Where did the green jobs go?
A case study of the Boston metropolitan region

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Where did the green jobs go?
The green jobs movement was a part of a nation-wide effort to address economic injustice while also directly contributing to the preservation or enhancement of environmental quality in America's urban centers. Attempts to realize the movement were seeded largely through American Recovery and Reinvestment Act funding, at a time when the United States was facing its greatest economic recession since the Great Depression. With high hopes, urban governments organized and implemented green workforce development programs with the vision of creating family-supporting, career pathways that would help address the challenges of climate change.

This thesis, through the use of semi-structured interviews, analyzes how the green jobs movement began and ended in the Boston metropolitan region. My findings support that the primary reasons for the collapse of green workforce development programs were that cooperation between organizations was minimal, which resulted in duplicate programs or programs that were never fully realized. Additionally, my findings support the conclusion discussed in the literature that green jobs do not constitute a separate classification of work. Finally, the green jobs movement was not capable of alleviating the stress placed on the Bostonian labor supply by the Great Recession beginning in late 2008 and ending in 2012.

The conclusion of the case study is not that the green-collar economy cannot be realized in the Boston metropolitan region. Instead, the summary findings are that progress was made towards achieving sustainable development goals, propelled predominantly by the success of the clean energy industry and the emergence of municipal energy functions. Policymakers who wish to support the growth of the green-collar economy and sustainability can do so through more coordinated efforts, utilizing the groundwork laid by the green jobs movement.

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I would like to thank my close friends and family for supporting me on my journey to complete my Master in City Planning degree. It was a long, winding road that led me to this point. I wouldn’t have been able to start down this path if my parents hadn’t been there for me in 2012. In the years following and leading up to my graduate school applications, reconnecting with my brother, Kyle, and my old friends Patrick, Ravi, Trent, and Jeremy helped bring stability to my life. For their presence and love, I am eternally grateful.

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Finally, I would like to thank those who participated in the interviews that informed the findings of my thesis. The conversations we shared were enlightening and gave me hope that there are indeed people out there who care about creating a sustainable and just future.

Pivoting my career and pursuing a masters in a foreign field was an immense personal challenge, one motivated by the sense of urgency that many of us feel in the United States at this time. While I am happy to have made it this far and achieved my goal of completing my masters before turning 28, I still have a lot of work to do.
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Chapter 1

Introduction

1.1 Overview

The Commonwealth of Massachusetts has defined their own Sustainable Development Principles in a 10–point document, encompassing the state’s guiding vision for how to care for the natural and built environment while prioritizing equitable development that will deliver “good jobs and good wages.” Among the Commonwealth’s Sustainable Development Principles are the following:\footnote{Mass.gov. \textit{Sustainable Development Principles}. URL: \url{www.mass.gov/envir/smart_growth_toolkit/pdf/patrick-principles.pdf}.}

2. “Advance Equity — Promote equitable sharing of the benefits and burdens of development. \textit{Provide technical and strategic support for inclusive community planning and decision making to ensure social, economic, and environmental justice.} Ensure that the interests of future generations are not compromised by today’s decisions.

8. Increase Job and Business Opportunities — Attract businesses and jobs to locations near housing, infrastructure, and transportation options. Promote economic development in industry clusters. \textit{Expand access to education, training, and entrepreneurial opportunities. Support the growth of local businesses, including sustainable natural resource-based businesses, such as agriculture, forestry, clean energy technology, and fisheries.}


10. Plan Regionally — \textit{Support the development and implementation of local and regional, state and interstate plans that have broad public support and are consistent with}
these principles. Foster development projects, land and water conservation, transportation and housing that have a regional or multi-community benefit. Consider the long-term costs and benefits to the Commonwealth.”

I’ve chosen to highlight the above principles and emphasized what I believe are key components to communicate the central ideas that I wish to discuss and challenge in my thesis.

- During the period following the Great Recession, from 2009 to 2012, when the American Recovery and Reinvestment Act (ARRA) funded investment in green-collar job growth, did the growing emphasis on climate adaptation and clean energy in Massachusetts serve to create sustainable career pathways for unskilled and low-income workers?

- Did the Boston metropolitan region develop a more robust, sustainability oriented culture across its public and private spheres as a result of the green jobs movement?

Sustainable development is a loosely defined organizing principle pertaining to a wide range of social and environmental sustainability objectives, with no clearly defined methodology or set of practices for achieving said objectives. Challenges like climate change, soaring inequality and global economic crisis spurned a wave of investment in “green-collar” jobs in the United States in 2009, catalyzing the mobilization of urban coalitions attempting to solve the social, environmental, and economic crises faced in their communities. Since the Great Recession, the Commonwealth of Massachusetts has been nationally recognized as a leader in the clean energy sector, with Boston ranked as the most energy efficient city in the country as of 2017. However, the emergence of a strong clean energy sector and an emphasis on energy efficient buildings does not mean that the Bostonian private sector has fully embraced the Triple Bottom Line of sustainable business practices, or that public workforce development programs are including low-income citizens in the green economy. The green jobs movement occurring in parallel with the rise of the clean energy sector in Boston and Massachusetts poses a unique context to evaluate. The Commonwealth and the Boston metropolitan region planned sustainable development goals and attempted to integrate environmental conscientiousness into their programs oriented at economic development and poverty alleviation. Analyzing how successful these green workforce development programs were will inform how the public and private sectors can coordinate to meet broader sustainability objectives. Ultimately, it appears that the green jobs movement in Boston was unsuccessful in establishing career pathways that could provide family-sustaining wages in the green economy but was successful in contributing to the growing momentum driving forward the transition to more sustainable, low-carbon economy.

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1.2 Research Questions

In order to better understand how the green jobs movement that occurred with American Recovery and Reinvestment Act (ARRA) funding contributed to a more robust, green economy in the Boston metropolitan region case study, my thesis seeks to answer the following main question and related sub-questions:

1. Given the surge of federal funding into the “green economy” with the ARRA, how have the Boston metropolitan region’s workforce development institutions adapted to enable participation in the state’s growing green economy?

   (a) Impacts — What lasting impacts have these programs, policies, and plans had on the Boston metropolitan region?

   (b) To ascertain these impacts, I will examine:

      i. For whom and where was “green job” money allocated from 2009-2012?

      ii. How has the region tailored programs, policies, and plans to support “green-collar” jobs?

         A. How is the region “increasing job and business opportunities” in the green economy?

         B. How is the region “planning regionally” for the green economy?

In seeking to answer these questions, I relied predominantly on qualitative evidence to describe the mismatched expectations of the green jobs movement with the reality of minimal job creation but enhanced municipal functions in relation to energy policy and management.

1.3 Thesis Roadmap

What I seek is to examine is the sociological and political narrative of the green economy or green jobs in Massachusetts to see if the green economy or burgeoning clean energy sector is meeting the aforementioned Sustainable Development goals, specifically in the context of workforce development in the Boston metropolitan region. Undoubtedly, Principle #9 is succeeding, but in doing so is the green economy or clean energy sector cooperating with or facilitating regional planning for equity, and are the jobs encompassing more than the energy efficiency and weatherization occupations that were supported by ARRA funding in 2009? Additionally, I seek to understand how the green jobs movement in the Boston metropolitan region might have contributed to a more robust environment for sustainability dialogue and initiatives for the municipalities in question.

Chapter Two comprises the literature review required to define what constitutes the green
economy and how it relates to the clean energy sector, regional governance, and sustainable development. Central to the literature reviewed is what constitutes a “green job” or “green-collar” job, and how these terms are linked to providing family sustaining wages and viable career pathways as a part of a sustainable development strategy.

Chapter Three describes the context in which the green jobs movement was situated at the start of the Great Recession. To start, I examine green economic policies that were formed in the year leading up to the Great Recession and the resulting institutions that were formed from these policies. Next, I examine the Great Recession and the resulting stimulus package (ARRA) that attempted to recover old and create new jobs to understand the context in which the green jobs movement was funded. Local policies that were primed to capitalize on ARRA funding are also detailed.

Chapter Four constitutes the analytical heart of the thesis. The Chapter is structured into four sub-sections, more easily understood as chronological pairs. The first two sub-sections examine select green jobs initiatives and workforce development programs that were funded by the American Recovery and Reinvestment Act (ARRA) from 2009—2012 and the case study findings from these programs. There were too many initiatives and programs that occurred in that timeframe to detail them all in full. Instead, I chose programs that are representative of larger trends of the period and for which I was able to obtain interviews with relevant stakeholders. The second pair of sub-sections describes the current state of workforce development programs and initiatives in the Boston metropolitan region to determine how green economic policies have or have not flourished since ARRA, ending with an analysis of the lasting impacts of ARRA into the present day.

Finally, Chapter Five concludes with a summary of the findings from the previous chapters coupled with recommendations and follow-up research questions derived from the data collected and analyzed in this thesis.

The overarching conclusion of the thesis is that the Bostonian green jobs movement produced similar results to other green workforce development programs around the nation: green jobs in Boston did not yield the desired outcome of providing opportunities for lower-income, unskilled workers to participate in the broader green economy. The failure of the movement is largely attributable to poor coordination among policymakers, workforce actors, employers, and unions. The mission of improving environmental quality, conserving natural resources and reducing energy consumption through green jobs was not achieved in full. However, despite the failures of the green jobs movement, ARRA was successful in creating opportunities for municipalities to take charge of their energy policy and aided the Commonwealth in developing a robust, clean energy economy and a strong energy efficiency sector.
1.4 Methodology

The research performed in this thesis relies heavily on a data collection process aimed mostly at description and analysis using qualitative data. To collect the qualitative data, I conducted 18 semi-structured interviews and analyzed policy reports, press releases, and other secondary information to describe the sociological and political narrative of the green economy and sustainable development in Boston, Massachusetts.

I requested interviews and participation from government and policy officials, employees of municipal workforce and economic development departments, directors and specialists from workforce investment boards, former members of community development organizations, researchers in clean energy and sustainability institutions, and finally, union members and leaders of nonprofits. The interviews sought to discuss the stakeholder’s green jobs initiatives, their goals for workforce development within the green economy, the challenges they faced in the past and face today, and their collaborative efforts to better understand how green workforce development in the Boston metropolitan region is meeting Massachusetts Sustainable Development Principles. Many stakeholders interviewed only agreed to participate under conditions of anonymity: due to the political and highly contentious history of green workforce development in the Boston metropolitan region, it was requested by many stakeholders that names and even job titles were not used.

All of the interviews were conducted over the phone despite my requests to meet in-person. The interviews were requested to be 55 minutes, with actual interview length ranging from 25 to 65 minutes. The average interview ran roughly 48 minutes. All stakeholders interviewed were either active in the Bostonian green jobs movement or are active today in local sustainability efforts. In order to allow the stakeholders to address topics they considered important, the interviews were semi-structured to guide the conversation while leaving room to explore significant ideas.\(^3\)

The interviews were divided into two primary sections: the stakeholder’s previous work and involvement in the green jobs movement, and their current work. All interviews began with the stakeholder presenting a general description of their academic and professional background and how they came to their current role in their organization. Then, more specific questions were individually tailored to the stakeholder. The questions pertained to the following topics, but were not phrased exactly for the interviews as they are generalized in the list below:

1. Previous occupation and involvement in the green jobs movement:
   
   (a) What was the stakeholder’s role in the green jobs movement?

(b) What was the structure and what were the goals of the green workforce development program?

(c) What did the stakeholder believe were success factors and challenges for their programs and the movement as a whole?

(d) What did the stakeholder believe were the primary factors that led their green jobs programs to the historical end result?

(e) What was the stakeholder’s perception of the green jobs movement at the time of their involvement?

2. Current work:

(a) If the stakeholder was involved in workforce development: what were the current industry sectors their programs emphasized?

(b) How did the stakeholder’s current work promote or encourage sustainability, if at all? How could the stakeholder’s current work better promote or encourage sustainability?

(c) What challenges or barriers has the stakeholder’s organization faced in collaborating with other organizations or regional entities?

(d) What are the stakeholder’s recommendations for capacity building or dialogue facilitation around sustainability issues?

(e) What were the lasting impacts of the green jobs movement on the stakeholder’s current work?

To ground the study in the accounts of the stakeholder’s experience, I followed Gioia’s method of treating the interlocutors as “knowledgeable agents.” The study is grounded in the accounts of the informants’ experience by using Gioia’s method, as “knowledgeable agents” are actors who know what they are trying to do and can explain their intentions, actions, and thoughts. Throughout the interview process, I treated the interview transcripts as data and took notes on salient themes emergent from the conversation to create analytical categories and concepts. I have provided exemplary quotes for these categories and concepts in Table 1, reflected on at the end of the next chapter. In this thesis, I will directly quote stakeholders when appropriate. Additionally, I will cite stakeholders when the conversations I had with them and their statements informed the sociopolitical narrative I have constructed. The following citation format is followed when an individual stakeholder informed my analysis: (Stakeholder # - Organization, Interview Date). In order to keep citations tidy, when citing multiple stakeholders I will forgo spelling out each organization


5Dennis A. Gioia, Kevin G. Corley, and Aimee L. Hamilton. “Seeking Qualitative Rigor in Inductive Research: Notes on the Gioia Methodology”. In: *Organizational Research Methods* 16 (1 2013), pp. 15–31.
unless it is the first time a specific stakeholder has been referenced.

In order to support the information gathered from the interviews, I examined Boston’s municipal climate action plans and workforce development plans, American Recovery and Reinvestment Act (ARRA) grants, and Mayor’s Office press releases. To develop a more comprehensive understanding of how the green economy developed and how green jobs entered the national and state workforce rhetoric, I examined the following federal, state, and local policies: the federal Workforce Investment Act, the Massachusetts Electric Industry Restructuring Act, Green Communities Act, and Green Jobs Act, and Boston’s Renew Boston program. Finally, I was provided proprietary wage data by Boston and the MassCEC to better understand the challenges in establishing family-sustaining wages for green jobs.

For quantitative data, I was hoping to find a green economic database of sorts to allow me to conduct a more rigorous economic analysis, including location quotients and job growth trends. However, I could not find publicly available data to match my needs. Instead, I was only able to acquire wage and hiring data through a Freedom of Information Act request to the Massachusetts Clean Energy Center for their Clean Energy Internship Program data. Ultimately, I decided not to use the data gathered from the MassCEC as it was not robust enough to inform concrete analysis.
Chapter 2

Literature Review

In Chapter 2, I have selectively reviewed existing literature on green economic development and how it relates to regional governance, workforce development, and sustainable development. First, I begin by reviewing the definitional scope of green jobs and the green economy. Next, I explore how regional governance and workforce development are interrelated in the 21st century economy. Finally, I transition into sustainable development to better understand how sustainability relates to the environment, the economy, and broader societal improvement goals.

2.1 Green Jobs and Viable Career Pathways

In the late 2000s, “green” economic development became a topic of increasing focus at the federal level. Rising concerns over global climate change led the Obama/Biden Administration to consider alternative methods to energy creation and consumption in America, and the economic downturn brought on by the Great Recession created the opportunity to use energy reform as a vehicle for “green” job growth. The 2007 Green Jobs Act and the 2009 American Recovery and Reinvestment Act brought “green jobs” to the forefront of federal economic development policy, with the backdrop of global climate change steering the early definition of “green jobs” and the “green economy” towards a definition of occupations that promoted energy efficiency, renewably sourced power, and reduction in the use of finite, polluting fossil fuels. In 2010, the Bureau of Labor Statistics defined green

6United States. “Green jobs: a pathway to a strong middle class”. In: Middle Class Task Force, the Vice President of the United States. (2009). url: http://purl.access.gpo.gov/GPO/LPS119201.
jobs as the following for the purposes of data collection:

Green jobs are either:

(A) Jobs in businesses that produce goods or provide services that benefit the environment or conserve natural resources.

(B) Jobs in which workers’ duties involve making their establishment’s production processes more environmentally friendly or use fewer natural resources.\textsuperscript{10}

The Bureau of Labor Statistics further defines what constitutes green goods and services, yet discontinued collecting data for measuring green jobs due to spending cuts in 2013.\textsuperscript{11} Despite national leadership shaping and directing green economic policy, scholarship is still divided over the definition of what constitutes a green job or the green economy.\textsuperscript{12} Additionally, the lack of a widely accepted standard definition for the green economy or what exactly green jobs has led to a plethora of proposals.\textsuperscript{13}

While the definitional scopes of green jobs and green economy remain wide, scholars agree on a few underlying principles of what constitutes a green job in the green economy. A common understanding is that green jobs are related to natural resource and environmental conservation, improving environmental quality, and reducing energy consumption.\textsuperscript{14,15} Green economy is described by Chapple as “economic activity that reduces energy consumption and/or improves environmental quality.”\textsuperscript{16} However, two key points of divergence among the scholarship prevent the emergence of a more succinct definition for green jobs, namely:

1. Does the definition of green jobs necessarily include jobs that provide career opportunities and pathways to low- and mid- skill workers?

2. Does green jobs constitute an emerging sector, or mainly a retailoring of existing professions to suit environmental concerns?

Some scholars assert that new green jobs do provide career opportunities for low- and mid-skill adults due to accessible training programs and career ladders that other industries lack. Others purport that building the green economy is driven by technology innovation, and green jobs are merely existing jobs in the same areas of employment that people already work in but with the added benefit of improving environmental quality. The elusive definition for green jobs provides significant challenges for workforce development programs around the United States, as “green jobs is not a salient category for policy innovation or workforce training.” Additionally, workforce development programs can utilize the language of “green workforce development” to different ends: focusing on job placement and retention in industries that can support environmentally sustainable objectives, or emphasizing the environmental element at the cost of guaranteed placement or living wages. Further muddying the concept of green economic development is the assertion that green economic development pertains more to businesses than workers: Hess argues that the phrase has been used mainly for business loan programs and subsidies, instruments for regional development clusters, and assistance with gaining access to capital and to markets.

For some scholars, inherent within the idea of green economic development is the notion of social sustainability and green jobs providing career pathways and family-sustaining wages for workers. However, it has been argued that green economic development will not achieve those goals without a mix of policy innovation, union or organizational partnerships, and career and technical education aligned with the needs of green employers.

18. R. R Pinderhughes. “Green collar jobs: An analysis of the capacity of green businesses to provide high quality jobs for men and women with barriers to employment”. In: Berkeley, CA: City of Berkeley (2007).
27. White and Walsh, “Greener Pathways: Jobs and Workforce Development in the Clean Energy Economy”.

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Decade-long disagreement over the scope and scale of green jobs and green workforce development warrants an investigation into how the Boston metropolitan region’s workforce development programs align development and job placement goals with environmental objectives.

The two most prevalent ideas regarding what a green job does or should constitute is that the work contributes to environmental and social sustainability. Environmental sustainability can be viewed as work contributing to natural resource and environmental conservation, improving environmental quality, and reducing energy consumption. The social sustainability aspect relates to traditional career pathway development and wages that aid poverty alleviation. My thesis seeks to understand if the theory of green jobs as workforce development programs does possess the inherent linkage between environmental and social sustainability that scholars have postulated.

I anticipate that the linkage is not inherent. The existing neoliberal capitalist paradigm of industry and business development in the United States leads me to believe that any new, emerging sectors whose business model is built around contributing to environmental sustainability will be heavily reliant on high capital investment and innovation devoted primarily towards short-term fiscal returns to guarantee economic stability. This paradigm makes achieving both environmental and social sustainability goals difficult until stability within the business is reached, and therefore implies that environmental and social sustainability are not equally weighted from the outset. Likewise, the concept of “greening” existing professions does not imply that social sustainability is an equal priority to environmental sustainability. I believe my research will show that the linkage between social and environmental sustainability in green jobs has less to do with the intrinsic duties performed by a green job or business and more to do with prevailing cultural norms that lead to progressive policy and organizational partnerships seeking to enhance social sustainability for professions and sectors that are environmentally conscientious.

2.2 Regional Governance and Industry Clusters

Understanding metropolitan regions and regional governance in the United States is dependent on recognizing that the federal government has designated over 350 metropolitan regions, primarily for gathering statistical data. These statistical areas have no formal political or legal authority — however, actors within their boundaries are increasingly acting in a collective capacity. In 2005, the George W. Bush Administration created the

Workforce Innovation in Regional Economic Development (WIRED) Initiative, of which a key component was strengthening regional identity and economy. With no formal regional governance model established in the United States, it is important to examine how governance has grown to operate in these contexts and what benefits regional governance adds. Governance has been defined by Miller and Lee as “a collective decision-making process in which governmental organizations at all levels, nonprofit organizations, and the private sector now work together in new partnerships and relationships for the collective social benefit.” The growth of industrial clusters, along with urban sprawl, and declining inner-suburban areas has given rise over the past few decades to the idea of regional collaboration as beneficial to expanding political and economic jurisdictions for the purposes of local economic inclusion in larger, burgeoning economic structures. Carlson, Holm, and Uhalde elaborate on the benefits of regional collaboration as it pertains to workforce development, mentioning numerous advantages such as facilitating technology and information transfer, developing new products and services, identifying and opening access to new markets, and facilitating transfer of and access to specialized suppliers, services, materials, and equipment. Yet, collaboration between organizations which each have their own accountability and governance structures can create a fragmented system lacking the necessary capacity to ensure proper collaboration. In short, the absence of a centralized authority hinders regional collaboration and associated workforce development efforts.

Miller and Lee’s analysis of Boston’s Metropolitan Planning Organization revealed that local government officials in the Boston region were twice as likely to interact with the state as among themselves: “given the absence of a county government, local municipalities are heavily dependent on the state government regarding interjurisdictional policy prob-

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33 Meléndez et al., “The Restructured Landscape of Economic Development: Challenges and Opportunities for Regional Workforce Development Collaborations”.


37 Meléndez et al., “The Restructured Landscape of Economic Development: Challenges and Opportunities for Regional Workforce Development Collaborations”.

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lems.” It is unclear what impact this has on Boston’s ability to facilitate or take part in regional workforce development initiatives. Melendez et. al describes how effective and sustainable regional workforce development initiatives “are created and promoted through an anchor organization that has programmatic and jurisdictional authority throughout a region, through state government initiatives that promote regional workforce collaboration, and when the geographic and programmatic capacity of regional workforce development organizations is bolstered.” Anchor organizations can also help facilitate gap reduction strategies, or strategies that identify key trade skills for industry clusters and partner with education and business leaders to create solutions that address identified gaps.

Industry clusters, originally coined business clusters, have been described by Porter as a “geographical location where resources and competencies reach a critical threshold that gives the region a key position in a given economic branch of activity and a decisive, sustainable competitive advantage over other places.” As noted before, industry clusters play a key role in facilitating regional collaboration, and represent a new way of thinking for local, state, and national economies due to the interconnected roles of government, companies, and outside institutions in enhancing the clusters’ competitiveness. Case study analysis of regional workforce development programs which focused on industry clusters in Tennessee and South Carolina showed that a key success factor was the “active involvement and engagement of many different (often indifferent) constituencies.” Industry clusters like the clean tech cluster of Massachusetts and Boston should be no different in this regard.

Three interrelated ideas are present in this section that together form a model for successful regional economic growth: industry clusters, anchor organizations, and regional governance. The idea of regional collaboration as beneficial to expanding political and economic jurisdictions for the purposes of local economic inclusion in larger, burgeoning economic structures couples well with the concept of an anchor organization helping to drive regional workforce development programs targeting a specific industry cluster. In this thesis I will examine how this model applies to the Boston metropolitan context: the clean energy industry cluster is supported by the Massachusetts Clean Energy Center, an anchor organization, which contributes to clean energy workforce development programs.

38 Miller and Lee, “Making Sense of Metropolitan Regions: A Dimensional Approach to Regional Governance”.
39 Meléndez et al., “The Restructured Landscape of Economic Development: Challenges and Opportunities for Regional Workforce Development Collaborations”.
43 Ibid.
around the state and in Boston.

### 2.3 Sustainable Development and the Clean Tech Sector

Inherent to the concept of sustainable development, often credited as having first appeared in the Brundtland Report, is the notion of stewardship, or ensuring that the interests of future generations are not compromised by the actions taken by people today. Today, sustainable development is used worldwide, with new interpretations specific to geographies appearing with surprising frequency as the concept remains elusive and hard to define due to its economic, social, and environmental dimensions. "Green jobs" suffers from a similarly wide definitional scope, but as reviewed early can also be seen to encompass a breadth of economic, social, and environmental dimensions.

The multiple dimensions of sustainable development can be recognized and fulfilled through a variety of programs and professions. One example is urban agriculture. Urban agriculture can be seen as a method of job creation, capital attraction and turning unutilized land into taxable property, and also as a method of developing “the human and social capital necessary to effectuate ‘inside-out’ community revitalization.” “Green jobs” was used in a press release by the Boston Mayor Walsh’s office to describe an urban farming initiative, yet skeptics in the literature doubt urban agriculture’s ability to produce family-sustaining wages and therefore be effective as an economic development vehicle. The inclusion of urban agriculture in the green job rhetoric of Massachusetts can help us understand the framework under which jobs can be considered to meet the goals of sustainable development. Green jobs in Massachusetts has traditionally meant clean tech jobs, starting with the founding of the Massachusetts Clean Energy Center under the Green

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50 Vitiello and Wolf-Powers, “Growing food to grow cities? The potential of agriculture foreconomic and community development in the urban United States".

21
Lawhon and Murphy have noted the potential of clean tech clusters to foster a “sustainability transition” strategy, seeking to bring both public and private actors together to create a more sustainable vision of capitalism. As the clean tech sector in Massachusetts has boomed over the past decade, comprised mainly of energy efficiency, weatherization, and renewable deployment, state rhetoric has continually emphasized the spurring of economic development while meeting climate change adaptation goals. Yet, a missing part of the dialogue is how equitable the development of the booming clean energy economy has been, and how workforce development programs in the state have adjusted their programs to meet the needs of the clean energy economy. If only environmental and economic motivations are considered, then the clean energy economy in Massachusetts seems more of a re-tooling of existing neoliberal economic principles than an exemplar of sustainable development.

### 2.4 Sustainable Capitalism

In examining the impacts of the green jobs movement in the Boston metropolitan region case study, I am seeking to understand how a more sustainable vision of capitalism can be built through the linkage of three core concepts that still need clarity in the literature.

1. Is there an intrinsic link between environmental and social sustainability in green jobs? Was this link present in the Bostonian green jobs movement?

2. Is regional workforce collaboration driven by industry clusters? What role do anchor organizations play in fostering this regional collaboration? How much do organizations in the Boston metropolitan region rely on state government for interjurisdictional support? Is there an informal or formal mode of regional governance at play?

3. Has the clean tech sector in Massachusetts fostered a “sustainability” strategy that brings together both public and private actors together to create a more sustainable vision of capitalism?

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52. H.R.2847, “Green Jobs Act of 2007”.


From the literature, it is still unclear if the definition of green jobs includes elements of both environmental and social sustainability. There is agreement on the environmental component, but little practical evidence of the successful integration of social and environmental sustainability. Additionally, it is unclear if the clean tech sector, which can be considered to lie within green jobs, can help create a more sustainable vision of capitalism by bringing together private and public actors. Finally, case studies of regional workforce collaboration driven by industry clusters and anchor organizations have been observed and analyzed before. However, it is unclear if the Commonwealth’s clean tech industry and anchor organizations reaffirm the notion of regional collaboration as beneficial to expanding political and economic jurisdictions for the purposes of local economic inclusion in larger, burgeoning economic structures. By collecting and analyzing evidence about the Boston green jobs movement to help answer these questions, I aim to determine whether or not a vision of sustainable capitalism that makes cities more environmentally sustainable and hospitable to the economically challenged is a rational goal for urban planning.
Chapter 3

The Emerging Green Economy in Boston

Chapter 3 provides context on how the intersection between workforce development and environmental sustainability has evolved in the Boston metropolitan area by dividing the evolution chronologically into 2 sub-sections. First, policies which have led to present-day workforce development conditions and investment in renewable energy in the Commonwealth and Boston will be described. Second, emphasis is placed on detailing how the policy and legislation developed alongside the Obama/Biden administration’s American Recovery and Reinvestment Act (ARRA) acted as a transitory period for the green economy in the Commonwealth and Boston.

3.1 Formative Green Economic Policies

How the present green economy in Boston came to be can most easily be understood by describing Massachusetts state policy implementation beginning in the late 1990s. Renewable energy entered state legislation beginning in 1997 with the Electric Industry Restructuring Act, an act responding to the stagnation of the electricity transmission industry caused by the vertically-integrated utility model prevalent at the time. The Electric Industry Restructuring Act created the Renewable Portfolio Standard framework, stipulating that at a later date an as-yet-determined percentage of electricity generation in the Commonwealth would be sourced from renewable energy sources, eventually leading to a compliance obligation of one percent by 2003.\(^{56}\) Massachusetts can be considered a national leader when

\(^{56}\)MA Legislature. “AN ACT RELATIVE TO RESTRUCTURING THE ELECTRIC UTILITY INDUSTRY IN THE COMMONWEALTH, REGULATING THE PROVISION OF ELECTRICITY AND OTHER SERVICES, AND PROMOTING ENHANCED CONSUMER PROTECTIONS THEREIN”. In: ().. URL: malegislature.gov/Laws/SessionLaws/acts/1997/Chapter164..

it comes to renewable and clean energy policy, as renewable energy policy didn’t reach the national level until several years later when the Bush/Cheney administration signed the Energy Independence and Security Act of 2007, an act which included a green jobs provision for the creation of an energy efficiency and renewable energy training program by amending the Workforce Investment Act of 1998.\(^{58}\)

Modern workforce development initiatives and organizations in Massachusetts trace their lineage back to the Workforce Investment Act of 1998 (WIA), a federal act reforming workforce development by “streamlining services through a One-Stop service delivery system.”\(^{59}\) The Commonwealth had been a national leader when it came to aligning state education and training funding due to its “regional employment boards” that were established in 1988.\(^{60}\) The WIA expanded on the Commonwealth’s pre-existing regional employment boards with the creation of sixteen Workforce Boards.

In 2008, renewable energy policy and workforce development programs in the Commonwealth began to merge with the Green Communities Act and the Green Jobs Act. The Department of Energy Resources (DOER) and the Massachusetts Clean Energy Center (MassCEC) were created through the Green Communities Act and the Green Jobs Act, respectively, to advance the Commonwealth’s goals of reducing reliance on fossil fuels, promoting clean energy jobs and workforce training in clean energy technology, and creating a foundation for a clean energy industry sector or cluster.\(^{61,62}\) The Green Communities Act tripled utility-driven efficiency efforts by requiring electric and gas investor-owned utilities to prepare energy efficiency plans that would secure for customers all available resources for efficiency that cost less than new energy supplies.\(^{63}\) Mentioned earlier, the electric utility deregulation process of 1997 also created the Massachusetts Renewable Energy Trust Fund, a fund paid for by electric ratepayers of investor owned utilities in the Commonwealth and which supports the MassCEC in its entirety.\(^{64}\) The MassCEC was formed to support entrepreneurship, workforce development, and research and development in the clean energy sector, with the following goals for the organization outlined in Chapter 23J of the state legislature (paraphrasing done by author).\(^{65}\)


\(^{63}\) Ibid.


\(^{65}\) Commonwealth of Massachusetts. “Chapter 23J: Massachusetts Clean Energy Technology Center”. In: ( ). url: https://malegislature.gov/Laws/GeneralLaws/PartI/TitleII/Chapter23J.
i Act as the commonwealth’s lead agency in the promotion and development of jobs in the clean energy sector;

ii Promote research and workforce training in clean energy technology at the commonwealth’s public institutions of higher education, as defined in section 5 of chapter 15A, and vocational technical schools, as established in sections 14 and 15, chapter 74 or any vocational technical school that meets the programmatic requirements established by the department of elementary and secondary education;

iii Stimulate the creation and development of new clean energy ventures that will form the foundation of a strong clean energy industry sector or cluster in the commonwealth;

iv Provide support to existing clean energy companies to expand their operations within the commonwealth;

v Attract new capital and research facilities from institutions outside the commonwealth;

vi Foster collaboration between industry, state government, research universities and the financial sector to advance clean energy technology commercialization and venture development;

vii Conduct market research to identify barriers to creating and expanding a clean technology industry, including job training needs;

viii Support demonstration projects that are evaluated by independent, third-party peer research institutions;

ix Serve as the clearinghouse for information related to the clean energy industry in the commonwealth;

x Promote programs and investments that lead to pathways towards economic self sufficiency for low and moderate-income individuals and communities in the clean energy industry; and

xi Perform any other actions necessary to effectuate the state’s public interests.

The Commonwealth’s emphasis on clean, renewable energy as a driver for economic growth and environmental benefits can be seen as an integral part of the state’s sustainable development strategy, putting Massachusetts at the forefront of the nation’s increasingly technologically driven economy and the national response to climate change. Even before the establishment of the MassCEC, a Pew Charitable Trust report found that the Commonwealth had more clean energy jobs than the national average in 2007. Despite an overall job growth decrease of 4.4 percent from 1998-2007, clean energy jobs increased by 4.3 percent in the Commonwealth. The entry of the “green jobs” rhetoric into workforce development through the MassCEC is rooted in the transition into and integration of renewable energy policy into national and state policy.

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Examining the MassCEC’s organizational goals above creates a framework through which to understand how important the clean energy sector was for the Boston metropolitan green jobs movement. The clean energy industry that the MassCEC supports directly addresses environmental sustainability by improving environmental quality by facilitating the transition away from carbon-emitting fossil fuel energy sources. Additionally, section vii and x of the organizational goals directly address the social sustainability component of green jobs that was reviewed as an inherent part of green jobs in the previous chapter. The MassCEC serves as model in this thesis for how an anchor organization can contribute to the development of an industry cluster that utilizes a strong, collaborative regional network. If environmental and social sustainability are rational objectives for workforce development programs, they need to be rooted in occupations that have underlying economic value creation. The MassCEC demonstrates how these objectives would not be achievable if there wasn’t also the inclusion of goals pertaining to innovation and value addition, as seen in organizational goals ii, v, and viii.

For the rest of the thesis I will follow a case study structure with nested cases: I will begin with a top-down examination of federal, state, and finally metropolitan policy which leads into local workforce development plans (Figure 1 below). Next, I will transition from the American Recovery and Reinvestment Act period to the present day in a bottom-up approach: I will begin with local workforce development plans, and then transition into the end of the thesis with metropolitan and state level planning. The top-down to bottom-up approach serves to help construct the sociopolitical narrative of the green jobs movement in Boston: by describing how the movement started at the national level and was enacted at the state and local levels in Massachusetts, and then examining the remnants of the movement at the local level back up to the state, the thesis will create a holistic narrative of how environmental and social sustainability did or did not become embedded in the culture of the Boston metropolitan region as a result of the green jobs movement. The specific policies and workforce programs detailed were selected largely by the availability of information and their relationships to each other. The fragmented memory of the green jobs movement in Boston left little behind of several programs and initiatives: in some cases only names of programs persist with no contact information listed for those who supposedly ran them, making them unusable for analysis beyond noting that the memory of the movement has already begun to fade.
Figure 1: Case Study Diagram
3.2 Economic Recession and the ARRA

The global financial crisis began to show its effects in 2007, as stock markets began to decline around the world. Small and large financial institutions collapsed or were bought as even governments in the wealthiest countries planned and created stimulus packages to bail out their failing financial systems.67 The emergence of the Great Recession in the United States can largely be attributed to the burst of the housing bubble in mid-2007, rooted in predatory lending practices in the subprime mortgage industry. However, many commentators and the Financial Crisis Inquiry Commission argue that the erosion of economic stability can be traced back to the deregulation of the financial sector in the Reagan and Clinton administrations, which then intensified in the early 2000s under President Bush as the financial sector continued to expand and increase its influence.68

In the early 2000s leading up to the Great Recession in 2008, unemployment in Massachusetts ranged from 3.5% in 2001 to 4.44% in 2007, peaking at 5.81% in 2003. Unemployment in Massachusetts reflected the expanding and strong national economy with a robust stock market behind it.

![Unemployment in Massachusetts](image)

**Figure 3: Unemployment in Massachusetts, 2001 - 2011**

The onset of the Recession in late 2008-2009 caused unemployment to soar in the Commonwealth, reaching 8.22% and 8.48% in 2009 and 2010 respectively. Nationally, the economy fared worse. In the first year of the crisis, 8 million jobs alone were shed – more than the population of Massachusetts. Unemployment reached 10% by October 2009, and didn’t drop below 8% until September 2012. Measured by the S&P Index, stock market prices fell 57% in the 18 months measured from the beginning of the Recession in October 2007 to March 2009. While not initially understood at the time as the worst economic downturn since the Great Depression, the Great Recession spurred action from the top-down and the bottom-up to recover and create jobs for desperate Americans.

Local, state, and federal policies all played a role in stimulating job growth in Massachusetts in response to the Great Recession. The Obama/Biden Administration responded immediately to the Great Recession with the American Recovery and Reinvestment Act (ARRA) of 2009, a stimulus plan that sought to save or create more than 3.6 million jobs between 2009 and 2011. Initially estimated at costing $787 billion, it was later revised to have

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70 ScholarWorks at UMass Boston, “Massachusetts and the Financial Crisis”.
71 Federal Reserve Bank of St. Louis. “Unemployment Level”. In: FRED - Economic Data (). URL: https://fred.stlouisfed.org/graph/?id=UNEMPLOY.
72 Federal Reserve Bank of St. Louis. “Civilian Unemployment Rate”. In: FRED - Economic Data (). URL: https://fred.stlouisfed.org/graph/?id=UNRATE.
cost around $831 billion.\textsuperscript{75} Both the House and Senate versions of the Act were primarily drafted before President Obama officially took office.\textsuperscript{76}

The primary objective of ARRA was to preserve existing jobs while creating new ones as soon as possible, and is notable for its secondary objectives of infrastructure investment and emphasis on renewable energy. Renewable energy and energy efficiency received nearly $28 billion from ARRA.\textsuperscript{77} ARRA provided increased weatherization funding through the Weatherization Assistance Program (WAP) and energy efficiency funding through the Energy Efficiency and Conservation Block Grant Program (EECDBG).\textsuperscript{78} In 2009 alone, ARRA awarded the Massachusetts Department of Housing and Community Development (DHCD) $125,077,457 in WAP funding, while the Massachusetts Department of Energy Resources (DOER) received $14,752,100 from the EECDBG.\textsuperscript{79} The WAP enables low-income families to increase their energy savings through energy efficiency investments such as wall insulation, window replacement, weather-stripping, and air sealing.\textsuperscript{80} EECDBG money was intended to facilitate municipal energy projects throughout the state, and was administered in the Commonwealth primarily by the Green Communities Division established by the recent Green Communities Act of 2008.\textsuperscript{81} State and local workforce development responses to increased funding for weatherization and energy efficiency will be discussed in the next section.

Local policy in Boston also aligned with the 2008 state policies, as Boston launched an energy efficiency initiative known as Renew Boston, funded through ARRA funds. Among Renew Boston’s initial goals were “100 green collar jobs.”\textsuperscript{82} Belief that a green economic re-
covery plan could help bring Boston out of the Recession was firmly rooted in the stimulus package, with Mayor Menino stating in January of 2009:

“While it’s true that we are battling a recession, now is the time to start planning for the future. My administration has worked to build a foundation for Boston to be a leader in sustainable development and green job creation. This report underscores the need for comprehensive action from the local, state, and federal government in order to move our economy and our environment in the right direction for the future. Boston is ready to play an essential role in strengthening our neighborhoods and repairing our economy by investing in clean energy sources and green infrastructure.”

Mayor Menino made explicit the prevailing social perception of the time: clean energy is the link between environmental and social sustainability and the clean energy sector is at the forefront of the green jobs movement. Aspirations for a more stable, equitable world were driven by the Great Recession and shifted the focus of national economic rhetoric towards re-building the middle class while addressing climate change. However, within his statement also lies the uncertainty concerning where the boundaries for what constitutes a green job are. Mayor Menino mentioned sustainable development and green infrastructure, which can be seen to incorporate more industries and occupations than just those that pertain to clean energy. Federal funding for green jobs was limited to renewable energy and energy efficiency, but it appears that the ambition of the green jobs movement went beyond that scope. An effort at understanding how the Massachusetts clean energy sector and the ARRA-spurned green jobs movement co-evolved and continues to the present day will be the focus of the remainder of this thesis.

Chapter 4

The Green Jobs Movement in Boston

The purpose of this chapter is three-fold: (1) to introduce how funding was funneled down through the Massachusetts state government into the Boston metropolitan region and how the funding structure shaped initiatives, (2) to describe and detail the green jobs initiatives that emerged and subsequently disappeared during the period of ARRA funding and immediately after, and (3) discuss the lasting impacts of the green jobs movement in Boston and what remnants of the green jobs movement linger or live on to the present day.

The chapter will be divided up into 4 sections. Section 1 will cover the ARRA period from 2009 to 2011, discussing state distribution of funding, the structure and success of Boston metropolitan green job initiatives, and the subsequent decline of the green job movement. Section 2 will discuss the findings immediately reported after the ARRA period. Section 3 will cover 2011 to the present day, discussing the lasting impacts of the green jobs movement and how sustainability in Bostonian workforce development has evolved to this day. Finally, Section 4 will lay out the summary findings for the section, describing how the green jobs movement has helped shape the present sustainability landscape in Boston.

The aforementioned format serves to guide the analysis of a nested case structure in Section 1, examining how funding, project initiation, and project development occurred for the ARRA-funded green jobs movement in Boston. Using this top-to-bottom approach will allow me to examine how the movement used capacity building centered on environmentally and socially sustainability-oriented workforce development programs in an attempt to create family-sustaining wage opportunities for the region. The primary job sector examined at the start will be weatherization, due to its relation to energy efficiency and in the lead up to a more developed clean energy industry with more occupations relevant to energy efficiency. I organized the qualitative data I collected for this Chapter into analytical categories and concepts. These concepts are described below in Table 1, with exemplary
quotes pulled from interviews.

Table 1: Summary of Concepts related to Sustainable Capitalism from Interview Data

<table>
<thead>
<tr>
<th>Concept</th>
<th>Manifestations in the Data</th>
<th>Illustrative Quote</th>
</tr>
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<tbody>
<tr>
<td>Intangibility of “Green”</td>
<td>“The way we approached it was as if the green sector was a totally new sector, you know, as if it was a standalone like healthcare, manufacturing, hospitality, which it really wasn’t. There were some new jobs like weatherization, and it was hard because the green jobs movement was tricky due to the definition of green jobs being really important. It was defined by funder what a green job was, and it was really tricky at first because weatherization jobs were green jobs, but there were only so many of them... There was a lot of money going out, which was good, but it was almost a problem because a lot of people were getting funding and coming into the workforce space who hadn’t been there before - policy people, economic development folks, all sorts of folks were involved in creating training programs who hadn’t been before.” (Economic Opportunity Director, Non-Profit)</td>
<td></td>
</tr>
<tr>
<td>Industry Anchoring</td>
<td>The Massachusetts Clean Energy Center is a role model for how an anchor organization can bring together both public and private actors in an industry cluster for regional workforce collaboration. For the green jobs movement at large, a lack of alignment between public policy and business priorities was seen as a significant impediment to the integration of environmental sustainability into industry. The MassCEC helped bridge that gap for the clean energy industry by facilitating dialogue through its programs and initiatives.</td>
<td>“By far the biggest success story, and it is huge, and has so many lessons learned for all of us, is the Internship Program that was set up by the Massachusetts Clean Energy Center... the state sets up a sortable database of any student from any college in Massachusetts who wants to participate, and then employers go into the database themselves without any other intermediary and sort and identify people they want to interview... it’s a fantastic idea and it’s exactly what the industry needed, and frankly speaking I think it’s what all tech industries should do.” (Sustainability Consultant – NECEC)</td>
</tr>
</tbody>
</table>
### Energy Link

The clean energy industry has served as the practical economic link between environmental and social goals. The challenge for many green jobs programs was finding a way to address pressing environmental realities such as climate change and environmental degradation while creating socially sustainable occupations. The entrance of energy and energy policy into environmental curricula and workforce training programs has created the space for public and private actors to enhance the economy and create value while preserving the planet.

“In the early 2000s, the environmental law and policy programs across the country really did not include anything on energy, it just wasn’t part of the program. Landfills, Clean Water Act, Clean Air Act, things like that, but nothing on climate change at the time. So it was a pretty quick transition to where most of our work was in energy... The Massachusetts Clean Energy Center, their workforce team, has adjusted their funding priorities based on the needs of the market, and making sure that both that the occupations are the rights ones that we’re training for, but also that the programs that apply for funding are preparing people with the right skills based on what the industry needs.” (Vice President, BW Research)

### Beginnings of Municipal Energy

Climate change action would have occurred regardless of ARRA due to global and national urban initiatives, but ARRA was seen as the impetus for municipalities in the US to reduce energy consumption, plan for rising sea levels, and address carbon neutrality and the transition to a low-carbon economy. Society has increasingly been looking to the Mayor’s office for innovation in creating solutions to climate change and sustainability problems.

“The lasting impact of ARRA was that it allowed me to build the municipal energy function of Boston city government. It coincided with a movement nationwide and worldwide for cities to take a lead on climate action... all of these trends were coming together, and the block grant allowed for a major intervention in having energy work be recognized as something that municipal governments should be directly involved with and had never had been before. So, that was a good thing.” (Energy Planner, City of Boston)

### Enhanced Sustainability

The green jobs movement was a response to growing concerns surrounding the nation’s response to climate change and economic downturn brought on by the Great Recession. Within sustainability minded circles, little changed. However, the underlying philosophical agreement behind the green jobs movement did take root and helped spur a wider variety of sustainability initiatives in the Boston metropolitan region, building upon the existing momentum created by sustainability-oriented communities.

“There is some opportunity to enhance sustainability since the green jobs wave and ARRA... It’s kind of like looking at each different sector and seeing what’s going on in that sector and seeing if there’s opportunities there to have that discussion. Yeah, we’re really excited about this manufacturing initiative we have at Green Towns Labs and seeing how it goes. It’s a three year initiative and it’s kind of a different type of initiative than a lot of our other ones simply because of the nature of it, and because it does have a sustainability focus of it. We’re interested in seeing how it turns out.” (Strategy Director, Workforce Investment Board)
4.1 A surge of funding

As previously mentioned, ARRA funding for green job growth came to the Commonwealth primarily through WAP and EECBG grants. To better understand how ARRA’s primary purpose (of preserving existing jobs and creating new ones in wake of the greatest economic recession in eight decades) was carried out in the Boston metropolitan region, it is essential to have a basic understanding of the metropolitan regions’ existing collaborative and funding structures through which ARRA funding was disseminated. However, detailing in full what these structures are and how ARRA funding was disseminated, including which awards were given to which organizations in the Boston region, is beyond the scope of this thesis.

The Boston metropolitan region is home to many non-profits and community development corporations, policy advocacy groups and economic development consultancies, and several workforce investment boards. Capacity building for the multitude of organizations was addressed in 2003 with the creation of Skillworks, originally known as the Boston Workforce Development Initiative. The three primary components of the initiative are developing
workforce partnerships, capacity building, and advocacy. The three primary components of the initiative are developing workforce partnerships, capacity building, and advocacy.

SkillWorks emerged from the Funders Group, which traces its beginnings to informal, bi-monthly meetings between six local funding organizations. Through research into critical questions about the state of workforce development in the region and each organizations respective investment pool, the Funders Group realized that their collective investment pool was larger than what was provided by the federal WIA and that a large, multiyear initiative between the organizations with cooperation and engagement from state and local agencies would improve the workforce development system as a whole. A key takeaway from the Funders Group and the establishment of SkillWorks is that the existing funding structure of the WIA and WIOA, and in general how federal funds flowed down from the federal government to the state and from there to workforce investment board regions, is that the structure determines what is possible, defines what success looks like, and “constrains actors and actions”, sometimes for better, and sometimes for worse. (Stakeholder #2 – Mass Workforce Alliance, 2/27/2018 Interview).

Issues arising from the funding structure for ARRA administered WAP grants were reported on by the Massachusetts Office of the Inspector General in 2012. 2009 ARRA WAP funding totaled $125 million and was distributed through the Commonwealth’s Department of Housing and Community Development (DHCD), which used 20 local administering agencies to partition the funding. Eligibility for WAP funding is mostly based on the client’s enrollment in Massachusetts’ Low-Income Home Energy Assistance Program (LIHEAP), a gateway program for WAP. Many of the agencies responsible for administering LIHEAP funds are also the agencies responsible for administering WAP grants. While specific data on how WAP funding was allocated to these administering agencies in 2009 was unavailable, Figure 5 details which agencies received LIHEAP funding in 2010 to help establish context.

86Ibid.
87McCormack, “Re: Weatherization Assistance Program”.

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The administering agencies were divided in the mid-1990s to have 12 lead agencies and 8 sub-lead agencies: the sub-lead agencies were responsible for having a reporting relationship with the lead agencies and enter into agreements with the lead agencies themselves instead of the DHCD. It is unclear which agencies are lead agencies and which are sub-leads. The Massachusetts Office of the Inspector General detailed in their report significant challenges related to the leveraging of funds, use of contractors, and general friction between agencies.

Friction between agencies arose primarily from the division of agencies into lead- and sub-categories. Lack of uniformity between lead agency agreements with sub-lead agencies created challenges for the DHCD to monitor and manage the funding process, with several sub-lead agencies claiming that lead agencies would disseminate information and funding
from the DHCD on an irregular basis resulting in cash flow problems. Additionally, general lack of oversight into the lead- and sub- distinction resulted in a non-profit company acting as a lead agency for a municipal sub-lead agency, directly violating the state law and public policy as non-profits should not control funding for or supervise municipalities.\(^{89}\) Hiring of contractors for WAP work was also fraught with inter-agency conflict, as agencies noted that finding “good” contractors was a difficult task. As a result, agencies would not share information with each other on or would become highly protective of their contractors, undermining the workforce development aspect of the ARRA WAP funding.\(^{90}\) Additionally, challenges arose in how weatherization services were provided: public utilities administered their own weatherization programs independently of WAP. Utilities used different pricing structures and offered weatherization services to households both within and outside of WAP jurisdiction, creating situations where WAP contractors would be offered two different rates for performing the same weatherization services on the same project. Depending on the municipality in which the weatherization service was to be provided, the municipal permitting process might require WAP funds to acquire the permit or limit the type of work that could be done on the building.\(^{91}\) The utility-municipality weatherization misalignment also effected how municipalities deployed their EECBG funding for energy efficiency retrofitting, as energy efficiency retrofitting and weatherization are intrinsically related in cold-climate regions such as Boston (Stakeholder #1 – City of Boston, 3/6/2018 Interview).

The Energy Efficiency and Conservation Block Grant Program came at a particularly opportune time for the Commonwealth, as Governor Patrick had recently signed several landmark clean energy laws. The Green Communities Act enabled municipalities to act upon local initiatives for clean energy, and EECBG funding was instrumental in creating partnerships and strategies for implementation.\(^{92}\) Through the EECBG, the City of Boston received $6.5 million dollars in 2009, a sum much larger than any other municipality in Massachusetts (See Figure 6 below). The funds were administered through Renew Boston and the Green Affordable Housing Program.\(^{93}\)

\(^{89}\)McCormack, “Re: Weatherization Assistance Program”.
\(^{90}\)Ibid.
\(^{91}\)Ibid.
\(^{92}\)Mass.gov, “Energy Efficiency and Conservation Block Grant Program (EECBG)”.
With no intermediate level of regional governance between the municipal and state level in Massachusetts, creating a cohesive vision for green workforce development in the Boston metropolitan region was dependent on the capabilities of the existing funding structure housed within the DHCD and the relationship networks developed by intermediary institutions. As mentioned in the previous Chapter, the focus of ARRA’s job creation funding was on energy efficiency. Weatherization occupations were the only established occupations ready to receive ARRA funding for workforce development programs at the time. The narrow focus of green jobs on energy efficiency through weatherization could also be attributable to the nascent nature of the clean energy industry, which had only received funding and the establishment of its anchor organization, the MassCEC, a year prior. The
relatively successful administration of ARRA funds through Renew Boston was largely a result of the capacity building that had occurred in the years prior to ARRA through SkillWorks. The role of SkillWorks acting as a temporary green jobs anchor organization while the green jobs movement was taking hold in the metropolitan region, despite SkillWorks primary purpose as a workforce intermediary, will be discussed in the next subsection.

4.2 Green Jobs through Renew Boston

Figure 7: Municipal level of nested case study - ARRA

The story of green jobs in the Boston metropolitan region is intertwined with the fate of Next Step Living, Inc, a home energy solutions company that was founded in 2008 and which filed for bankruptcy and closed in 2016 (Stakeholder #1, #3 – Workforce Investment Board, #4 – Workforce Investment Board, #9 – City of Cambridge Interviews). The idea for Next Step Living as a business model came out of the Center for American Progress’s work that began in 2004: the Center was focused on the potential of climate to create jobs, and they began to whiteboard business models for how the private sector could improve the energy profile of the nation while generating employment opportunities. An idea that the Center put forth was that a home energy service company could conduct a sophisti-
cated first-time audit of a residents home, taking several hours to review the property and implementing low-level weatherization services immediately, the result of which would be to anchor the relationship between the resident and the company and generate a customer willing to take the “next step” (Stakeholder #1 – City of Boston, 3/6/2018 Interview).

The founding of Next Step Living and the formation of Renew Boston occurred within a short time of each other. As mentioned previously, utilities in the Commonwealth were already responsible for their own weatherization programs and their methodology and pre-requisites for retrofits did not align with municipally administered weatherization. Next Step Living chose to open its headquarters in Boston, and both Next Step Living and Renew Boston aligned their retrofitting and weatherization services with utility administered efficiency programs because attempting to compete with state-supported utility programs wasn’t tenable (Stakeholder #1 – City of Boston, 3/6/2018 Interview). Standardization of utility administered efficiency programs in Massachusetts also began in 2008 with MassSAVE, a statewide collaborative that allows individual utilities to administer their own energy efficiency programs.95

It was decided early on to align Renew Boston as an outreach program with MassSAVE. Branding Renew Boston with the municipal name was important to facilitate buy-in among residents and distinguish their services from the utility space, even though Renew Boston’s retrofitting service was a partnership with utilities and was performed by the same pool of contractors. Historically, the utility administered residential retrofitting programs were connected most easily with single, suburban family homes: performing weatherization and energy efficiency retrofits on a single family household is logistically simpler, and suburban families are more likely to have the money required for the multiple visits necessary to complete the weatherization services and are more likely to understand the cost savings benefits of such programs. These utility administered programs were therefore not as well suited for multi-unit dwellings and low-income families, or where the urban poor reside. The City of Boston recognized at this time that municipal energy work was quite different from the historic suburban energy work performed by utilities in the state, and successfully petitioned the state legislature to create a seat for cities and towns on the Energy Efficiency Council to address how to bridge the gap between utility administered residential programs and urban homes. Aligning Renew Boston outreach program with the MassSAVE outreach program in this way created space for the Boston municipality to have more control over how energy efficiency retrofitting and weatherization was performed for residents, creating a distinction for the first time in how suburban and urban energy efficiency programs were administered (Stakeholder #1 – City of Boston, 3/6/2018 Interview).

4.2.1 Living Wages for Greencollar Work

As noted in the previous section, weatherization and energy efficiency work in the Commonwealth is performed by contractors. In the year leading up to ARRA, 167 residential retrofits were done in the Boston metropolitan region by Next Step Living and they were 100% funded by utility rebates (Stakeholder #1 – City of Boston, 3/6/2018). Because the model of hiring contractors and using utility rebates had been successful in 2008, when the City of Boston learned in 2009 that $6.5 million would be awarded to the city through ARRA EECBG funding it decided that Renew Boston would receive $2 million for residential retrofits and $1 million for small business retrofits as an integral part of the Boston’s green economy and was described as such in several press releases:

“...Renew Boston, an innovative public-private partnership serving Boston residents and businesses that will coordinate provision of energy efficiency and alternative energy services with the Mayor’s green collar workforce initiative. Renew Boston will implement the American Recovery and Reinvestment Act, signed into law by President Obama on February 19.”

The national green collar movement, led by Van Jones as President Obama’s Special Advisor for green jobs, put tremendous emphasis on these jobs supplying family sustaining wages and aligning, if possible with union career pathways. Central to the narrative of how Renew Boston would help pull Boston out of the recession was the notion that the “green collar workforce” would provide family sustaining wages and viable career pathways for employees. Prior to ARRA and Renew Boston, green job coalitions at the national level and in the Boston region had been advocating for initiatives, and in 2007 Mayor Menino announced the formation of the Boston Green Jobs Initiative. A press release from the Mayor’s office noted the City of Boston’s commitment to “promoting the connection between environmental policy, economic development, and job creation,” with Boston-based advocacy groups lauding the growing green economy:

“In our race to get our economy moving in the right direction again, we must ensure that new job opportunities and economic prosperity touch those who need it most,” Kalila Barnett, Senior Organizer for Community Labor United, said. “Green jobs can provide career pathways that allow workers to reach for new heights on an exciting and expanding career ladder.”

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97 City of Boston, “Mayor Menino, Environment Massachusetts Highlight Boston’s Bright Future in Clean Technology”.

98 Ibid.
With the capital flowing, utilities put out procurements to hire contractors to perform retrofitting services financed through AARA EECBG funding. Next Step Living was a natural fit for Boston given their business model’s emphasis on green jobs as its own profession, and Next Step Living would in fact be included in the $2 million for residential retrofits.\textsuperscript{99} It was expected that another important local player, Conservation Services Group, would also receive a large number of contracts. However, Conservation Services Group withdrew their response to the EECBG Request for Proposal at the last minute because they spotted early on what would later become a “complete nightmare” in regards to the wage schedule for energy efficiency and weatherization work performed using EECBG funding (Stakeholder \#1 – City of Boston, 3/6/2018 Interview).

The WAP had been around for decades and already had a clearly defined wage schedule, which was to serve as the basis for green jobs created through ARRA funding. At the time of ARRA’s signing on February 17\textsuperscript{th}, 2009, the Weatherization occupation as defined by the WAP wage schedule was compensated at a rate of $17/hr.\textsuperscript{100} Vice President Biden was responsible for administering the $3.2 billion appropriated for the EECBG under ARRA, and decided that the WAP wage schedule would not be used, a “fundamentally bad decision” (Stakeholder \#1 – City of Boston, 3/6/2018 Interview). Under the ARRA EECBG funding, the Weatherization occupation was split into two separate carpentry and laborer occupations, which was problematic for Massachusetts as state weatherization programs required companies perform insulation services under one occupation. Further complicating the bifurcation of the insulation occupation, the ARRA/WAP wage determinations for the two separated occupations were left blank on forms sent to the Commonwealth.\textsuperscript{101}


\textsuperscript{100}City of Boston. “Request for Authorization of Additional Classification and Rate”. In: Environmental and Energy Services (23 Sept 2011).

\textsuperscript{101}Ibid.
It was widely recognized that earnings of $17/hr or less for weatherization or energy efficiency retrofits in the Boston area was not keeping in line with the prevailing rhetoric of the time that green jobs would provide family sustaining wages (Stakeholders #1, #2 – Mass Workforce Alliance, #3, #6 - MassCEC, #7 – BW Research, #9, #11 - NECEC, and #14 – Non-profit). $22/hr was regarded as the “high road wage providing family economic security suggested by Massachusetts Green Justice Coalition,” which was the wage that Renew Boston provided in its contracts with Next Step Living and other contractors (Stakeholder #1 – City of Boston, 3/6/2018 Interview). Renew Boston went on to provide 3,800 no-cost home energy assessments and 600 no-cost home weatherization retrofits by October of 2011 for Boston residents within the 60-120% median income bracket, and was lauded as “Boston’s triple-bottom-line approach to sustainability” by “lowering utility bills for residents and businesses, creat[ing] jobs and increas[ing] economic opportunity.”

However, by the end of the ARRA period in 2011, the reality of green collar growth for the
city of Boston was that the job creation experience, from an administrative standpoint, was an “unmitigated disaster” (Stakeholder #1 – City of Boston, 3/6/2018 Interview). In April of 2011, the Department of Labor rejected the $22/hr wage proposed by the City of Boston, arguing that the bifurcated insulation occupations mentioned previously be paid $25.06/hr and $30.86/hr. By this point, most of the work had already been contracted and completed. The Mayor of Boston had to call the Secretary of Labor personally to start the resolution of the wage problem, resulting in an agreed upon wage of $26/hr for both “positions” and the retroactive pay of 2,500 jobs done for Boston residents and businesses (Stakeholder #1 – City of Boston, 3/6/2018 Interview). While it could be argued that the resultant increase of $4/hr for these jobs is a success for the green collar workers employed, the poor oversight of the federal government in regards to the wage schedule created administrative challenges for the City of Boston. These administrative challenges were symbolic of the larger structural problems of the green jobs movement, namely the lack of a cohesive vision as to what constituted a green job as demonstrated by the bifurcation of state-mandated responsibilities for the weatherization profession.

Beyond the administrative challenges, job creation did occur for certain companies but it would be inappropriate to call it job growth for the regional economy.106 Private sectors companies were poised to meet the demand created by federal funding: existing contract groups like Next Step Living “swooped up the jobs, with no new jobs appearing” (Stakeholder #11 - NECEC, 3/15/2018 Interview). Additionally, the labor force required to perform these weatherization and energy efficiency services was already present – unemployment in Massachusetts was at its peak in 2009 and 2010, with eager workers ready to take positions.107 While Renew Boston and Next Step Living did help reduce unemployment, it did not lead to the creation of long-lasting occupations and professions that can be considered job creation or increasing the size of the economy (Stakeholder #1 and #11 Interviews). Workforce intermediaries and community development corporations had similar experiences with their green jobs initiatives, described in the next section.

107 ScholarWorks at UMass Boston, “Massachusetts and the Financial Crisis”.

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4.3 SkillWorks and the role of workforce development in the green jobs sector

The Green Collar Career Pathways Initiative (Green Jobs Initiative) was launched by SkillWorks in 2009 to specifically shift SkillWorks’ emphasis on public advocacy, capacity building, and workforce training towards the green economy. Detailing the entirety of the Initiative is beyond the scope of this thesis, but it is important to understand the role that SkillWorks played in helping shape the region’s green jobs movement. SkillWorks overall goal statement was developed before the Green Jobs Initiative but was already aligned with the purpose of the Green Jobs Initiative:

“Significantly more low-income, low-skilled workers in the greater Boston region have the opportunity to gain the skills needed to enter and advance in careers with family-sustaining wages. Opportunities are sustained beyond the tenure of SkillWorks funding.”

SkillWorks operates in phases of four to five years with specific goals aligned with the vision of funders and the needs of low-income individuals in the Boston metropolitan area. The Green Jobs Initiative was part of SkillWorks Phase II plan aimed at emphasizing connecting post-secondary institutions and community colleges with workforce development programs, along with investing in the aforementioned public policy advocacy, capacity building, and workforce partnerships. As such, the rhetoric of the national green jobs movement aligned closely with SkillWorks Phase II plans, resulting in the emergence of the Green Jobs Initiative and the need to articulate only two more specific goals for the initiative:

1. Support emerging workforce development efforts in green industries.

2. Ensure access to green collar career pathways by lower-skilled, lower-income adults.

To achieve those goals, SkillWorks initially believed that funding a workforce partnership following a similar model used for workforce partnerships in other sectors such as healthcare would enable the development of green collar career pathways, but it quickly became apparent that such a partnership was not feasible in 2009 given the nascent nature of the “green jobs sector” (Stakeholder #5 – Non-profit, #6, #7, and #14 Interviews). Low demand for workers, the small scale of relevant employers (such as Next Step Living), and the capacity of training providers led SkillWorks to instead adopt the strategy of funding smaller pilot programs while investing in research to better understand what constitutes a green job and how workforce development programs could serve the greening economy.

4.3.1 Nebulous Definitions and a Need for Focus

As reviewed in the literature earlier in this thesis, SkillWorks also quickly came to the conclusion that the phrase “green collar jobs” encompassed too much to meaningfully contribute to a structured workforce development program and that a narrowing of the scope was necessary in order to deliver real, family-sustaining jobs through the Green Jobs Initiative. The O*Net publication distinguishing the kinds of occupations within the green economy was used as a baseline to help the SkillWorks Green Jobs Initiative focus on subsectors of green economic activity, specifically energy efficiency and weatherization within the first year of the Initiative. Even with the efficiency and weatherization emphasis of the Initiative in its first year (and in subsequent years, discussed later), challenges emerged in regards to employers, policy, and training providers.

Securing contractors for energy efficiency and weatherization work proved to be a challenge

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110 Ibid.

111 Ibid.

for Renew Boston, and proved a similar obstacle for SkillWorks’ structuring of workforce development pilot programs. The “greening” of existing jobs meant that experienced trade workers who had recently become unemployed due to the Recession were ready to re-enter the workforce (Stakeholder #6, #7, #9, and #11 Interviews). Additionally, not all jobs in weatherization and energy efficiency were technician jobs that could be trained for in a reasonable time-frame: the New England Clean Energy Council study determined that roughly 46% of residential energy efficiency work was attributable to auditing or field work.\textsuperscript{113} These findings reinforced SkillWorks’ belief that focusing on a few specific occupations was a more tenable strategy than pursuing a larger, sector wide effort. However, the employer landscape in the Boston metropolitan region for energy efficiency could best be described as a “cottage industry” at the time of ARRA funding, with 54% of energy efficiency firms employing fewer than 10 people and 85% employing fewer than 100 people.\textsuperscript{114} The relatively small size of most firms meant that focusing on even a few specific occupations required significantly more effort and resources than SkillWorks had to adequately build capacity.

Conservation Services Group was noted as the dominant regional employer in the energy efficiency sector, but like other employers and potential training providers in the region their workshops and seminars for certifications and occupational skills did not match the needs of the low-skill, low-income population typically served by SkillWorks and other workforce development agencies.\textsuperscript{115} The mismatch between employer hiring capacity, training provider workshops and seminars, and the needs of low-skill, low-income populations was exacerbated by the surge of federal funding into green collar workforce development, leading SkillWorks to draw the conclusion at the end of the first year of their Green Jobs Initiative that there was a need in the Boston metropolitan region for a green sector intermediary.\textsuperscript{116,117} The successful green jobs training programs that did emerge out of the first year of ARRA funding were the result of coordination between community development corporations, workforce training centers, and the municipality of Boston:

“The Asian American Civic Association (AACA) and JYF Networks, a Boston-based workforce and career development training center, will receive $100,000 to fund 10-15 adults in green-collar job training programs. The AACA will train green facilities maintenance technicians, while JYF Networks will train assistant energy auditors and brownfield remediation technicians...
The remaining $100,000 in Empowerment Zone funding will create energy auditor jobs in partnership with Next Step Living for the Mayor’s Renew Boston initiative. Next Step Living will provide more than 150 Boston homes with free, extensive energy audits and immediate retrofits to make their homes more efficient. This funding will help provide energy audits for the program and ensure green jobs for 8 to 14 Empowerment Zone residents. Renew Boston ultimately aims to create 100 high quality green jobs.\textsuperscript{118}

The AACA and JYF Networks programs were seeded from a $50,000 planning grant administered by SkillWorks. These programs, along with two other organizations seeded from the same planning grant, went on to successfully compete for more than $2.7 million from federal, state, and city funding.\textsuperscript{119,120} Successfully launching these pilot programs in the first year of SkillWorks’ Green Jobs Initiative steered SkillWorks towards the intermediary and capacity building role that it would assume for the next two years, nurtured by SkillWorks findings that green collar jobs and in fact the green sector as a whole were entirely unlike traditional industry sectors and needed stimulation on both the demand and supply side of workforce development (Stakeholder #8 – Non-profit, 3/13/2018 Interview).

4.4 Pilot Implementation

While SkillWorks provided seed funding to several green jobs training programs that then successfully secured additional funding necessary for operation, addressing the structure and outcome of each individual program could serve as a thesis unto itself. I will focus on the Asian American Civic Association’s training programs due to their connection with Renew Boston and Next Step Living.

The Asian American Civic Association is a social planning and cultural advocacy agency in Boston that seeks to provide economically disadvantaged immigrants with occupational training, education, and social services to help them achieve economic self-sufficiency.\textsuperscript{121} The organization was founded in 1967 with the motto of “Educate. Empower. Employ.”, a representation of the organization’s commitment to social sustainability. In 1984 the organization implemented its first workforce development program, and the AACA has continued its commitment to providing workforce development opportunities since. When the green jobs movement was taking root in Boston and ARRA funding became available,

\textsuperscript{119}Mt. Auburn Associates, Green Collar Career Pathways Initiative Report.  
\textsuperscript{120}Mt. Auburn Associates, SkillWorks Green Collar Career Pathways Initiative - Year 2 Annual Evaluation.  
the AACA chose to enter the green workforce development space alongside other workforce development organizations. I have chosen to analyze the AACA’s green jobs programs for two reasons. First, the AACA had a working relationship with SkillWorks during the ARRA-funded green jobs movement. The relationship between the AACA and Skillworks provides the opportunity to analyze the AACA’s training programs environmental and social sustainability outcomes and to analyze the role of regional collaboration in facilitating a more sustainable vision of capitalism. Second, because the nature of the AACA’s green jobs programs were related to energy efficiency and the clean energy industry, the programs’ outcomes can be compared with the success of similar programs implemented by the region’s anchor organization, the MassCEC.

The AACA ran three green jobs programs and was active in Cambridge as well as Boston during the initial surge of ARRA funding. Before the ARRA funding for green jobs was available, the AACA had two active workforce development programs: a facility maintenance program and an automotive technician program, both of which were entry level. When AARA funding became available the AACA looked at their programs and saw an opportunity within the facility maintenance program to add an energy efficiency component, creating the Building Energy Efficient Maintenance Skills (BEEMS) program (Stakeholder #3 – Workforce Investment Board, 2/23/2018 Interview). Curriculum on entry-level energy efficiency skills like weatherization and insulation was added to participants’ classroom instruction to supplement their existing facility maintenance knowledge. Adding on basic energy efficiency curriculum to the facility maintenance program was low-hanging fruit given the groundswell of interest in green jobs and the green economy, which pushed AACA leadership to consider a more robust workforce development program for green jobs (Stakeholder #3 – Workforce Investment Board, 2/23/2018 Interview).

A separate, new training program was the result of the AACA’s interest in pursuing their green jobs program: the Energy Efficiency Technician Apprenticeship Program (EETAP). The EETAP was aimed at training low-income minorities to be energy efficiency technicians, creating a new occupation with the combined skills of an energy auditor and a weatherization worker. The AACA went through the state division of apprenticeship standards to have the training program registered formally as an apprenticeship with employers to sponsor apprentices. The program was structured the same way as any other apprenticeship: a trainee would work as a full-time apprentice at a company and would use Saturday for classroom instruction. The focus of the program was energy efficiency, more specifically the higher level aspects of auditing for energy efficiency (Stakeholder #3 – Workforce Investment Board, 2/23/2018 Interview).

\[^{122}\text{Mt. Auburn Associates, SkillWorks Green Collar Career Pathways Initiative - Year 2 Annual Evaluation.}\]
\[^{123}\text{Ibid.}\]
The program took in stride the notion of green jobs as new professions by combining the weatherization and auditing elements of energy efficiency, and partnered early on with Next Step Living. Next Step Living had a business model that was perfectly tailored to the EETAP: Next Step Living would send teams of two to a home, one employee as an auditor and the other as a technician. The apprentice would be placed on the team as the technician and perform basic weatherization services after shadowing the auditor, who was the trainer from Next Step Living (Stakeholder #3 – Workforce Investment Board, 2/23/2018 Interview). Conservation Services Group was another early partner of the EETAP, with employers promising 2,000 hours of on-the-job training for the apprenticeship.\footnote{Mt. Auburn Associates, \textit{SkillWorks Green Collar Career Pathways Initiative - Year 2 Annual Evaluation}.}

Unfortunately, the program only ran from June 2010 through May 2011. The aforementioned MassSAVE program, which began in 2008 and standardized how utilities contracted and ran their energy efficiency programs, later evolved in 2010 and 2011 to include more rules and regulations for how energy efficiency and weatherization retrofits were implemented. MassSAVE is enforced through Massachusetts legislation requiring investor-owned utilities to place an energy conservation charge on every energy bill. The money charged is then placed into an energy conservation fund used to help utilities meet energy efficiency goals and standards in a cost-effective manner, with the ultimate goal of providing benefits to ratepayers and reducing the need for new power plants.\footnote{MassSave. “Multi-Family Program Frequently Asked Questions”. In: (2018). url: \texttt{https://www.masssave.com/-/media/Files/PDFs/Save/Energy-Assessment/MultiFamilyProgramFAQs.pdf?la=en&hash=FC511D8B258CE932281756A62D5F41BB549F5BAD}.} MassSAVE retrofits are performed by contractors, and updates to the legislation in 2010 and 2011 formally separated the work of the auditor from the work of the technicians and upgrading crews, invalidating Next Step Living’s two-man team model and undermining the structure of the EETAP’s apprenticeship program. It no longer made sense for companies to cover the apprenticeships anymore, resulting in the EETAP program stopping in 2011 (Stakeholder #3 – Workforce Investment Board, 2/23/2018 Interview). It is unfortunate that a lack of regional collaboration and capacity building resulted in the updating of legislation contributing to the invalidation of a green jobs training program. The disconnect that occurred between federally funded municipal level programs and state level legislation was indicative of the need for a more focused, industry oriented approach that involved cooperation and dialogue between a variety of different organizational types, possibly lead by an anchor organization.

\subsection*{4.4.1 The Success Rate of AACA Green Jobs Programs}

While the Building Energy Efficient Maintenance Skill program and Energy Efficiency Technician Apprenticeship Program both had participants outside of the City of Cam-
bridge, I was unable to gather specific data for other municipalities and organizations. Below is but one sample of the outcome of the aforementioned green jobs programs. While the quantitative numbers may differ across municipalities and organizations, the general findings emerging from the structure and outcome of the Cambridge programs were validated across different municipalities and organizations which funded similar programs (Stakeholder #1, #3, #5, #7, #9, and #11 Interviews).

The AACA was contracted by the City of Cambridge to create a Green Jobs employment and training program to provide training to Cambridge’s Neighborhood Revitalization Strategy (NRS) eligible residents. Funded through Community Development Block Grant Funds, the EETAP and BEEMS programs ran from April 2010 through September 2011 in Cambridge. Fifteen NRS residents enrolled in the AACA’s BEEMS program and only one in the EETAP – the demographic composition of the cohort was 80% African American, 10% Asian American, and with 1% identifying as Other. All of the residents were male, all of the residents had at least a high school diploma, and 40% of the residents had some form of post-secondary education. As described earlier, the programs included academic classroom instruction, shop training, internships, apprenticeships, career planning, tutoring, and job placement (Stakeholder #9 – City of Cambridge, 3/13/2018 Interview).

The success rate of the programs was 81.25%: three students dropped out of the program and thirteen graduated. Out of the graduates, five were placed in jobs that had an average wage of $12 per hour. The types of jobs graduates were placed in included Utility Worker, Weatherization Technician and Maintenance Technician. It was reported that as of the spring of 2013, four of the five graduates that were placed in full-time positions were continuing to work either at their placement jobs or in new positions. Many of the other graduates were laid off due to downsizing, had stopped contact with Asian American Civic Association, or had personal issues come up that hindered their ability to work (Stakeholder #9 – City of Cambridge, 3/13/2018 Interview).

4.4.2 The “greening” of existing professions

While the EETAP emphasized creating a new, green profession by joining auditing and technician roles, the BEEMS program took an existing facility maintenance program and simply added a green component. The distinction between the “greening” of an existing profession and creating an entirely new green sector profession would become increasingly important as the green jobs movement began to die down in the Boston metropolitan area: in the context of BEEMS, energy efficiency was increasingly entering job descriptions for facility maintenance and was more easily understood to be a “green job” initially. However, it was difficult to sell programs like BEEMS to funders that emphasized “greening” already existing professions (Stakeholder #5 – Non-profit, 3/29/2018 Interview). Rather than emphasizing job creation and the development of a new sector, programs like BEEMS
were essentially seen as raising the bar on existing job training programs, requiring retraining for people who already had the traditional skillset associated with facility maintenance (Stakeholder #5 – Non-profit, 3/29/2018 Interview).

The third program led by the AACA as part of the SkillWorks Green Jobs Initiative was the Partnership for Automotive Career Education (PACE) program. PACE had begun in SkillWorks Phase I (2003-2008), and was a workforce partnership bringing together automotive employers, post-secondary institutions, and two training partners.\(^\text{126}\) The program was adapted to include a 45-hour hybrid and alternative fuels component and was intended to address the Commonwealth’s need for bilingual technicians with specialized skills for hybrid and alternative fuel vehicles. The PACE program’s “greening” was lauded as a “full-scale green workforce partnership,” but like the other programs was not successful in supplying family sustaining wages: “On average, graduates earned $11.14 per hour upon entering the automotive industry and worked approximately 37 hours a week.”\(^\text{127}\) Struggling to provide viable career pathways and family-sustaining wages in entry-level positions was a challenge for workforce development programs in general due to the needs of employers: finding the right balance of providing enough training and education for workers who want to go higher and meeting labor demand when it was needed was frequently reported as a mismatch between employer demands and workers’ needs (Stakeholder #2 and #5 Interviews).

4.5 The Role of Unions in the Green Jobs Movement

During the period of ARRA funding, the role of unions in the green jobs movement was described as both “progressive” and “counterproductive” by different stakeholders (Stakeholder #5, #7, and #12 – City of Boston Interviews). The International Brotherhood of Electrical Workers Local 103 was responsible for representing electrical contractors in the Bostonian solar energy industry at this time.\(^\text{128}\) While union involvement in solar was welcomed, IBEW leadership prevented most non-union workers from participating in solar work because of the tough economic conditions experienced during the Great Recession (Stakeholder #5 – Non-profit, 3/29/2018 Interview). Work that could normally have been completed by laborers in the solar installation process, such as “carrying the panels up the ladder,” instead required at least a journeyman electrician, which prevented entry into training programs for unskilled workers who sought pre-apprenticeship or apprenticeship programs in the solar industry (Stakeholder #5 – Non-profit, 3/29/2018 Interview). Job protection practices like this were considered counterproductive to the green jobs move-


\(^{\text{127}}\) Ibid.

ment, but were largely the product of widespread unemployment and the need for unions to protect their own workers during times of economic instability (Stakeholder #16 – Union Member, 3/31/2018 Interview).

Contrastingly, YouthBuildBoston’s Green Construction Program was able to form a successful partnership with the local carpenters union in 2012. Roca, Inc was awarded a $2.4 million USDOL Pathways Out of Poverty grant in 2009 to help train high-risk youth in Revere and Chelsea in energy efficiency construction and retrofitting, a model which was later replicated and funded by SkillWorks in 2012 with a $50,000 implementation grant for YouthBuildBoston.\textsuperscript{129} Pathways Out of Poverty is a national workforce development program that was funded by ARRA with the purpose “to teach workers the skills required in high growth and emerging industries, including energy efficiency and renewable energy.”\textsuperscript{132} I have avoided discussion of Pathways Out of Poverty grants until now because the majority of grants awarded in the Commonwealth in 2009 were distributed to Gateway Cities, with the aforementioned Roca, Inc funding serving communities in the Metro North Regional Employment Board zone.

I mention Roca, Inc’s program because a key actor in the program was the carpenters union, who continued its green jobs efforts with YouthBuildBoston’s Green Construction Program. The carpenters union facilitated a “real, true partnership” with the green jobs movement and opened their doors by helping with pre-apprenticeship and apprenticeship programs (Stakeholder #5 and #17 – Union Member Interviews). The Green Construction Program was structured to include classroom and vocational training, GED prep classes, and support services for the at-risk-youth participants. The end goal was for graduates to be placed in jobs or building trade apprenticeships, facilitated in part by the carpenters union.\textsuperscript{133} The Green Construction Program was lauded by stakeholders as an example of how to structure programs to meet the triple-bottom-line of sustainable development: the Boston Housing Authority revised its Resident Employment Policy to increase the weight of Section 3 hiring practices, with YouthBuildBoston noting that “as a result of the BHA’s efforts supported by SkillWorks that multiple construction companies are seeking to partner with YBB to help them ‘fill their local [hiring] compliance’” (Stakeholder #5 and #17 – Union Member Interviews).\textsuperscript{134} The success of YouthBuildBoston’s Green Construction Program was believed to be the result of adding green components to an existing program.

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\item[\textsuperscript{129}] Mt. Auburn Associates, \textit{Green Collar Career Pathways Initiative Report}.
\item[\textsuperscript{130}] Mt. Auburn Associates, \textit{SkillWorks Green Collar Career Pathways Initiative - Year 3 Annual Evaluation}.
\item[\textsuperscript{132}] Ibid.
\item[\textsuperscript{133}] Mt. Auburn Associates, \textit{SkillWorks Green Collar Career Pathways Initiative - Year 3 Annual Evaluation}.
\item[\textsuperscript{134}] Ibid.
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instead of creating an entirely new, green program. YouthBuildBoston’s construction program was already established and had gained credibility with employers, so while attributing the success of the program to SkillWorks grant funding is likely misplaced, the success of the added green component resonates with the finding that greening existing professions was more successful than attempting to create entirely new, green jobs (Stakeholder #3 and #5 Interviews).

The inconsistent response from the labor unions to the green jobs movement resonates with the experiences reported by municipal and regional workforce development programs: a lack of communication between relevant actors created challenges to implementing and maintaining successful programs. Additionally, the added green component to YouthBuildBoston’s construction program highlights that adding an environmentally sustainable component to an already social sustainability oriented program can be successful. However, creating entirely new programs from the ground up that had elements of both environmental and social sustainability, like the AACA’s EETAP, would have required significantly more collaboration and communication to align policy, employer needs, and funding opportunities to ensure success.

4.6 Decline of the Green Jobs Movement – findings from the ARRA period

Several green jobs initiatives and programs that occurred in the Boston Metropolitan region from 2009-2011 eluded description because the findings were similar and an expanded section would have provided more granularity but no additional depth of analysis.

4.6.1 Green Jobs does not constitute an emergent sector

The most significant realization of the green jobs movement by the end of the ARRA funding period in 2011, a realization had by employees of city government, workforce development organizations, community development corporations, and employers, was that green jobs do not constitute a real, emergent sector of the economy (All 18 Stakeholders Interviewed). The realization was had towards the end of the “green jobs mania” in 2011 that green jobs were “not the headline but a tag-line,” or simply “not separate or unique but a piece of how things are done” (Stakeholder #2, #11 and #13 – Workforce Investment Board Interviews). The initial hope that the green economy would create opportunities through new, emergent professions was crushed by the reality that outside of energy efficiency and weatherization in the emergent clean energy sector, the green economy was a retailoring of existing professions to add a green component.

\[135\text{Mt. Auburn Associates, SkillWorks Green Collar Career Pathways Initiative - Year 3 Annual Evaluation.}\]
Augmenting professions to be more environmentally sustainable was something that could be done by both private and public actors in a way that wasn’t disruptive to most business models or training programs. However, the inclusion of social sustainability was something that was never fully realized: adequate policy or cultural drivers were not in place to guarantee public or private actors could create viable career pathways in the green economy, largely because it was unclear what exactly constituted green jobs in the green economy. The AACA’s Energy Efficiency Technician Apprenticeship Program exemplifies the disconnect between the social and environmental sustainability goals of the green jobs movement. The program was established to create a worker training pipeline that would provide adequate, industry supervised skillset development to in-need populations which would then lead to job placement in companies with room for upward mobility. The program collapsed because of a misalignment of vision and goals between policymakers, employers, and training program developers.

The need for a green jobs intermediary or anchor institution to help realize the vision of environmentally and socially sustainable job creation was realized too late. The surge of ARRA funding that sought to bring to life a more sustainable vision of capitalism did not have the adequate governance required to create the systemic change desired. The success of the clean energy sector will be reflected on later, as its success was largely rooted in the support it received from a well-funded anchor organization, regional collaboration, and both public and private actors willing to align their interests to incorporate social sustainability into professions retailored to also be environmentally sustainable.

The green jobs was also challenging from a workforce perspective because it added green components to existing occupations, essentially “raising the bar” for entry-level positions and in some cases requiring “retraining of people” to keep their existing jobs (Stakeholder #5 – Non-profit, 3/29/2018 Interview). In sum, one stakeholder described the green jobs movement as “less about green jobs in particular, and more about the workforce development space as a whole responding to a certain movement at a specific point in time” (Stakeholder #3 – Workforce Investment Board, 2/23/2018 Interview). Coupled with the Recession negatively impacting job growth, funders became less interested in green job investments when it became clear that new professions like those attempted by the EE-TAP were not tenable (Stakeholders #3 and #5 Interviews). The finding that a consistent definition of what constitutes a green job did not emerge from the ARRA period is largely supported by the literature and is not particularly revolutionary, but can now be grounded in the Boston case study.

4.6.2 Stimulus Flood and the need for Capacity Building

Duplication was a repeatedly mentioned problem by those involved in green jobs initiatives and workforce development programs (Stakeholder #1, #3, #5, #7, #11, and #14...
Interviews). The amount of green jobs money entering the economy all at once through ARRA funding resulted in a non-strategic approach to green job creation, with programs flooding the market (Stakeholder #5 – Non-profit, 3/29/2018 Interview). An unprecedented complication to coordination was that due to the large influx of funding, actors who weren’t traditionally involved in workforce development began to apply for funding due to excitement surrounding the green jobs movement: job growth in the midst of the Recession, the possibility of opening access and involving the whole community in achieving environmental goals, eagerness surrounding the possibility of creating new, innovative occupations, all of these factors and more lead to grant applications from economic development organizations, policy advocacy groups, community development corporations, and employers who were traditionally far removed from the workforce development space (Stakeholder #3, #5, #6, and #9 Interviews).

As a result of how quickly ARRA funding flooded the market, coordination and planning between organizations was minimal at best and more sustainable, stable, long-term organizational relationships did not materialize in the years of funding or the years that followed (Stakeholder #12 – City of Boston, 2/20/2018 Interview). All of these challenges point to how if the green economy was to emerge as a real, distinct sector of the economy, regional collaboration facilitated through an anchor organization could have helped guide the development of programs for industry specific occupations. Instead, the lack of coordination resulted in multiple failed programs aiming to achieve the same ends.

Two shortcomings of many of the funded programs were the failure to provide family-sustaining wages and viable career pathways. SkillWorks noted that these failures could have been avoided for some programs in the Boston Metro region by establishing stronger relationships with trade unions,\(^\text{136}\) a sentiment echoed by some stakeholders (Stakeholder #5 and #7 Interviews). The lack of cooperation from the IBEW during the green jobs movement serves as an example of failed relationship building, but the aforementioned success of the carpenters union partnership with YouthBuildBoston was commented on as a representation of a deeper rekindling of cooperation between the building trades in the Boston metropolitan region and workforce development organizations (Stakeholder #2, #5, #16, #17, and #18 - Union Members Interviews). Non-union stakeholders involved in the green jobs movement mentioned that challenges with establishing apprenticeship programs came from the unions themselves. Boston unions were described as “very traditional white male systems” that were culturally not receptive to outside influence and which operated on “long-held assumptions and practices” (Stakeholder #5 and #12 Interviews). Frustratingly, it was noted by those working in municipal workforce departments that “trade organizations were the only point of entry” for many of the early green jobs positions, e.g. weatherization and energy efficiency retrofitting (Stakeholder #9, #10 –

\(^{136}\text{Mt. Auburn Associates, SkillWorks Green Collar Career Pathways Initiative - Year 3 Annual Evaluation.}\)
City of Boston, and #12 Interviews). The notion that trade organizations were the only point of entry suggests that private actors were not responding to the environmental and social sustainability objectives of the green jobs movement, indicates that the clean energy sector was too nascent at the time to have created a model for sustainable capitalism.

The failure of the movement to create family-sustaining wages and viable career pathways, simply put, occurred because “no one thought about the future;” the government was only concerned with increased wages, viewing “$14/hr to $14.15/hr as a success” (Stakeholder #6 - MassCEC, 2/8/2018 Interview). The disconnect between the federal government and local implementation of ARRA funding, exemplified by the bifurcation of wages and retroactive payment experience of the Renew Boston program, was too severe to develop a coherent action plan for green workforce development (Stakeholder #3 – Workforce Investment Board, 3/16/2018 Interview). Duplication of programs resulting from a lack of conversation amongst relevant stakeholders led to disappointing results: in some cases, “they had to give money back” to the Department of Labor because a green jobs program couldn’t get off the ground (Stakeholder #5 – Non-profit, 3/29/2018 Interview). In short, there was a desperate need in the green economy for convening and dialogue facilitation. SkillWorks attempted to fulfill that role with their Green Jobs Initiative and was successful in their pilot grant implementations, but a larger, more cohesive vision for the green economy did not emerge out of the ARRA era (Stakeholder #5, #6, #7, and #9 Interviews).

4.6.3 The beginnings of the clean energy sector

Lauded as a success story of the national green jobs movement was the establishment of the Massachusetts Clean Energy Center (Stakeholder #1, #3, #5, #6, #7, and #11 Interviews). Described earlier in this thesis, the MassCEC legislation clearly defines green jobs as pertaining to clean energy. Central to the success of the emergent clean energy sector were the MassCEC’s Pathways Out of Poverty program and the Clean Energy Internship program. The MassCEC Pathways Out of Poverty program awarded funding to green jobs programs, including but not limited to the AACA’s EETAP.\(^{137}\) The MassCEC was recognized as a major force in the workforce development space as it pertained to clean energy, and was pivotal in helping establish fledgling green jobs programs at the start of the ARRA funding period (Stakeholder #6, #7, and #11 Interviews).

Argued as the most substantial contributor to the establishment of clean energy workforce development was the MassCEC’s Clean Energy Internship Program that began in 2011 period (Stakeholder #6, #7, and #11 Interviews). It began in 2011 with a single season of training for 119 students, and has since expanded to be a year round program divided into


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three phases, serving roughly 600 students in 2017 (Stakeholder #6 - MassCEC, 2/8/2018 Interview). Supporters of the program believe that the model of the Clean Energy Internship Program should be replicated for all tech industries (Stakeholder #6 and #11 Interviews). Central to the programs’ success is the relationships developed with the employers: employers can submit their own internship applications for viewing by interns, and the State also set up a sortable database of potential interns that employers can sort through and look through for themselves (Stakeholder #6 and #11 Interviews). The revolving door of employer postings and employer searching creates a low risk hiring process for small and large businesses alike: a transparent process where employers can find talent. Criteria for employer inclusion in the program is that their work must constitute “clean energy,” loosely defined by a stakeholder as:

- Related to renewable energy technology development
- Supporting other companies pursuing renewable energy technology development
- Wastewater remediation
- Aiding the state economy in transitioning away from “oil, gas, fossil fuels and supporting a low-carbon economy” (Stakeholder #6 - MassCEC, 2/8/2018 Interview)

It was acknowledged that “green jobs” do exist outside of clean energy, but that the legislation and mission of the MassCEC stipulates that they must “remain true to their ratepayers” and focus on the clean energy sector (Stakeholder #6 - MassCEC, 2/8/2018 Interview). A salient point emerging from stakeholder interviews was that the MassCEC was successful in aligning public and private actors for regional workforce development training, or that the clean energy industry cluster was on the path to creating a more sustainable vision of capitalism as Lawson and Murphy postulated. However, a missing component of the data and stakeholder feedback regarding the MassCEC was social sustainability: it was not indicated that viable career pathways were created from the internship or green jobs programs, merely that capacity building between public and private actors for environmentally conscientious jobs had occurred.

4.6.4 “A change in the way we think about doing business”

The initial definition of green jobs was narrowly focused on weatherization and energy efficiency due to their entry-level accessibility and the national rhetoric surrounding energy policy as the linkage between combating climate change and creating job growth. However, the definition had already begun to broaden by the time ARRA funding disappeared. Research efforts led by organizations like SkillWorks and the Mass Workforce Alliance explored how occupations relating to food, waste, wastewater, water, urban gardening, and other occupations inherently related to the environment or resource management could be adapted to assist with climate mitigation (Stakeholder #2, #5, and #7 Interviews).
These early stages of research emphasized less how to create family-sustaining wages or viable career pathways and instead more how sustainability principles could be easily incorporated or how an alignment of policy could assist in mutual goal advancement across said occupations. Mass Workforce Alliance held an educational campaign known as Down to Earth to try and uncover what kind of work would be available in the green economy, convening roughly 70 organizations across the Commonwealth to talk about these opportunities (Stakeholder #2 and #12 Interviews). SkillWorks had also published a report on wastewater and water management: along with their role as a green workforce intermediary, through their report it came to be understood that the initial job titles associated with green jobs didn’t capture the full scope of what green jobs meant (Stakeholder #2 and #5 Interviews). “Green” was considered a great term for these research efforts “because it doesn’t mean anything”: the jobs “can be totally different – underlying them is some loose philosophical agreement” (Stakeholder #7 – BW Research, 2/26/2018 Interview).

Penetrating every interview was the notion that a significant impact of the green jobs movement was awareness of a lingering, underlying philosophical agreement regarding the importance of the environment and climate change to the way business is conducted in the Boston Metropolitan region (All 18 Stakeholders Interviewed). The magnitude and level to which said philosophical agreement was and has been acted upon was not consistent, with members of municipal workforce development organizations commenting on how unions are completely detached from environmental concerns while employees for clean energy research institutes stated that labor unions have a much greater understanding and continued commitment to environmental objectives (Stakeholder #7 and #12 Interviews). How the Boston metropolitan region has followed up on developing and implementing this underlying philosophical agreement will be addressed in the next section.

4.7 The Lasting Impacts of the Green Jobs Movement

This section will examine the lasting impacts of the Bostonian green jobs movement, seeking to understand how the green jobs movement influenced later implementation and consideration of sustainability and climate mitigation in workforce development programs and other initiatives in the Boston metropolitan region.

It is here that we will return to Next Step Living, a small business that was of critical importance to the initial weatherization and energy efficiency retrofitting in Boston and which ballooned to nearly 800 employees in 2014. Sadly, Next Step Living abruptly shut down in 2016, putting its remaining 200 employees out of work and leaving around 2,000 MassSAVE customers who had home energy assessments or scheduled weatherization work with Next Step Living in limbo. While it can be difficult to pinpoint the exact reasons for any company’s dissolution, the failure of Next Step Living as a business was considered symbolic of the failure of the green jobs movement as a whole (Stakeholder #1, #3, #4,
#5, and #9 Interviews). The primary reasons for the company’s failure, as indicated by stakeholders and business analysts, were that Next Step Living “grew too fast” and didn’t know how to handle its capital influx. Poor capital management created money-losing propositions in the form of home installation services using technologies that were not fully understood, and the wages of contractors were not enough for the difficulty of service they were providing (Stakeholder #1 – City of Boston, 3/6/2018 Interview). Next Step Living began as a weatherization retrofitting firm, but expanded its services to include solar installation, heating pumps, and energy efficiency auditing, all under the guise of green jobs. The company’s ambition was rooted in the notion of sustainable capitalism linking together environmental and social sustainability: Next Step Living sought to provide services that would help reduce customer’s carbon footprints while paying competitive wages for jobs that had low barriers to entry. However, the company overreached what was sustainable from a business model standpoint by expanding its services too broadly into types of technology that weren’t fully understood by the management: a problem that could have been alleviated with proper guidance from an anchor organization or an intermediary.

The failure of Next Step Living in many ways hearkens to the findings of the previous section, namely that the surge of funding into the “green jobs” or energy efficiency/weatherization space was grossly mismatched with the capacity of private and public institutions to implement effective programs and policy to maximize a return on the creation of sustainable, living wage jobs while meeting municipal climate mitigation goals. Next Step Living shutting down was a “microcosm of the whole movement”, but it took several years after ARRA funding vanished for its collapse to occur (Stakeholder #3 – Workforce Investment Board, 2/22/2018 Interview). However, while the green jobs movement and Next Step Living failed in their own regards, sustainability initiatives have continued to this day. This section will describe how the organizations that participated in the green jobs movement, i.e. municipal government, workforce development organizations, and intermediaries, have continued to pursue sustainable development in their own ways since ARRA funding has ended.

4.7.1 Municipal Energy

Figure 10: Municipal level of nested case study - Post-ARRA

Since ARRA, Renew Boston has been continuing to serve Boston residents, with over 40,000 home energy visits conducted in the past decade. Boston has launched several other initiatives and established other progressive energy programs under their Department of the Environment, namely: Climate Ready Boston, Greenovate Boston, Carbon Free Boston, Building Energy Reporting and Disclosure Ordinance, and a city-wide Climate Action Plan. Providing details on all of these programs lies outside of the scope of this thesis, but it is important to understand that Boston has taken a holistic approach to combating climate change that began with energy efficiency and weatherization services under ARRA.

A continuation of “green jobs” programs in municipal energy was described to me as contained within Boston’s Energy Policy and Programs, under the leadership of Chief of Energy, Environment, and Open Space, Austin Blackmon. Boston is recognized as the most energy efficient city in the United States, which is largely attributable to the city’s

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“leading green buildings” that help save money through energy use reduction.\textsuperscript{140} Despite the city’s national leadership in energy efficiency, it was reported that there is a “huge gap” in the need for building operations and the training programs established for them (Stakeholder \#10 – City of Boston, 3/14/2018 Interview). The gap was articulated as a disconnect between the increasing sophistication of building or facility monitoring technology and the aging of the building operations workforce: the citizen designing the software or technology for building operations is doing theoretical work for an ideal world, but the systems manager or building operator is not necessarily someone who is familiar with the new technology or who has the appropriate skillsets (Stakeholder \#10 and \#12 Interviews). More often than not, the building operators or system managers who operate LEED certified buildings have little to no interaction with the architects, mechanical engineers, sustainability professionals, etc. who are responsible for constructing said LEED certified buildings (Stakeholder \#12 – City of Boston, 2/20/2018 Interview). An additional complication is that the building operators themselves may not have the education or background necessary to understand how much energy is actually used by the buildings they operate, a concern that needs to be addressed in workforce programs (Stakeholder \#10 – City of Boston, 3/14/2018 Interview).

Funding workforce development programs can be complicated and require innovative solutions. There are technological limitations to energy efficiency in buildings, yet utilities have a requirement under MassSAVE to meet energy efficiency standards in a cost-effective manner due to the Green Communities Act of 2008.\textsuperscript{141} MassSAVE stipulates that there is an energy conservation charge on every energy bill, the proceeds of which go into supporting MassSAVE and helping utilities meet their energy efficiency standards. Traditionally, these funds have been used by utilities to invest in new equipment. The City of Boston, recognizing the need to update building operator workforce development programs and the challenge faced by technological limitations to efficiency for utilities, has created a workforce program through an MOU with Eversource. The program will be jointly sponsored by Eversource, with the goal of training municipal building engineers as a lower-cost method of improving efficiency by having building engineers help save energy through identifying corrective measures in the buildings they are employed in, as opposed to Eversource spending their funds on new equipment (Stakeholder \#10 – City of Boston, 3/14/2018 Interview).

The new municipal building engineer program is slated to start towards the end of April 2018, and is structured as a 74-hour training program delivered in 8, day-long seminars (Stakeholder \#12 – City of Boston, 2/20/2018 Interview). The course is intended to meet every two weeks and will cover a different topic for each session, with time between sessions spent by participants implementing or identifying how to implement what was learned in

\textsuperscript{140} Boston Green Ribbon Commission, “Boston Remains Most Energy Efficient City”.

\textsuperscript{141} MA Legislature, “Chapter 169 - An Act Relative to Green Communities”.

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the previous session in their work setting. The program will serve as a pilot, with the long-
term goal of creating utility buy-in such that the utility will be comfortable offering the
course to the general public, instead of restricting it to municipal employees (Stakeholder
#10 – City of Boston, 3/14/2018 Interview). There was utility interest in such classes be-
fore, but never consistent enough interest to warrant regular classes: the City of Boston’s
response to this historical pattern is to attempt to integrate the program with the City’s
Building Energy Reporting and Disclosure Ordinance (BERDO) to allow building owners
to participate in the new building engineer program as a means to meet their energy audit
requirement under the ordinance.

The scope of the impact of the municipal building engineer training program is larger than
one might initially expect. BERDO applies to all non-residential buildings that are 35,000
square feet or larger, residential buildings 35,000 square feet or larger or that have 35 or
more units, and any parcel with multiple buildings that sum up to 100,000 square feet
or more or 100 or more units.\footnote{City of Boston. “Building Energy Reporting and Disclosure Ordinance”. In: (2018). URL: https://www.boston.gov/environment-and-energy/building-energy-reporting-and-disclosure-ordinance.} The number of buildings in Boston required to report
under BERDO numbers 2297,\footnote{Ibid.} with each building likely to employ at least one person or
maybe even a small team of people responsible for operating it: the program could reach
several hundred people in the building operations profession, with all expenses paid for by
utility funds (Stakeholder #10 – City of Boston, 3/14/2018 Interview). At the time of my
submitting this thesis, the program should have held its first class or be within a few weeks
of holding its first class (Stakeholder #12 – City of Boston, 2/20/2018 Interview).

4.7.2 Not bucketed under “green jobs”

A salient point made when describing the upcoming municipal building engineer program
was that “it doesn’t always get bucketed under green jobs, and to be honest, I kinda like
that” (Stakeholder #10 – City of Boston, 3/14/2018 Interview). It was reported that sus-
tainability and the green economy is sometimes not well received by “the people working
in building trades,” who may not have an environmental or conservation mindset. In-
stead, the strategy for building awareness around the program will emphasize rhetoric like
“efficiency.” Framing the program as a method for enhancing productivity aims to allow
participants to take more pride in their work and is “a better way to reach people who work
in these more hands on jobs” (Stakeholder #10 – City of Boston, 3/14/2018 Interview).
The notion that “green jobs” or an emphasis on environmental sustainability is a detractor
from program or initiative support was a sentiment echoed by stakeholders coming, and is
a theme that will be discussed at the end of this chapter (Stakeholder #3, #5, and #10
Interviews). Oddly, these comments indicate that while clean energy has served as a link
between public and private actors for sustainable capitalism, the environmental conserva-
tion component remains at odds with the identity of some workers engaged in the field: the values of those who are employed by socially sustainable organizations like trade unions are not directly aligned with those of environmental conservation movements: just because a worker may be employed by a socially sustainable organization and have deep seated social sustainability beliefs or values does not mean that environmental sustainability or conservation values resonate with the individual.

4.8 Current State of Workforce Programs

![Figure 11: Metropolitan level of nested case study - Post-ARRA](image)

Conversations with stakeholders employed by workforce development boards, municipal workforce departments, and workforce intermediaries revealed that since ARRA, workforce development programs have mostly dropped the green economy for consideration. Clean energy, due to its success in establishing itself as a viable industry sector in the Commonwealth, does receive attention from municipal workforce development departments like Boston’s, as evidenced by their building operators program launching this year (Stakeholder #10 and #12 Interviews). However, discussions around the “greening” of existing professions rarely occur (Stakeholder #2, #3, #4, #5, #8, #12, #13 and #14 Interviews).
Instead, workforce development departments and organizations have continued their practice of responding largely to industry trends and the needs of the most vocal employers (Stakeholder #3, #4, #5, #8, #9, #12, and #13 Interviews). Most recently, regional efforts to coordinate workforce development priorities in the Commonwealth have been initiated by the Governor’s Workforce Skills Cabinet to convene workforce, economic development entities, and education to identify labor supply gaps and develop strategies to close them. For the Boston metropolitan region, three Workforce Development Areas, comprised of the Boston Private Industry Council (PIC), the Metro North Regional Employment Board (MNREB), and Partnerships for a Skilled Workforce (PSW) (grouped together as the Greater Boston Region, depicted in Figure 12 below), released a Greater Boston Regional Workforce Planning Blueprint on February 1st, 2018 for a month of public comment.

Through their analysis, the industries identified as most important to the economic success of the Boston metropolitan region were:

1. Berkshire Region: Includes Berkshire Workforce Area
2. Pioneer Valley Region: Includes Franklin/Hampshire and Hampden Workforce Areas
3. Central Mass Region: Includes North Central and Central Massachusetts Workforce Areas
4. Northeast Region: Includes Greater Lowell, Lower Merrimack, and North Shore Workforce Areas
5. Greater Boston Region: Includes Boston, Metro North, and Metro South/West Workforce Areas
6. Southeast Region: Includes South Shore, Brockton, Bristol, and New Bedford Workforce Areas
7. Cape Cod and Islands Region: Includes Cape Cod and Islands Workforce Area

Figure 12: Map of Workforce Planning Regions

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146 Rod Motamedi. “Greater Boston Workforce Planning Blueprint - Draft for Public Comment”. 67
• NAICS 62: Health Care and Social Assistance
• NAICS 54: Professional and Technical Services

The importance of these industries was echoed by stakeholders employed by the participating workforce development boards, as well as by municipal workforce employees (Stakeholder #3, #4, #9, #10, #12, and #13 Interviews). These two industries were also identified as those facing the most significant challenges for workforce development, due to their substantial growth experienced in the past decade and projected growth over the next decade: from 2001 to 2016, health care added 85,463 jobs while technical services added 41,205 jobs. Other industries noted as important by workforce development employees were advanced manufacturing, financial services, hospitality, retail, and industries pertaining to “STEM” or IT/Tech (Stakeholder #3, #4, #9, #10, #12, and #13 Interviews). While understanding the context and priori in which workforce development organizations are operating today and what their program priorities is important, examining the state of the region’s economy, industry cluster analysis, and occupational analysis is outside of the scope of this thesis.

When asked if existing or planned workforce developments programs pertaining to these industries were at all considering including components of sustainability, environmental awareness, or anything related to the “greening” of occupations, the response was a uniform “no” (Stakeholder #3, #4, #9, #10, #12, and #13 Interviews). A keyword search of the Greater Boston Regional Workforce Planning Blueprint for words like “climate,” “green,” “greenhouse” or “environment” reveal either no result (in the case of “greenhouse” or “climate”), refer to the color coding of occupations by category (“green”), or the economic or workspace “environment” of employers and trainees. Similarly, SkillWorks has also moved on from the green economy. SkillWorks new four-year plan, or Phase IV in SkillWorks organizations history, has the two following stated goals:

1. Strengthening the link between employers, training and education providers and job-seekers to create strong networks in support of high demand, good-job opportunities.

2. Supporting workforce partnerships that serve our priority populations through multiple pathways to training, education and good jobs in healthcare, IT/Tech and Hospitality.

As mentioned in Section 2 of this chapter, it appears that the green jobs movement was “less about green jobs in particular, and more about the workforce development space

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148 Motamedi, “Greater Boston Workforce Planning Blueprint - Draft for Public Comment”.

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as a whole responding to a certain movement at a specific point in time” (Stakeholder #3, 2/23/2018 Interview). Now that ARRA funding has ended, workforce development organizations and programs have returned to their traditional emphasis on employer engagement, creating programs with long-term career pathways, and linking education with industry needs. Most of the challenges associated with existing workforce development programs are unsurprising and were described as “problems that workforce development has had for decades” (Stakeholder #12, 2/20/2018 Interview). These common, persistent challenges for workforce programs primarily relate to reducing barriers to entry for workers and expanding access for poor, disadvantaged minorities, and developing soft skills so that workers successfully placed can actually retain their positions. Common barriers to entry include workers having to explain before a review board past criminal history, the necessity of a drivers license for occupations that don’t require on the job driving, the location of training facilities removed from public transportation access, and programs requiring day-time commitments that require poor, single parents to invest in childcare when they are already struggling financially (Stakeholder #3, #4, #5, #6, #9, #10, #12, and #13 Interviews). Additionally, soft skill training was cited as generally under-emphasized in training programs: employee retention is sometimes lower than it should be because of the lack of emphasis on professional, interpersonal interaction (Stakeholder #6, #9, and #12 Interviews). Finally, a persisting challenge for workforce development programs is the temporal element: in the years it can take to establish a workforce development program, the needs of the employers that the program is oriented towards may change, invaliding that program before it has even graduated its first cohort (Stakeholder #9, 3/13/2018 Interview).

The aforementioned challenges were mentioned as traditional challenges for workforce development that have been around for decades. However, new challenges for workforce development at-large were mentioned as coming from the increasing emphasis on technical skills in all industries, even those not pertaining to STEM or IT/Tech (Stakeholder #3, #4, and #13 Interviews). An “eye-opening experience” for one employee of the Boston PIC was that “all young people need to know how to use spreadsheets,” regardless of the industry (Stakeholder #4, 2/13/2018 Interview). With the increasing digitization of the economy, workforce development programs may need to include computer and technical skills in their programs even if the end goal occupation is not STEM or IT/Tech related: how to integrate such training into programs without driving up costs or drastically increasing program run-time is a problem which long-standing workforce development employees are unsure of how to address (Stakeholder #4, #12, and #13 Interviews).

While workforce development organizations have moved away from the green economy, their current actions and strategies support the idea that regional collaboration and governance rooted in anchor organizations are important drivers for enhancing social sustainability and economic development. We will now examine if clean energy workforce development is dis-
distinct in facilitating sustainable capitalism through its inherent environmental sustainability nature and social sustainability goals.

4.8.1 Clean Energy Workforce Development

Figure 13: State level of nested case study - Post-ARRA

Clean Energy workforce development, propelled by the MassCEC’s Clean Energy Internship Program, Clean Energy Resume Board, and Clean Energy Job Board has firmly established Massachusetts as the nation’s leader in the clean energy sector. Notable rankings are listed on the MassCEC website:

- The state has also set the gold standard for energy efficiency, named the most efficient state in the country for six straight years by ACEEE. (2017)
- Massachusetts ranks No. 1 in Bloomberg’s Innovation Index (2017)
- Massachusetts named No. 1 state in the country by U.S. News & World Report (2017)

150 Massachusetts Clean Energy Center, Massachusetts Clean Energy Center - About.
• Massachusetts is No. 1 in the United States for per-capita early-stage clean energy venture investment. (2016)

• Boston named the most energy efficient city in the nation, four years in a row ACEEE (2017)

• Boston named No. 1 in the U.S. for startups by U.S. Chamber of Commerce, two years in a row (2017)

Every year since its inception, the MassCEC has released a clean energy industry report detailing the number of clean energy jobs in the state, growth rates of the industry, statistics such as the number of renewable projects deployed or median wages of clean energy employees, and national rankings of the states’ performance in various energy metrics.151 The state has been proudly toting its rising success in energy efficiency and the clean energy sector for years, deservedly so as the most energy efficient state for seven years running.152 Interestingly, the most recent 2017 MassCEC report noted that the most commonly reported difficulties for hiring within the clean energy sector were insufficiently technical skills (52.5%) or insufficient experience (43.9%), with new hires with an Associate’s degree declining by 9.8% while new hires with a Bachelor’s degree or higher increasing.153


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The report indicates growth in clean energy employment across the entire state, but the trend of the industry in the past year towards higher skilled labor as indicated by the above statistics does not bode well for workforce development at-large which seeks to serve low-skilled, low-income workers (Stakeholder #9, 3/13 Interview). Beyond clean energy, the MassCEC has also created two new, emerging initiatives in 2015 and 2016 related to...
Water Innovation and Clean Transportation, respectively. The MassCEC mentions the link that clean energy shares with water and transportation innovation, a theme that I will discuss below.

### 4.9 On-going Sustainability Efforts

My interest in pursuing the story of the green jobs movement in the Boston metropolitan region was to enhance my own personal understanding of why the movement failed, but more importantly to understand how the hope and vision of green jobs as a part of sustainable development might have contributed to a broader systemic shift towards more environmentally and socially conscious business practices. Throughout my interviews I sought details and direct knowledge of how workforce development organizations structured green jobs programs and what remnants of green jobs programs survive today, which


is what my thesis has described up to this point. However until now, an important, concluding component on my interview process has not been described: how the green jobs movement directly or indirectly contributed to sustainability initiatives, dialogues, and relationships that are continuing in the Boston metropolitan region today. I understood that responses to this inquiry would be varied and that stakeholders might not attribute the green jobs movement to having amounted to much. I also stipulated in my question that I meant initiatives that were formed outside of municipal government, as municipal governments had noticeably become involved in climate adaptation and spurned multiple initiatives of their own. Only two concrete initiatives meeting that criteria were mentioned to me. However, I was surprised by how many did believe that the green jobs movement, despite its failing, was in some way responsible for facilitating a broader engagement in sustainability across the public and private sectors (Stakeholder #1, #2, #3, #4, #5, #6, #7, #8, #9, #10, and #14 Interviews).

4.9.1 Sustainable Supply Chain Management and Circular Economy

Greentown Labs self-reports as the “largest clean technology incubator in the United States” and operates out of Somerville. The MNREB, in partnership with three other workforce investment boards in the Commonwealth, has dedicated US Department of Commerce grant money towards connecting manufacturers with start-ups in the region to help address supply-chain issues (Stakeholder #3, 2/22/2018 Interview). Greentown Labs is the primary partner for this grant, hosting a page on their website devoted to the Greentown Labs Manufacturing Initiative: “The Greentown Labs Manufacturing Initiative connects startups with manufacturers throughout Massachusetts to break down barriers and help establish working relationships.” The primary purpose of the initiative is to locally manufacturing, as “with over 7000 manufacturers across the Commonwealth there is little reason for startups or anyone else to think that they need to go overseas to get their product made.” The Manufacturing Initiative has several components to it to facilitate local supply chain sourcing. Primarily, there are dedicated Initiative staff and local manufacturers who hold office hours for startups to attend to receive assistance on product development, design, sales, and networking. Additionally, there are ongoing workshops and events held to provide educational and networking opportunities for startups.

When the Greentown Labs Manufacturing Initiative was described to me, it was described in the context of an initiative helping municipalities meet their climate adaptation goals (Stakeholder #3, 2/22/2018 Interview). At no point in the discussion was the initiative

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159Ibid.
described as “sustainable” or as pertaining to sustainable procurement or sustainable supply chain management, both of which are terms in use in the public and private sectors. The initiative was not believed to have been a direct result of the green jobs movement, but an indirect result of the growing environmental conscientiousness that has emerged since ARRA (Stakeholder #3, 2/22/2018 Interview). While not inherently related to clean energy, the Greentown Labs Manufacturing Initiative emerging in the wake of the green jobs movement reflects how the green jobs movement’s emphasis on clean energy did help create an awareness of the importance of creating links between public and private actors for environmental and social sustainability. Emphasizing the importance of supporting local businesses (social sustainability) that are environmentally friendly (environmental sustainability) incorporates both public and private actors in creating a more localized, sustainable version of capitalism.

A second initiative mentioned to me as having emerged from the broader change in thinking resulting from the ARRA green jobs movement is the Massachusetts Local Food Action Plan, developed in part by the Mass Workforce Alliance (Stakeholder #2, #4, and #5 Interviews). The general goals for the plan were stated as follows:161

- Increase production, sales, and consumption of Massachusetts-grown foods.
- Create jobs and economic opportunity in food and farming, and improve the wages and skills of food system workers.
- Protect the land and water needed to produce food, maximize environmental benefits from agriculture and fishing, and ensure food safety.
- Reduce hunger and food insecurity, increase the availability of healthy food to all residents, and reduce food waste.

The stated goals of Massachusetts Local Food Action Plan directly address the triple bottom line of sustainable development and additionally touch on sustainable, local sourcing, similar to the Greentown Labs Manufacturing Initiative. In the Local Food Action Plan Full Report there is also discussion of how food waste can be used for energy production, yet curiously there is no mention of how utilizing waste for energy production is a central component of a circular economy. Only one stakeholder out of the three who discussed the Local Food Action Plan with me went so far as to use the sustainability term “circular economy” (Stakeholder #2, 2/27/2018 Interview). Despite the absence of a commonly used

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161 Ibid.
162 Ibid.
term in sustainability dialogue in the report and several conversations, all three stakeholders did mention that the Local Food Action Plan was a direct result of the research that occurred as a result of seeking to understand what constitutes a green job (Stakeholder #2, #4, and #5 Interviews). More detail could be provided on the specifics of both the Greentown Labs Manufacturing Initiative and the Massachusetts Local Food Action Plan, but for the purposes of this thesis detailing the context from which they emerged, their linkage to the green jobs movement, and how removed their descriptions are from more traditional sustainability terminology is enough.

4.10 Chapter Conclusion

Having already provided an overview in previous sections of the green jobs movement in Boston during the second term of the Obama/Biden administration and how workforce development is operating in Boston today, this section will address the overall themes and findings pertaining to how environmental conscientiousness and sustainability objectives have become a part of workforce development programs and what role the green jobs movement and ARRA had in facilitating the integration of sustainability thinking into the broader Boston metropolitan culture.

4.10.1 “Energy is the link”

Prior to ARRA, environmental policy and environmental law was primarily concerned with air pollutions, emissions, water quality and conservation, and waste management – energy and energy policy entered environmental curriculum and training programs across the nation around the same time as the green jobs movement was pushing progressive energy policy (Stakeholder #7 and #12 Interviews). The establishment and success of the Massachusetts Clean Energy Center and its’ workforce development programs around this time highlights how the clean and renewable energy industry was viewed in Massachusetts and Boston as an emergent sector that linked together the pressing reality of climate change and environmental degradation with the creation of new occupations (Stakeholders #6, #7, and #12 Interviews). ARRA’s emphasis on energy efficiency and weatherization created the space for the green jobs movement to explore how to tailor workforce development programs to help municipalities meet their climate adaptation goals while also exploring how to integrate other, more long-standing environmental concerns into workforce programs or sustainability initiatives: ultimately many of these programs and initiatives failed, as described in earlier sections, but energy was the link that allowed the green jobs movement to grow and explore opportunities during this time (Stakeholder #1, #2, #6, #7, #10, and #11 Interviews).

As described in previous sections, the emergence of municipal energy departments and municipal involvement in a traditionally utility dominated energy space in the Boston
metropolitan region coincided with the green jobs movement and ARRA. A lasting impact of ARRA was that it was a huge intervention in an existing dynamic that allowed for municipal energy functions to grow (Stakeholder #1, 3/6/2018 Interview). In previous decades, municipal government and its workers in the Boston metropolitan region were viewed as those responsible for maintaining civic order: maintaining trash and waste flow, putting out fires and plowing the snow in streets, educating children and dealing with public health emergencies, among other ordinary, civic functions (Stakeholder #1, 3/6/2018 Interview). In the federal-state-local government hierarchy, cities were at the bottom: in finding solutions to the ARRA bifurcation wage issue that Boston experienced, it was noted that the “federal government treated me as the enemy” (Stakeholder #1, 3/6/2018 Interview). But in the early 2000s, nationally and globally, cities were increasingly called upon and stepped up to addressing climate change: networks like C40 Cities and the Urban Sustainability Directors Network started in 2005 and 2008, respectively, seeking to fill the gap in urban sustainability through the development of policies, programs, and partnerships at the municipal level. These networks elevated municipal government and enabled them to address climate change regardless of their position in federal-state-local hierarchy. Climate change action would have occurred regardless of ARRA due to these global and national initiatives, but ARRA was seen as the impetus for municipalities in the US to reduce energy consumption, plan for rising sea levels, and address carbon neutrality and the transition to a low-carbon economy (Stakeholders #1, #7, #10, and #11 Interviews). The EECBG funding received by Boston created the space for the city to be directly involved in its energy work in a way that hadn’t been possible before. Boston was an early leader in recognizing that the trend of municipal leadership in climate action was coming and that society was increasingly looking to the Mayor’s office for innovation in creating solutions to climate change and sustainability problems (Stakeholder #1 and #2 Interviews).

4.10.2 Workforce Development alone is the wrong space for environmental sustainability

Supported by the literature and now grounded in the Boston context, green jobs are not a separate or distinct classification of occupations or professions. The hope that green collar employment would provide family sustaining wages and create viable career pathways was never realized by the green jobs movement in Boston. While there were complications arising from the way that ARRA funding was distributed, to whom it was distributed, and the lack of coordination among the actors involved which resulted in more problems such as the duplication of programs, ultimately the failure of the green jobs movement lies in the fact that new occupations and professions did not emerge. Next Step Living’s and the AACA’s

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EETAP failures were symbolic of how new green occupations and professions were not a reality. Rather than investing in workforce training programs, funding allocated towards policy and capacity building would have resulted in more widespread, systemic change: early challenges in solar work surrounding what kind of workers could participate and what the environmental standards would be for existing workforce development programs are examples of how policy could have accelerated sustainability implementation (Stakeholder #5 and #12 Interviews). In short, “the emphasis on the workforce component of things was misplaced...more should have gone into policy” (Stakeholder #5, 3/29/2018 Interview).

A communication gap persists in the Boston metropolitan region when it comes to how sustainability can be and has been more broadly be integrated into the public, private, and civic spheres. In my conversations with some members from municipal workforce development departments and workforce development organizations, there was an understanding that unions are not currently addressing ways to implement sustainability or environmental conscientiousness into their apprenticeship programs (Stakeholder #2, #12, and #13 Interviews). However, union members proudly discussed their solar, energy efficiency, and wastewater initiatives (Stakeholder #16, #17, and #18 Interviews). A possible reason for this disconnect could be that unions across all trades did not participate in the ARRA green jobs movement.

It was noted that there are currently many forums and ways for those actively involved in sustainability circles to converse, but that there is considerably less outreach from sustainability circles to the broader community (Stakeholder #5 and #12 Interviews). A contributing factor to the lower levels of outreach is the failing of the green job movement: “Green jobs has become a dirty word after a few years...everyone got a little bit jaded” (Stakeholder #5, 3/29/2018 Interview). That same sentiment was echoed in how the City of Boston’s upcoming municipal building engineer program is not bucketing itself under green jobs (Stakeholder #10, 3/14/2018 Interview).

Contributing to the diminished level of outreach is confusion over how best to facilitate sustainability dialogue. A few methods were proposed by stakeholders:

1. The creation of an intermediary or anchor organization (Stakeholders #12 and #13 Interviews)
2. Advocacy oriented towards industry associations or tables (Stakeholders #5, #8, and #14 Interviews)
3. Compacts and initiatives involving both municipalities and businesses (Stakeholder #2 and #9 Interviews)

A linking factor for all three of these proposed methods is the need for employer and
private sector buy-in. It was noted that a successful, but challenging way of creating private sector buy-in was to bring sustainability talking points to industry associations, as mentioned in above method #2, and to structure these talking points using the language of industry to try and create “high level” or “c-suite” buy-in (Stakeholder #8, 3/13/2018 Interview). Regardless of the method, there is consensus across workforce development organizations, municipal workforce development departments, and workforce investment boards that employers and the private sector are the missing players needed to create a more robust and broader sustainability conversation. The comments of these stakeholders reflect the broader point of how to achieve sustainable capitalism: regional collaboration can be enhanced through the establishment of an anchor organization. Anchor organizations can help direct advocacy directed towards industry associations and facilitate compact development between municipalities and businesses.
Chapter 5

Conclusion

The national green jobs movement was an experiment in uniting progressive energy policy with workforce development during the height of the worst economic downturn in American history in eight decades. The movement was driven by the hope that policy reform could provide economic opportunities for the nation’s most in need citizens while helping drive a national transition to a low-carbon economy. The nested case structure of this thesis was based around information that was readily available pertaining to green jobs training programs in Boston: a surprising number of green jobs programs and initiatives were referenced on-line and in interviews, but there was little living memory or written record of their passing. As it relates to the research questions posed at the beginning of the thesis, this chapter summarizes my analysis of the green job movement driven by ARRA funding in the Boston metropolitan region and the lasting impacts of the movement until the present day. Additionally, potential topics of investigation spurred by my efforts are described here, along with recommendations to facilitate easier implementation of policy and initiatives to help Boston succeed in meeting its sustainable development goals.

5.1 Summary of analysis

My investigation aimed to provide insight into how workforce development programs and initiatives in the Boston metropolitan region have adapted since ARRA to address the growing green economy. The questions as stated in Chapter 1 are repeated here:

1. Given the surge of federal funding into the “green economy” with the ARRA, how have the Boston metropolitan region’s workforce development institutions adapted to enable participation in the state’s growing green economy?

   (a) Impacts — What lasting impacts have these programs, policies, and plans had on the Boston metropolitan region?

   (b) To ascertain these impacts, I will examine:
i. For whom and where was “green job” money allocated from 2009-2012?

ii. How has the region tailored programs, policies, and plans to support “green-collar” jobs?

A. How is the region “increasing job and business opportunities” in the green economy?

B. How is the region “planning regionally” for the green economy?

Based on the qualitative data I collected, the green jobs movement in the Boston metropolitan region was largely unsuccessful due to two main reasons: poor preparation and coordination between workforce development organizations and other involved actors who were not traditionally involved in workforce development hindered the successful development of lasting programs and partnerships, and there was misplaced hope that there would be the creation of new occupations or “green jobs” relevant to the green economy in a large enough number to address historic unemployment rates owed to the Great Recession. The efforts to incorporate environmental sustainability into job creation led to policy capture: splitting attention on both job growth and environmental sustainability prevented the full realization of economic revival through job creation while also preventing a better understanding of how the green economy could be realized. The subsequent disappearance of “green jobs” from the rhetoric of workforce development initiatives and programs was indicative of how workforce development systems as a whole were responding to the prevailing national policy of the time and were not truly invested in propelling the green economy. The lasting impacts of the ARRA-funded green jobs movement in the Boston metropolitan region are two-fold. First, the growth and development of independent municipal energy functions was directly enabled by EECBG funding. Second, there is now increased awareness of how sustainability objectives can be implemented through local and regional policy, beyond the long-standing clean energy policy that the Commonwealth was already operating under at the time of ARRA. However, the importance of clean energy to the Commonwealth’s sustainable development goals should not be underrated. Clean energy was the link that was needed between practical economic and industry development and environmental conservation measures to help Boston and the Commonwealth create a more stable path towards sustainable development.

5.2 Further Research Questions and Recommendations

The findings from my investigation lead me to ask the following questions in an effort to help cities address poverty alleviation while meeting climate adaptation goals:

1. How can policy facilitate a broader conversation with employers and businesses about sustainable practices?

Two frustrating factors that stymied green job growth in the Boston metropolitan region were the unwillingness of employers to partner with green workforce development initiatives
and employers self-imposing hiring standards that were unrealistically high. Attempting to impose environmental compliance or regulation on the private sector has historically been met with resistance and counter lobbying in the United States. However, regulatory relief measures and incentives have been successful in the clean energy sector. Providing policy incentives or regulatory relief measures for businesses that implement stronger corporate social responsibility or environmental sustainability protocols have been successful in the EU, but there haven’t been any American or Massachusetts counterparts piloted in recent years. Coupling incentives or relief measures with programs like the Greentown Labs Manufacturing Initiative could facilitate more participation from businesses both up- and downstream in the manufacturing supply chain, enhancing sustainability efforts through a larger and more engaged base of participating businesses seeking financial benefit from sustainability.

2. In lieu of policy drivers, how can private actors pursue sustainability to create value?

Building off of the above research question, when the public sector and policy fail to create incentives or regulations to enhance social and environmental sustainability for private actors, it is worth investigating how private actors themselves can create value out of pursuing sustainability. A number of companies and research initiatives are exploring these ideas, but industry wide practices and American cultural norms have yet to adapt to fully embrace sustainability. An example of how private actors can pursue sustainability is the Embedding Project, “a global public-benefit research project that helps companies embed social and environmental factors across their operations and decision-making.”165 The Embedding Project defines business sustainability as “Business models and managerial decisions that create value over the short, medium and long term, based on mutually beneficial interactions between the company’s value chain and the social and environmental systems on which it depends.”166 The mission of the framework established by the Embedding Project resonates with the feedback given by some stakeholder’s on the green jobs movement earlier in the thesis: the green jobs movement created an awareness among some actors in the Boston metropolitan region that sustainability isn’t simply an “add-on” but a change in “the way we do business.”167 By viewing sustainability as a driver for value creation, private actors can align the way they do business with public actor and policy commitments to equitable and environmentally conscientious economic development. In doing so, a more sustainable vision of capitalism can be achieved.

3. How can the link created between the clean energy and energy efficiency sectors and environmental conservation be utilized to expand access to the green economy as a

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167Ibid.
means of poverty alleviation?

Expectations surrounding the emergence of new green occupations and the wages that green jobs would provide were unrealistically high given the reality of how little job growth occurred and how sub-standard the average earnings were. However, the clean energy industry did successfully evolve in parallel with the green jobs movement and the Massachusetts Clean Energy Center’s internship and workforce development initiatives have been lauded as exemplars of how to structure successful employer placement programs. In the past year though, clean energy industry employment has trended towards those with a Bachelor’s degree or higher, raising the issue of how can access to the green economy be expanded to less educated, lower-income populations. A recurring statement amongst municipal workforce development employees was that the union trades are not as involved in the green economy as expected, and additionally have cultures engrained with resistance to change and barriers to entry. A more direct partnership with union apprenticeship programs that involve renewables and wastewater management could help expand access to the green economy while providing stable career pathways.

The sustainability movement towards a low-carbon economy has taken root in more politically progressive regions of the country, but barriers created by neoliberal capitalism’s emphasis on short term profit maximization and rational individualistic behavior makes it difficult for public policy and private business interests to align. The link believed to exist between environmental and social sustainability was not realized by the Boston green jobs movement. Workforce development programs aimed at enhancing the environmental sustainability of programs were moderately successful in greening the occupations, but the social sustainability elements were never achieved because of a lack of coordination between relevant actors. The need for anchor organizations rooted in industry clusters to facilitate the integration of environmental and social sustainability components into workforce development plans has been exemplified by the Massachusetts Clean Energy Center. Regional planning and collaboration is best achieved with a strong intermediary institution helping to guide policymakers, private sector actors, and public training programs. Without the buy-in of both employers and public officials, sustainable capitalism cannot be achieved. To create the sustainable and just future that is sought through green workforce development and the Commonwealth’s Sustainable Development Principles, innovative policy must be coupled with new inter-organizational partnerships to realize the vision of an equitable society.
### Appendix A

#### Tables

Table A.1: Summary of Concepts related to Sustainable Capitalism from Interview Data

<table>
<thead>
<tr>
<th>Concept</th>
<th>Manifestations in the Data</th>
<th>Illustrative Quote</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intangibility of “Green”</td>
<td>The national rhetoric surrounding green jobs, initiated by Van Jones, was too vague to provide a meaningful direction to workforce development programs. When ARRA funding for green jobs was disseminated, the lack of direction lead to a wide variety of program initiatives, many of which were duplications of each other or which could not achieve both social and environmental sustainability goals.</td>
<td>“The way we approached it was as if the green sector was a totally new sector, you know, as if it was a standalone like healthcare, manufacturing, hospitality, which it really wasn’t. There were some new jobs like weatherization, and it was hard because the green jobs movement was tricky due to the definition of green jobs being really important. It was defined by funder what a green job was, and it was really tricky at first because weatherization jobs were green jobs, but there were only so many of them... There was a lot of money going out, which was good, but it was almost a problem because a lot of people were getting funding and coming into the workforce space who hadn’t been there before – policy people, economic development folks, all sorts of folks were involved in creating training programs who hadn’t been before.” (Economic Opportunity Director, Non-Profit)</td>
</tr>
</tbody>
</table>
**Anchor organizations and intermediaries**

The Massachusetts Clean Energy Center is a role model for how an anchor organization can bring together both public and private actors in an industry cluster for regional workforce collaboration. For the green jobs movement at large, a lack of alignment between public policy and business priorities was seen as a significant impeding factor to the integration of environmental sustainability into industry. The MassCEC helped bridge that gap for the clean energy industry by facilitating dialogue through its programs and initiatives.

“What by far the biggest success story, and it is huge, and has so many lessons learned for all of us, is the Internship Program that was set up by the Massachusetts Clean Energy Center...the state sets up a sortable database of any student from any college in Massachusetts who wants to participate, and then employers go into the database themselves without any other intermediary and sort and identify people they want to interview...it’s a fantastic idea and it’s exactly what the industry needed, and frankly speaking I think it’s what all tech industries should do.” (Sustainability Consultant – NECEC)

**Energy Linkage**

The clean energy industry has served as the practical economic link between environmental and social goals. The challenge for many green jobs programs was finding a way to address pressing environmental realities such as climate change and environmental degradation while creating socially sustainable occupations. The entrance of energy and energy policy into environmental curricula and workforce training programs has created the space for public and private actors to enhance the economy and create value while preserving the planet.

“In the early 2000s, the environmental law and policy programs across the country really did not include anything on energy, it just wasn’t part of the program. Landfills, Clean Water Act, Clean Air Act, things like that, but nothing on climate change at the time. So it was a pretty quick transition to where most of our work was in energy...The Massachusetts Clean Energy Center, their workforce team, has adjusted their funding priorities based on the needs of the market, and making sure that both that the occupations are the rights ones that we’re training for, but also that the programs that apply for funding are preparing people with the right skills based on what the industry needs.” (Vice President, BW Research)

**Beginnings of Municipal Energy**

Climate change action would have occurred regardless of ARRA due to global and national initiatives for cities, but ARRA was seen as the impetus for municipalities in the US to reduce energy consumption, plan for rising sea levels, and address carbon neutrality and the transition to a low-carbon economy. Society has increasingly been looking to the Mayor’s office for innovation in creating solutions to climate change and sustainability problems.

“The lasting impact of ARRA was that it allowed me to build the municipal energy function of Boston city government. It coincided with a movement nationwide and worldwide for cities to take a lead on climate action...all of these trends were coming together, and the block grant allowed for a major intervention in having energy work be recognized as something that municipal governments should be directly involved with and had never had been before. So, that was a good thing.” (Energy Planner, City of Boston)
| Enhanced Accessibility to Sustainability | The green jobs movement was a response to growing concerns surrounding the nation’s response to climate change and economic downturn brought on by the Great Recession. Within sustainability minded circles, little changed. However, the underlying philosophical agreement behind the green jobs movement did take root and helped spur a wider variety of sustainability initiatives in the Boston metropolitan region, building upon the existing momentum created by sustainability-oriented communities. | “There is some opportunity to enhance sustainability since the green jobs wave and ARRA… It’s kind of like looking at each different sector and seeing what’s going on in that sector and seeing if there’s opportunities there to have that discussion. Yeah, we’re really excited about this manufacturing initiative we have at Green Towns Labs and seeing how it goes. It’s a three year initiative and it’s kind of a different type of initiative than a lot of our other ones simply because of the nature of it, and because it does have a sustainability focus of it. We’re interested in seeing how it turns out.” (Strategy Director, Workforce Investment Board) |
Appendix B

Figures
Figure B.1: Case Study Diagram
Figure B.2: Unemployment in Massachusetts, 2001 - 2011
<table>
<thead>
<tr>
<th>Agency</th>
<th>Total Funds</th>
<th>Households Served</th>
<th>Average Benefit Per Household</th>
</tr>
</thead>
<tbody>
<tr>
<td>Action for Boston Community Development, Inc.</td>
<td>$17,437,655</td>
<td>17,526</td>
<td>$995</td>
</tr>
<tr>
<td>Action, Inc.</td>
<td>$2,176,335</td>
<td>2,286</td>
<td>$952</td>
</tr>
<tr>
<td>Berkshire Community Action Council, Inc.</td>
<td>$7,279,210</td>
<td>7,688</td>
<td>$947</td>
</tr>
<tr>
<td>Community Action</td>
<td>$4,793,120</td>
<td>5,461</td>
<td>$878</td>
</tr>
<tr>
<td>City of Cambridge</td>
<td>$2,101,130</td>
<td>2,058</td>
<td>$1,021</td>
</tr>
<tr>
<td>Community Action Programs Inter-City, Inc.</td>
<td>$4,325,670</td>
<td>4,652</td>
<td>$930</td>
</tr>
<tr>
<td>Citizens for Citizens, Inc.</td>
<td>$17,077,305</td>
<td>18,255</td>
<td>$935</td>
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<tr>
<td>Community Teamwork, Inc.</td>
<td>$10,560,545</td>
<td>11,894</td>
<td>$888</td>
</tr>
<tr>
<td>Community Action of the Franklin, Hampshire, and Quabbin Regions</td>
<td>$7,727,855</td>
<td>8,639</td>
<td>$895</td>
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<tr>
<td>Greater Lawrence Community Council, Inc.</td>
<td>$9,309,910</td>
<td>9,497</td>
<td>$980</td>
</tr>
<tr>
<td>Lynn Economic Opportunity, Inc.</td>
<td>$4,315,955</td>
<td>4,697</td>
<td>$919</td>
</tr>
<tr>
<td>New England Farm Workers Council, Inc.</td>
<td>$8,815,157</td>
<td>12,231</td>
<td>$721</td>
</tr>
<tr>
<td>New England Farm Workers Council, Inc. (Springfield)</td>
<td>$11,847,675</td>
<td>9,135</td>
<td>$1,297</td>
</tr>
<tr>
<td>North Shore Community Action Programs, Inc.</td>
<td>$3,414,335</td>
<td>3,660</td>
<td>$933</td>
</tr>
<tr>
<td>People Acting In Community Endeavors, Inc.</td>
<td>$12,755,410</td>
<td>13,194</td>
<td>$967</td>
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<tr>
<td>Quincy Community Action Programs, Inc.</td>
<td>$3,782,000</td>
<td>4,044</td>
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<tr>
<td>Self Help, Inc.</td>
<td>$14,163,805</td>
<td>16,161</td>
<td>$876</td>
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<tr>
<td>South Middlesex Opportunity Council, Inc.</td>
<td>$5,499,160</td>
<td>6,016</td>
<td>$914</td>
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<tr>
<td>South Shore Community Action Council, Inc.</td>
<td>$11,221,160</td>
<td>12,133</td>
<td>$925</td>
</tr>
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<td>Tri-City Community Action Program, Inc.</td>
<td>$5,575,735</td>
<td>5,781</td>
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<tr>
<td>Valley Opportunity Council, Inc.</td>
<td>$15,422,840</td>
<td>16,823</td>
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<tr>
<td>Worcester Community Action Council, Inc.</td>
<td>$14,304,445</td>
<td>14,758</td>
<td>$969</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$193,906,412</strong></td>
<td><strong>206,589</strong></td>
<td><strong>$960</strong></td>
</tr>
</tbody>
</table>

Figure B.3: List of agencies responsible for administering WAP funding
Figure B.4: EECBG Direct Formula Grants in Massachusetts

- Amherst - $162,000
- Arlington - $159,700
- Attleboro - $179,600
- Barnstable - $202,400
- Beverly - $169,600
- Billerica - $180,200
- Boston - $6,506,200
- Brockton - $865,000
- Brookline - $494,400
- Cambridge - $1,139,400
- Chelsea - $164,000
- Chicopee - $499,100
- Everett - $149,300
- Fall River - $861,300
- Fitchburg - $168,000
- Framingham - $867,000
- Haverhill - $542,700
- Holyoke - $175,700
- Lawrence - $851,300
- Leominster - $175,500
- Lowell - $954,700
- Lynn - $788,100
- Malden - $501,500
- Marlborough - $178,000
- Medford - $504,000
- Methuen - $179,200
- New Bedford - $869,300
- Newton - $799,600
- Peabody - $494,200
- Pittsfield - $189,100
- Plymouth - $514,300
- Quincy - $381,200
- Revere - $485,500
- Salem - $174,300
- Somerville - $651,100
- Springfield - $1,498,200
- Taunton - $519,600
- Waltham - $630,500
- Westfield - $170,300
- Weymouth - $485,800
- Woburn - $174,600
- Worcester - $1,733,000
August 6, 2010
Massachusetts rates set.

<table>
<thead>
<tr>
<th>Massachusetts August 6, 2010 County / Borough</th>
<th>Laborer</th>
<th>Batt, Blown, Foam Insulator (Insulator, Carpenter)</th>
<th>Carpenter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Suffolk MA4</td>
<td>Wage</td>
<td>Fringe Def. Wage Fringe</td>
<td>Wage Fringe Def.</td>
</tr>
<tr>
<td></td>
<td>$18.73</td>
<td>$6.33</td>
<td>$37.25 $25.18</td>
</tr>
</tbody>
</table>

Note: No wage rate was set for “BATT, BLOWN, FOAM INSULATOR” for ANY Massachusetts county; the wage rate was similarly left blank for STATE ENERGY PROGRAM funded, separately issued on August 6, 2010.

Figure B.5: EECBG wage determination for bifurcated insulation occupation
1. **Berkshire Region:** Includes Berkshire Workforce Area
2. **Pioneer Valley Region:** Includes Franklin/Hampshire and Hampden Workforce Areas
3. **Central Mass Region:** Includes North Central and Central Massachusetts Workforce Areas
4. **Northeast Region:** Includes Greater Lowell, Lower Merrimack, and North Shore Workforce Areas
5. **Greater Boston Region:** Includes Boston, Metro North, and Metro South/West Workforce Areas
6. **Southeast Region:** Includes South Shore, Brockton, Bristol, and New Bedford Workforce Areas
7. **Cape Cod and Islands Region:** Includes Cape Cod and Islands Workforce Area

Figure B.6: Map of Workforce Planning Regions
Figure B.7: MassCEC Clean Energy Report 2017 Educational Attainment
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