none"> ▪ Department of Economic and Community Development ▪ Department of Revenue Services | <ul style="list-style-type: none"> ▪ New tax credits or other incentives created, specifically targeted towards green technology growth and development |

| | | |
|--|--|--|
| Continue to expand CPACE | <ul style="list-style-type: none"> ▪ Clean Energy Finance and Investment Authority | <ul style="list-style-type: none"> ▪ CPACE program expanded to include consumers in residential settings |
| Continue to invest in STEM | <ul style="list-style-type: none"> ▪ Department of Education ▪ Board of Regents ▪ Connecticut State Colleges & Universities ▪ Advanced Manufacturing Centers ▪ University of Connecticut ▪ Private educational institutions in Connecticut ▪ Public and private middle schools, high schools, and technical schools | <ul style="list-style-type: none"> ▪ More STEM programs available at educational institutions ▪ Updated equipment at educational institutions ▪ More STEM graduates employed in the State of Connecticut |
| Conduct more outreach at middle and high schools | <ul style="list-style-type: none"> ▪ Department of Education ▪ Department of Labor ▪ Trade associations ▪ Connecticut Center for Advanced Technology | <ul style="list-style-type: none"> ▪ More students entering manufacturing programs in high school and post-secondary education |
| Educate guidance counselors on the critical skills needed for today's workforce | <ul style="list-style-type: none"> ▪ State Department of Education ▪ Public and private middle and high schools | <ul style="list-style-type: none"> ▪ More students entering manufacturing, information technology, and other targeted industries |
| Continue to invest in upgrades of infrastructure and improve energy efficiency | <ul style="list-style-type: none"> ▪ Department of Transportation ▪ Connecticut General Assembly ▪ Municipalities ▪ Department of Energy and Environmental Protection | <ul style="list-style-type: none"> ▪ Job creation ▪ Upgrades to public transportation system ▪ Increased ridership on public transportation ▪ Improved performance by public transportation providers ▪ Increased energy efficiency |
| Foster collaboration among neighboring and regional states in seeking federal assistance | <ul style="list-style-type: none"> ▪ Governor's Office ▪ Connecticut General Assembly ▪ Municipalities | <ul style="list-style-type: none"> ▪ More regional federal grant applications/funding awarded |

Commission Membership**Ex Officio Members:**

| | |
|------------------------------|--|
| Catherine Smith (Chair) | Commissioner, Department of Economic and Community Development |
| Todd Berch | CT State AFL-CIO |
| Karl Prewo | CT Academy of Science and Engineering |
| Sharon Palmer | Commissioner, Department of Labor |
| Stefan Pryor | Commissioner, Department of Education |
| Jacqueline Johnson | Office of Higher Education |
| John Rathgeber | CT Business and Industry Association |
| Senator Gary LeBeau | Co-Chair, Commerce Committee |
| Representative Chris Perone | Co-Chair, Commerce Committee |
| Senator Scott Frantz | Ranking Member, Commerce Committee |
| Representative Gail Lavielle | Ranking Member, Commerce Committee |

Appointed Members:

Jeffrey Seemann
Vice President of Research,
UConn

Jon Winkel
Kodak

Henry Lowendorf
Greater New Haven Peace Council

Steve Paulone
Post University

John Harrity
CT State Council of Machinists

Richard McCombs
International Brotherhood of
Electrical Workers

Eric Remington
Kaman

Appointed By:

Senator Donald E. Williams
Representative of a large manufacturing concern

Senator Donald E. Williams
Representative of a financial institution

Representative Joe Aresimowicz
Representative of a peace organization

Representative Lawrence Cafero
Representative of an educational institution

Governor Dannel P. Malloy
(representing manufacturing unions recommended by CT
State AFL-CIO President)

Governor Dannel P. Malloy
(representing manufacturing unions recommended by CT
State AFL-CIO President)

Representative Brendan Sharkey
Representative of a large business heavily dependent on
prime defense contracts or subcontracts

No Appointment Made

Representative Brendan Sharkey
Representative of a small business heavily dependent on
prime defense contracts or subcontracts

No Appointment Made

Senator John McKinney
Representative of an environmental organization

Commission Overview and Process

Commission Process

When Public Act 13-19 was signed into law, the Commission on Connecticut's Future was created. The Connecticut Department of Economic and Community Development has administered the Commission on Connecticut's Future since inception. The Commission held a total of fifteen meetings. At many of these meetings the Commission members heard from industry, academia, and government officials on topics related to the Commission's charge. In addition to hearing presentations from outside sources at Commission meetings, some Commission members presented to the other members on aspects of the Commission's charge related to their expertise. Generally, these meetings began with presentations and if time allowed, there were open discussions among Commission members and input from any members of the public who so desired.

| Meeting | Location | Presenter | Presentation Title |
|------------------|---|---|---|
| October 1, 2013 | Legislative Office Building, Hartford | N/A | N/A |
| December 2, 2013 | Legislative Office Building, Hartford | Patrick Flaherty, Economist, CT Department of Labor | "Connecticut's Labor Workforce and Trends" |
| | | Commissioner Catherine Smith, Department of Economic and Community Development | "Department of Economic and Community Development's Strategic Plan" |
| January 16, 2014 | Legislative Office Building, Hartford | Commissioner Catherine Smith, Department of Economic and Community Development | "Focus on Economic Growth" |
| March 4, 2014 | Department of Energy and Environmental Protection, Hartford | Deputy Commissioner Macky McCleary, Department of Energy and Environmental Protection | "Green Technology as a Sector of the Connecticut Economy" |
| May 12, 2014 | Department of Transportation, New Haven | Commissioner James Redeker, Department of Transportation | "Overview of Transportation Initiatives for Connecticut" |
| June 24, 2014 | Yale School of Forestry and Environmental | Dr. Marian Chertow, Yale School of Forestry and Environmental | "Alternatives to Defense Industry in Connecticut" |

| | | | |
|--------------------|---|---|---|
| | Studies, New Haven | Studies | |
| July 28, 2014 | Post University, Waterbury | Dr. Stephen Paulone, Malcolm Baldrige School of Business at Post University | "Post University's Role in CT's Future" |
| | | Dr. Jeffrey Seeman, Vice President of Research, UConn | "UConn's Role as an Economic Development Engine for CT" |
| August 25, 2014 | Connecticut Center for Advanced Technology, East Hartford | Dr. Miriam Pemberton, Research Fellow, Institute for Policy Studies | "The Commission's Task" |
| | | Elliot Ginsberg and Patricia Downs, Connecticut Center for Advanced Technology | "Regional Aerospace and Defense Exchange Program" |
| September 30, 2014 | University of Connecticut Avery Point, Groton | Thomas Plante, Program Manager, Electric Boat | "Electric Boat: Business Overview" |
| | | John Beauregard, CEO, Eastern CT Workforce Investment Board | "Examining the Southeastern Connecticut Labor Market" |
| | | Bob Banker, Technical Director/Vice President, Sonalysts | "Sonalysts Overview" |
| October 10, 2014 | Post University, Waterbury | N/A | N/A (Discussion of recommendations) |
| October 23, 2014 | Burroughs Community Center, Bridgeport | Mitch Horowitz, Vice President and Managing Director, Battelle Technology Partnership Practice | "Commission on Connecticut's Future: Best Practices in Economic Development and Connecticut's Position" |
| | | Liddy Karter, Managing Director, Enhanced Capital Partners | "Status of Venture Investing in CT" |
| | | Dr. Heidi Garrett-Peltier, Assistant Research Professor, Political Economy Research Institute - University of Massachusetts | "Revitalizing Manufacturing: Climate Policy and Industrial Policy" |

| | | | |
|-------------------|--|--|---|
| | | Susan Winkler, Executive Director, Connecticut Insurance & Financial Services | “Strengthening and Advancing the Industry” |
| November 6, 2014 | Department of Economic and Community Development, Hartford | Chris DiPentima, President/Director, Aerospace Component Manufacturers | “ACM Presentation to CFF” |
| | | Cathy Awaad, Executive Director, Northwest Regional Workforce Investment Board | “Commission on Connecticut’s Future” |
| November 19, 2014 | Department of Economic and Community Development, Hartford | N/A | N/A (Discussion of recommendations/report) |
| November 24, 2014 | Department of Economic and Community Development, Hartford | N/A | N/A (Discussion of recommendations/report) |

In addition to meetings, the Commission members each had the opportunity to meet individually with a representative of the Department of Economic and Community Development to discuss any issues that a Commission member believed should be included or addressed in this report. Commission members also conducted various forms of outside research to inform their input for this Commission and this report.

The Commission meetings were held in several locations around Connecticut. This served as a strategy to increase the breadth of input that the Commission received. Additionally, the various locations allowed for public access to the Commission meetings, should members of the public have chosen to attend. Each region of Connecticut is unique and has unique concerns relating to the charge of this Commission. Holding meetings in various regions of Connecticut allowed for this consideration to be realized.

Report by Karla Lindquist, MS, Policy Fellow

Links:

[Public Act 13-19](#)

[Department of Economic and Community Development's Strategic Plan](#)

Endnotes

-
- ⁱ Flaherty, Patrick J. "Long-Term Industry and Occupational Projections: 2012 – 2022." The Connecticut Economic Digest, Vol. 19, No. 9.
- ⁱⁱ Connecticut Public Act No. 13-19: AN ACT CONCERNING THE COMMISSION ON CONNECTICUT'S FUTURE. Page 2, Section 1(c).
- ⁱⁱⁱ Ibid.
- ^{iv} Ibid, Section 1(d)
- ^v Ibid, Section 1(d)
- ^{vi} Connecticut Department of Labor. Labor Market Information. Office of Research. Last Updated: November 20, 2014. <http://www1.ctdol.state.ct.us/lmi/recessionaryjoblosstable.asp>
- ^{vii} "Connecticut's Economic Development Strategy – Spring, 2014." Connecticut Department of Economic and Community Development. Strategic Plan, Page 1.
- ^{viii} Ibid.
- ^{ix} Ibid, Page 7.
- ^x Ibid, Page 7.
- ^{xi} Ibid, Page 7.
- ^{xii} Flaherty, Patrick J. "Long-Term Industry and Occupational Projections: 2012 – 2022." The Connecticut Economic Digest, Vol. 19, No. 9.
- ^{xiii} Ibid.
- ^{xiv} "Connecticut's Economic Development Strategy – Spring, 2014." Connecticut Department of Economic and Community Development. Strategic Plan, Page 9.
- ^{xv} David Bauman. "Connecticut's Manufacturing Report Card." UConn Today. December 12, 2012. <http://today.uconn.edu/blog/2012/12/connecticuts-manufacturing-report-card/>
- ^{xvi} Ibid.
- ^{xvii} Cameron, Doug and Chelsey Dulaney. "General Dynamics Earnings Rise on Aerospace Demand." The Wall Street Journal. <http://online.wsj.com/articles/general-dynamics-earnings-rise-on-aerospace-demand-1413978792>
- ^{xviii} Connecticut Public Act 14-98: AN ACT AUTHORIZING AND ADJUSTING BONDS OF THE STATE FOR CAPITAL IMPROVEMENTS, TRANSPORTATION AND OTHER PURPOSES, AND CONCERNING MISCELLANEOUS PROGRAMS, INCLUDING THE SMART START PROGRAM, THE WATER IMPROVEMENT SYSTEM PROGRAM, SCHOOL SECURITY GRANTS, THE REGENERATIVE MEDICINE RESEARCH FUND, THE CONNECTICUT MANUFACTURING INNOVATION FUND AND THE BOARD OF REGENTS FOR HIGHER EDUCATION INFRASTRUCTURE ACT. Sec. 49 (d).
- ^{xix} Ibid.
- ^{xx} "United Technologies Commits Long Term to Connecticut." The Business Edge: News from Connecticut's Economic Development Team. Issue 16, March 2014.
- ^{xxi} The New England Defense Industry: Current Profile and Economic Significance, Connecticut Profile. Defense Technology Initiative. November 2012. Page ii.
- ^{xxii} Ibid.
- ^{xxiii} Greenberg, Maurice R. "Trends in U.S. Military Spending." Council on Foreign Relations. Center for Geoeconomic Studies. Page 1.
- ^{xxiv} Electric Boat Business Update, Presentation to Commission for [sic] Connecticut's Future, September 30, 2014.
- ^{xxv} Shalal, Andrea. "Pratt & Whitney signs deal with Pentagon for next F-35 engines." Reuters. October 14, 2014. <http://www.reuters.com/article/2014/10/15/us-pentagon-fighterplane-idUSKCN0132N820141015>

- ^{xxvi} PricewaterhouseCoopers & Manufacturing Institute, "Aviation's second golden age: Can the US aircraft industry maintain leadership?" December 2013.
- ^{xxvii} "Pockets of Turbulence: The 2013 Aerospace & Defense Industry Outlook." Alix Partners. June 2013. Page 5.
- ^{xxviii} U.S. Department of Energy, Energy, Efficiency, and Renewable Energy, "State of the States: Fuel Cells in America 2013." 4th Edition. October 2013.
- ^{xxix} "Connecticut's Economic Development Strategy – Spring, 2014." Connecticut Department of Economic and Community Development. Strategic Plan, Page 10.
- ^{xxx} Ibid.
- ^{xxxi} "Energy for the Warfighter: Operational Energy Strategy." United States Department of Defense. 2012. Page 1.
- ^{xxxii} Lead by Example. Connecticut Department of Energy and Environmental Protection. Last Updated: September 18, 2014. http://www.ct.gov/deep/cwp/view.asp?a=4405&Q=489980&deepNav_GID=2121
- ^{xxxiii} "Connecticut's Economic Development Strategy – Spring, 2014." Connecticut Department of Economic and Community Development. Strategic Plan, Page 8.
- ^{xxxiv} Ibid.
- ^{xxxv} "2013 Connecticut insurance market brief: A year in review, the future ahead." PricewaterhouseCoopers and Connecticut Insurance & Financial Services. Page 9.
- ^{xxxvi} "Status of Venture Investing in CT." Presentation to Commission on Connecticut's Future by Liddy Karter. Page 5. October 23, 2014.
- ^{xxxvii} Ibid, Page 10.
- ^{xxxviii} Connecticut Department of Labor. Office of Research: Labor Market Information. Workforce Employment Dynamics (WED). Age by Industry. <http://www1.ctdol.state.ct.us/employmentdynamics/IndustryAge.aspx>
- ^{xxxix} Flaherty, Patrick J. "Long-Term Industry and Occupational Projections: 2012 – 2022." The Connecticut Economic Digest, Vol. 19, No. 9.
- ^{xl} "2014 Survey of Connecticut Manufacturing Workforce Needs." Connecticut Business & Industry Association. Hartford, CT. Page 4.
- ^{xli} Strategic School Profile 2012 – 2013, Connecticut Technical High School System. Connecticut State Department of Education, Connecticut Education Data and Research. <http://sdeportal.ct.gov/Cedar/WEB/ResearchandReports/SSPReports.aspx>
- ^{xlii} Connecticut. Dream It. Do It. Connecticut Center for Advanced Technology. <http://www.ctdreamitdoit.com/about>
- ^{xliii} "CSCU: Becoming a World-Class System of Higher Education." Connecticut State Colleges and Universities, Board of Regents for Higher Education. Page 15. <http://www.ct.edu/files/pdfs/transform-presentation.pdf>
- ^{xliiv} Connecticut Manufacturing Centers. Connecticut State Colleges and Universities, Board of Regents for Higher Education. <http://www.ct.edu/academics/manufacturing>
- ^{xlv} "2013 Report Card for America's Infrastructure." American Society of Civil Engineers. <http://www.infrastructurereportcard.org/a/#p/state-facts/connecticut>
- ^{xlvi} "Making Great Transportation." Presentation to Commission on Connecticut's Future by Commissioner James Redeker. May 12, 2014.