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*Research Commentary*

# A Comparative Assessment of Green Economy Growth among Five State Capital Cities and Policy Recommendations in the United States

James C. Thompson[1]
Jae-Young Ko[1] (Corresponding Author)

[1]Jackson State University

## Abstract

Green economies have for decades been advocated as policy responses to environmental problems such as rising carbon emissions, climate change, and non-renewable energy dependence. In the United States, as a component of the green economy, efforts to increase green jobs have been emphasized as policy responses to local and national environmental issues, while revitalizing urban neighborhoods, and providing employment opportunities for the un-and-under-employed across the nation. However, the growth of these green economies has exhibited significantly different patterns in regional scales across the United States. We address the research question: what are the key attributes contributing to the growth of these green economies within certain select cities? We have examined the patterns of green economies in five state capital cities representing different regions of the country: Albany (NY), Austin (TX), Columbus (OH), Denver (CO), and Jackson (MS), and have found that the growth of green economy, regardless of region, is related to each state's policy support, and direct initiative by state and local leaders, producing unique ways of supporting green economy growth. Cities showing bold and dynamic actions along with the establishment of an organized, goal-driven coalition have successfully increased green economy-related jobs. It has also been found that these different patterns are a reflection of each state's broader political culture. However, after considering that the green economy is a job creation sector for the middle-class, which itself has been suffering for the last two decades, we argue that more efforts should be done in supporting green economy-related policy efforts across the nation.

## Introduction

Green economies have been advocated as policy responses to environmental challenges including global climate change and non-renewable energy dependence, while reducing human impacts and improving social equity (UNEP, 2010). It has been defined as "one that results in improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities (UNEP, 2010; p. 5)." For urban management, green economy has been accepted as a policy direction for the nation's low carbon future, while providing opportunity for workers at all levels of income and skill distribution (Muro, et. al., 2011; Shear, 2014). As a component of the green economy, increasing green jobs have been emphasized as policy responses to local and national environmental issues, while revitalizing urban neighborhoods, and providing employment opportunities for the un-and-under-employed across the nation (Muro et al., 2011; Yi, 2013). Green jobs are defined as "any activity that generates electricity using renewable or nuclear fuels, agriculture jobs supplying corn or soy for transportation fuel, manufacturing jobs producing goods used in renewable power generation,

equipment dealers and wholesalers specializing in renewable energy or energy-efficiency products, construction and installation of energy and pollution management systems, government administration of environmental programs, and supporting jobs in the engineering, legal, research and consulting fields" (Global Insight, 2008;p.5). A government report estimated that about 3.4 million jobs in the US were under the category of "green" in 2012, most of which are within the private sector, and the majority of those in the manufacturing sector (US Dept. of Labor, 2013). A half-million green jobs were added between 2003 and 2010 alone, with green job growth rate at 3.4% (McMackin, 2012).

However, the growth of green economies shows significantly different patterns in regional scales across the United States (Table 1). Tretter (2013) argued the green job creation occurs through struggles between the business community and local environmental activists, and Yi (2014) found that collective efforts are more effective than individual approach in building green businesses. Whittemore (2013) found that political ideology in urban planning process generate significant impacts on stakeholder dialogue and outcomes. The purpose for this study is to determine whether or not progressive green policies, when enacted by local governments, can contribute to local job growth, and to what an extent; to investigate constraints of creating green jobs in urban settings; to explain the dynamic process of formulating green economy-related policies; and to explore the possibilities of transferring policies of enhancing green job creation to other cities, by comparing the green job creation processes among the five State capital cities in the United States.

## Methods

We utilized as our research design a comparative case study approach. In order to make a meaningful comparative study for green job patterns at city levels in the United States, first we examined capital cities of comparative size (from half million to 1.5 million population for the metro-area), following the 2010 U.S. Census data, and selected one state capital city from each region in the US (Northeast, Southeast, Southwest, Midwest, and the West), following the National Geographic Education category (http://education.nationalgeographic.com/media/file/us-regions-map.pdf). The selected cities are Albany, NY (Northeast), Austin, TX (Southwest), Columbus, OH (Midwest), Denver, CO (West), and Jackson, MS (Southeast). In addition to being selected due to their comparable size, as well as by virtue of the fact that they are the centers of their respective state governments, we also selected them for their otherwise un-remarkability. These are not "first" cities like New York, Chicago, Boston, or Los Angeles, nor cities regarded of exemplary character as New Orleans or San Francisco, but modest American capital cities.

**Table 1. State Green Jobs Ranked by Its Portion to Total Employment**

| State | % of Total Employment | Green Goods/Service Jobs | State | % of Total Employment | Green Goods/Service Jobs |
|---|---|---|---|---|---|
| D.C. | 5.1 | 35,799 | RI | 2.7 | 12,327 |
| OR | 4.3 | 68,709 | SD | 2.7 | 10,578 |
| VT | 4.1 | 12,159 | TN | 2.7 | 71,111 |
| ID | 4.0 | 24,250 | WI | 2.6 | 69,647 |
| AL | 3.8 | 12,119 | CA | 2.5 | 360,245 |
| WY | 3.8 | 10,369 | IL | 2.5 | 136,447 |
| MD | 3.7 | 91,489 | IN | 2.5 | 70,156 |
| WA | 3.6 | 101,593 | KY | 2.5 | 43,027 |
| MT | 3.4 | 14,306 | NE | 2.5 | 22,392 |
| CO | 3.3 | 72,629 | ND | 2.5 | 9,481 |
| NY | 3.2 | 266,308 | SC | 2.5 | 44,210 |
| NM | 3.1 | 24,337 | DE | 2.4 | 9,872 |
| AL | 3.0 | 54,077 | LA | 2.4 | 44,373 |
| HI | 3.0 | 17,596 | UT | 2.4 | 27,864 |
| IA | 3.0 | 43,791 | WV | 2.3 | 16,221 |
| PA | 3.0 | 167,697 | GA | 2.2 | 84,356 |
| VA | 3.0 | 107,773 | NJ | 2.2 | 81,018 |
| AR | 2.9 | 33,420 | TX | 2.2 | 227,532 |
| ME | 2.9 | 16,951 | AZ | 2.1 | 48,851 |
| MN | 2.9 | 75,302 | MI | 2.1 | 82,644 |
| MA | 2.8 | 88,924 | KS | 2.0 | 25,632 |
| NC | 2.8 | 108,094 | MS | 2.0 | 21,933 |
| OH | 2.8 | 137,143 | NV | 2.0 | 21,861 |
| CT | 2.7 | 43,722 | OK | 1.9 | 29,035 |
| MO | 2.7 | 68,534 | FL | 1.6 | 117,433 |
| NH | 2.7 | 16,244 | | | |

(Source: U.S. Dept. of Labor Statistics, 2013)

For the five selected cities, we gathered data from a variety of academic and government sources, mostly in regards to green economic development, and analyzed the patterns of the green economy and green jobs in a comparative way. First, we described the current unique status of the green economy for the selected cities, and analyzed the different patterns of green job distribution, using variables of number of clean jobs in the city; intensity, or percentage of clean jobs to all jobs; growth in green jobs over a set period of time; exports per green job, or dollar amount each green job produces in exports; and annual green job wage. And finally we describe the working processes of creating green jobs in these cities, and provide policy implications for the enhanced green job creation in other additional cities across the nation.

## Results

### 1) Albany, NY

Albany, New York has undergone a number of progressive environmental initiatives in recent years that have earned it a well-deserved place on the green city map. Methane capture programs at landfills, waste reduction initiatives, single stream recycling (including the offering of free recycling bins to residents), and composting programs which will potentially divert as much as 65% of all waste from landfills, as well as the establishment of green fleets and solar trash compactors are just some of the programs Albany has embraced. Methane capture projects at local landills have helped generate some 18,600 megawatt hours in 2009 alone, while city residents and contractors produced over 3,500 tons of finished mulch and chips via composting efforts. The city has also created a Department of Green Operations, which works within the municipal facilty sector to reduce pesticide use, aid in conversion to green cleaning supplies at city facilities, promote environmental building products, environmental snow removal, and a switch to environmentally friendly supplies and materials (City of Albany, NY, Report, 2011). These efforts have helped Albany claim 28,087 green jobs, showing 6.3% intensity, compared to all jobs in the metroplitan area. Green job growth has registered as 12,530 from 2003 to 2011, with an annual export per job at $44,114, and annual wage at $48,087, compared to $41,061 for the entire city of Albany (Muro et al., 2011).

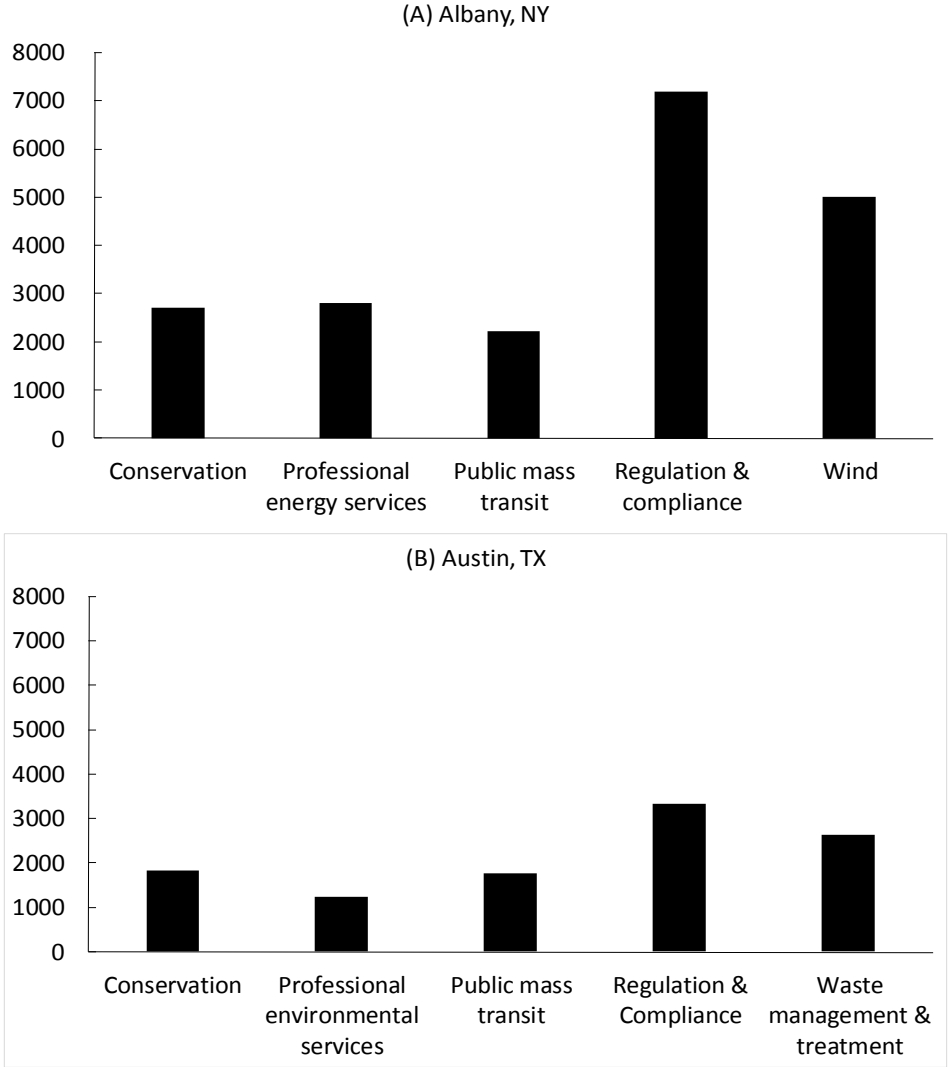
### How This Was Accomplished-Albany

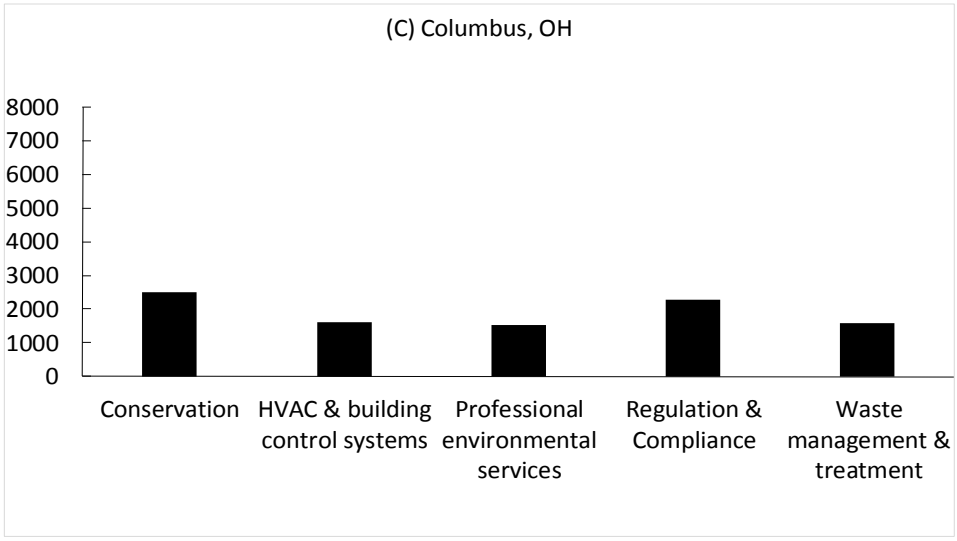
The city leadership has taken bold intiative, laid down clear and concise plans, and reached out to public and private entities, while engaging the general public – an example of top-down initiative. The city government has worked with the Community Advisory Committees to create jobs for a sustainable city, as well as the creation of a separate municipal office (the Office of Energy and Suatainability), which offers incentives and tax rebates for businesses reducing energy demands, waste, and pollution, while promoting alternative options for commuters.

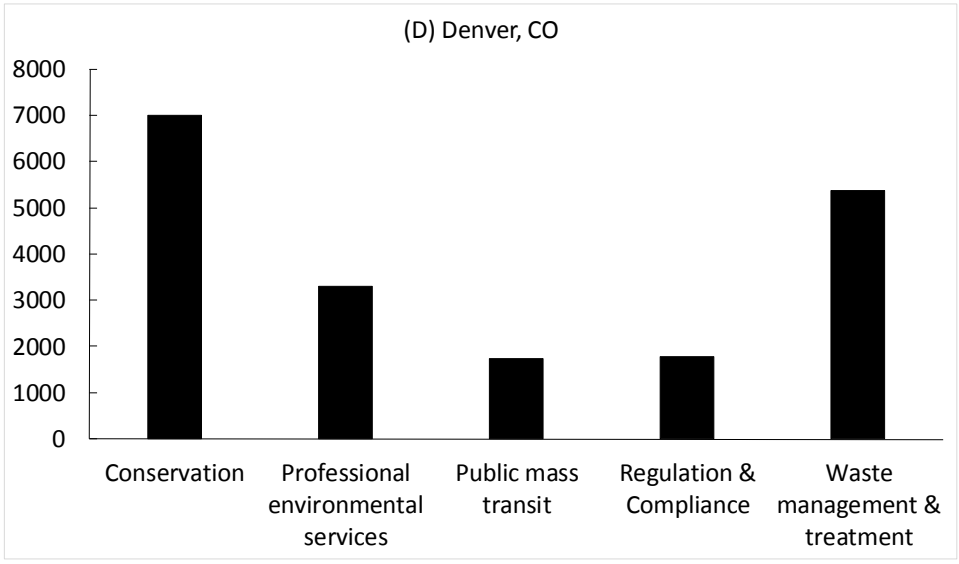
Albany's Green City Program was designed to promote Albany as a welcome destination for new businesses dedicated to environmentally friendly and sustainable practices, as well as promoting itself as a hub for green tech businesses and industries. The Green City Program is a volunteer partnership among government agencies, business leaders, and non-profit organizations, designed to improve government efficiency while simultaneously reducing Albany's environmental footprint. Further, Albany supported wind energy technologies as a way to foster local businesses. And, unlike some communities, Albany owns and maintains

its own landfills, which, as in the case of Ausitn Energy in Texas, allows the city greater leeway in experimentation within policy parameters, which certainly helps account for the city's 80% methane recapture rate (City of Albany, Office of Genral Services, 2011).

**Figure 1. Top Five Green Job Distribution of the Five Cities**




(C) Columbus, OH
8000
7000
6000
5000
4000
3000
2000
1000
0
Conservation
HVAC & building control systems
Professional environmental services
Regulation & Compliance
Waste management & treatment


(D) Denver, CO
8000
7000
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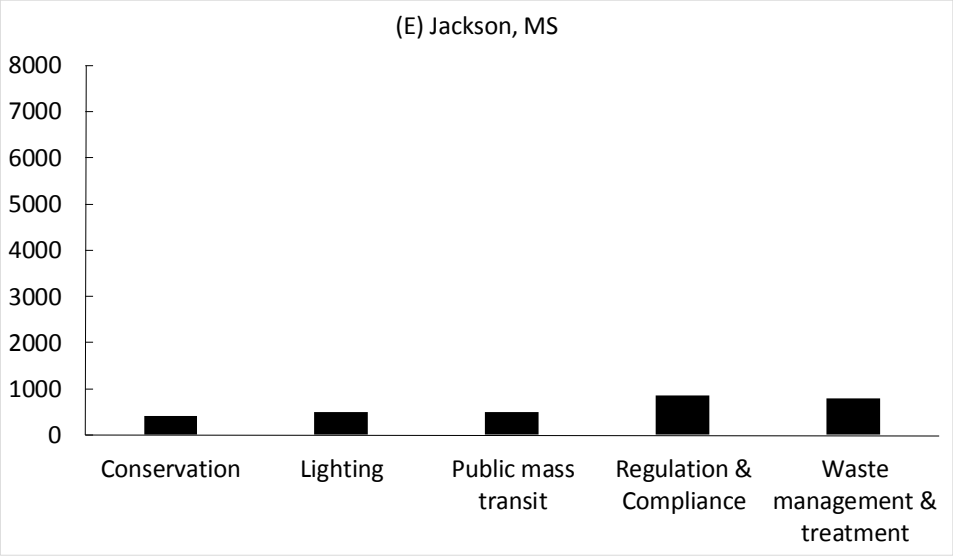
2000
1000
0
Conservation
Professional environmental services
Public mass transit
Regulation & Compliance
Waste management & treatment




(Source: Muro, et. al., 2011)

**2) Austin, TX**

Austin, Texas, has become a major green manufacturing hub with a green energy base that has earned Austin recognition as one of America's Greenest cities, despite it sitting in one of the country's oil capitals. Austin has seen a boom in green startup businesses, from manufacturers of solar panels, components for wind turbines, as well as computer chips for green engineering and green software – a clean-tech boom twice as fast as that of San Francisco. This was in part a result of the Austin Boom of the 1970s and 1980s, which saw a great deal of talented young programmers and engineers from MIT, Cal Tech, and other respected universities relocate to Austin, in part for its liberal, laid-back lifestyle (Dell Computers, for example, was founded in a dorm room at the University of Texas). These young programmers grew up, and went on to found their own businesses in the area (Walsh, 2012). By the 1990s, Austin had earned its reputation as an environmentally friendly city, with the local government taking progressive measures to implement an array of sustainable policies which, along with the foresight of a small group of business elites, helped turn Austin into a "technopolis" of the Southwest (Tretter, 2013).

Additionally, Austin owns its own energy provider, Austin Energy, and regulates energy policies without third-party intervention, and the city offers rebates to customers who install high efficiency appliances and photovoltaic (solar energy) systems. The city also boasts more 100% green-powered businesses than any other city in the nation, with 100% municipal energy coming from renewable sources (Walsh, 2012). Austin has created 14,554 clean jobs between 2003 and 2011, with 1.9% intensity to all jobs. The city's green jobs contributed on average $10,414 in exports per job for the local economy, and the median wage of green job was reported as $40,441, compared to $39,239 for all of Austin (Muro, *et al.)*.

**How This Was Accomplished-Austin**

Several features have contributed to Austin's green success, first and foremost being the established professional base of computer technicians and engineers (like Michael Dell of Dell Computers) who flocked to the city in the 1980s and stayed for Austin's non-traditional lifestyle. With this base of talent already in place, all that was left was a shift from producing microchips and circuit boards to producing solar panels and wind turbines, as well as the microchips and circuit boards necessary to run them. This helped inspire a tech industry cluster: these green start-ups attracted more employees, and then more companies came to Austin in search of these talented employees, and these companies attracted new capital, more workers, more start-ups, and on and on (Walsh, 2012).

Another pertinent factor is the city-ownership of Austin's utility company, Austin Energy. Supported by Austin's politically progressive population, Austin Energy has more latitude for experimentation in renewable energy than most other municipal utilities, and allows the city to offer rebates to consumers and businesses who install more energy efficient appliances, extra attic insulation, low flow toilets, rainwater collection systems, and photovoltaic systems. All of this, in turn, attracts new clean tech businesses, aware that there is already an existing market for their products. Finally, one contributing factor that should not be ignored is the city's relationship, cooperation with, and support from the University of Texas at Austin. Aside from technical and engineering talent that the school has been producing, the university's Clean Energy Incubator provides support to green business start-ups, in the form of seed money and networking events among entrepreneurs and venture capitalists (Walsh, 2012).

**3) Columbus, OH**

Columbus, Ohio has made significant leaps in recent years towards achieving recognition as a green city, one of many cities in the once-industrial Rust Belt that have taken necessary steps to leave behind the past, while using the same ingenuity that made them once competitive in the industrial scene to leap into the modern era. Initiatives of note in this city include: Brownfield projects to support remediation and redevelopment of Brownfield zones within the city (Columbus' Scioto Audobon Metro Park was built on a former Brownfield site); home energy efficiency services, which are available to eligible utility customers to assess and repair appliances and lighting systems meeting efficiency standards; the Green Columbus Fund, which is a reimbursement grant program, using financial incentives to encourage sustainable development among public and private entities; the Greenhouse Gas Inventory, which is set to reduce demand on natural resources by promoting upgrades for efficient lighting, improving HVAC systems and weathering for buildings, all as part of the goal of reducing greenhouse gas emissions city-wide by 2% annually; and a commitment to exceed expectations of LEED (Leadership in Energy and Environmental Design) and ME3 (Materials, Energy, Environment and Economics), which has helped the city identify millions of dollars in savings, led to a reduction in landfill waste, as well as greenhouse gases. (Hull, Department of Development, City of Columbus, Ohio). For these and other efforts, Columbus saw 15,498 green jobs created, which accounted for 1.7% of its job intensity, with a growth of 4,267 jobs between 2003 and 2010, and $22,935 in exports per green job. The median wage per green job stands at $42,340, compared to $34,498 for all jobs in Columbus (Muro, *et. al).*

**How This Was Accomplished-Columbus**

One of the most salient initiatives, and perhaps the flagship of the city-wide greening effort, was Mayor Michael Coleman's "Green Team," a 35-member team consisting of city staff, community and business leaders, and environmental experts, working together with the Mayor's Office of Environmental Stewardship, to advise on environmental policies, educate the community on environmental matters, and carry out green initiatives. This particular initiative was so successful that it became the model for the Central Ohio Green Pact, a multi-city partnership that has united to expand green policy across the state (Hull, 2013).

Also, the "Get Green, Columbus" initiative, which was funded in part by the Solid Waste Authority of Central Ohio, and whose focuses include green transportation, green business growth and development, education & engagement, green buildings and green energy, and, again, spearheaded by the executive office of the mayor, and supported, like other cities as we have seen thus far, by a progressive and liberal mindset of the city (Hull, 2013).

Columbus is surely our finest example of what can be accomplished through strong executive leadership: it was Mayor Coleman's office that set the clear and concise goals that the city has thus far been successful in meeting, including creating, attracting, and retaining green jobs, supplying a workforce, encouraging entrepreneurship, marketing the city's assets, and educating and supporting businesses on the green economy, all while finding support and securing cooperation amongst various city agencies, neighborhood and community interests, and other groups public and private, in achieving their goals. It should be important to note as well that the city was awarded $7 million as part of the American Recovery and Re-Investment Act, via the U.S. Department of Energy, and happily accepted said funds to assist in realizing their green goals (Hull, 2013).

**4) Denver, CO**

Denver, Colorado is a city that has embraced the relatively new "smart growth approach" to reconcile issues arising from urban sprawl in higher-density, transit-oriented, and mixed-use metropolitan areas, with interests in sustainable urban growth, affordable housing, as well as the environmental costs associated with urban sprawl, such as increased greenhouse gas emmissions; water and air pollution; increased noise, flooding, and erosion; loss of prime agricultural land, scenic amenities, open space and wetlands; and habitat encroachment (Goetz, 2013). Named 5$^{th}$ "Greenest City" in the United States, and tying for first place (with New York City and Washington, D.C.) in energy consumption and governance (Siemens, 2011). Denver's efforts over the past decade have been ambitious, with such varied foccii as air and water quality, climate, transportation, energy consumption, sustainable food, land useage, and smart building materials (Siemens, 2011). Serving as the basic framework, *Greenprint Denver*, is the continuing effort of Denver's pre-exisiting Comprehensive Plan. Through a 6-month collaborative effort among city staff, representing 7 different agencies, with local businesses and private citizens, and spearheaded by Mayor John Hickenlooper, this master plan saw city employees split into five different, specified groups, to help formulate goals, policies, and programs, within five themes.

By 2007, one-year into the 5-year initiative, the city boasted an updated greenhouse gas inventory, 14 certified LEED projects, with 47 new projects registered; construction begun on a landfill gas-to-energy program; 50,000 new trees planted within the city; a plan to designate 200+ acres of protected natural areas; a 63% increase in average weekly tonnage of recycled materials; and technical support to 14 brownfield projects. Additionally over 7,000 homes and businesses have committed to the Denver Energy Challenge (a free energy advisory program), while the Denver Airport has been designated as one of the greenest in the world, with 10 new charging station for electric vehicles in parking garages, recycling 68% of de-icing fluids, and a reduction of energy usage per passenger by 10% since 2005 (Scanlon, 2011). These efforts have helped produce 27,929 green jobs between 2003 and 2010, with a green job intensity of 2.3%. Denver's green economy produces $14,279 in exports per job, with a median green job income of $47,602 per year, compared to $43,296 for all jobs within the city (Muro, *et. al.*).

**How This Was Accomplished-Denver**

Such was the case in Albany and Columbus, the initiatives and sustained strong and ambitious leadership by the city's Chief Executive, Mayor John W. Hickenlooper, and his successor, Mayor Hancock, who took office in 2011, were vital to the city's green upward mobility. In addition, as in the case with other successful green cities, active collaboration among city agencies, departments, local business owners, and private citizens was a highly significant factor. *Denver Listens* and *Partnership Denver* served as two main forums for direct community engagement. Additionally, *Greenprint Denver* utilized vertical integration in working with the U.S. Green Building Council, the Environmental Protection Agency (which aided in utilizing Energy Star guidelines for construction and major renovations to city buildings), the Metro Denver Economic Development Corporation (to promote increase in privately owned energy efficient and high-performance buildings), the Audubon Colorado's Wildscape Manual (to introduce native vegetation into Denver golf courses), and the Xcel Energy Corporation, which develops energy efficiency standards and incentives for affordable housing projects. In addition, Denver integrated a 10-year Conservation/Integrated Resource Plan with Denver Water, in an effort to reduce water usage in Denver by 22% by 2016. It has planned to increase materials recycled through Denver's Recycling Program by 50%, and has incorporated with the 2006 Strategic Transportation Plan, in the development of multi-modal transportation projects.

**5) Jackson, MS**

Building toward a green economy for Jackson has been sluggish compared to other capital cities of comprable size. Jackson has yet to embrace a cohesive, multi-agency, multi-sector agenda towards making Jackson a "green city." The city shows 4,298 green jobs on the rosters, accounting for 1.7% of the job intensity. It is ranked 85$^{th}$ nationwide, among the 100 largest metropolitan areas for green jobs, and 77$^{th}$ nationally for green job growth; between 2003 and 2010, Jackson added only 928 green jobs, and delivering $7,304 in exports per job, with an annual wage of $32,888 (compared to $32,164 for all jobs in Jackson) (Muro*,et. al.* ). The closest thing to a unified green movement that Jackson can boast, aside from a small fleet of energy efficient garbage trucks, and a few isolated recycling and beautification programs – mostly in the Fondren and downtown areas – is Keep Jackson Beautiful, described on its website as a "non-profit local affiliation of Keep America Beautful,"which promotes Earth Day events, telephone book recycling, and graffitti removal projects. Unfortunately, this movement has suffered in momentum and general lack of public interest.

We think that the current sluggish growth of green jobs in the Jackson area is attributable to a "lack of particpation and awareness of policies to achieve a green economy" (Puppim et. al. 2013). Peple in the area might lack the basic knowledge, information, and understanding of the mechanisms of how a regular economy can be transformed into a green economy, which prevents them from participating at a higher level. If there is one thing we have seen in common with other cities examined, success comes from participation and cooperation at all levels – among professionals, public officials, policymakers, and the public-at-large. The green movement is a grassroots movement, and all should be welcome and ready to participate. However, "limited coordination (vertical and horizontal) between government bodies and division" exists in the Jackson area (Puppim, *et. al.*, 2013). There are many different stakeholders involved in the creation of a new green economy, and coordinated measures must be in place to facilitate communication and cooperation amongst the participants, be they environmental or developmental government agencies, community and business leaders, city officials, or, again, private citizens.

Jackson may also suffer problems relating to human capital, as well as financial, and economic challenges (Puppim et. al, 2013). Specifically, as they attest, a lack of adequate financial and human capital can limit a city's potential to promote green growth, as "green technologies and infrastructures may require high initial investment, without any guarantee of financial or social returns for investors…policymakers may not be able to provide incentives or subsidies that are attractive enough" for investment or even change in behavior (Puppim et. al, 2013). Jackson has made no demonstrable efforts to find the necessary means to attract buisnesses within the green economy, and this may be directly linked to the political climate of the state. This lends itself into another problem identified by the group, and that is the problem of alignment with existing policies. The pro- green job policies can exist at a city, state, or national level, but as Jackson (and State of Mississippi as a whole) is not among the more progressive areas that have strict local or statewide policies in place, we must look at policies at a grander level, specifically at the national level. Mississippi's junior U.S. Senator, Roger Wicker, has long been critical of LEED requirements and policies, going so far as to add an amendment to a bill banning the use of LEED standards in projects within the Department of Transportation and Housing and Urban Development (Wicker, 2013). This is not inspiring for the state or nation, and is in fact, the exact opposite of what we should be doing. So it would seem necessary, in accordance with the spirit of cooperation that prevails in promoting green economies, that policy change in Jackson, in absence of existing policies at a local level must align with, and seek support from, existing government agencies. Peters et. al. (2011) suggests the Environmental Protection Agency, Departments of Commerce, Agriculture, Labor, Education, and the Office of Management and Budget, as the major patrons of green industry incentives, should not only be available to locales for guidance, but also work together in adopting uniform industry, occupation, service, and outcome definitions in order to facilitate inter-governmental communication and cooperation in drafting green policy alternatives. Figure 1 shows the top five green economy segments for the Jackson area.

## Discussions & Recomendations

Table 2 clearly illustrates that there are significant differences among the five cities, reflecting different levels of commitments and policy impacts. Albany shows the highest share of green job by far, with Jackson and Columbus showing the lowest level of 1.7% among the selected cities, despite Columbus's much more ambitious efforts.

**Table 2. A Comparative View of the Five Capital Metro Areas in the United States**

| Cities | Green job shares of all jobs (%) | Changes between 2003- 2010 (%) |
|---|---|---|
| Albany, NY | 6.3 | 80.5 |
| Austin, TX | 1.9 | 44.0 |
| Columbus, OH | 1.7 | 38.0 |
| Denver, CO | 2.3 | 38.2 |
| Jackson, MS | 1.7 | 27.5 |

(Source: Muro et al., 2011)

Despite best efforts, establishing Green Economies are never a quick fix, and take time to mature, as the policy-making processes in cities are also subject to their own political cultures.

By utilizing Elazar's theory of political cultures, it is possible to explore impacts of political culture as a limiting factor for the green job creation. Table 3 shows that cities within states belonging to moralistic and individualistic political cultures have been relatively more active than cities in states of traditional political culture (such as Jackson, MS).

**Table 3. States as Classified Under Elazars' Political Cultures**

| State | Political Culture |
|---|---|
| Colorado | Moralistic |
| Mississippi | Traditionalistic |
| New York | Individualistic/Moralistic |
| Ohio | Individualistic/Moralistic |
| Texas | Traditionalistic/Individualistic |

(Source: Elazar, 1984)

Table 4, then, briefly describes the values and priorities reflected in Elazar's theory of political culture. Cities in states reflecting an individualistic culture show a top-down approach, while cities reflecting a moralistic culture (Denver, CO) could establish relatively high active civic engagements with local people. In addition, cities like Portland, OR and San Francisco, CA, while not specifically studied as a part of this paper, have been maintaining their positions at the top of lists of Green Cities for decades. Both of the cities are located in states of moralistic culture (Elazar, 1984). And, as stated, it is a long process to establish a stable green economy in cities.

We know that the degree of accepting environmental issues in cities is related to political cultures, and further that creating clean economies are driven by specific, strategic actions on behalf of relevant policy actors, governmental and otherwise (Yi, 2013). Climate change and the effects carbon emissions and other pollutants have on the environment is very real, and should be addressed, soon, and starting at a local level. However, each state has shown different approaches to the environmental problems, and many of these approaches are reflective of each state's political leanings.

**Table 4. Characteristics and Values of Major Political Cultures**

| Moralistic | Individualistic | Traditionalistic |
|---|---|---|
| Political positions focused more on "public interest" over narrow interests. | Government serves specific interests. | Political positions defend traditional values. |
| Public Administration and Bureacracy strongly valued. | Bureacracy well-developed, but not as enterprising. | Bureacracy weaker, distrusted. |
| Goals more community-minded. | Goals less high minded. | Public administration and social policymaking less developed. |
| High value on problem solving. | Political parties strong, hold considerable power, representing coaltions of groups. | Parties weakest. |
| Political culture of "reform" politics. | Greater tolerance for disagreement and more willingness to compromise. | Predominant in American South. |

(Source: Elazar, 1984)

Given that political ideologies, cultural changes and environmental issues are commonly affecting all of the people across the nation, it has become imperative that we begin working on developing proper programs for these issues. We believe that a series of changes are needed to handle the environmental issues at local levels for the cities located in the state of traditional culture (e.g., Jackson, MS):

1. There needs to be initiative, and it ought be on behalf of City Hall. We have seen that bold change has come from a spearheaded, top-down approach, and that clear leadership is vital.

2. City Hall needs to reach out to local community and business leaders, members of the state legislature, state agencies (in Mississippi's case, the Mississippi Department of Environmental Quality), federal agencies (such as the EPA and Department of Energy), non-profit organizations, lobby groups, academics, environmental specialists, grass-roots organizers, labor leaders, activists, and anyone else who could possibly have a voice in the shaping of a Green City.

3. Gather all parties and people with a possible vested interest, sitting at the same table, and begin talking.

4. Draft clear, concise goals as to the mission of the city's green economy, paying attention to long and short term.

5. Appoint a central commission to oversee delegation. The city, in the meantime, should create a city office dedicated solely to sustainability.

6. Begin looking for money to fund these projects. This can, and should, include federal grants and assistance from federal agencies, wherever possible.

7. Keep in mind that the green economy can be influenced by local geographical and economic conditions. For example, Jackson is within distance to rural areas, rich in agricultural potential and land use for bio-mass production, or land for wind turbines, solar panels, and green tech manufacturing space. Peters et.al.(2011) specifically referenced the Mississippi Delta and its potential future for biomass production. It should be noted as well, that the Delta has an average unemployment rate over 12%, which is nearly double that of the national average (Mississippi Department of Employment Security, 2014). There is an existing workforce already in place there.

8. Keep in mind the political atmosphere of the city; due to the fact that green cities are progressive cities, their politics typically match. For example, Jackson, like Austin, is an oasis of blue in a sea of political red. As most capital cities, Jackson is home to most state and non-profit agencies, with a sizeable progressive base and, as such, is the best, if only place, a green economy could take root in the State of Mississippi.

9. The green economy is highly associated with local higher education institutes. Universities are hotbeds of talent and potential in human capital. The University of Texas has contributed to Austin's green economy (Walsh, 2012), and Columbus has reached out to local academics, as part of its Green Team (Hull, 2013). It is imperative that potential green cities not only reach out to these universities for their input, resources, coooperation, and assistance in building a green economy, but find ways to nurture the talent they are producing, while finding incentives to keep them in the state after graduation.

In addition, for the building a new green economy, we would recommend paying close attention to some of the common elements identified in this study of green cities, ones that have helped contribute to these cities' successes, and applying them, where applicable.

We found the seven most predominant, common factors that have helped nurture green economies and allow them to thrive (Table 5). Table 5 implies that a progressive community base is one of the key building blocks necessary in developing a green economy. We would therefore suggest that a progressive political culture, atitude, and atmosphere is a necessary foundation upon which green economies are built. We can also see that top-down initiative, beginning at the upper-most level of city government, is a common thread, having been utilized directly in Albany, Austin, and Denver, particularly with the mayors of these cities playing a prominent leadership role. We see this particular feature as being most successful when working in tandem with the next three on the graphic, which represent: the establishment by city hall of community advisory committees, consisting of delgates from city hall, municipal departments, local agencies, community and business leaders, labor groups, environmental specialists, environmental lawyers, academics, and professionals in the field; the establishment by city hall of a central government office dedicated specifically to environmental issues; and finally a committed effort and investment by the general public to participate in the overall process, provided opportunity and encouragement to do so, and to work at a grassroots, neighborhood level, and in

cooperation with these agencies and boards and committees, to facilitate bold, ambitious change in environmental policies.

**Table 5. Common Factors for Success Among the Five cities**

| Factor\City | Albany | Austin | Columbus | Denver | Jackson |
|---|---|---|---|---|---|
| Progress-ive/Liberal Base | YES | YES | YES | YES | YES |
| Top-down Initiative | YES | | YES | YES | |
| Community Advisory Boards | YES | | YES | | YES |
| Centralized Offices/ Departmens | YES | YES | YES | YES | |
| Grassroots Partnerships | YES | | YES | YES | |
| City-Owned Utilities | YES | YES | | | |
| Tax Rebates/ Incentives | YES | YES | YES | | |

These have proven most effective in Albany, Columbus and Denver, while not as much for Austin and Jackson, which have seemingly relied on other contributing factors. Also important to look at are tax incentives and rebates to existing businesses and industries, in order to attract new green businesses to the area, rebates for green building certification, as well as tax breaks for residents who use low energy appliances or install solar panels. And while not the strongest contributing factors, by comparison, we feel that city-ownership of utilities, as in Albany and Austin, and while not seen so often in the other cities, could only help facilitate progress towards becoming a green economy.

## Conclusions

Green economies create jobs, over a number of industries (Yi, 2013). However, such job growth may not be immediate. Even the greenest cities in the country, like the aforementioned cities of San Francisco and Portland, have been working on their policies at times for decades, with active support from local constitutents. Green economies are an investment, ones that take time to mature and produce desired dividends. But, as such, a green economy does not necessarily equal a thriving economy. However, cities that have shown demonstrable success at forging and applying green policies to their cities have only done so through a show a inter-office and inter-sector cooperation, with city agencies and administrators working with community, civic, environmental, and business leaders to achieve goals, and thereforeee cooperation and open discourse among all parties is therefore key.

There is, from what we have researched and thus far found, no perfect formula for building a green city. There is no perfect archetype, no perfect blueprint, for which to model a new green economy on, one that is environmentally friendly, sustainable, robust, and job-creating. And what policies work for one city may not necessarily be successful in another. But that does not mean we should not learn from the example, see what has worked elsewhere, and why, and try different things. Climate change and global warming are part of a vey

real threat, though its level of severity in the grand scheme of our planet is often disputed. Regardless, it is still part of our global future, and is a global issue, but one we feel can best find answers by working from a local level first.

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