

Planting a Better Future

Green Jobs Assessment for the Town of New Lebanon, New York

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Acronyms

ASE	Automotive Service Excellence
BLS	U.S. Bureau of Labor Statistics
BOCES	Boards of Cooperative Educational Services
CGCC	Columbia Greene Community College
CSC	Climate Smart Communities
CSD	Central School District
DEC	Department of Environmental Conservation
EV	Electric Vehicle
GHG	Greenhouse Gas
HVAC	Heating, Ventilation, and Air Conditioning
NLHS	New Lebanon High School
NYPA	New York Power Authority
NYS	New York State
NYSERDA	New York Energy Research and Development Authority
PE	Pledge Element
SWOC	Strengths, Weaknesses, Opportunities, and Challenges
U.S.	United States

Executive Summary

Purpose and Scope

The purpose of this report is to determine what future job opportunities will be created in the emergent green economy in the Town of New Lebanon and the surrounding region. The Cornell Consulting Team, under the guidance of Rebecca Brenner, worked with the New Lebanon Climate Smart Communities (CSC) Task Force to identify relevant green jobs, discover current educational priorities, and provide recommendations for a pathway to transition to a green economy.

Summary of Findings

The Cornell Consulting Team conducted extensive research in the literature review to identify the most relevant future jobs for New Lebanon in the emerging green economy. The key jobs identified are the following:

Job Opportunity	Education Requirement	Earnings
Heat Pumps Technician	Certification available	\$34,320 to \$78,210
EV Repairer	Certification or Vocational School	\$47,586 to \$65,623
Wind Turbine Service Technician	Certification or Vocational School	\$46,420 to \$77,810
Solar Photovoltaic Installer	Certification or Vocational School	\$ 36,320 to \$72,080
Hydroelectric Technician	Certification or Vocational School	\$31,900 to \$77,450
Green Construction Laborer	No formal education necessary	\$49,500 to \$56,999
Wastewater Specialist	Certification necessary	\$53,167 to \$72,922
Hydrogen Cell Engineer	Bachelor's Degree	\$43,930 to \$97,410
Energy Analyst	Bachelor's Degree	\$60,096 to \$78,595
Renewable Energy Specialist	Bachelor's Degree	\$71,088 to \$96,762
Sustainability Specialist	Bachelor's Degree	\$65,270 to \$91,050

Summary of Recommendations

The following recommendations outline steps that the Town of New Lebanon and the CSC Task Force can take to begin implementing local training for Green Jobs in support of the emerging green economy.

Short Term Priorities (1-3 Years)	Long Term Priorities (3+ Years)
<p>Establish a Strategic Planning Committee</p> <p>The CSC Task Force should seek to continue or begin conversations with relevant players and create a dedicated group of decision makers that commit to strategic planning.</p>	<p>Implement Green Career Pathway</p> <p>The CSC Task Force should implement a pathway for green careers. This pathway will train young people in New Lebanon to enter the workforce within the green economy.</p>
<p>Develop a Sustainable Business Workshop</p> <p>The CSC Task Force should develop a workshop where relevant players can discuss their needs and interests in terms of green jobs in New Lebanon. The CSC Task Force should play the role of the intermediary and identify the common interests among attendants.</p>	<p>Invest in Community, Business & Educator Relationship</p> <p>The CSC Task Force should continue and actively cultivate relationships between community members, businesses, and educators. The educators' role is essential in changing this mindset, and educating the future generations. Businesses and schools should frame education that directly connects to sustainability.</p>
<p>Integrate into Local Career Fairs</p> <p>The CSC Task Force should involve themselves in the next local career fair(s). Being a part of this event, the CSC Task Force will have more opportunities to get in touch with green recruiters and potential green job seekers from the community.</p>	<p>Develop Environmental Education</p> <p>The CSC Task Force should consider environmental education as a long-term, recurring goal. It can increase awareness, involve residents, help resolve environmental challenges, nurture sustainable habits, and educate the younger generation about important environmental knowledge.</p>

I Introduction & Background

1.1 New York Climate Smart Communities Program

The Climate Smart Communities (CSC) program is a New York State (NYS) program that supports local governments in leading their communities to reduce greenhouse gas (GHG) emissions, adapt to the effects of climate change, and thrive in a green economy. By participating in this program, local governments may receive leadership recognition, free technical assistance, and access to grants to further local initiatives. The CSC Program has the following goals:

- Reduce GHG emissions
- Build resiliency to the impacts of climate change
- Save taxpayer dollars
- Increase energy security and reliability
- Improve community public health and safety
- Support a green innovation economy
- Demonstrate leadership

Beginning in 2009, the CSC Program was an interagency initiative that has grown to include seven dedicated NYS agency sponsors: Department of Environmental Conservation (DEC), Department of Health, Department of Public Service, Department of State, Department of Transportation, Energy Research and Development Authority (NYSERDA), and New York Power Authority (NYPA). The original goal of the program was to encourage local governments throughout the state to commit to climate change action by passing a resolution that pledged commitment to the following ten actions they label “Pledge Elements” (PE) (Office of Climate Change, n.d.):

- PE1: Build a climate-smart community
- PE2: Inventory emissions, set goals, and plan for climate action
- PE3: Decrease energy use
- PE4: Shift to clean, renewable energy
- PE5: Use climate-smart materials management
- PE6: Implement climate-smart land use
- PE7: Enhance community resilience to climate change
- PE8: Support a green innovation economy
- PE9: Inform and inspire the public
- PE10: Engage in an evolving process of climate change
- PE11: Innovation
- PE12: Performance

After taking the pledge, CSC’s seek certification earned through the completion of various climate mitigation and adaptation actions nested under each PE (Robertson, 2020). CSC’s earn points toward certification (Bronze - 120 points, Silver - 300 points, and Gold - under

development) through completing actions and ultimately creating a more climate resilient community (New York State, n.d.).

As a result of participation in the CSC program, communities benefit in the following ways:

- Receive funding for climate change projects via the DEC CSC Grant program
- Reduce the cost of clean vehicles, charging stations via the DEC Municipal Zero-emission Vehicle Rebate program
- Receive free technical assistance for clean energy and climate change initiatives
- Discover online guidance and decision-support tools
- Learn about best practices through CSC webinars
- Network with community leaders at CSC events and workshops

1.2 New Lebanon Climate Smart Communities Task Force

The Town of New Lebanon pledged commitment to the CSC goals in April of 2020 and created a CSC Task Force of twelve residents to pursue certification and climate resiliency. Within less than a year, the CSC Task Force achieved Bronze Status certification by completing 22 actions across eight of the PEs earning 130 points. The CSC Task Force is now committed to achieving Silver Status through the pursuit of 19-25 more actions across seven PEs to achieve the required 300 points.

The role of the Cornell Consulting Team is to lay the foundational work for the New Lebanon CSC Task Force as they pursue PE8.1 Green Jobs Training.

1.3 Pledge Element 8.1: Green Jobs Training

As stated by the NY CSC website, “an essential component of shifting to a green economy is training individuals for the jobs that such an economy will create. Similarly, a shift to a greener economy will require a shift in the information and skills taught in schools that prepare students for their future jobs” (PE8 Action: Green Jobs Training, 2021).

PE 8.1: Green jobs Training, is an action located under PE 8: Support a Green Innovation Economy. To implement this action, a community must identify relevant training for the local economy and subsequently develop a new or augment an existing job training curriculum. This action is neither a mandatory or priority action, but is worth three points. To obtain points for this action, a CSC must establish one training program or course per year for green jobs or skills. Progress toward PE 8 indicates a positive shift in local climate resilience for a community and invests in building the local economy.

2 Literature Review

The following section provides an overview of the research that the Cornell Consulting Team conducted to establish a depth of understanding of the current market for green jobs, the future demand of the green economy, and the translation of each of these to small rural communities like the Town of New Lebanon.

2.1 Introduction

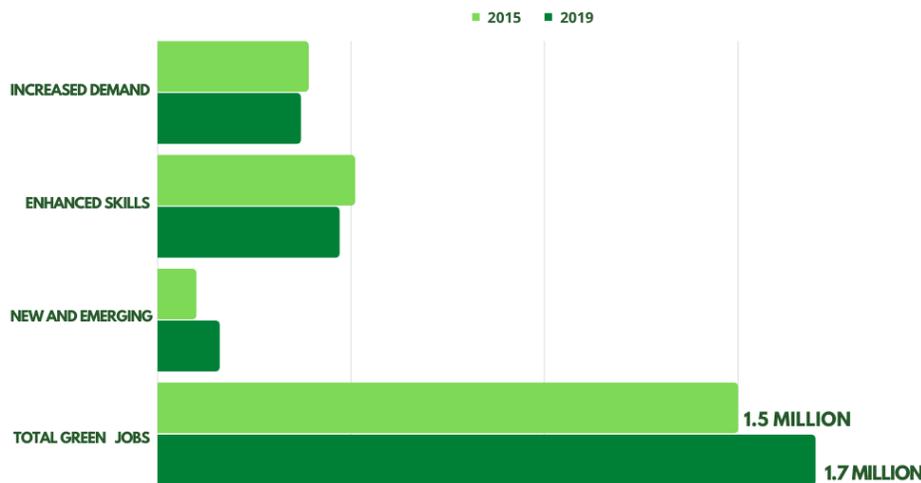
Research began with general and broad questions regarding green jobs. This allowed a comprehensive approach and understanding of the economy's projected path.

In the United States (U.S.), the history of green jobs can be traced to the establishment of the National Parks and the New Deal programs of the 1930s (Novello & Carlock, 2019). The 21st century has brought an increased demand for governments to conserve, protect, and restore the lands, waters, and resources that constitute the nation and support life. NYS is one of the most energy-efficient states, reducing energy sector pollution and virtually eliminating reliance on coal, the most polluting fuel (DiNapoli, 2022). This transition to cleaner energy sources is made through the adaptation and adoption of policies, programs, and technologies on the local and state level.

This commitment to clean energy brings with it a wave of new jobs into NYS. In 2019, the green economy influenced up to 17.3 percent of NYS's workforce, as there were 1.7 million green jobs just in NYS; this rate grew by 13.2 percent from 2015 (DiNapoli, 2022). The number of jobs in new and emerging occupations grew by 82.5 percent during these four years from 2015 to 2019 (DiNapoli, 2022). Figure 1: Total Green Jobs highlights this growth through different green occupations in NYS in the four year period.

The industries most affected by the green economy are agriculture and forestry, construction, government, manufacturing, transportation, utilities, securities and commodities, professional, scientific, technical services, and waste management. In NYS, these industries constituted approximately one-third of employment in 2019 (DiNapoli, 2022).

TOTAL GREEN JOBS BY OCCUPATIONAL TYPE FOR NEW YORK STATE



Adapted from Office of New York State Comptroller staff analysis from OEWS

Figure 1: Total Green Jobs (DiNapoli, 2022)

2.2 Overview of Green Jobs

The U.S. Bureau of Labor Statistics (BLS) tracks and collects data on green jobs. Definitions vary, but the BLS defines green jobs as a) Jobs in businesses that produce goods or provide services that benefit the environment or conserve natural resources, or b) Jobs in which workers' duties involve making their establishment's production processes more environmentally friendly or use fewer natural resources" (BLS, 2013). A project of the U.S. Department of Labor Employment and Training, has a more distinct definition of green jobs: citing "the economic activity related to reducing the use of fossil fuels, decreasing pollution and GHG emissions, increasing the efficiency of energy usage, recycling materials, and developing and adopting renewable sources of energy" (EPA, n.d.). Many jobs and professions can fall under these categories. Green jobs can simply be just an enhancement of skills and knowledge workers already possess.

In some industries, new occupations will be created (DiNapoli, 2022), while in other job requirements and demands will change or grow. The green workforce is broader than the jobs that often come to mind, such as sustainability officers or solar panel installers and technicians. In fact, most green jobs are found in well-established occupations. To better understand green jobs, they can be divided into:

- Green new and emerging occupations
- Green increased demand occupations
- Green enhanced skills occupations (DiNapoli, 2022).

NYS is expected to gain at least 211,000 new jobs related to clean energy and possibly more if manufacturing increases in the state (Harris, 2022). 18,000 of those new jobs will come to the Hudson Valley. However, the state will lose about 22,000 jobs in industries dependent on fossil fuels. Almost half of those will be in gas stations. But for every job displaced by the shift to clean energy, ten more will be created (Harris, 2022). Officials in this area are investing in heating and cooling automation systems. Energy efficiency, renewable electric power generation, and clean and alternative transportation are the largest sub-technologies that make up the most jobs. Governor Hochul's executive budget proposal for 2023 proposed \$250 million for electrifying and weatherizing homes. NYSEDA has committed \$120 million to expand its existing workforce and job training efforts (NYSEDA, 2022). NYSEDA partners and supports local programs such as Ulster BOCES, SUNY Ulster, and the Westchester Community Opportunity Program (Harris, 2022).

Private businesses in the state are ramping up investments in education to make sure they will have the workers they need with the shifting green economy. In addition, NYS has adopted a variety of other programs and laws intended to promote sustainability, including incentives for vehicles powered by renewable energy, programs to require the recycling of a variety of waste streams, programs to reduce contaminants in sanitary and other water discharges, and programs to protect wildlife (DiNapoli, 2022). The state and federal governments offer tax credits and other incentives to individuals, businesses, and utilities. For example, NYS authorizes a personal income tax credit equal to 55 percent of the cost of purchasing and installing solar or wind electric generating equipment with up to a maximum credit of \$2,750 at a taxpayer's principal residence (DiNapoli, 2022). The Green Jobs and Opportunity Act was introduced by Rep. Antonio Delgado (D-NY) which intends to federally achieve a clean energy economy, provide grants to establish and enhance training programs for any occupation or field of work for which a shortage is identified, and for other purposes (H.R. 7575, 2022). This federal legislation offers hope and progress towards the movement to a green economy.

The literature review has drawn main themes and takeaways for effective training programs and pathways. First, the program must be local. Second, the program must adopt green practices in its current curriculum and training. Third, the program must establish a partnership between local high schools, vocational schools, and colleges. Vocational education should be prioritized due to the demand and accessibility of these jobs. While some advanced degrees are necessary, applied science degrees, associate degrees in occupational studies, and technical certifications will become increasingly critical to the transition of common jobs in the green economy. Examples of educational requirements and curriculum are located in *Appendix B*.

Understanding and tracking the impacts of green jobs can be difficult since it is a relatively new concept. This has presented a unique opportunity for communities “to define the type of economy that works for everyone— one that is centered on racial, economic, environmental, and intergenerational justice” (Novello & Carlock, 2019). This system must be revitalized to meet the demands of the green economy and community. For example, black workers make up just eight percent of NYS’s clean energy workforce but 17 percent of the state’s total workforce. Women hold just 25 percent of NYS’s clean energy jobs, compared to 49 percent of overall state jobs (NYSERDA, 2021). Boosting participation in the green workforce among underrepresented groups is a priority for NYSERDA and other organizations (Harris, 2022). Outreach and education efforts and tracking the success and equity of green jobs will increase the general population’s awareness and understanding of environmental issues. This influences participation and informed decision-making regarding a green economy.

Obstacles in joining the green workforce include a lack of technical skills and advanced degrees. This acts as a recruitment barrier for clean energy companies. 60 percent of solar and 47 percent of offshore wind energy industries do not require advanced degrees or formal certifications. Other clean energy industries, such as solar water heating, require a much smaller percentage of just ten percent of the workforce with formal degrees or training (DiNapoli, 2022).

2.3 Potential Green Jobs

The following are some of the potential jobs that meet the BLS criteria of green jobs and are relevant to New Lebanon.

2.3.1 Heat Pumps Technician

In NYS, traditional heating and cooling systems make up 37 percent of energy consumption and 32 percent of GHG emissions. Technologies like heat pumps have the same heating and cooling functions with more efficiency and lower GHG emissions (NYSERDA, n.d.). Heating, ventilation, and air conditioning(HVAC)/heat pump technicians are responsible for the installation, maintenance and repairing of these systems (HVAC Technician Job Description, n.d.). Today, most HVAC technicians begin by taking courses at a technical school or community college. Shorter programs may last only six months and result in an HVAC technician certificate, while longer programs can last up to two years and result in an associate degree (Blore, 2021). This type of job also requires the ability to work after hours, over weekends and on public holidays with short, or no notice.

2.3.2 EV Repairer

Becker (2009) from the Center for Entrepreneurship & Technology, University of California, Berkeley builds a forecast model of EV employment, suggesting a net employment gain of EV industry up to 350,000 jobs by 2030. New jobs are created from a wide range of the spectrum, including repairing and maintenance. The electrical systems and drivetrain maintenance require specific skilled automotive service technicians. They usually need to use computerized shop

equipment and work with electronic components as well as traditional hand tools. Training of technicians typically begins in high school or a postsecondary vocational school or community college. There have been mature formal education programs that last from a few weeks of on-the-job training to a 2-year associate's degree. For those who want to work at larger repair shops, certification from the National Institute for Automotive Service Excellence (ASE) is usually needed (Hamilton, 2011). Besides EV maintenance, there are two jobs that can support EV charging stations as a green infrastructure. One job is the power-line installer who builds the power-line network for EV stations. Another job is guiding the EV driver to use the charging station to charge their cars and conduct daily maintenance for the charging station.

2.3.3 Wind Turbine Service Technicians

NYS is currently implementing an offshore wind project, which includes the nation's first offshore wind tower manufacturing plant at the Port of Albany which is located a half an hour west of New Lebanon (New York's Offshore Wind Projects, n.d.). This project will ultimately create more than 5,200 jobs (2020 Offshore Wind Solicitation, 2020). After the construction of wind turbines, there will be continuous demand for maintenance workers and service technicians whose duty is to inspect turbines and provide regular maintenance. As the wind industry is relatively young in the U.S., there is no single path to become a wind turbine service technician, but more institutions are beginning to offer certificate and degree programs in wind turbine maintenance now (Liming & Hamilton, 2010).

2.3.4 Solar Photovoltaic Installer

Solar photovoltaic installers are responsible for solar panel installation and maintenance. Their job is to attach the panels to the roof of the buildings and ensure that the system functions properly. If needed, they also repair or replace damaged components of the solar power system. As for credentials, solar photovoltaic installers typically have a background in construction or as electricians. There is no formal training standard for installation, but there are courses offered by trade schools, apprenticeship programs, or by photovoltaic module manufacturers. Training programs vary widely and can range from one day to several weeks. Many solar installers are licensed as general contractors and many are licensed by the North American Board of Certified Energy Practitioners (Hamilton, 2011).

2.3.5 Hydroelectric Technician

Hydroelectric technicians monitor and control activities associated with hydropower generation. They operate plant equipment, such as turbines, pumps, valves, gates, fans, electric control boards, and battery banks, and they monitor equipment operation and performance and make necessary adjustments to ensure optimal performance. Sometimes, they perform equipment maintenance and repair as necessary. Typically, to become a technician in a hydropower site, people need a high school diploma or equivalent combined with extensive on-the-job training (How To Become a Hydroelectric Plant Technician, 2020).

2.3.6 Green Construction Laborer

Green construction is the practice of erecting buildings and using processes that are environmentally responsible and resource efficient. Green buildings limit their environmental impact by conserving as much energy and water as possible and are constructed of recycled or renewable materials in order to achieve maximum resource efficiency. Construction laborers on a green building site are similar to the ones on other projects. However, they fulfill their duties in a more environmentally conscious fashion. These construction occupations usually have no specific education requirements and people mostly get trained from apprenticeship. However, the U.S. BLS points out that high school classes in English, mathematics, physics, mechanical drawing, blueprint reading, welding, and general shop can be helpful to apprenticeship (Liming, 2011).

2.3.7 Wastewater Specialist

Water treatment plants and system operators work in water treatment plants. Fresh water is pumped from wells, rivers, streams, or reservoirs to water treatment plants, where it is treated and distributed to customers. Water treatment plants and system operators run the equipment, control the processes, and monitor the plants that treat water to make it safe to drink (U.S. BLS, 2022). Wastewater treatment plants and system operators remove pollutants from domestic and industrial waste. Used water, also known as wastewater, travels through sewer pipes to treatment plants where it is treated and either returned to streams, rivers, and oceans, or used for irrigation. Because clean water is one of the most scarce and precious resources on the earth, treating waste water not only needs time and effort but also needs well-trained specialists to properly treat the wastewater (Israel, 2018). Jose Lui Lozano is the founder of Biological Energy, a company that developed technologies in order to increase the amount of water that could be treated while requiring less energy. Since the company is also located in Ithaca, which is in the Finger Lakes District in NYS, we can study the valuable experience and the job opportunities and apply it in the future at New Lebanon. Biological Energy has developed an electroactive attached growth module which increases wastewater capacity up to three times compared with standard and traditional ways, and it could eliminate 95 percent of nutrients which are harmful to the environment while reducing energy use (Israel, 2018).

2.3.8 Hydrogen Cell Plant Engineer

The most relevant and important job around a Hydrogen Cell Plant is the engineer because they provide technical consultation and direction related to the development or production of fuel cell systems (EIA, 2022). To become an engineer specializing in Hydrogen Cell Plant, a bachelor's degree in chemical engineering, material science, mechanical engineering, or electrical engineering will suffice. A Hydrogen Cell Plant can produce different amounts of electricity by combining oxygen and hydrogen to power from small towns to big cities, in order to do that, electrochemical cells are created to sustain the reaction of the oxygen and hydrogen. There are different types of cells in a Hydrogen Cell plant, where small cells can power laptop and cell phones, large cells are eligible to power electric power grids, which are able to provide enough electricity to sustain a small town (EIA, 2022). As of the end of October 2021, there were about

166 operating fuel cell electric power generators at 113 facilities in the U.S. with a total of about 260 megawatts (MW) of electric generation capacity (EIA, 2022), which proves Hydrogen Cell Plant is widely in use across the U.S., and geographically distributed evenly from small town to large cities.

2.3.9 Energy Auditor/Analyst

Energy Analysts help clients understand potential opportunities for energy-efficient improvements to their structures by measuring a building's energy efficiency using information gathered from meters and utility bills. They visit sites to inspect facilities, assess their energy conservation measures and programs, and conduct energy audits. They measure efficiency, analyze data on energy used, develop energy models for buildings, recommend improvements, and assist contractors with technical support during the installation process (ZipRecruiterTeam, 2020). With proper framework and cooperation from the government, energy Analysts will significantly optimize the energy systems in neighborhoods and city districts by analyzing energy, carbon, and financial benefits of multiple urban designs (Fonseca et al., 2016).

2.3.10 Renewable Energy Specialist

A Renewable Energy Specialist is responsible for studying emerging technologies and assessing emerging technologies on various aspects. To become a successful renewable energy specialist, a bachelor's degree in renewable energy management is crucial, plus, one also needs skills associated with communication, critical thinking and analysis, math, science, and engineering (U.S. BLS, 2015). Technologies that are related to renewable energy are emerging at an astonishing rate, and understanding those technologies is the priority of a renewable energy specialist. In addition to assessing the technologies, renewable energy specialists should understand the environmental impacts of energy production, so they are eligible to transfer their understanding of the new technologies to practical business practices (Purdue University, 2009).

2.3.11 Sustainability Specialist

Sustainability Specialists offer professional advice to organizations and corporations by complying with national and international environmental regulations, and make sure the organization/corporation functions fluently in both financial and social aspects. Sustainability specialists should always cooperate with government officials and legal advisors in order to keep the organization sustainable both financially and environmentally (Eco Canada, 2021). To become a Sustainability Specialist, there is no fixed pathway, although a bachelor's degree is required, but there are no formal educational requirements. A wide range of degrees will suffice including bachelor's degree in environmental studies, earth science, environmental science and sustainability, environmental architecture, and design (U.S. Green Building Council, 2021).

2.4 Literature Review Conclusion

Review of the current literature mainly focused on three criterias: introduction to green jobs, overview of green jobs, and specific potential green jobs. Based on previous research and

studies, the trend of green jobs and green economy started in the early 1930s and became urgently needed in the 21st century due to environmental hazards and climate change. In NYS, commitment to clean energy brings a wave of new jobs which makes up one-third of employment in 2019 (DiNapoli, 2022). Green jobs in NYS also cover a wide range including agriculture and forestry, construction, government, manufacturing, transportation, utilities, securities and commodities, professional, scientific, technical services, and waste management.

Based in the U.S. BLS tracks and collects data on green jobs, the green jobs can be divided into three categories, which are Green New and Emerging Occupations, Green Increased Demand Occupations, and Green Enhanced Skills Occupations (DiNapoli, 2022). The literature review has also shown main themes that emerge for effective training programs and pathways, whereas the program must be local, have curriculum and training, and must establish partnerships with local institutions. Furthermore, understanding and tracking the impacts of green jobs might be hard since green jobs are a relatively new concept, and due to lack of technical skills and advanced degrees, there will be obstacles to joining the green workforce.

The Cornell Consulting Team studied eleven potential green jobs and the required credentials. This part of the literature review helped narrow down the scope of the project. It also provided more information about what the educational background or professional skills that green jobs often require. This developed the project and guided in conducting stakeholder analysis, strengths, weaknesses, opportunities, and challenges (SWOC) analysis, and determining interview questions.

3 Data & Methodology

This section will describe the analytical tools and processes used to frame and answer the specific research of this report.

3.1 Scope

The Cornell Consulting Team agreed with the client to explore the following research statements:

- Identification of the key stakeholders in New Lebanon and the surrounding area.
- Identification of the SWOC of potential green jobs in New Lebanon.
- Identification of educational priorities as related to the literature review findings.

3.2 Methods

The consulting team utilized Stakeholder Analysis, SWOC Analysis, and Interviews to collect data to answer the research questions. The following provides a brief synopsis of each method.

Stakeholder Analysis: A stakeholder is “any person, group, or organization that can place a claim on the organization’s resources, attention, or output or is affected by its output” (Bryson & Alston, 2015). One method of understanding the role of stakeholders and their impact on an is through the Power versus Interest Grid which displays stakeholders within a matrix related to their interest in the issue and their power to affect the issue (Ackermann & Eden, 2011).

SWOC Analysis: While “stakeholder analysis provides extraordinarily useful information about the politics impinging on the organization, the SWOC Analysis supplies a kind of overall systems view of the organization and the factors that affect it (Bryson & Alston, 2015). This is a useful framework that assesses an organization, by identifying four specific elements – the internal strengths (S) and weaknesses (W) as well as the external opportunities (O) and challenges (C). Once completed, SWOC “clarifies the conditions or situations within which the organization operates” and identifies and frames strategic issues by providing an in-depth understanding of their context (Bryson & Alston, 2015).

Interviews: An interview can be thought of as a conversation with the purpose of gathering information about “assumptions and perceptions of activities” in a community or group (Vilela, 2022). They can be a useful way of ensuring that ideas are covered accurately and thoroughly as the interviewer guides the conversation (Viela, 2022).

3.3 Stakeholder Analysis

As the Town of New Lebanon looks to the future and the implementation of new jobs that will emerge from a greening economy, there are a number of relevant stakeholders that will be impacted and may influence the process. This report will not examine each individual stakeholder within Columbia County or New Lebanon, but will combine similar stakeholders into

small groups (e.g. - local businesses, educators, etc.) and prescribe an approach for future engagement based on their place within the Power versus Interest Grid.

The power versus interest grid provides a method of visualizing stakeholders based on their interest and power related to an issue, in this case, green jobs for the New Lebanon community. Figure 2 below shows an example of the Power versus Interest Grid.

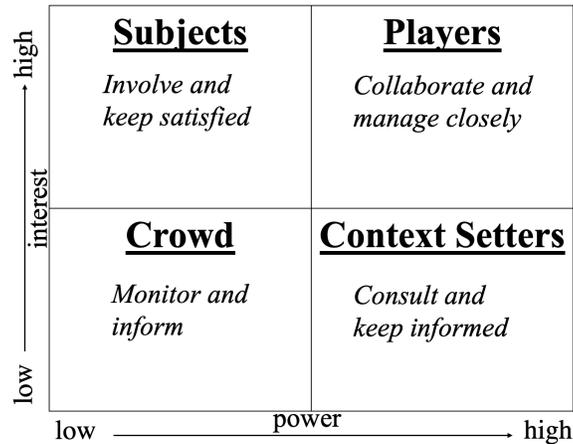


Figure 2: Power versus Interest Grid

As can be seen in the image above, stakeholders will fall into one of the four quadrants: players, subjects, context setters, or the crowd. Players have the greatest interest and power regarding the issue, therefore they have the “high[est] potential to affect the strategic planning process and its outcome” (Bryson & Alston, 2011). Subjects have higher interest, but tend to have less power to influence the issue. Context setters have power that will influence the issue, but have little interest in the issue itself. The crowd consists of those that lack both interest and power regarding the issue at hand.

This tool is helpful to visualize how stakeholders are aligned with an issue and provides insight into potential collaborations for strategic planning. Additionally, it provides a method of engaging each of the stakeholders during the strategic planning process based on their placement within the grid (reference the top right corner of each quadrant in Figure 2). Stakeholders that are considered to be players must be involved in collaboration and managed closely. Subjects need to be involved and kept satisfied. Context setters must be consulted and kept informed during the process. Lastly, stakeholders within the crowd must be monitored and informed.

One of the critical points of this analysis is the ability to determine where people are versus where one might want them to be. If a stakeholder is identified as a context setter, but they really should be a player regarding the current issue, then planners should understand they need to develop the interest of that particular stakeholder. This is necessary in order to move them from the context setter quadrant to the player quadrant.

Based on the context provided above, Table 1 is a list of the stakeholder groups that the Cornell Consulting Team has established based on the meetings with the New Lebanon CSC Task Force, research, and interviews conducted during the month of April 2022. Each group has examples of individual stakeholders, but these lists are not exhaustive. They merely provide an understanding of who might be considered an individual stakeholder within the group.

CSC Task Force	Local Authorities	Regional Authorities	State & Federal Authorities	Volunteers & Concerned Citizens
- Members of the New Lebanon CSC Task Force	- Town Supervisor - Town Board - Planning Board - Church Leaders	- County Board - Workforce Development Board - County Youth Bureau	- NYSERDA - DEC - NYPA	- CSC Volunteers - Grow the Valley
Educators	Local Businesses	Regional Businesses	Media	Local Populace
- New Lebanon CSD - Questar III - CGCC - The Darrow School	- NL Business and Economic Committee - HVAC contractors - Automotive Shops - Electricians - Agriculture	- Plug Power - Renewable Energy Companies	- Local: Eastwick Press - Times Union - Social Media	- Residents - Youth

Table 1: Stakeholder Groups

Figure 3 arrays the stakeholder groups on the Power versus Interest Grid. While the Cornell Consulting Team offers the following assessment of power and interest of the stakeholders, the movement of individual stakeholders on the chart can be fluid. Figure 3 provides the current understanding of the situation, and provides recommended actions upon that basis.

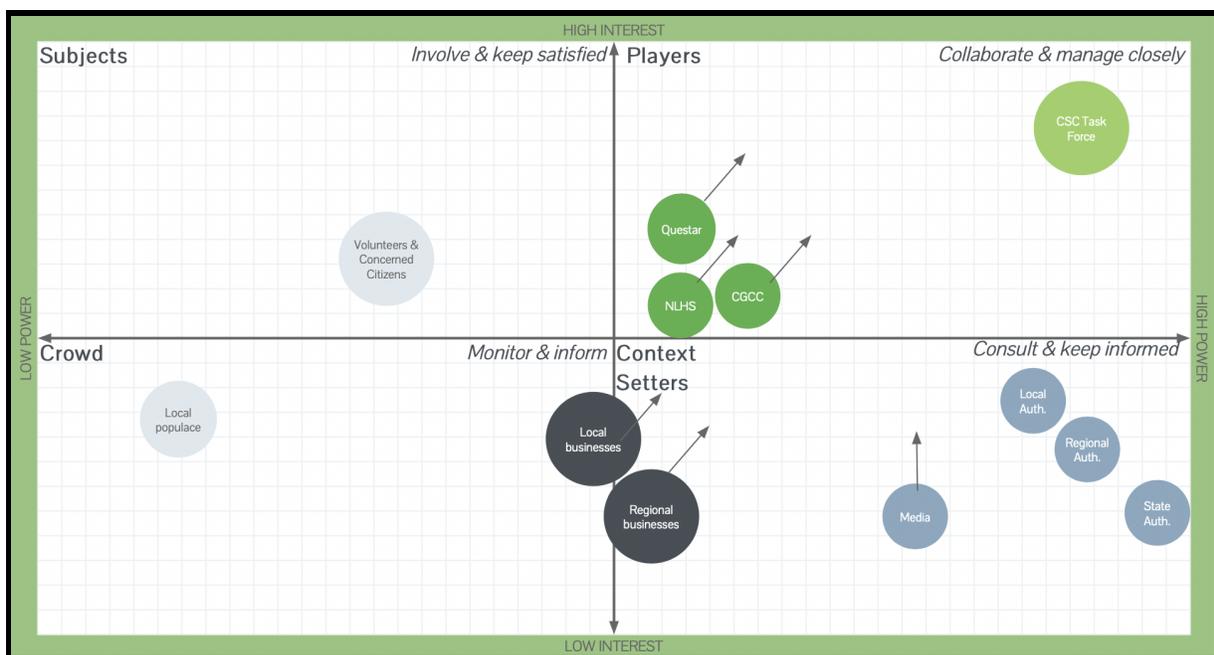


Figure 3: Stakeholder Analysis - Green Jobs Training

As stated above, the position of the stakeholders within the quadrant chart provide recommended actions for the New Lebanon CSC Task Force as they move forward with PE 8.1. First, as has already been demonstrated by the actions of the CSC Task Force during the time of this report, it is critical to begin collaboration and manage the players. Together with the CSC Task Force, the Cornell Consulting Team has identified the educators as a key stakeholder in this process. As seen in Figure 3, there are arrows next to Questar, Columbia Greene Community College (CGCC), and New Lebanon High School. These arrows indicate the need to increase the interest and power of the educators as New Lebanon continues to implement policies and training in relation to green jobs.

Second, the CSC Task Force must continue to consult and keep the context setters informed. However, this is a two-way street as the CSC Task Force must also stay informed of any new details, requirements, or opportunities from these stakeholders (e.g. - grant opportunities from NYSERDA or DEC). Additionally, the CSC Task Force must continue to engage the media and highlight their successes within the Town of New Lebanon. Furthermore, the CSC Task Force could begin to explore the opportunities of an intentional social media campaign for sustainability. The other stakeholders positioned on the border of the context setter quadrant are the businesses. This is due to the various businesses that may be included in each group. However, the general principles still apply - for those individual businesses that the Task Force identifies as a context setter (e.g. - a renewable energy company), they must continue to consult them and keep them informed of the Task Force's progress in the area of green jobs.

Third, within the subject quadrant, the Cornell Consulting Team has positioned the volunteers and concerned citizens. These are the people, groups, and/or organizations (e.g. - Grow the Valley) that the CSC Task Force should continue to inform and involve. Whenever possible, they should also look to mobilize them for events and campaigns surrounding the issue - both with green jobs or other CSC actions.

Lastly, the New Lebanon CSC Task Force needs to monitor and inform the local populace throughout the process of implementation of PE 8.1: Green Jobs Training. The CSC Task Force has a history of keeping the community involved and informed, and it is critical that this is maintained. Many of the previous actions conducted do not have as significant an impact as developing green job training in preparation for a changing environment. This is a potential "hot button" issue, and must be handled inclusively. Once again, the CSC Task Force has demonstrated this ability, but it is vital to sustain the progress made thus far and continue to build on it.

Within the findings section, this report will highlight more specific actions to the three groups identified as the key stakeholders: educators, businesses, and the media. The most important thing to gather from the stakeholder analysis is that the key stakeholders must not stay in their current location on the power versus interest grid. The New Lebanon CSC Task Force must make every effort to increase these stakeholders' interest through education and increase their

power by increasing their involvement in the strategic planning for green jobs training in New Lebanon.

3.4 SWOC Analysis

The following are the four sections (strengths, weaknesses, opportunities and challenges) of the SWOC analysis on green jobs development in New Lebanon.

3.4.1 Strength

In the CSC Certification program, applicants can achieve one of three certification levels: Bronze, Silver, and Gold (under development). Levels are based on the total points earned and the completion of selected priority actions and PE. So far, New Lebanon has earned Bronze certification in the CSC Program, which means that the town has earned more than 120 points by completing at least two mandatory actions and three priority actions from different PEs. This Bronze certificate indicates that their CSC committee is well-established and has started to take climate actions. Thus, the local government is well-prepared to take more steps to develop the green economy and green jobs there.

The New Lebanon CSC Task Force has a broad network. They are starting a variety of connections with different educational institutions like the local high school, community college and the vocational school nearby. With these connections, they are able to get updated information and feedback on green job training and education. Via various webinars, they have also built relationships with some successful green vendors so that they can get more background information about green businesses and about their demand for green talents. The CSC Task Force has a partnership with Cornell University, and they get assistance from both undergraduate and graduate students.

3.4.2 Weakness

Green educational programs are still in the initial stages of implementation. So far, there is a lack of actual implementations of education innovations. The educational institutions have not developed a mature curriculum for green jobs. Green education is the key to a successful local green economy. As a rural town in Columbia County, young people are moving out to seek more opportunities in larger cities. Without the green curriculums and green education, there wouldn't be enough talent for the local green economy. Additionally, the youth may go somewhere else to seek this kind of education, which worsens the aging population issue in New Lebanon. Thus, the project needs a direction on green job education/training for educators. A mature green education system would also attract more young people to come and stay there, and would form a virtuous cycle based on green jobs and green economy.

3.4.3 Opportunities

New Lebanon is in line with the demands of many social groups, which provide various kinds of support to the project. There are a few common interests between the New Lebanon community and the New Lebanon CSC Task Force, which could be transferred to funding and community material support. From local government to local institutions, the New Lebanon Task Force will

receive important aid and funding from local governments and build up a brand new environment for green new jobs to work with local institutions.

Across the U.S., green new jobs have become a new trend. Specifically in Northeastern states, there are numerous successful transitions from traditional economic structure and jobs to green economy and green new jobs. While New Lebanon has the potential to follow this path, Finding what are the most suitable future green jobs for New Lebanon is a crucial opportunity. The New Lebanon Task force will find out most suitable green jobs by interviewing local institutions, green industry enterprises, local residents, and governments to establish a list of green jobs that will help New Lebanon to capitalize its great potential for green jobs.

3.4.4 Challenges

Individuals have different opinions, interests, political beliefs, like elsewhere in the U.S. New Lebanon might also face conflicts and disagreement on the transition from traditional to green new jobs. People might feel reluctant to switch to green new jobs. From their perspective, it means many existing jobs will be gone, and it will cost extra time and effort to be applicable to working in the new fields. The CSC Task Force will work with local residents, institutions, and government officials to offer green jobs training to solve the conflict in the best possible way.

While green jobs reduce most environmental hazards, they may cause potential threats to individual's health. Green jobs may lead to poisonous biological contact due to the growth of anaerobic digestion of biomasses. In Italy, anaerobic digestion of biomass was developed and called Biogas, created by agricultural and livestock biomasses (Traversi et al., 2015). Although Biogas increased Italy's crop's production significantly, it also put risks to green job workers that work with Biogas. Research has shown that workers were affected by both biological and chemical factors, endotoxin, bacteria, and fungi all exceed the safety level, and by traveling airborne, it reaches a long-range and will affect workers' health and wellbeing (Traversi et al., 2015). Since New Lebanon is a rural area, the usage of green fertilizer can play a big part in reducing carbon dioxide emission (Guo et al., 2022). People should exercise caution in regard to the threats to personnel's health when using environmentally friendly fertilizers.

3.5 Interviews

Four semi-structured interviews were held with stakeholders during April 2022. The goal of these interviews was to understand the current disposition of academic institutions, the process of program augmentation and implementation, and educational priorities in relation to green jobs. The interviews provided insight regarding current and local educational changes, challenges, and priorities that will impact the transition to a green economy in New Lebanon. Interviews were one hour long and over Zoom. Virtual interviews were conducted due to funding, health, and time constraints. Prior to each interview, a set of ten potential open-ended questions were prepped. These questions were tailored to the interviewee's background and specialties. This allowed flexibility and open, free-flowing conversations. Interviews were recorded and tracked through note-taking and were used to identify common themes among responses. Clients were present at each interview to help guide the conversation. A potential

limitation of these interviews is the lack of quantitative data that was collected. See *Appendix A* for the list of interview questions used.

RYCOR: RYCOR is a heat-pump installation business with an internal training program for employees. RYCOR has been successfully in business for over 18 years and, within the last year, has tripled in size. The internal workings of RYCOR emphasize that education is the key to everything for both employees and customers. RYCOR prefers to hire employees with little to no skill, citing that “they’re the best candidates, we can teach them the right way to do things” (Arnold, 2022). The majority of employees come from lower to moderate-income groups. Training for RYCOR can take someone who knows absolutely nothing about heat pumps to a competent team member in one to three months. Employees are fully competent and prepared within six months to a year in the heat pump industry. Regarding the changing landscapes of jobs and industry, RYCOR founder, Scott Arnold, encourages the universal teaching and understanding of electrical theory. Electrical theory connects to many aspects of the clean workforce and environment. Arnold also called for an end to the stigma related to trade jobs and education.

Questar III BOCES: Questar delivers more than 275 educational and administrative services to 23 school districts in NYS. Questar has successfully infused green concepts and technologies within existing and new programs. Questar is currently preparing for the changing green economy by promoting and preparing students for middle-skilled jobs. Every single one of Questar’s programs prepares students with some type of industry-recognized credential and real-life skills and experience within trades. These changes have been made through the push and relationships with lobbyists and representing organizations. Questar analyzes the community’s needs as well as market demands and drivers to implement new curriculum. This is to ensure the voices of their students are taken into consideration. The education sector has traditionally suffered from a lack of diversity. Currently, this sector also faces a shortage of teachers. Without educators, students will miss out on potential skills and trades, and thus the skill shortage will be exacerbated. Educators also need to reflect students’ backgrounds, demographics, and interests. If not, there is a disconnect between the student and the education they are receiving because they do not see themselves being successful in that career if there is no role model for them to emulate. Educators’ roles and teachings are critical in creating and sustaining this workforce. Culturally, there is a stigma regarding trade and vocational training. This stigma can be viewed in past educational priorities and emphasis on higher education. Questar III challenges this stigma by educating young people at the early stages of their education on the many different and successful paths that can be obtained through trade and vocational education, which are the basis of green jobs. Questar III is preparing for a massive exodus in the workforce and is mitigating this through changes in the education system.

Ulster BOCES: Ulster BOCES is an educational service that provides leadership and support, along with more than 200 innovative and cost-effective programs and services, to help the eight public school districts in Ulster County to meet their academic, administrative, and operational

goals. Steve Casa, a Ulster BOCES workplace learning coordinator, analyzed and emphasized the understanding of the needs of schools, businesses, and community partners. Each institution has differing motivations, which can prove difficult to cultivate relationships and priorities. Schools, for example, have a hard time having the “outside come into the classroom,” especially at younger grade levels. Businesses “altruistically and desperately want to help the community, but if there are no financial benefits, they tend to walk away” (Casa, 2022).

Ulster BOCES has taken a year to make a simple plan for preparations of implementation. This period consists of a time to cultivate community relationships. Casa believes in meeting partners and individuals where they are, and taking small steps of incrementalism. These steps include prioritizing what can be done in the short term, while working on the long term goals. Advocacy is key in this movement. Advocacy can take three levels, individual, organizational, and institutional. All forms are vital; however, institutional advocacy creates a sustainable and lasting model for future generations.

Columbia Greene Community College: CGCC is a public two-year college in Hudson, NYS. CGCC has implemented micro-credentials in which students receive training and education in the trades. Students can “stack” or take multiple micro-credentials at one time. This is an innovative method of curriculum as it allows students to become qualified in many aspects of the changing economy. CGCC has been successful with the implementation of micro-credentials, as there is potential for this to become a degree program.

CGCC recognizes the movement towards a digital economy and has responded to these changes through flexibility and the adoption of different curriculums. All subjects and curriculums can connect to the changing economy and sustainability. The response from students has been positive, as many students recognize themselves as advocates and stewards of the land. An example includes the adoption of historic preservation programs. This is important for Columbia and Greene counties as there are many historic buildings that would benefit from green construction and renovations (CGCC Faculty, 2022).

These interviews with stakeholders gained valuable insight regarding the future path of green jobs and the economy. There were four overarching themes in these interviews. First, education is essential for the green economy. Education does not necessarily mean higher education, but the access, knowledge, and resources connected to the green economy. Businesses can adopt education by teaching their workers about sustainability and implementing new and cleaner methods. Educators and administrators can educate students of all ages about the possibilities and potential for future pathways. More teachers are needed in districts to meet shortages and promote green education. This will change the culture and conversation about employment and eventually end the stigma surrounding vocational education, which was mentioned in all interviews. These steps can only be taken if the needs and priorities of the community are understood. Lastly, progress can be made through small steps and determining “what can be done now” (Casa, 2022). CGCC's implementation of micro-credentials, for example, hopes to

expand into its own program. Small steps of individual and organizational advocacy eventually lead to impenetrable institutional advocacy (Casa, 2020).

4 Findings

The following section presents the findings of the Cornell Consulting Team’s analysis methods. The outcomes of the methodology have been synthesized through the context of the research question, the knowledge developed through the literature review, and continual communication with the client.

4.1 Relevant Green Jobs

Based on the research conducted, Table 2 is the summary of eleven potential green jobs that are relevant to New Lebanon. They are heat pump technician, EV repairer, wind turbine operator, solar photovoltaic installer, hydroelectric technician, green construction laborer, wastewater specialist, hydrogen cell plant engineer energy analyst, renewable energy specialist, and sustainability specialist.

Green Jobs	Duty	Credential	Salary Range
Heat Pumps Technician	Install, maintain, and repair HVAC /heat pumps	Short programs with certificate 2-year programs with an associate degree	\$34,320 to \$78,210
EV Repairer	Maintain and repair EVs with computerized shop equipment as well as traditional hand tools	Formal education programs from a few weeks of on-the-job training to a 2-year associate degree	\$47,586 to \$65,623
Wind Turbine Service Technician	Inspect turbines and provide regular maintenance	No single path but many institutions are beginning to offer certificates/degree programs now	\$46,420 to \$77,810
Solar Photovoltaic Installer	Attach the panels to the roof of the buildings. Repair or replace damaged components of the solar power system	No formal training standard for installation. Typically have a background in construction or as electricians.	\$36,320 to \$72,080
Hydroelectric Technician	Monitor and control activities associated with hydropower generation. Perform equipment maintenance and repair as necessary	No formal training standard for installation. Typically need a high school diploma or equivalent combined with on-the-job training	\$31,900 to \$77,450
Green Construction Laborer	Similar duties to conventional construction projects, but with focus on environmental sustainability	No specific education or training requirements. Some may receive formal technical and on-the-job training	\$49,500 to \$56,999

Wastewater Specialist	Periodic maintenance and checks on equipment and systems, record readings, and test results	Wastewater Treatment Operator Class I OSHA Safety Certificate	\$53,167 to \$72,922
Hydrogen Cell Plant Engineer	Provide technical consultation or direction related to the development or production of fuel cell systems	A bachelor's degree in chemical engineering, materials science, mechanical engineering, or electrical engineering	\$43,930 to \$97,410
Energy Analyst	Measure energy efficiency, analyze data on energy use, develop an energy model for buildings, recommend improvements, and technical support	A Bachelor's degree in Finance, Economics, Petroleum Engineering, Accounting, Mathematics, Statistics, or Business.	\$60,096 to \$78,595
Renewable Energy Specialist	Assess studies on emerging technologies, understand environmental impacts of energy production, and transfer their understanding to practical business strategies	A bachelor's degree in Renewable Energy Management, also skills associated with communication, critical analysis, math, and science.	\$71,088 to \$96,762
Sustainability Specialist	Support and implement programs that focus on improving the environment, saving money for their employer, and helping their local community	A bachelor's degree in business or environmental science. Strong communication skill is also needed	\$65,270 to \$91,050

Table 2: Green Jobs for New Lebanon

4.2 Relevant Stakeholders

Based on the stakeholder analysis, the Cornell Consulting Team has identified three specific stakeholder groups that will continue to shape the local economy and influence the future of green jobs within the region.

4.2.1 Local & Regional Businesses

Currently, the majority of businesses seem to be in a reactionary stance to the shifting economy. Within the Power versus Interest Grid, our team has placed them at the edge of the “crowd” quadrant, where they are currently being monitored or informed. Businesses have an understanding of how the market is shifting, but few are taking the opportunity to lead the change. The team has found that businesses must become “players” within the stakeholder context - they need to become a critical part of the team helping to shape what the future job market and green economy looks like within the region. This not only includes the transition to

or creation of new jobs within their organization, but also taking environmental action that creates an example for the community.

4.2.2 Educators

Educators, such as New Lebanon High School, Questar III, and CGCC already have a vested interest and substantial power in the future of the regional workforce. As powerful influencers, they are assessing the needs of the changing economy and attempting to provide the necessary training and skills required to their students to meet these market demands. For this reason, our team placed them as “players” in the grid to collaborate and manage closely. The New Lebanon CSC Task Force had already begun to engage these educators before the consulting team was involved in the project, but the team encourages a continued concentrated effort on future collaboration with these schools.

There are multiple facets of this issue that will require close collaboration between the New Lebanon CSC Task Force and the educational systems. It does not only include the creation of new courses or programs to prepare the youth for a future green job, but it includes an education that highlights the necessity of these skills at a young age. Themes such as energy transition and sustainability should be introduced in primary schooling and encouraged throughout their educational pathway. As the demand for green jobs is created within the local and regional economies, it must be predicated by a system that demonstrates the need and importance of such careers.

4.2.3 Media

Media often falls within the “context setters” of the power versus interest grid with a response of consulting and keeping informed. It is no different in the context of green jobs within New Lebanon. As the New Lebanon CSC Task Force continues to have successes, it is critical that they increase their public footprint through the use of local and regional media. The past successes in New Lebanon have been highlighted, and this is an excellent time to continue to capitalize on future successes. In addition to traditional media, the Task Force should consider the impacts of a dedicated social media campaign. As a method for marketing to the youth in the community, this may prove as a useful tool to creating a shared understanding.

4.3 SWOC

Table 3 below shows the Cornell Consulting Team’s findings with the SWOC method used to analyze green job development. For strength, it is important to highlight that the CSC Task Force has already received the Bronze certification, which shows that the town has finished at least five actions from four different PEs. For weakness, the CSC is just beginning in terms of green jobs, they still need to gather more background information and it will cost time and effort through the green education implementation. Support from the government and the future trend of green jobs are great opportunities for New Lebanon, which means more funding, greater efficiency, smoother cooperation, and more information. Green jobs transitions have been successful in numerous areas in the U.S. and by catching these opportunities New Lebanon can

successfully maneuver the transition from traditional jobs to green new jobs. The most important challenge is the potential of a dispute on the transition to green new jobs. Since New Lebanon is politically diverse, community members hold different opinions on certain issues, which may cause disagreements that can significantly impact the transition on various aspects, including efficiency, funding, and the direction of the transition.

	Strength	Weakness
Internal	<ul style="list-style-type: none"> ● Already attained Bronze certification ● Good partnerships between educational organizations & green vendors 	<ul style="list-style-type: none"> ● At the beginning of the green economy transition ● No green curriculum for educators
	Opportunity	Challenge
External	<ul style="list-style-type: none"> ● Support from the government ● Future trend of green jobs 	<ul style="list-style-type: none"> ● Dispute on the transition to Green New jobs ● Potential threats to resident health ● People might move out of town

Table 3: SWOC Analysis Summary

5 Recommendations

The following section provides the Cornell Consulting Team's recommendations for the Town of New Lebanon, the New Lebanon CSC Task Force, and relevant stakeholders impacted by the introduction of green jobs into the local and regional market. This report has divided the recommendations into two groups based on time prioritization. The short term priorities should be initiated within the next one to three years. The long term priorities will happen after three years due to the setting conditions before initiation.

5.1 Short Term Priorities (1-3 years)

The short term priorities are to be initiated within the next one to three years. They are simple approaches to begin changing the narrative and mindset for future integration of green jobs training into the local economy and educational systems.

5.1.1 Establish a Strategic Planning Committee

The first response following review of this report should be the establishment of a Strategic Planning Committee with the purpose of developing the pathway of green jobs in the Town of New Lebanon and the surrounding area. This report recommends appropriate jobs, identification of key stakeholders, and potential avenues of success. Therefore, the Town of New Lebanon and the CSC Task Force should seek to continue or begin conversations with relevant players and create a dedicated group of decision makers to commit to strategic planning.

To guide the strategic planning process, the Cornell Consulting Team recommends the systems leadership approach to organizational change (Cabrera & Cabrera, 2018). It is critical that the committee establish the vision to capture the desired future potential of the workforce in New Lebanon. Second, the committee determines the implementable actions of the mission to connect with the planned vision. Third, the committee begins to develop the capacity to support the mission. Lastly, the committee encourages organizational learning by soliciting constant feedback from the community.

5.1.2 Develop a Sustainable Business Workshop

The second response is to develop a workshop where residents in New Lebanon, the town leadership, the CSC Task Force, the local educators, and the relevant business owners that are either in the green industry or going to be affected by the green economy transition can together to discuss green jobs in New Lebanon. The goal of the workshop is to let every attendant show their own interests, and to understand the interests of others.

The Cornell Consulting Team suggests that the CSC Task Force should play the role of the intermediary. They should be the organizer of the workshop and send the invitations to different stakeholders. They should also take the initiative to find out the connections among different attendants and identify the common interests among them as a starting point of sustainable relationship cultivation.

5.1.3 Integrate into Local Career Fairs

The CSC Task Force should involve themselves in local career fairs. The career fair is a chance for job seekers to determine what jobs are available in the market that align with their interests. It is also a chance for the local communities to make connections with the recruiters and to get better knowledge of some career opportunities nearby.

Being a part of this event, the CSC Task Force can have more opportunities to get in touch with more green recruiters and potential green job seekers from the community. Furthermore, they can integrate themselves into the career fairs as the role of the co-host. By hosting the career fair, the CSC Task Force is able to invite more green businesses and local schools, and make the career fair a bridge among the green recruiters, green job seekers and educators. With more green businesses involved, a greener career fair can also better inform the local communities about more green jobs relevant to the town.

The Columbia County Climate Carnival on July 16th can be the first opportunity to take action.

5.2 Long Term Priorities (3+ years)

The long term priorities are to be worked towards within three years and longer. Long term priorities will be implementing green career pathway, developing environmental education, and to invest in relationships.

5.2.1 Implement Green Careers Pathway

The CSC Task Force should implement the green careers pathway as a long-term goal. With the rise of the green economy and environmental awareness in New Lebanon, new jobs that require green skills are increasing. Thus, it is important to implement a green career pathway that can guide people out of poverty, especially low-income marginalized youth. Although young might face difficulties in pursuing their degrees, young individuals still devote themselves to the community and service. By creating a green careers pathway, the CSC Task Force can not only offer a second chance to those young individuals, but also give support and train the young people to experienced workers in the green new industries in New Lebanon.

5.2.2 Invest in Community, Business, and Educator Relationships

The CSC Task Force should continue cultivating relationships between community members, businesses, and educators. Realigning and coalescing priorities should be done incrementally, with a deep understanding of each institution's needs. This will eventually create a change in culture and institutional advocacy. Educators' role is essential in evolving this mindset and educating future generations. Businesses and schools should frame teachings directly connected to ideas of sustainability. When framed in this way, sustainability and the green economy become a part of daily life and routine. Thus, raising community awareness and acceptance of climate change and the shifting economy. Vocational education should be just as prioritized as higher education. The economy desperately needs more skilled trade workers (Pallozzi & Church, 2022) as well as the stigma surrounding this education should be

eliminated. Further, local schools should implement workforce guidance counselors to serve as a mentor for young people.

5.2.3 Develop Environmental Education

Environmental education is also a fundamental part of fully achieving a green economy. The CSC Task Force should consider environmental education as a long-term goal. Environmental education should be focusing on enhancing people’s awareness of challenges that are related to the environment, and why these challenges are related to their everyday life. Thus, people can also gain knowledge and understand the environmental challenges. Environmental education should include specialized skill training courses that give people the skills to identify and resolve potential environmental challenges. Furthermore, the CSC Task Force should also open environmental education curricula to kids, kids are more encouraged to research, learn and innovate rather than just being told information. By developing long-term environmental education by setting up public school curriculums, the CSC Task Force can improve people’s awareness, get residents involved and help to resolve environmental challenges, nurture sustainable habits, and educate the younger generation of important environmental knowledge.

6 Conclusion

The Town of New Lebanon and its CSC Task Force are in a favorable position to initiate more long term objectives in pursuit of climate resiliency in their community and region. Following their Bronze certification achievement and their demonstrated dedication to the Road to Silver, the CSC Task Force has secured a stable foothold within the community to affect future change. Supporting the transition to a green economy is not just a PE for NYS CSC program. It is a daily commitment made by each member in the community to prepare future generations for the challenges ahead. This report offers a future goal for the Town of New Lebanon. The green jobs identified and the recommended priorities, both short and long-term, should help initiate discussion and guide strategic planning for the community of New Lebanon.

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Appendix A: Interview Questions

What are we trying to determine: *What do educators determine as the most pressing needs and challenges for future jobs in light of changing technologies?*

Goal: *Understanding educational priorities as related to what we have found through our literature review (potential green jobs for New Lebanon).*

For educators:

Educational Changes:

1. Based on changing technologies (renewable energy, EV), how has your institution responded or how is your institution positioned to respond to these market demands?
2. What are your institutional priorities in light of these changing technologies?
3. What jobs should educational institutions prepare future generations for?

Program Development:

4. Have you tried to implement programs previously to meet these demands?
5. What was the response/did you receive any pushback?
6. How do you introduce and implement a new program curriculum?

Potential Challenges:

7. What are your concerns/what do you see as potential challenges addressing the demand?
8. What are the most common environmental hazards associated with changing technologies?
9. What is the difference between working in cities vs rural communities?
10. How do you keep students engaged/excited about jobs in the community?

RYCOR

Company: Can you tell us a little bit about your company?

1. How do you ensure success?
2. How have you seen green jobs transform in the last five years?
3. How do you find most of your clientele, and how did they find out about you?
4. What are your expectations for educational institutions? Do you rely on the training they provide, or is it mainly “in-house” training?
5. What do you think the benefits of changing technologies are?
6. What other jobs correlate to the work you are doing?

Heat pumps:

1. What are the essential skills necessary to install heat pumps?
2. Besides heat pump installers, what other types of jobs are involved in your process? (Energy auditors, etc.)
3. Why did you choose to explicitly install heat pumps instead of traditional furnaces?
4. Is there a learning curve with your clientele, or are they proactive in wanting a heat pump over traditional means?
5. How do you see heat pumps in the next 5 years?

Employees:

1. What kind of employees are you looking for and what kind of education/skills/training do you expect they have?

2. Are there any job descriptions?
3. Why did you decide to go into the field of renewable energy?

Appendix B: Sample Curriculum

Many towns and schools across the U.S. have already implemented educational programs that focus on preparing youth to combat environmental degradation and enhance environmental sustainability. By analyzing these established training pathways, four main themes emerge as hallmarks for an effective program. First, the program must be oriented locally. Second, the program must green its current curriculum and training. Third, the program must establish a partnership between local high schools, vocational schools, and colleges. Lastly, the program must partner with sustainable businesses and organizations. Together, these themes will help shape an effective curriculum for other regions and schools.

The predominant theme in each of the programs reviewed was a focus on local application. Though this emphasis is partially due to the rural struggle in an age of urbanization, it is also an application of sustainability (Gregson, 2010). In his paper on green career and technical education (CTE), James Gregson discusses the importance of curriculum being tailored by a local advisory committee (not an “off-the-shelf curriculum”) to the local place as it pertains to sustainability (Gregson, 2010). In Malta, NY, the Clean Technologies and Sustainable Industries Early College High School Program (ECHS) developed four training pathways “to seamlessly transition into key industry sectors with [their] economic region” (*Clean Tech ECHS Program Guide*, n.d.). The Community College of Philadelphia (CCP), partnered with the Energy Coordination Agency (ECA), developed the Knight Green Jobs Training Center to implement “an educational continuum for Energy Conservation and Building Science” to develop new career fields needed in the region (*Green Jobs Training Center*, n.d.). These programs, as well as others, determined the present and future local needs and ensured they trained their future workforce to meet the requirements. This is further enforced through the Aspen Institute’s call for local policy makers to “adapt and build resilience by preparing for potential local climate impacts” (*Climate Action Plan 2021*, n.d.).

The second theme is the greening of current curriculum and training. Green job training that is modernizing traditional skills, such as green building and renewable energy, is growing in popularity as people realize the inevitable shift to a greener economy (Gregson, 2010). It is not enough to introduce new training, but the old system must also be revitalized to meet the demands of the green economy. Hudson Valley Community College (HVCC) – a partner of ECHS mentioned above – published their coursework in the Clean Technologies and Sustainable Industries program. Each of their seven programs feature the required coursework in high school and college, specific jobs within the field, and local companies requiring those positions (*College Pathway Coursework and Careers*, n.d.). The college introduced new fields of study such as Clean Energy, but also revamped their curriculum for Entrepreneurship and Community Health to meet the growing demand for sustainability in the workforce (*College Pathway Coursework and Careers*, n.d.). Additionally, the Knight Green Jobs Training Center reconfigured three of their technical programs to include coursework in Energy Conservation

from the Community College of Pennsylvania (*Green Jobs Training Center*, n.d.). These two examples establish the foundation for the next theme.

Each program integrated the educational systems that serve the surrounding area – high schools, vocational school, and community colleges. As can be seen above, the Community College of Philadelphia and the Hudson Valley Community College are two excellent examples of developing educational curriculum to combat environmental threats and enhance new career options (*Green Jobs Training Center*, n.d.) (*Clean Tech ECHS Program Guide*, n.d.). Other examples include the Salem County Career and Technical High School in New Jersey which affords students the opportunity to become “green energy apprentices” or Central Carolina Community College in North Carolina which offers courses in renewable energy and green building (Gregson, 2010). It is important to frame the narrative of sustainability early in education, reinforce it, and provide opportunities to act upon it. Each of these schools are implementing such practices.

Lastly, an effective program will partner with businesses and organizations that are committed to sustainability or trying to transition to sustainable practices. As outlined in the Aspen Institute’s *K12 Climate Action Plan*, businesses are a critical piece to “advance climate action” as they “recognize the opportunity to support and invest in schools taking climate action” (*Climate Action Plan 2021*, n.d.). Within the Clean Technologies and Sustainable Industries program of HVCC and ECHS, their core curriculum involves “Supporting Companies,” which are often local businesses that offer opportunities for practical application of what students are learning (*Clean Tech ECHS Program Guide*, n.d.). Businesses recognize the economic trends and have a vested interest in their future workforce. Therefore, their involvement is critical for the education and experience they provide to youth within these programs.

The following represents sample curriculums, certifications, or courses for each of the designated jobs found in the literature review:

Heat Pump Technician

Training for a heat pump technician is often only an additional school for those in the HVAC business. Northwestern Tech, a vocational school located in Michigan, has a course in Heat Pumps that requires 80 hours of training over the course of five weeks. Before students can take the class, they must have foundational knowledge in electrical theory and air conditioning. The course description is as follows: “This course focuses primarily on the operation of air-to-air heat pumps. The student will be taught the function of the heat pump, refrigerant flow, electrical, and mechanical operation of the heat pump. Detail will focus on system operation, mechanical operation, 410-A Certification, and electrical components of air-to-air heat pumps (Northwestern).”

<https://northwesterntech.edu/program/heat-pumps/>

Electrical Vehicle Technician/Repairer

According to the Department of Energy, a direct path to becoming an EV repairer, a charging station technician, or any of the related fields that are emerging as a result of the transition to EV does not yet exist. However, the Department of Energy does identify that it requires a foundational knowledge in electrical theory and familiarity with the different types of vehicles in the market (Department of Energy).

<https://www.energy.gov/articles/energy-jobs-electric-vehicle-charging-station-installer>

Wind Turbine Service Technicians

A wind turbine service technician may opt for training either on the job, pursue an associates in renewable energy systems, or take a specific certification system like the one offered by Clinton Community College in Plattsburgh New York:

Discipline	Credit Hours	Course Title	Scheduled	Credits Earned
Math (4 Credits)	4	MAT 105–Technical Mathematics I		
Health & P.E. Activity (1 Credit)	1	HPE 124–Career Fitness or HPE 105–Physical Fitness		
Computer Science (3 Credits)	3	CSC 230–Introduction to Networking		
Electrical/Electronics Technology (7 Credits)	4	ETE 101–Electrical Circuits I		
	3	ETE 202–Industrial Electricity		
Mechanical Technology (6 Credits)	1	MEC 102– Blueprint Reading & Technical Schematics		
	3	MEC 206–Principles of Fluid Power Systems		
	2	MEC 209–Industrial Health & Safety		
Wind Energy & Turbine Technology (13 Credits)	3	WTT 101–Intro. to Wind Energy & Wind Turbine Technology		
	3	WTT 102–Wind Turbine Mechanical Systems		
	1	WTT 103–Safety at Height and Rescue		
	3	WTT 201–Power Generation and Delivery		
	3	WTT 202–Wind Turbine Troubleshooting		
Total	34			

Clinton Community College Wind Turbine Service Technician Certificate

<https://www.clinton.edu/degrees-and-programs/pdf/Degree-Requirement-Worksheets/CurrentWorksheets/Wind%20Turbine%20Service%20Tech%20Certificate%20FA21-SU22%20FLAT.pdf>

Solar Photovoltaic Installer

New York City College of Technology offers the Solar Photovoltaic Installation Professional certification, which is part of the North American Board of Certified Energy Practitioners (NABCEP) Board Certifications. The following link provides an in-depth explanation of their training program:

<https://www.citytechce.org/images/companies/1/NABCEP%20Solar%20PV%20Training%20at%20City%20Tech%20.pdf?1570462243915>

Hydroelectric Technician

In order to become familiar with hydroelectric power and the surrounding technology, the University of Arizona offers an online certification program including the following courses (1.5-4 course hours per course):

- 2701 The Hydro-Electric Role in the Power System
- 2702 Hydro Power Stations
- 2703 Water Management
- 2704 Hydro Turbines
- 2705 Turbine Monitoring and Control
- 2706 The Hydro Generator
- 2707 Generator Monitoring and Control
- 2708 Hydro Plant Auxiliaries
- 2709 Operation of Electrical Equipment
- 2710 Hydro Plant Operation and Maintenance

Though certification is not required within this field, this program gives an idea of what knowledge may be helpful to future work.

<https://ce.arizona.edu/classes/hydro-electric-power-plant-operations-certificate>

Green Construction

The U.S. BLS produced a report in 2011 that outlined careers in the field of Green Construction (<https://www.bls.gov/green/construction/construction.pdf>). Though there is no specific Green Building program, this report outlines sustainable approaches to construction for each role in the process of construction.

Wastewater Specialist

In NYS, all operations of wastewater treatment plants are required to be conducted by a certified operator through the New York Water Environment Association (NYWEA). The following website outlines the specific criteria for each level of certification:

<https://www.nywea.org/SitePages/Operator-Certification/Certification/default.aspx>

An example is the following document:

Grade 1 & 1A Wastewater Treatment Plant (WWTP) Operator Certification

Your certification exam application must be received with a \$150 payment to NYWEA and contain all of the following:

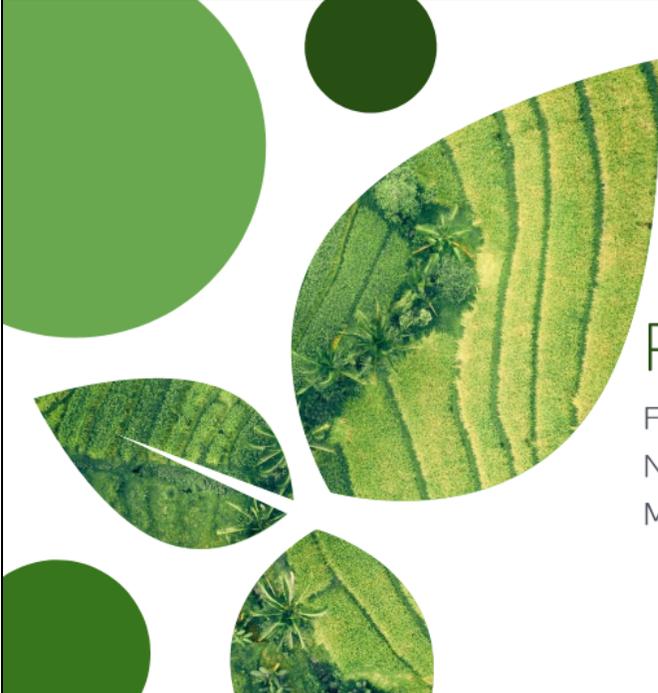
1. A completed and signed *Application for Approval of Qualifications for WWTP Operator*.
2. A completed and signed (you and your supervisor) *WWTP Operator Statement of Experience*
 - a. You must have at least 6 months of approved hands on operations experience (see explanation below) to qualify for Grade 1 or 1A certification.
 - i. Grade 1 - at any WWTP with a SPDES discharge permit
 - ii. Grade 1A - at any Activated Sludge WWTP with a SPDES discharge permit
 - b. Hands on Experience defined
 - i. Full Time Operator - Minimum 50% hands on experience in all processes listed on the Statement of Experience Form
 - ii. Non-Operator Title -520 hours in all processes listed on the Statement of Experience Form. These hours do not include maintenance, supervision, Lab work (unless analysis is used by operator to make process adjustments), paperwork, building and grounds upkeep, etc. These hours can be listed in a spreadsheet, designated in the timesheet for operator experience, or provided in a different format approved by the operator certification representative.
3. A copy of your high school diploma, GED, or college diploma.
4. A copy of your required certification training course completions:
 - a. Basic Operations or Home Study course. The home study is only accepted for a Grade 1 or 1A certificate. The home study options include:
 - i. Sacramento Operation of Wastewater Treatment Plants Volume 1 and 2 or
 - ii. Sacramento Small Wastewater Operation and Maintenance, Volume 1 and 2 or
 - iii. Florida Wastewater Treatment Plant Operations
 - b. Grade A Designated Licenses - Activated Sludge course
5. Mail the complete certification packet, **along with \$150 payment to NYWEA**, to:

**NYWEA
525 Plum Street, Suite 102
Syracuse, NY 13204**

Additional information on certification can be found in the Certification Manual posted on the NYWEA website at www.nywea.org. A schedule of Pre-Certification courses is also available on the NYWEA website. If you have any questions, call 315-422-7811 ext 4.

Remaining Green Jobs

For each of the remaining green jobs listed previously in the report - Hydrogen Cell Plant Engineer, Energy Analyst, Renewable Energy Specialist, and Sustainability Specialist - advanced degrees are required. There is no specific pathway to any of these careers; however, a strong foundation in math, science, and technology will be critical to building the skills needed.



Planting a Better Future

Future Jobs Assessment for
New Lebanon, New York
May 2022

1

Meet the Team



 <p>Kate Boardman COMMUNICATIONS Environmental Policy Boulder, CO</p>	 <p>James Bond COORDINATOR/LOGISTICS Public & Nonprofit Management Scranton, PA</p>	 <p>Guanqi Su RECORDER/EDITOR Economic & Financial Policy Beijing, China</p>	 <p>Hubo Wang EDITOR/DESIGNER Economic & Financial Policy Beijing, China</p>
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Cornell Brooks Public Policy





Special Thanks



Rebecca Brenner

The Cornell Consulting Team would like to thank our faculty advisor for her guidance and support throughout this project. Any success that the team has achieved is due to the foundation that she set. Thank you.



Cornell Brooks Public Policy



Agenda

- Introductions
- The Project
- Literature Review
- Data & methodologies
- Findings
- Recommendations
- Questions
- References



Overview

OUR CLIENT:
New Lebanon Climate Smart Communities Task Force

OUR GOAL:
Identify the opportunity for local jobs in new sectors

5



Climate Smart Communities

Goals:

- Reduce greenhouse gas emissions
- Adapt to the effects of climate change
- Thrive in a green economy



NEW YORK STATE OF OPPORTUNITY. | Climate Smart Communities

6



New Lebanon CSC Task Force

- ← Climate Smart Community Pledge - April 2020
- ← Bronze Certification - March 2021
- ← Road to Silver

7



PE8 Action: Green Jobs Training

- ← Determine appropriate training for local economy
- ← Develop training program
- ← Establish green skill training program or course

8



Scope of Research

- Identification of key **STAKEHOLDERS** in New Lebanon and the surrounding area
- Identification of the **STRENGTHS, WEAKNESSES, OPPORTUNITIES, and CHALLENGES (SWOC)** of potential new jobs in New Lebanon
- Identification of **EDUCATIONAL PRIORITIES** as related to the literature review findings

9



Methods

Stakeholder Analysis
Understanding the role and impact of stakeholders based on their power and interest in the issue

SWOC Analysis
Identifying and framing strategic issues by understanding the context

Interviews
Providing empirical knowledge of situation based on first-hand experience

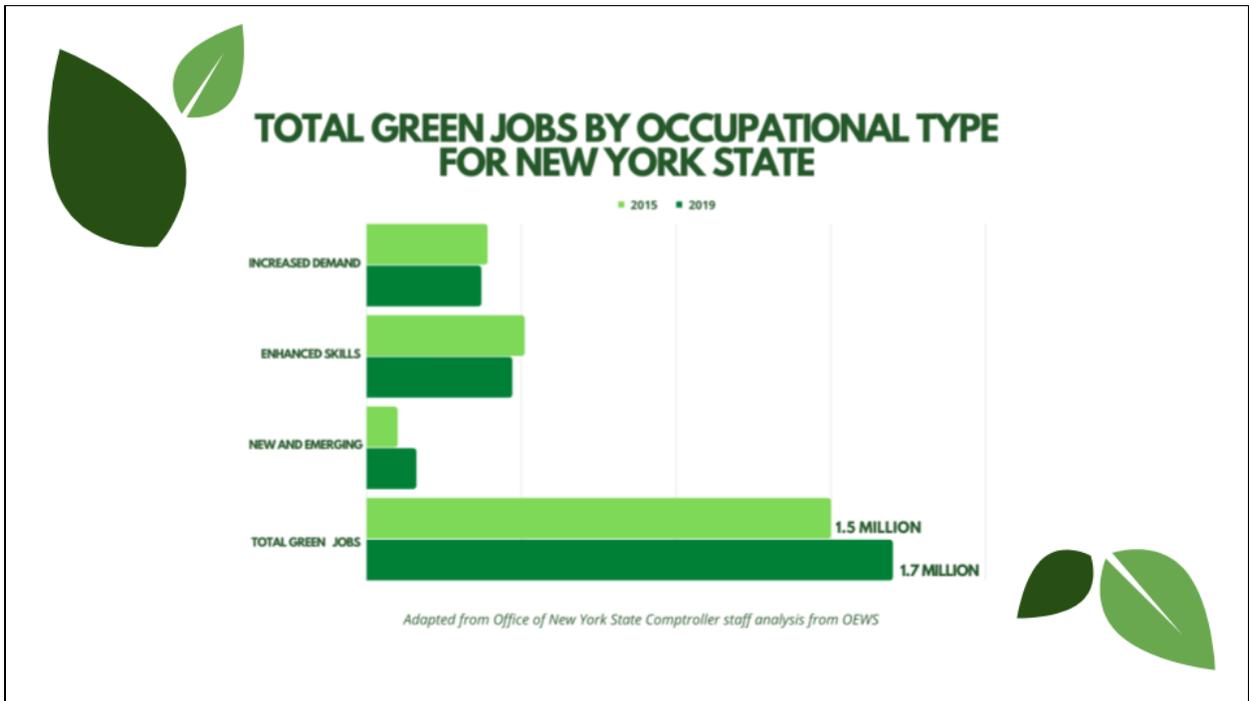
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Research Questions and Literature

- What are green jobs?
- What type of training is necessary for green jobs?
- What jobs are relevant for rural communities like New Lebanon?
- Definition of green jobs
- Effective training programs and pathways
- New York State projections

11





Interviews

Goals

- Why are green jobs essential?
- What green jobs are feasible for a rural town like New Lebanon, NY?
- What are the socio-economic impacts of implementing green jobs into the economy?
- What examples of green jobs training exist in other areas and institutions?



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Takeaways from Interviews

- Education is key
- Promote different paths of education
 - I.e. vocational education
- Understand the needs of the community
- Small steps make lasting impacts

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	HEAT PUMPS TECHNICIAN	ELECTRIC VEHICLE (EV) REPAIRER	WIND TURBINE SERVICE TECHNICIAN	SOLAR PHOTOVOLTAIC INSTALLER	HYDROELECTRIC TECHNICIAN	GREEN CONSTRUCTION LABORER
Duty	Install, maintain and repair HVAC /heat pumps	Maintain and repair EVs with computerized shop equipment as well as traditional hand tools	Inspect turbines and provide regular maintenance	Attach the panels to the roof of the buildings Repair or replace damaged components of the solar power system	Monitor and control activities associated with hydropower generation Perform equipment maintenance and repair as necessary	Similar duties to conventional construction projects, but with focus on environmental sustainability
Credential	Short programs with certificate 2-year programs with associate degree	Formal education programs: few weeks of on-the-job training, or 2-year associate's degree	No single path Many institutions are beginning to offer certificate/degree programs	No formal training standard for installation Typically, background in construction or electricity	No formal training standard for installation Typically, need high school diploma or equivalent combined with on-the-job training	No specific education or training requirements Some receive formal technical and on-the-job training
Salary Range	\$34,320 to \$78,210	\$47,586 to \$65,623	\$46,420 to \$77,810	\$36,320 to \$72,080	\$31,900 to \$77,450	\$49,500 to \$56,999

	WASTEWATER SPECIALIST	HYDROGEN CELL PLANT ENGINEER	ENERGY ANALYST	RENEWABLE ENERGY SPECIALIST	SUSTAINABILITY SPECIALIST
Duty	Periodic maintenance and checks on equipment and systems, record readings, and test results	Provide technical consultation or direction related to the development or production of fuel cell systems	Measure energy efficiency, analyze data on energy use, develop an energy model for buildings, recommend improvements, and technical support	Assess studies on emerging technologies, understand environmental impacts of energy production, and transfer understanding of practical business strategies	Support and implement programs that focus on improving the environment, saving organizational money, and helping local community
Credential	Wastewater Treatment Operator Class I OSHA Safety Certificate	A bachelor's degree in chemical engineering, materials science, mechanical engineering, or electrical engineering	A bachelor's degree in Finance, Economics, Petroleum Engineering, Accounting, Mathematics, Statistics, or Business	A bachelor's degree in Renewable Energy Management Skills associated with communication, critical analysis, math, and science	A bachelor's degree in business or environmental science Strong communication skill is needed
Salary Range	\$53,167 to \$72,922	\$43,930 to \$97,410	\$60,096 to \$78,595	\$71,088 to \$96,762	\$65,270 to \$91,050



Short Term Priorities

- Establish a Strategic Planning Committee
 - Community, Educators, Businesses
- Develop a Sustainable Business Workshop
- Integrate into Local Career Fairs
 - *Climate Carnival July 16th, 2022*

17



Long Term Priorities

- Implement Green Career Pathways
- Invest in Community, Business, & Educator Relationship
- Develop Environmental Education

18



Thank you!
Q+A

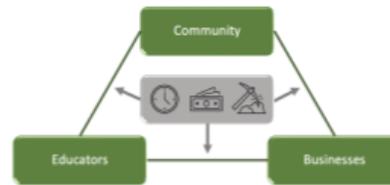


Planting a Better Future

In New Lebanon, NY

Job Opportunity	Earnings
Heat Pumps Technician	\$34,320 to \$78,210
EV Repairer	\$47,586 to \$65,623
Wind Turbine Service Tech	\$46,420 to \$77,810
Solar Photovoltaic Installer	\$ 36,320 to \$72,080
Hydroelectric Technician	\$31,900 to \$77,450
Green Construction Laborer	\$49,500 to \$56,999
Wastewater Specialist	\$53,167 to \$72,922
Hydrogen Cell Engineer	\$43,930 to \$97,410
Energy Analyst	\$60,096 to \$78,595
Renewable Energy Specialist	\$71,088 to \$96,762
Sustainability Specialist	\$65,270 to \$91,050

It is critical to invest time, money, and resources into the relationship between the community, educators, and local businesses to ensure that the youth are prepared for the future demands of the workforce.



Short Term Priorities

- Establish a Strategic Planning Committee
 - Community Educators, Businesses
- Develop a Sustainable Business Workshop
- Integrate into Local Career Fairs
 - Climate Carnival July 16th, 2022

Long Term Priorities

- Implement Green Career Pathways
- Invest in Community, Business, & Educator Relationship
- Develop Environmental Education



Cornell University

Kate Boardman James Bond Guanqi Su Hubo Wang

Appendix E: Presentation Poster

Planting a Better Future in New Lebanon, NY

Potential Green Jobs in New Lebanon

DUTY	CREDENTIAL	SALARY RANGE
HEAT PUMPS TECHNICIAN Install, maintain, and repair HVAC /heat pumps	Short programs with certificate 2-year programs with an associate degree	\$34,320 to \$78,210
EV REPAIRER Maintain and repair EVs with computerized shop equipment as well as traditional hand tools	Formal education programs from a few weeks of on-the-job training to a 2-year associate degree	\$47,586 to \$65,623
WIND TURBINE SERVICE TECHNICIAN Inspect turbines and provide regular maintenance	No single path but many institutions are beginning to offer certificates/degree programs now	\$46,420 to \$77,810
SOLAR PHOTOVOLTAIC INSTALLER Attach the panels to the roof of the buildings. Repair or replace damaged components of the solar power system	No formal training standard for installation. Typically have a background in construction or as electricians	\$ 36,320 to \$72,080
HYDROELECTRIC TECHNICIAN Monitor and control activities associated with hydropower generation. Perform equipment maintenance and repair as necessary	No formal training standard for installation. Typically need a high school diploma or equivalent combined with on-the-job training	\$31,900 to \$77,450
GREEN CONSTRUCTION LABORER The duties of construction laborers on a green building site are similar to their duties on other projects but in a more environmentally conscious fashion	No specific education or training requirements. Some may receive formal technical and on-the-job training	\$49,500 to \$56,999
WASTEWATER SPECIALIST Periodic maintenance and checks on equipment and systems, record readings and test results.	Wastewater Treatment Operator Class I OSHA Safety Certificate	\$53,167 to \$72,922
HYDROGEN CELL PLANT ENGINEER Provide technical consultation or direction related to the development or production of fuel cell systems	A bachelor's degree in chemical engineering, materials science, mechanical engineering, or electrical engineering	\$43,930 to \$97,410
ENERGY ANALYST Measure energy efficiency, analyze data on energy use, develop an energy model for buildings, recommend improvements, and technical support	A Bachelor's degree in Finance, Economics, Petroleum Engineering, Accounting, Mathematics, Statistics, or Business	\$60,096 to \$78,595
RENEWABLE ENERGY SPECIALIST Assess studies on emerging technologies, understand environmental impacts of energy production, and transfer their understanding to practical business strategies	A bachelor's degree in Renewable Energy Management, also skills associated with communication, critical analysis, math, and science	\$71,088 to \$96,762
SUSTAINABILITY SPECIALIST Support and implement programs that focus on improving the environment, saving money for their employer, and helping their local community	A bachelor's degree in business or environmental science. Strong communication skill is also needed	\$65,270 to \$91,050



NEW YORK
Climate Smart Communities
Certified Business
New Lebanon

Cornell Consulting



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Recommendations

Short Term:

Establish a Strategic Planning Committee

The Climate Smart Communities Task Force should seek to continue or begin conversations with relevant players and create a dedicated group of decision makers to commit to strategic planning.



Develop a Sustainable Business Workshop

The Climate Smart Communities Task Force should develop a workshop where relevant players can discuss their needs and interests in terms of green jobs in New Lebanon. The task force should play the role as the intermediary and identify the common interest among attendants.



Integrate into Local Career Fairs

The Climate Smart Communities Task Force should involve themselves in the next local career fair(s). Being a part of this event, the task force will have more opportunities to get in touch with green recruits and potential green job seekers from the community.



Long Term:

Implement Green Careers Pathway

The Climate Smart Communities Task Force should implement a pathway for green careers. This pathway will train young people in New Lebanon to enter the workforce within the emerging economy.



Invest in Community, Business, and Educator Relationship

The Climate Smart Communities Task Force should continue and actively cultivate relationships between community members, businesses, and educators. Educators' role is essential in changing this mindset, and educating the future generations. Businesses and schools should frame education that directly connects to sustainability.



Develop Environmental Education

The Climate Smart Communities Task Force should consider environmental education as a long-term, recurring goal. It can increase awareness, involve residents, and help resolve environmental challenges, nurture sustainable habits, and educate the younger generation about important environmental knowledge.

