



# A Strategic Approach to Workforce Development

Office of Strategic Workforce Development  
Year One Progress Report

April 2023



Empire State  
Development



Office of Strategic  
Workforce Development



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# Letter from the Commissioner



Empire State  
Development

Over this past year, Empire State Development has made real and measurable progress implementing Governor Hochul's joint economic and workforce development strategies and addressing what is most important to both New York's businesses and the people who call the Empire State their home. One defining theme of our work is ensuring that we are training today's workforce for tomorrow's jobs and making that training accessible and equitable across the State.

To that end, in 2022 Governor Hochul announced the Office of Strategic Workforce Development (OSWD), housed within ESD, to align job training with the needs of employers, especially those in growth industries. This new office represents a shift in workforce development policy to better meet the needs of employers and create career opportunities for all New Yorkers, particularly those from historically marginalized communities. We are taking a holistic approach by working with other State agencies and collaborating with workforce training providers to support industry-driven programs that provide in-demand skills and direct job placement.

The office has made significant progress since its announcement. In October of 2022, it launched a \$150 million grant program to seed new efforts and scale up what works, and has already awarded over \$13 million to 22 innovative training programs. Not only is the office working quickly to serve the needs of New York's workforce and industries; it is also leading interagency collaboration around key initiatives, such as the adoption of uniform performance measures to better align workforce strategy across the State and ensure we have the information required to optimize programs and invest in success.

Last year, Governor Hochul and ESD spearheaded the successful effort to attract Micron Technology Inc. to Central New York in what became the largest economic development project in New York State's history. This transformative project will not only bring 9,000 direct Micron jobs to Upstate New York, but it will also require tens of thousands of trained workers in construction and many other places and sectors as Micron ramps up and supply chain partners and other industries work to capitalize on Micron's mega-fab. The Office of Strategic Workforce Development is ready to respond and is already working with other State agencies, educational institutions, economic development partners, and union trades to capitalize on this historic opportunity.

Our continued success in attracting high-growth industries and initiatives across industry sectors depends on a trained and ready workforce, and the Office of Strategic Workforce Development is working collaboratively to support industry-driven programs that provide in-demand skills and direct job placement for generations to come.

Sincerely,

**Hope Knight**

President, CEO and Commissioner  
Empire State Development

# Executive Summary

Last year, as New York began to emerge from the global pandemic and recover from its impact on our economy and the labor force, State leaders identified the need to have a more intentional and strategic focus on workforce development as an instrument of economic development and expanded economic opportunity. As a result, Governor Kathy Hochul announced an **historic investment of \$350 million for workforce development** and the **creation of the Office of Strategic Workforce Development (OSWD)** within New York State's economic development agency, Empire State Development (ESD). This investment represents a decisive shift toward a State workforce development strategy that is laser-focused on connecting New Yorkers to quality, in-demand jobs in the state's fastest-growing industries.

## OSWD's Strategic Approach




As a critical link between workforce development and economic development, OSWD's work is guided by its mission to align the State's workforce efforts with the needs and priorities of employers and workers to ensure that New Yorkers have the skills needed to power our economic growth and improve their livelihoods. Core to that work is a recognition that past investment in our economy has not benefited all New Yorkers equitably. That is why OSWD-funded programs focus on good jobs and providing targeted supports that will enable more New Yorkers to access promising career opportunities.

In conjunction, OSWD **established seven statewide target industries** aligned with ESD's strategic business attraction efforts to inform its work across programs, with preference given to grant applicants supporting hiring in these industries and regional planning focused on their needs. These seven industries have played a major role in driving New York State's economic growth over the past decade. Intentional workforce investment in these industries will in turn ensure that future growth and prosperity is shared by all New Yorkers.

Statewide Target Industry	Description
Advanced Manufacturing and Materials	R&D-driven manufacturing and processing of raw materials
Biotech and Life Sciences	Research, development, and manufacturing of health care products and equipment and pharmaceuticals
Cleantech and Renewable Energy	Generation, transmission, and storage of clean energy; manufacturing of clean energy generation components; building and infrastructure upgrades
Construction	Construction of buildings, civil engineering, and specialty trades
Electronics and Optics, Photonics, and Imaging (OPI)	Computer, electronics, and chemical manufacturing industries (including semiconductor manufacturing) and related professional services
Film and TV Production and Post-Production	Motion picture, television, sound recording, and other related industries
Software and Digital Media	Software development, data processing, information services, and telecommunication

## Progress to Date and Year Ahead

Since formally launching in October, OSWD has hit the ground running and has begun to lay the foundation for the State’s new approach to workforce development. In the coming year, OSWD will continue to make strides across three core functions that are designed to drive tangible impact, share insights, and improve data and collaboration across the workforce system.

Core Functions	Progress To Date	Year Ahead
 <p><b>Drive innovative, high-impact workforce programming</b></p> <p><i>Launch and scale effective and innovative programs and leverage program data to inform future programs and partnerships.</i></p>	<ul style="list-style-type: none"> <li>Launched a \$150 million grant program and awarded \$13 million to 22 innovative training programs, which will train more than 6,600 New Yorkers for more than 200 business and industry partners, leverage more than \$10 million in matching funds, and offer robust wraparound supports.</li> <li>Established metrics for grants funded by the Governor’s \$350 million investment to track grantee training outcomes, which include training enrollment and completion, job placement rates, and earning outcomes.</li> </ul>	<ul style="list-style-type: none"> <li>Fund additional innovative workforce training models and capital improvements through the \$150 million grant program.</li> <li>Establish a “resource hub” of best practices and guidelines for training providers, employers, and other workforce stakeholders.</li> <li>Coordinate with other State agencies to collect program data and begin to measure success across programs.</li> </ul>
 <p><b>Establish strategic priorities for workforce investment</b></p> <p><i>Prioritize workforce investment to align the needs of workers and employers and ensure programs serve New Yorkers that are most in need.</i></p>	<ul style="list-style-type: none"> <li>Identified seven statewide high-growth target industries representing New York’s most critical growth sectors and additional regional priority sectors to guide workforce investment efforts.</li> </ul>	<ul style="list-style-type: none"> <li>Publish insights on statewide target industries and focus populations to guide high-impact workforce program design.</li> <li>Continue to engage industry on talent needs and to support training programs.</li> </ul>
 <p><b>Connect the dots across regions, industries, and agencies</b></p> <p><i>Improve coordination and facilitate collective learning and agenda-setting within the workforce development ecosystem.</i></p>	<ul style="list-style-type: none"> <li>Led an interagency working group to coordinate workforce programming, including metrics tracking for the Governor’s \$350 million workforce investment.</li> <li>Supported regional workforce planning, including studies led by the State’s 10 Regional Economic Development Councils (REDCs).</li> <li>Began coordination with the Governor’s Office of Semiconductor Expansion, Management, and Integration (GO-SEMI) to align workforce development efforts across multiple State agencies for the semiconductor workforce.</li> </ul>	<ul style="list-style-type: none"> <li>Continue to work across State agencies to coordinate workforce efforts for GO-SEMI and similar initiatives.</li> <li>Launch a series of regional convenings to ensure alignment with statewide workforce priorities and to discuss talent gaps, successful programs, and recommendations for statewide action.</li> <li>Support industry outreach by ESD and other agencies, bringing a workforce development lens and best practices.</li> </ul>

The success of the Governor’s historic investment and of this Office depends on partnership and collaboration from numerous parties – employers and industries, workers and unions, workforce development providers and advocates, academic and philanthropic institutions, regional partners, and government agencies. **OSWD is committed to partnering with all stakeholders to advance its mission and have a transformative impact on New York State’s workforce ecosystem.**



# Introduction:

## A Critical Moment for Workforce Development in New York State

**The health of New York State’s economy depends on the vitality of its workforce, and today the state is at a critical inflection point.** Major economic shifts are impacting the jobs available to New Yorkers. This includes New York’s growing global leadership in technology, life sciences, film, optics, and the semiconductor industry; generational federal and state investments in clean energy, housing, broadband, and other infrastructure; the comeback in domestic manufacturing underscoring the importance of reliable supply chains; and the changing nature of work amid rapid technological shifts and the lingering effects of a global pandemic.

In 2022, recognizing the need for a strategic approach to workforce investment that is aligned with the evolving needs of employers, Governor Hochul created the **Office of Strategic Workforce Development (OSWD) within Empire State Development (ESD)**, New York’s economic development arm.<sup>i</sup> At the same time, the Governor announced an historic investment of \$350 million to better align the State’s workforce development programs and practices to the needs of industry and address talent gaps that hold back our economy.<sup>ii</sup> OSWD is administering \$150 million of this commitment, including two grant programs – the Pay for Performance and Workforce Development Capital Grant Programs – that support employer-driven training that place New Yorkers in quality jobs and reward innovative approaches to reducing barriers to participation for historically marginalized communities. (For more information

about programs funded through the Governor’s \$350 million allocation, including OSWD’s grant programs, [see Appendix A.](#))

Earlier this year, Governor Hochul announced the creation of the Governor’s Office of Semiconductor Expansion, Management, and Integration (GO-SEMI), led by ESD and supported by experts from numerous State agencies to coordinate and centralize efforts to implement the Micron project and develop and advance policies for the semiconductor industry, including the coordination of workforce development and community investments. GO-SEMI and OSWD have been working in coordination with other State agencies to support the expanded workforce needs of the semiconductor industry in Central New York and across the state.

**This historic investment and focus recognizes that workforce development is critical to New York State’s economic success in several fundamental ways:**

- **Boosting global competitiveness:** Today, a top consideration for businesses deciding where to locate or expand is the presence of a skilled workforce and local partners to train new talent quickly. This is especially important as New York competes with other states and countries to attract tech, life sciences, semiconductor, cleantech, and other fast-growing employers that will create hundreds of thousands of jobs in the coming decades.



Figure 1: Governor Hochul, Commissioner Knight, and the Micron and ESD teams celebrate Micron’s plan to invest in Upstate New York.

In October 2022, Micron announced that it will invest \$100 billion to develop the largest semiconductor fabrication facility in the United States in the Syracuse metro area, helping to create 50,000 new permanent and more than 5,000 prevailing wage construction jobs over the next 30 years. Over 9,000 of those will be employed by Micron, while others will be generated to support the project. The announcement was accompanied by the signing of a Community Investment Framework with ESD that included \$100 million in State funding for workforce and community development to ensure that workers in Onondaga County are equipped with the skills needed to benefit from newly created jobs. This historic public-private partnership demonstrates the importance of talent development to company location decisions and provides a roadmap for programs that will prepare New Yorkers for the next generation of quality jobs.<sup>iii</sup>

- **Supporting business growth:** Across the state, employers report challenges to filling job openings because of a lack of trained workers. Early retirements and career changes during the pandemic have contributed to hiring challenges, which are expected to worsen as the nearly 2.5 million working New Yorkers who are 55 and older (25% of all employed workers), who make up a high share of managers and highly skilled workers, age out of the workforce.<sup>lv</sup> Other factors that impact hiring challenges include skill gaps, uncompetitive wages and benefits, and outdated perceptions about the nature of work in sectors like manufacturing.

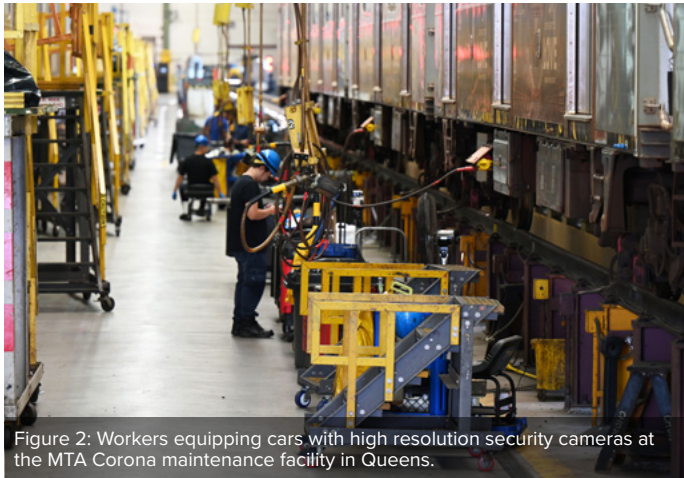


Figure 2: Workers equipping cars with high resolution security cameras at the MTA Corona maintenance facility in Queens.

- **Making the most of New York State’s talent:** While New York’s unemployment rate is returning to pre-pandemic low levels, 40% of working age adults (16 and over) - 6.5 million - still do not participate in the labor force, higher than the national average (38%). Among them, 1.4 million are prime-age adults (ages 25-54).<sup>vi</sup> A complex set of factors prevent people from seeking work – for example, primary caregivers, often women, face challenges to accommodate both familial caregiving and work responsibilities;<sup>vii</sup> workers displaced from declining industries, such as traditional manufacturing, need new skills to find new work; and people with disabilities often face barriers and stigmas when seeking work. As long as so much of New York’s talent remains on the sidelines, New York cannot reach its full economic potential.
- **Growing our economy equitably:** New Yorkers from historically marginalized communities have not benefited equitably from the state’s growth. A disproportionate share of un- and underemployed New Yorkers are women, people of color, and people with disabilities. Many of the state’s fastest growing industries have the lowest representation of women and workers of color, especially in well-paying positions. Workforce programs that are inclusive and lower barriers to participation are key to more equitable and shared prosperity.

A 2022 Federal Reserve Bank of New York Business Leader’s Survey found that **58% of businesses cannot find skilled workers** and the number one reason firms are unable to expand is due to a lack of a qualified labor pool.<sup>v</sup>

## Marginalization in the State’s Workforce

- As of the fall of 2022, the unemployment rate for Black and Latino New Yorkers, 8% and 7% respectively, was significantly higher than for white workers, 3%.<sup>viii</sup>
- During the pandemic, labor force participation for women dropped to 54%, versus 65% for men.<sup>ix</sup>

## Representation Gaps in Growing Sectors

- 78% of workers in **offshore wind** are men.<sup>x</sup>
- 73% of workers in **advanced manufacturing** are white.

- **Adapting to economic change:** Workforce development is important not just to seizing future job opportunities, but also to helping workers adapt to the changing nature of work. Technological and global shifts will continue to redefine jobs across sectors. An increasing share of jobs will require digital skills. The growth of remote work has expanded the range of job opportunities available to people with a range of skills while increasing global competition for previously in-person jobs. Access to ongoing skill development is more critical than ever to ensure all New York workers can sustain their livelihoods in the face of these changes.

Recognizing the critical importance of workforce development to the state’s economic and equity goals, OSWD will leverage ESD’s relationships with employers throughout the state and its standing as a trusted partner to help identify employer needs early and train New Yorkers, especially those who have historically not benefited from economic growth in the sectors where ESD is focusing its efforts, to meet those needs.

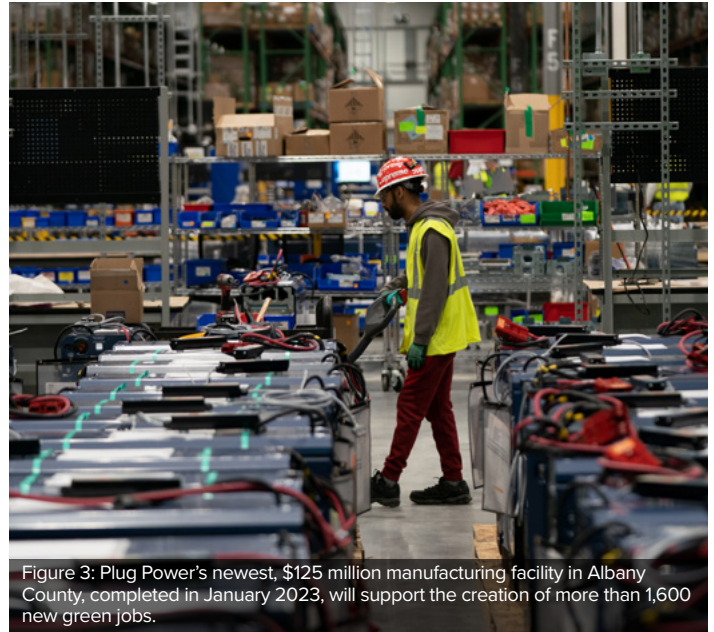


Figure 3: Plug Power’s newest, \$125 million manufacturing facility in Albany County, completed in January 2023, will support the creation of more than 1,600 new green jobs.

## ESD’s Role in Workforce Development

**New York State has a robust workforce development ecosystem,** comprised of thousands of employers and industry organizations, hundreds of colleges and workforce training providers, over a dozen New York State agencies, additional regional and local partners, and a broad network of community-based organizations. ESD has historically supported the state’s workforce efforts by attracting industries, connecting firms with talent, and managing several workforce development programs. With the launch of OSWD, ESD broadens its role to more effectively meet the needs of industry and expand economic opportunity.

ESD brings a unique set of assets to the State’s workforce ecosystem that will contribute to stronger outcomes:

- **Industry knowledge and relationships.** Part of ESD’s mission is to attract and grow quality jobs across the state through strategic partnerships with industry and regional partners. ESD brings deep relationships with the largest and fastest growing industries in the state, which allow ESD to identify skill gaps, prioritize training goals, foster employer-driven workforce partnerships, and create opportunities to connect historically marginalized New Yorkers to quality work.
- **Regional leadership.** ESD supports the State’s 10 Regional Economic Development Councils (REDCs), composed of business, academic, and civic leaders representing all corners of the state, to guide economic and workforce investment. This connection allows ESD to tailor workforce efforts to support regional and statewide needs and to forge regional partnerships to sustain industry-informed workforce efforts.

- **Funding capacity.** As the State’s primary vehicle for economic investment, ESD administers hundreds of millions of dollars annually in grants and incentives, including operating and capital programs. This expertise positions ESD, through OSWD, to disburse \$150 million of the Governor’s \$350 million workforce investment expeditiously and to identify where targeted workforce investment can maximize the benefits of broader industry investments for current New Yorkers.
- **Cross-agency collaboration.** As ESD plays an expanded role in the state’s workforce system, it brings unique expertise at the intersection of economic, community, and workforce development. Similar to the role ESD has played with economic development efforts, it will work closely with other State agencies, local governments, regional stakeholders, and industry partners to gain greater insight around gaps and needs to help align statewide investment.

Together these assets position ESD to advance a new strategic approach to workforce development in support of the broader workforce system.



# OSWD's Strategic Approach

**The creation of OSWD represents a decisive shift in New York State's workforce development strategy** to one that is laser-focused on meeting the talent needs of businesses in the state's highest-opportunity industries, while simultaneously creating new economic opportunities for un- and underemployed and underrepresented New Yorkers. For the first time, ESD has a dedicated team focused on advancing effective workforce development strategies. Employers, State agencies, and regional stakeholders now have a dedicated partner with which to collaborate on workforce development priorities and tracking of outcomes.

OSWD's work is organized around **three core functions**, which together help create a more effective and equitable workforce system:



**Drive innovative, high-impact workforce programming:** Leveraging \$150 million in grant funding, OSWD is partnering with industry, training providers, and community-based organizations to launch, scale, and evaluate programs that deliver the highest possible return on investment for employers and workers – and to share best practices that inform future programs and partnerships across the state. Tracking metrics and outcomes for the Governor's \$350 million workforce development investment will ensure programming is impactful and effective.



**Establish strategic priorities for workforce investment:** OSWD is leveraging data and industry insights to inform and prioritize workforce investment by ESD and other State agencies so that New Yorkers seeking training are well positioned for in-demand jobs, employers' most pressing needs are met, and programs are designed intentionally to serve New Yorkers most in need of support.



**Connect the dots across regions, industries, and agencies:** OSWD is serving as a connector across the State's complex and regionally diverse workforce ecosystem – surfacing insights about workforce needs and ensuring that innovative, successful approaches in one area inform investment elsewhere across the state.

The table on the next page further defines these three core functions by identifying strategic actions OSWD is taking to better align workforce development investment across the state.

## OSWD's Mission and Priorities

### Mission Statement

Align New York State's workforce development efforts with the needs and priorities of today's and tomorrow's employers and workers.

### Key Priorities

To advance this mission, OSWD is focused on these priorities to support a growing economy that is accessible to all:

- **Industry-driven workforce development:** Ensuring that all workforce investments meet real market needs and that training programs focus on in-demand skills and competencies that position New Yorkers for direct job placement and retention.
- **Focus on good jobs in the state's high-growth sectors:** Ensuring that investments lead to direct placement in family-sustaining jobs with good pay, benefits, and career growth opportunities.
- **Expanded opportunity for historically marginalized communities:** Ensuring that workforce opportunities are accessible to New Yorkers who have not benefited equitably from growth, with a focus on improved outreach, wraparound supports, and employer engagement.
- **Improved data collection and tracking:** Ensuring that workforce spending is tied to industry and labor market data and that program outcomes are clearly tracked and inform future investment.

# OSWD Strategic Actions to Support Workforce Development Goals



## Drive innovative, high-impact workforce programming



## Establish strategic priorities for workforce investment



## Connect the dots across regions, industries, and agencies

- **Leverage \$150 million grant program to seed and grow industry-aligned programs**  
The Pay for Performance and Workforce Development Capital grant programs are funding new partnerships among training providers, employers, and community organizations to connect thousands of New Yorkers with jobs in high-growth industries and test innovative models that lower barriers to participation for un- and underemployed, and underrepresented participants.
- **Track and report program metrics**  
All grantees receiving grants as part of the Governor’s \$350 million workforce investment will track and report program outcomes. OSWD will coordinate with agencies to evaluate the success of various program models and partnerships, as well as the impact of wraparound supports and recruitment strategies. OSWD will also elevate successful models to guide future investment.
- **Elevate best practices in program design**  
A key part of supporting innovation is building awareness of models that are already demonstrating success and creating mechanisms for cross-pollination of ideas across regions, workforce agencies, and stakeholders. OSWD will continually collect and disseminate resources that highlight best practices in program design for grantees, employers, and others, including lessons learned from its own grantees.
- **Establish priority statewide industries and occupations**  
Through data analysis and industry engagement, OSWD will establish and regularly update high-growth target industries, occupations, and skills to guide workforce investment and partnerships. These priorities will ensure ESD policies, programs, and funding target the most urgent gaps in the state labor market.
- **Identify focus areas and strategies to address inequity in the state labor force**  
Leveraging data and input from regional stakeholders, OSWD will identify opportunities to broaden economic opportunity through workforce development. This may include identifying growing industries and job titles with low representation among historically marginalized groups, specific populations with high un- or underemployment, and other gaps, as well as strategies and partnerships to respond to these needs.
- **Align regional stakeholders in workforce development**  
OSWD will support GO-SEMI to meet the workforce needs of the burgeoning semiconductor industry. Building off of ongoing analysis of industry and population needs across regions, OSWD will also work with stakeholders in each of the state’s 10 regions to advance employer engagement, strengthen strategic sector partnerships, and workshop effective regional strategies. This will include continued partnership with the state’s 10 REDCs – composed of regional industry, institutional, academic, and community leaders.
- **Engage industry regularly on talent needs and opportunities**  
A successful workforce development system provides workers with skills that industry demands, which cannot happen without engaging industry. OSWD will meet with employers and industry groups both directly and through ESD’s existing partnerships. As these conversations surface needs and partnership opportunities, OSWD will share information across agencies and with training providers.

# Statewide Target Industries

**To guide the State's workforce investment, OSWD established seven high-growth statewide target industries aligned with ESD's strategic business attraction efforts.**

These industries inform OSWD's work across programs, with preference given to grant applicants supporting hiring in these industries and regional planning focused on the needs of these industries.

These seven industries have played an important role in driving New York State's economic growth over the past decade. Together they employ 1.2 million New Yorkers with quality jobs and career pathways, representing 1 in 8 jobs in the state. The seven sectors have grown at three times the rate of the state economy overall. Even more importantly they are projected to continue creating high-quality, accessible jobs for New Yorkers in the years ahead.

The seven target industries are responsible for **1 in 3** New York jobs created over the last decade.

## High-Growth Target Industries for Workforce Investment

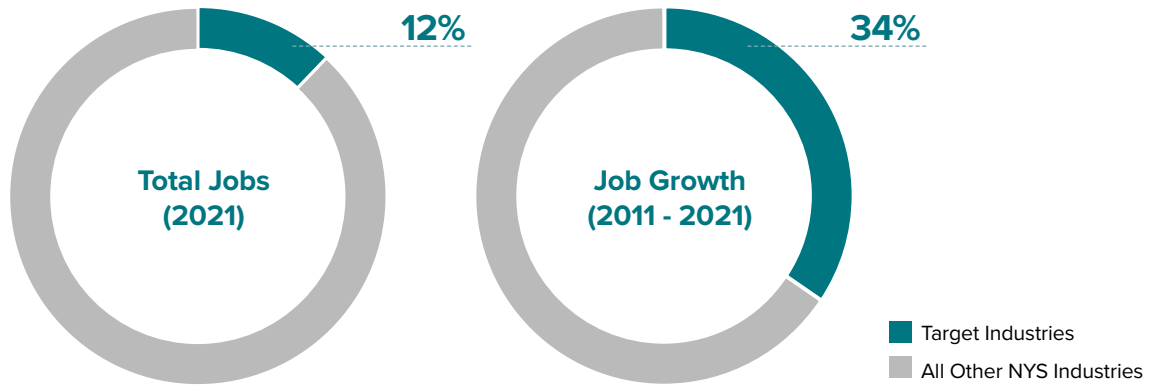
The seven OSWD statewide target industries are:

- **Advanced Manufacturing and Materials:** R&D-driven manufacturing such as the production of electrical equipment, computers, and machinery as well as processing of glass, metals, chemicals, and minerals.
- **Biotech and Life Sciences:** Industries that research, develop, and manufacture health care products and equipment and pharmaceuticals.
- **Cleantech and Renewable Energy:** Industries that generate, transmit, and store clean energy; manufacture the key components for clean energy generation; and retrofit buildings and infrastructure to incorporate modern technology.
- **Construction:** Industries related to the construction of buildings, civil engineering, and specialty trades.
- **Electronics and Optics, Photonics, and Imaging (OPI):** Computer, electronics, and chemical manufacturing industries (including semiconductor manufacturing) as well as related professional services.
- **Film and TV Production and Post-Production:** Motion picture, television, sound recording, and other industries involved in video and audio production and post-production.
- **Software and Digital Media:** Software development, data processing, information services, and telecommunication (including broadband) industries.

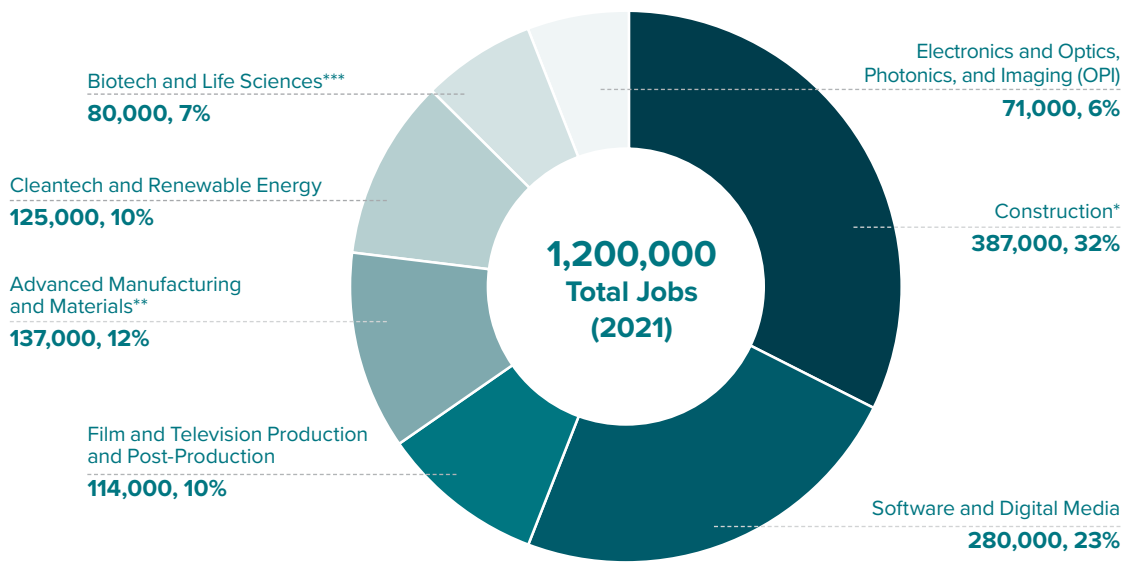
Additional target industries identified by **individual regions** include **agribusiness, finance, logistics, and smart systems.**

# Statewide Target Industries Overview

## Share in Total Jobs and Job Growth



## Total Jobs By Industry



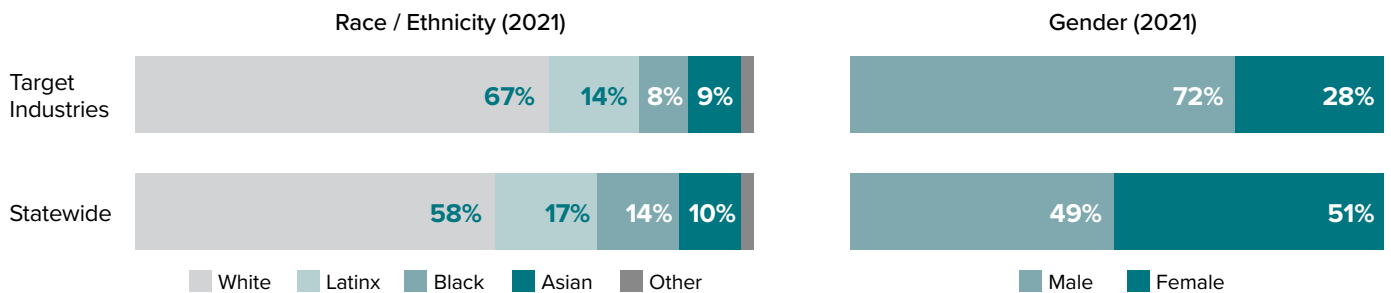
Note:  
 \* Excl. 69,000 jobs that are accounted for in Clean Tech  
 \*\* Excl. 94,000 jobs that are accounted for in Electronics and OPI, Clean Tech, and Biotech  
 \*\*\* Excl. 33,000 jobs that are accounted for in Electronics and OPI

## Median Annual Wages of Accessible Jobs\*

**\$56K** Target Industries vs **\$45K** Statewide

\* Defined as jobs that do not typically require a four-year degree.

## Representation





## Advanced Manufacturing and Materials

Manufacturing once powered New York's economy, from Eastman Kodak in Rochester and General Electric in Schenectady to furniture makers in Jamestown and textile shops in Troy. The decline of domestic manufacturing cost New York tens of thousands of jobs and cost many families their livelihoods over recent decades. But New York has not given up on manufacturing and its potential to provide good, stable jobs – in fact, those jobs are projected to grow again for the first time in decades.

Thanks to targeted investment in R&D, production facilities, and talent development, New York has rebuilt a foundation in advanced manufacturing and materials production – from solar panels and semiconductors to medical devices and modern machinery. New York's advanced manufacturing sector is tied closely to the momentum of other priority sectors – including biotech, cleantech, electronics, and OPI. It has also seen growth in sectors such as machinery production and metal, chemical, and mineral processing. These industries are especially critical today as the pandemic demonstrated the importance of maintaining and strengthening local supply chains.

**231,000\***  
total jobs today

**71%**  
of jobs do not typically  
require a four-year degree



Figure 4: A Sheetmetal Apprentice practices welding skills provided through the Elmira LU 119 Union during DOL's Apprenticeship Month.

## Workforce Opportunities and Challenges in Advanced Manufacturing and Materials

- Employers cite hiring challenges for plant operations, modern fabrication, and assembly as well as project management and support occupations.
- Only 30% of workers in the sector are women, and only 27% identify as Black, Indigenous, and People of Color (BIPOC) – representation gaps that must be addressed to support equitable growth.

\*Total jobs in this category include 94,000 jobs that are also counted in the biotech, cleantech, and electronics and OPI industries.

## Biotech and Life Sciences

New York has emerged as a leading national market in biotech and life sciences through its strategic investments that are attracting, growing, and retaining companies that advance cutting-edge healthcare solutions. These range from pharmaceutical production to genomics to medical device manufacturing. The State has committed more than \$620 million in the Life Science Initiative with a focus on leveraging New York's top-tier network of academic research institutions and its pipeline of talent. Together, these assets and investments are growing a world-class life sciences research cluster – anchored by global innovators such as Regeneron and Pfizer – that generated more than 10,000 new jobs between 2011 and 2021. The COVID-19 pandemic reinforced the importance of developing a robust life sciences sector, as New York-based researchers and companies helped develop tests, treatments, and vaccines that saved countless lives. The sector is projected to continue to grow as early- and mid-stage companies scale up and new companies launch. The sector includes industries that research, develop, and manufacture medical cures and devices that improve our wellbeing.

**113,000\***  
total jobs today

**\$79,000**  
median wage, 25% higher  
than the statewide median



Figure 5: Lt. Governor Delgado (center), ESD Board Chair Kevin Law (right of center) and others celebrate the groundbreaking of the Cold Springs Neuroscience Research Complex on Long Island.

## Workforce Opportunities and Challenges in Biotech and Life Sciences

- The greatest hiring needs are for lab technicians, project and general managers, and software developers.
- While many jobs in this sector require a four-year or advanced degree, non-degree positions are still in high demand, and jobs in biotech and life sciences pay 25% higher than the statewide median wage.
- Among priority sectors, bioscience has one of the most representative workforces – 47% of sector employees are female and 37% identify as BIPOC, nearly mirroring the state workforce overall.

\*Total jobs in this category include 33,000 jobs also counted in the electronics and OPI industry, and 41,000 jobs also counted in the advanced manufacturing industry.

## Cleantech and Renewable Energy

New York State has one of the most aggressive climate and clean energy agendas in the nation, charting a path to a zero-emission electricity sector by 2040 and economy-wide carbon neutrality. This transition is supported by fast-paced technological innovation and unprecedented State investment, including over \$35 billion for renewable and transmission projects across the state and nearly \$7 billion to reduce building emissions<sup>xi</sup> – all of which will spur the creation of tens of thousands of quality jobs.

The sector consists of industries that generate, transmit, and store clean energy; manufacture the key components for clean energy generation such as wind turbines and batteries; and retrofit buildings and infrastructure to reduce emissions. Growth in several of these sectors is anticipated to be significant: for example, the state is expected to add 5,700 offshore wind jobs by 2030. Building a strong workforce pipeline is critical to New York State's goals, as 90% of employers in this sector reported difficulty hiring in 2021. It is also essential to ensuring a just transition in which communities that have been impacted negatively by the current fossil fuel-based economy stand to gain economically from the state's cleaner future.

To that end, the New York State Energy Research and Development Authority (NYSERDA) has committed more than \$120 million to grow the clean energy workforce, and Governor Hochul's \$350 million investment in workforce set aside up to \$50 million for programs in the renewable and clean energy sector.

**125,000\***  
total jobs today

**90%**  
of employers reported  
difficulty hiring in 2021

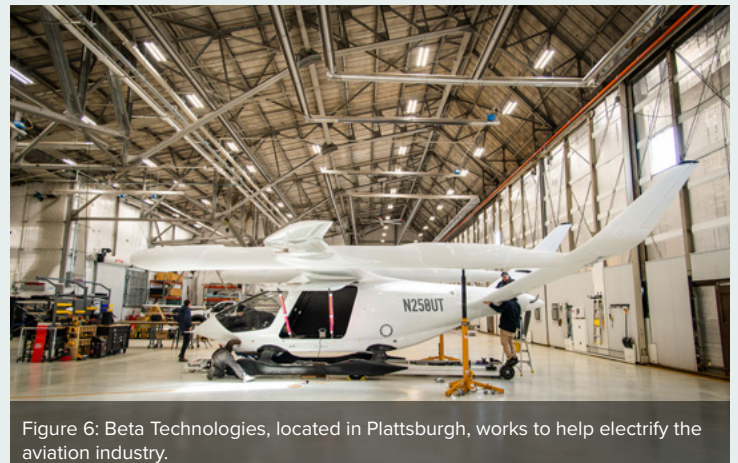


Figure 6: Beta Technologies, located in Plattsburgh, works to help electrify the aviation industry.

## Workforce Opportunities and Challenges in Cleantech and Renewable Energy

- Common in-demand occupations align with New York's existing workforce and require limited training to transition into, including electricians, fabricators, metal workers, welders, inspectors, and testers.
- More than 80% of sector jobs do not typically require a four-year degree.
- Women and BIPOC workers are underrepresented in the industry.

\*Total jobs in this category include 14,000 jobs also counted in the advanced manufacturing industry.



## Construction

The construction sector is part of the state's economic backbone, critical to delivering the housing, office and lab space, manufacturing facilities, and infrastructure critical to the growth of these target industries and so many other jobs. The construction sector grew rapidly over the past decade, adding 56,000 jobs, and now employs 456,000 New Yorkers (5% of the workforce). Despite slowdowns during the early pandemic, the sector rebounded by 2021 and is expected to grow as the federal Infrastructure Investment and Jobs Act and historic State investments in clean energy, housing, and infrastructure fuel tens of billions of dollars of capital investment throughout New York State.

**456,000\***  
total jobs today

**85%**  
of jobs do not typically  
require a four-year degree



Figure 7: Workers from the Local Women 79 Union celebrate increased gender participation in the construction industries and trades.

## Workforce Opportunities and Challenges in Construction

- The sector has grown by 14% over the past decade, a rate significantly higher than average across sectors.
- There are unmet hiring needs for electricians, laborers, managers, and support positions.
- High under-representation of women and BIPOC workers, a longstanding challenge that requires new partnerships and approaches.

\*Total jobs in this category include 69,000 jobs also counted in the advanced manufacturing industry.



## Electronics and Optics, Photonics, and Imaging (OPI)

New York State has long been a national leader in the electronics and OPI industries, which include R&D and production involving computers, electronics, and light-related applications. From the microchips powering modern cell phones to the fiber-optic technology that enables high-speed internet to cutting-edge laser technology, New York State is at the leading edge of R&D and product development. Last August, Governor Hochul signed the Green CHIPS Act to accelerate New York's burgeoning semiconductor industry, which has already attracted thousands of jobs to the state and is expected to generate billions of dollars in new private investment.<sup>xii</sup> Chip fabs will be critical anchors in the Capital Region, Mohawk Valley, and Central New York, as GlobalFoundries plans an expansion that would add 1,000 jobs in Malta; Wolfspeed opened a facility in Utica that is expected to provide more than 600 jobs; and Micron plans the largest fabrication facility in the United States in Clay, with State support, which will employ nearly 9,000 workers directly.

Just as critically, Rochester is the global hub of OPI, with the most patents in the industry per capita in the world. In 2017, ESD opened the Luminate Accelerator in downtown Rochester, a \$5 million-per-year initiative to spur the creation of electronics and OPI startups. The following year, the American Institute for Manufacturing Integrated Photonics (AIM Photonics) opened the world's first public, open-access facility for testing, assembling, and packaging 300-millimeter photonic integrated circuits at Eastman Business Park in Rochester. Innovations in the electronics and OPI sector are the basis of many broader technologies, which makes this expanding sector critical to growth in the software and digital media and film and TV production sectors as well.

**71,000\***  
total jobs today

**\$84,000**  
median wage, 30% higher  
than the statewide median



## Workforce Opportunities and Challenges in Electronics and OPI

- There are hiring needs for electricians, fabrication and assembly workers, and project managers and supporters.
- 60% of jobs in the semiconductor industry do not typically require a four-year degree.
- Workforce is 62% male and 73% white, necessitating redoubled efforts around representation.

\*Total jobs in this category include 39,000 jobs also counted in the advanced manufacturing industry.

## Film and Television Production and Post-Production

New York State is a global entertainment hub, and the robust film and TV production and post-production industries have only blossomed with the proliferation of digital content and streaming platforms, supported by the New York State Film Tax Credit Program. Few places outside of New York are equipped with the talent and business ecosystem needed to accommodate the ever-increasing demand for content, which is why New York's film and television economy is second only to California's. The sector includes motion picture, television, sound recording, and postproduction industries.

New York State's film and TV production and post-production industry has 114,000 jobs today. This total includes jobs that are counted in ESD's annual reporting on the impacts of the film production tax credit (58,851 jobs as of 2020), as well as related jobs in television broadcasting, independent writing and performing, and sound recording that are not counted in those reports but share common skills and are integral to the success of the state's broader film and TV production industry.

Importantly, jobs in the film and television production sector are high quality. For example, the sector has a strong tradition of unionization in New York State, helping secure higher wages and benefits at a time when strong worker protections for other types of freelance work are increasingly uncommon. New York State currently supports the sector with a number of workforce development initiatives such as the Production Assistant Training Program, facilitated by Brooklyn Workforce Innovation and funded by OSWD, and the New York Entertainment Workforce Diversity Grant Program.<sup>xiii</sup>

**114,000**  
total jobs today

**2.67**  
additional jobs supported for  
every job in this industry



## Workforce Opportunities and Challenges in Film and Television Production and Post-Production

- Film and Television Production and Postproduction is expected to add 27,000 jobs over the next decade.
- Jobs in the sector that do not require a degree typically pay 20% more than the statewide median wage.
- Greatest hiring needs are for film and video editors, producers, and audio and visual technicians,
- in addition to important entry-level roles of film production assistants in electrical, grip, and property, or "props".
- Quality jobs supported by strong unionization.
- 70% of workers are white, necessitating new approaches to training and hiring.

## Software and Digital Media

New York's software and digital media sector has created nearly 100,000 well-paying jobs statewide over the last decade and is projected to continue this trajectory of rapid growth. From "big tech" firms like Alphabet Inc. and Meta Platforms Inc. to startups and everything in between, the state attracts large and growing tech and digital media companies due to a skilled talent base and strong workforce pipeline, thriving innovation hubs, access to venture capital, and proximity to related industries. As a result, New York City is the nation's fastest growing tech hub<sup>xiv</sup> with satellite hubs growing throughout the state.

The software and digital media industry includes software development, data processing, information services, and telecommunications, including broadband. As it grows, the industry offers opportunities in high-tech occupations as well as project management, sales, and marketing occupations. Although many of the sector's highest-growth occupations have traditionally required a four-year degree, industry and workforce organizations have launched numerous programs to support career pathways for non-degree-holders and underrepresented groups. These programs are critical, as only 37% of workers in software and digital media are BIPOC and only 38% are women.

**280,000**  
total jobs today

**46%**  
job growth from 2011-21,  
one of the fastest rates of  
any industry in the state



Figure 10: Governor Hochul signs transformative Green CHIPS legislation to create jobs and reduce emissions by boosting semiconductor manufacturing in New York.

## Workforce Opportunities and Challenges in Software and Digital Media

- Software and Digital Media has a median earning of \$97,000, over 50% higher than the statewide median.
- Continued high job demand for software and web developers, network engineers and support specialists, cybersecurity analysts, and sales professionals.
- Large racial and gender representation gaps particularly among the highest-paid positions, including software developers.
- Higher rate of jobs typically requiring a four-year degree, though numerous programs have established pathways for non-degree-holders.

# Progress to Date

**In the past year, OSWD has hit the ground running with its new mandate.** Since the announcement of the office's creation in April 2022 and the launch of its grant programs in October, OSWD has established the necessary grantmaking infrastructure and completed two rounds of grantmaking to fund pioneering workforce training programs across the state. OSWD also established seven statewide target industries to guide workforce investment and convened interagency conversations around the development of common success metrics and improved coordination across the state. The following describes in greater detail some of the progress OSWD has made over the past year and work underway in the year ahead.

## Drive innovative, high-impact workforce programming

- **Launched \$150 million grant program and awarded over \$13 million to launch and grow 22 innovative programs.** The Governor's historic announcement of \$350 million included \$150 million in workforce development funding for two grant programs<sup>xx</sup> administered by OSWD to support employer-informed training programs:
  - The \$115 million **Pay for Performance (P4P) Grant Program**, which provides workforce training providers with either flexible operating grants to cover operational costs like new curriculum development and wraparound services that help trainees get to and through training, or achievement-based awards that enable training providers with successful models to scale their approaches.
  - The \$35 million **Workforce Development Capital Grant Program**, which supports the facility and equipment needs of training providers that seek to enhance or expand their offerings.

Both grants support employer-driven, high-skilled workforce training programs and reward innovative approaches and best practices that reduce the barriers to participation for high-need communities. Specifically, preference is given to applicants who can demonstrate that their training is responsive to business needs, will lead to industry-recognized credentials and/or to direct placement in good jobs, and is accessible to historically marginalized populations.

Between the launch of the programs in October 2022 through March 2023, OSWD closed two application rounds, received 137 applications from training providers across the state, and awarded grants to 22 projects. A third round of grantees is expected to be announced in early summer. (See the following page for an overview of awards to date and [Appendix B](#) for a summary of all grants awarded to date.)

- **Introduced metrics to track grantee training outcomes.** All awardees of OSWD's grant programs will be required to collect specific outcomes data throughout the grant period, including the number of job placements, growth in earnings for participants, and more (see a full list below). These metrics will allow OSWD to evaluate the impact of grantee programs, adapt its own grantmaking strategy in future rounds, and report out to other State workforce agencies on best practices. OSWD is also charged with reporting on the success of other grant programs funded through the Governor's \$350 million investment and is collaborating with sister agencies on where metrics can be aligned across programs to provide a common understanding of impact.

## Impact Metrics

While metrics may vary slightly by program, OSWD will generally require the following information from all granted programs funded through the Governor's \$350 million investment:

- Total enrollment and rate of completion
- Credentials earned
- Job placement rate at 3-, 6-, and 12-month periods
- Job retention rate at 3-, 6-, and 12-month periods
- Distribution of job placement by industry, occupation, and skill level
- Participant earnings pre- and post-placement
- Participant demographics (where voluntarily reported)
- Placement and earnings outcomes



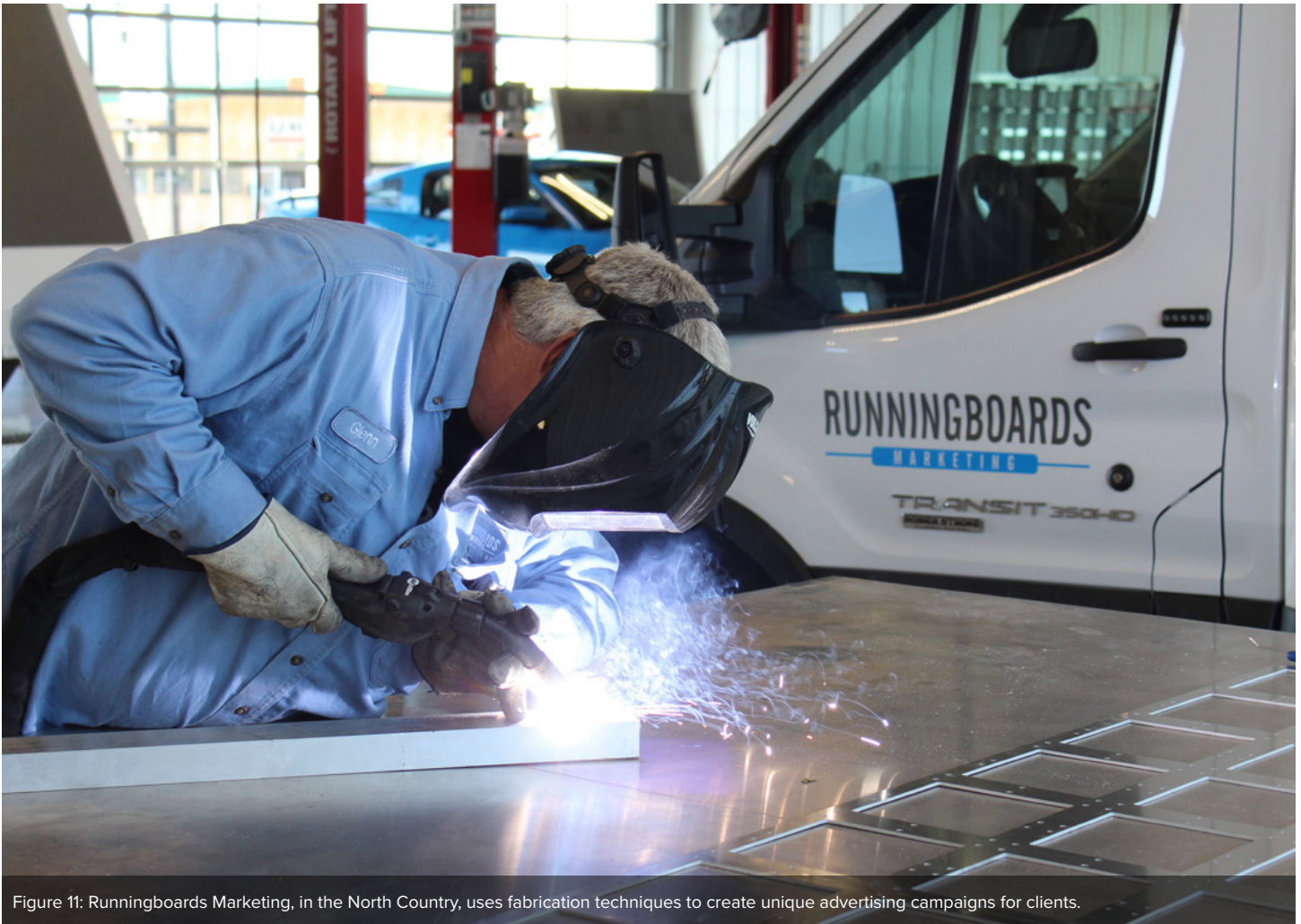


Figure 11: Runningboards Marketing, in the North Country, uses fabrication techniques to create unique advertising campaigns for clients.

## THE YEAR AHEAD

OSWD will continue to make progress on the following action items over the next 12 months:

- **Fund additional innovative workforce training models and capital improvements** through the \$150 million P4P and Capital grant programs. Applications will be accepted on a rolling basis as long as funds remain available. OSWD will refine program guidelines as needed to improve program outcomes.
- **Establish a “resource hub” of best practices and guidelines** to support the work of training providers, employers, government agencies, and other stakeholders. Topics will include job quality, wraparound supports, and career pathways, and will be published on OSWD’s website.
- **Coordinate with other agencies to collect program data**, specifically for the programs funded through the Governor’s \$350 million investment. Collected data will help measure the effectiveness of program models and shape future investments.

# Spotlight:

## Introducing the First Set of Innovative Grantees

Over two funding rounds completed in December 2022 and March 2023, OSWD awarded over \$13 million to 22 innovative workforce programs and projects proposed by training providers in partnership with employers and industry organizations across nearly every region of New York State.

Together these grantees will:

- **Train more than 6,600 New Yorkers** for in-demand skills and credentials in statewide priority industries such as advanced manufacturing, biotech, cleantech, construction, software, film, and agribusiness.
- **Partner with more than 200 business and industry partners** to shape curricula, provide on-site training, and in most cases commit to interviewing New Yorkers who complete the programs.
- **Leverage more than \$10 million in matching funds**, including business, philanthropic, and other government funding, to scale up impact and generate \$23 million of total investment.

- **Offer critical wraparound supports**, including childcare, transportation, stipends, mentorship, and career coaching, to reduce barriers to participation and reach communities otherwise unable to access training and maximize the potential for placement following completion.

Grants will support a wide range of high-impact workforce investments, including newly designed partnerships between industry and training providers; the expansion of successful program models that have been constrained by inflexible funding sources; and crucial capital expenditures that will enable providers to offer the type of skill-specific training demanded by employers and serve more New Yorkers.

The following are projects that convey the promise of OSWD's grant programs:

Grant Type	# of Projects	Award Amount
P4P – Operating Grant	16	\$8,986,000
P4P – Capacity-Building Award	4	\$1,415,000
Workforce Development Capital Grant	2	\$2,921,000
<b>Total</b>	<b>22</b>	<b>\$13,322,000</b>

# Power Up Wind, Solar, and Renewables - Long Island

\$249,000 P4P Operating Grant

## Project-at-a-Glance:

United Way of Long Island's Power Up Wind, Solar and Renewables is a free training program creating pathways for culturally diverse young adults to secure careers in renewable energy, cleantech, offshore wind, solar, and advanced manufacturing. The program was developed with input from industry partners to ensure it is responsive to industry needs and provides trainees transferable and industry-recognized skills and prepares them for careers as solar photovoltaic installers, energy auditors, and HVAC installers.

## Highlights:

- **Focus on the fast-growing cleantech and renewable energy sector**, a statewide priority sector identified by ESD with \$5 billion investment in the state, as well as a regional priority in Long Island with historic investment in offshore wind, offering major opportunities for solar and other cleantech improvements and renewable energy jobs in the region.
- **Robust employer partnerships**, including major energy companies such as National Grid, Eversource Energy, EmPower Solar, and PSEG, which have committed to support curriculum development, provide internships, and recognize program credentials in recruitment.
- **Bilingual outreach** to better engage with multi-cultural communities.
- **Comprehensive wraparound package** including financial literacy and budgeting, graduate resources, employment services, job search and resume building, rental and housing assistance, GED prep, access to maternal and family health services, parenting education, childcare assistance, stipends, tools and uniforms, and referrals to community organizations.

## Anticipated Impact:

150 students trained over 18 months with industry recognized credentials and career exposure, with intentional recruiting and support in high-need communities.

# Syracuse Build - Central New York

\$264,000 P4P Capacity-Building Award

## Project-at-a-Glance:

Working in partnership with CenterState CEO, Syracuse Build at CNY Works will expand the capacity of construction training programs and enhance wraparound services in the union building trades, particularly for electricians, plumbers and pipefitters, HVAC technicians for clean room construction, and commercial drivers.

## Highlights:

- **Synergy with workforce needs of planned regional infrastructure projects, including the new Micron facility**, focusing on construction and building trades to maximize direct job opportunities – integrating key ESD workforce development and economic development initiatives.
- **Strong labor partnerships** including with the Central-Northern NY Building and Construction Trades Council, International Brotherhood of Electrical Workers Local 43, Ironworkers Local 60, Carpenters Local 277, and Operating Engineers Local 158 and additional unions as core partners in design and implementation.
- **Proven success** through demonstrated outcomes of 105 individuals trained and 66 trainees securing employment in the last year.
- **Wraparound services through community partnerships**, including supportive services from Community Center Collaborative, mentorship and leadership skills via 100 Black Men; financial coaching through the City of Syracuse Financial Empowerment Center; legal aid by Volunteer Lawyers' Project, Legal Services of Central New York, and Hiscock Legal Aid; and transitional employment assistance via CNY Works.

## Anticipated Impact:

Between 175 and 230 individuals trained across all categories in 2023, targeting that 80% of the program graduates will secure employment.





## Establish Strategic Priorities for Workforce Investment

- **Identified seven statewide target industries representing New York’s most critical growth sectors and additional regional priority sectors.** As outlined above, in the fall of 2022, OSWD announced the following target sectors to guide workforce investment:
  - Advanced Manufacturing and Materials
  - Biotech and Life Sciences
  - Cleantech and Renewable Energy
  - Construction
  - Electronics and Optics, Photonics, and Imaging (OPI)
  - Film and TV Production and Post-Production
  - Software and Digital Media

While the sectors vary widely in their focus and the nature of the jobs they offer, all sectors provide numerous well-paying jobs – such as laboratory technicians, equipment operators, plumbers, electricians, and broadcast technicians – that are broadly accessible to New Yorkers without a post-secondary degree while paying a median wage that is nearly 20% greater than the average wage statewide. These industries also play an outsized role in the state’s broader economy, supporting more than 1.5 jobs in other industries for every person they employ. Many of these industries have been the focus of significant State investment.

Not all trends related to these industries have been positive, as several sectors have meaningful gender and racial representation gaps. Men make up more than 7 in 10 workers across the seven priority sectors and white workers are overrepresented. Addressing these gaps through workforce programs that reduce barriers to entry for traditionally marginalized populations will continue to be a State priority.

These target industries have guided OSWD’s outreach and research over the last year. OSWD is presently identifying key occupations in these sectors where talent gaps are widest and opportunities to train un- and underemployed and underrepresented workers for good jobs are strongest. Investing in workforce programs that feed into these industries and occupations and elevating best practices that have proven successful in these sectors will help close skill gaps, facilitate hiring, and narrow representation gaps within these sectors.



Figure 12: Agribusiness is an important sector in New York State, like that which supplies Ausable Brewing Company in Keesville.

## THE YEAR AHEAD

OSWD will continue to make progress on the following action items over the next 12 months:

- **Publish insights on statewide target industries and focus populations,** including specific skills demanded by employers and the primary barriers facing un- and underemployed and underrepresented New Yorkers – both of which will inform future program design.
- **Engage industry on talent needs and to support training programs.** As grant applications proceed,

OSWD will work proactively with employers and training providers to design programs that meet real talent needs, leveraging lessons from early grant rounds.

- **Began coordination with GO-SEMI<sup>NY</sup>** to align workforce development efforts across multiple State agencies for the semiconductor workforce.



## Connect the Dots Across Regions, Industries, and Agencies

- **Led an interagency working group to coordinate on programming and metrics.** OSWD began supporting cross-agency collaboration by convening a working group consisting of the Governor’s Office, the Department of Labor (DOL), the State University of New York (SUNY), the City University of New York (CUNY), the Department of Health (DOH), the Office of People With Developmental Disabilities (OPWDD), and the Office of Mental Health (OMH). The group has met to coordinate the rollout of the Governor’s \$350 million workforce investment, to discuss parallel workforce initiatives, and to develop the common metrics tracking framework for the State’s workforce investments.
- **Supported regional workforce development planning.** While the state’s 10 REDCs have discussed regional workforce priorities in the past, last year marked the first time that their annual strategic plan updates focused on workforce needs and priorities. Each REDC convened a working group composed of businesses, academic institutions, workforce training providers, and other workforce stakeholders to identify target industries, skill needs, and successful program models, as well as priorities for investment in the coming years. OSWD will continue to work with the REDCs to convene regional workforce development stakeholders in support of both regional and statewide workforce priorities.

## Regional Workforce Strategies

Plans developed by each of the State’s 10 Regional Economic Development Councils are available at the links below:

- [Capital Region](#)
- [Central New York](#)
- [Finger Lakes](#)
- [Long Island](#)
- [Mid-Hudson](#)
- [Mohawk Valley](#)
- [New York City](#)
- [North Country](#)
- [Southern Tier](#)
- [Western New York](#)

## THE YEAR AHEAD

OSWD will continue to make progress on the following action items over the next 12 months:

- **Support GO-SEMI’s workforce development efforts** in coordination with various State agency and regional stakeholders.
- **Launch the first of a series of regional convenings** to bring together REDC leadership, Workforce Development Board leadership, major employers, and other workforce stakeholders to discuss talent

- gaps, successful programs, and recommendations for statewide action.
- **Support industry outreach by ESD and other agencies,** bringing a workforce development lens and best practices to efforts such as GO-SEMI (semiconductors), ConnectALL (universal broadband), and NYSERDA’s clean energy portfolio.

# Looking Ahead: Planning for 2023 and Beyond

## **In 2022, New York State made a significant down payment on the future of the state's workforce, and over the last year OSWD has worked to accelerate the impact on New Yorkers**

— standing up two new grant programs to drive innovative training models; awarding \$13 million to grow employer-informed workforce training programs; establishing statewide target industries for strategic investment; and supporting coordination across agencies and regions. Central to this effort is the need to establish clear metrics, closely track program outcomes, and ensure that the workforce programs the Office supports are effective and impactful. In the coming year, OSWD will continue to build on its first year of progress by supporting programs and policies that place thousands of New Yorkers into quality jobs, meet the talent needs of the state's employers, and ensure that economic growth benefits all New Yorkers.



Figure 13: Governor Hochul joins President Biden to highlight Micron's plan to locate 9,000 new chip manufacturing jobs in New York.



# Acknowledgments

This report was developed by Empire State Development's Office of Strategic Workforce Development (OSWD) in close coordination with the Office of the Governor and with support from the Department of Labor, the State University of New York, the City University of New York, and additional State workforce development stakeholders. OSWD's strategic approach builds on many years of research and advocacy by workforce stakeholders inside and outside of government, and this document incorporates input from dozens of interviews and discussions held by OSWD in the fall and winter of 2022, representing all regions of the state. It also incorporates research, insights, and strategies from 10 strategic reports developed by the Regional Economic Development Councils in late 2022. We are grateful to these individuals and organizations for their input and partnership. This report was developed with the support of economic and workforce development advisory organizations HR&A Advisors and Jobs for the Future (JFF), and David Ehrenberg.



# Appendix

## Appendix A: \$350 Million Workforce Investment by Program

Agency	Program Name	Description	Appropriation
OSWD	Pay for Performance (P4P) Grant Program*	Provide achievement-based awards to expand capacity. Grants are provided through two distinct tracts. Flexible operating grants aim to help providers cover programmatic expenses like curriculum and wraparound services. Capacity building awards seek to award successful programs with funding to expand capacity.	\$115,000,000
	Workforce Development Capital Grant Program	Support the capital needs of workforce training providers that seek to enhance or expand their offerings.	\$35,000,000
	Additional Operating and Program Funds	Support the operations of OSWD and critical research, outreach, and data tracking functions.	\$20,840,000
<b>Subtotal</b>			<b>\$170,840,000</b>
DOH	Financial Burden for Health Care Workers	Provide direct financial support for the education of health care professionals, provided that they work in New York State for a specified period after obtaining their credentials.	\$47,000,000
	Caregiver Flex for Direct Care Workers	Facilitate the creation of a model for training “universal” long term care workers who want to move across caregiving roles.	\$39,000,000
	Training Capacity Expansion for Institutions	Invest in creating additional capacity of medical institutions.	\$22,500,000
	Diversity in Medicine	Expand opportunities for students from underrepresented backgrounds to enter medical school.	\$1,200,000
<b>Subtotal</b>			<b>\$109,700,000</b>
DOL	Empire State Teacher Residency Program	Provide matching funding for local districts to create two-year residency programs for graduate-level teacher candidates.	\$30,000,000
<b>Subtotal</b>			<b>\$30,000,000</b>
SUNY	Alternate Teaching Cert Program	Allocate competitive grants to expand existing programs or develop and implement new high-quality, research-based, master’s-level alternative certification programs.	\$10,000,000
	Upskilling Paraprofessionals	Allocate competitive grants to expand existing programs or develop and implement new programs that recruit and support teaching assistants/paraprofessionals in obtaining teacher certification.	\$8,000,000
	SUNY Internship	Support students in overcoming these barriers which include, but are not limited to, childcare, transportation, tuition support for summer internships, stipends for students with unpaid internships, development of prior learning assessment which can help students apply current employment to achieving college level credit.	\$6,000,000
	SUNY Apprenticeship	Expand a high-skilled workforce through registered apprenticeship and pre-apprenticeship programs in all industry sectors beyond construction.	\$3,000,000
	Pre-Medical Opportunities Program	Empower well-qualified students from underserved communities to enter – and successfully complete – medical school and/or doctoral programs in the medical sciences.	\$1,000,000
<b>Subtotal</b>			<b>\$28,000,000 **</b>
CUNY	CUNY Internship	Expand its internship and career development programs to providing students majoring in liberal arts and the humanities the opportunity to develop professional skills.	\$4,000,000
	CUNY Apprenticeship	Expand internship and career development programs to providing students majoring in liberal arts and the humanities.	\$2,000,000
	CUNY Mental Health Training	Train students to become qualified professionals who will work with individuals in need of prevention, treatment, and recovery services due to behavioral and mental health conditions.	\$2,000,000 **
<b>Subtotal</b>			<b>\$6,000,000</b>
OMH	SMI Programming	Expand access to employment supports for individuals with serious mental illnesses via a targeted investment into the Personalized Recovery Oriented Services (PROS) program, to assist individuals to manage their symptoms in the competitive workplace.	\$2,800,000
<b>Subtotal</b>			<b>\$2,800,000</b>
OPWDD	I/DD Programming	Create career-specific training to individuals with Intellectual and Developmental Disabilities (I/DD).	\$2,660,000
<b>Subtotal</b>			<b>\$2,660,000</b>
<b>Total</b>			<b>\$350,000,000</b>

\* Includes CUNY and SUNY Mental Health Training programs.

\*\* Set-aside within OSWD P4P funding

## Appendix B: OSWD Grantees – Rounds 1 and 2

Grantee (Region)	Program Description	Wraparound Supports	Priority Industries	OSWD Grand Award (+ Matching Funds)
<b>P4P Grant Program - Operating</b>				
<b>Round 1</b>				
<b>CenterState CEO</b> <i>Central New York</i>	Prepare un- and underemployed workers and individuals from historically marginalized communities for careers in advanced manufacturing and information technology	Mentorship, career coaching, legal aid, employment assistance	Advanced Manufacturing, Software	\$1,000,000 (+\$333,917)
<b>Rochester Institute of Technology</b> <i>Finger Lakes</i>	Provide training through six programs geared toward critical occupations in manufacturing, IT, defense, and construction trades	Career coaching; mentorship to ensure support beyond training; local partners to provide resources including laundry, childcare, transportation, and computer access	Advanced Manufacturing, Construction, Electronics & OPI, Software	\$999,000 (+\$1,050,000)
<b>Callahan Management Training Center</b> <i>Mohawk Valley &amp; Central New York</i>	Provide pre-apprenticeship training and wraparound services for women seeking manufacturing careers	Skills gap analysis, leadership development, links and referrals to community supports	Advanced Manufacturing	\$996,377 (+\$629,930)
<b>Buffalo Niagara Partnership</b> <i>Western New York</i>	Provide pre-employment and occupational skills training for manufacturing and other employer-led collaborative	Assessment to determine needs for childcare, food, transportation and more, connection to partner services	Advanced Manufacturing	\$920,000 (+\$500,000)
<b>Reel Stories Teen Filmmaking</b> <i>New York City</i>	Provide film industry training for a variety of careers with local unions	Stipends, career coaching, childcare, transportation, union membership	Film & TV	\$453,900 (+\$175,000)
<b>Cornell University</b> <i>Central New York</i>	Provide training for a dairy processing bootcamp and a related online course	Provided through local job centers	Agribusiness	\$400,742 (+\$133,580)
<b>Round 2</b>				
<b>Mohawk Valley Community College</b> <i>Mohawk Valley</i>	Provide skill-based trainings in mechatronics, welding, CNC, carpentry, and masonry targeting impoverished adults	Assessment and referrals to community supports, job readiness and soft skills training, healthcare, transportation, childcare	Advanced Manufacturing, Construction, Electronics & OPI	\$976,000 (+\$852,000)
<b>Rochester Works</b> <i>Finger Lakes</i>	Provide soft-skill development, hands-on experience, and support services for pre-employment and experiences for opportunities in advanced manufacturing	Childcare, transportation, equipment, funds for licensure and examinations, professional support, health care, legal aid, family stabilization, internet and phone access	Advanced Manufacturing, Cleantech & Renewable Energy	\$862,000 (+\$450,000)
<b>Clarkson University</b> <i>North Country</i>	Train ready-to-hire graduates by providing micro credentials in advanced manufacturing, clean tech, and construction	Assessment and referrals to community supports, stipend to cover micro-credentialing	Advanced Manufacturing, Cleantech & Renewable Energy, Construction	\$729,000 (+\$261,000)
<b>Social Enterprise and Training Center</b> <i>Capital</i>	Provide comprehensive training for historically marginalized young people to pursue careers in the film and video production industries	Stipend, emergency assistance, assessment and referrals to community supports, transportation, uniforms, career readiness training	Film & TV	\$485,200 (+\$166,770)
<b>SUNY Oswego</b> <i>Central New York</i>	Expand the number of instructors available for other workforce training programs with skills in pedagogy, instructional technology, and creating inclusive learning	Stipend, laptop access throughout program, transportation, completion/signing bonus	Advanced Manufacturing, Construction, Electronics, Healthcare	\$340,963 (+\$183,678)
<b>United Way of Long Island</b> <i>Long Island</i>	Creating pathways for culturally diverse young adults to secure careers in renewable energy, clean tech, offshore wind, solar, and advanced manufacturing	Stipend, assessment and referrals to community supports, financial literacy training, graduate resources, employment services, housing assistance, childcare, family services, childcare assistance, uniforms	Cleantech & Renewable Energy, Construction	\$249,000 (+\$125,000)
<b>Center for Employment Opportunities</b> <i>New York City</i>	Provide justice-impacted participants with the skills and work experience needed to join a union apprenticeship for construction occupations	Assessment and referrals to community supports, mentorship, coaching, employment assistance, transportation, interview attire	Construction	\$193,735 (+\$64,578)

<b>Center for Employment Opportunities</b> <i>Western New York</i>	Provide justice-impacted participants with the skills and work experience needed to join a union apprenticeship for construction occupations	Career coaching, employment assistance, transportation, assessment and referrals to community supports, interview attire	Construction	\$168,750 (+\$56,250)
<b>North County Chamber of Commerce</b> <i>North Country</i>	Provide a no-cost, comprehensive program to meet industry demand for high-skilled welders	Stipends, childcare, transportation	Advanced Manufacturing, Construction	\$125,000 (+\$316,534)
<b>SUNY Cobleskill</b> <i>Mohawk Valley</i>	Provide food processing workforce pre-employment safety and sanitation training for critically important dairy industry occupations	Childcare, transportation, language support	Agribusiness	\$86,400 (+\$29,000)
<b>P4P Operating Subtotal</b>				<b>\$8,986,067</b> <b>(+\$5,327,237)</b>
<b>P4P Grant Program – Capacity-Building</b>				
<b>Round 1</b>				
<b>CenterState CEO</b> <i>Central New York</i>	Expand the capacity of construction training programs and enhance wrap-around services in the union building trades	Mentorship, coaching, legal aid, employment assistance	Construction, Electronics & OPI	\$264,000 (+\$88,334)
<b>Round 2</b>				
<b>Per Scholas</b> <i>New York City</i>	Create career opportunities and economic mobility for un- and underemployed New Yorkers in emerging occupations for the technology industry	Professional support, in-house support from license social workers, financial counseling	Software	\$822,000 (+\$719,900)
<b>Brooklyn Workforce Innovation</b> <i>New York City</i>	Connect diverse un- and underemployed New Yorkers to careers in film and television production by providing professional skills and job readiness training	Professional support, links and referrals to community supports, financial coaching, on-site legal services, emergency cash assistance, tax preparation services	Film & TV	\$201,000 (+\$455,350)
<b>CenterState CEO</b> <i>Central New York</i>	Provide training for entry-level careers in in-demand industries such as advanced manufacturing, electrical mechanical technology, computer programming and cybersecurity	Mentorship, coaching, legal aid, employment assistance	Advanced Manufacturing, Electronics & OPI, Software	\$128,000 (+\$57,813)
<b>P4P Capacity-Building Subtotal</b>				<b>\$1,415,000</b> <b>(+\$1,321,397)</b>
<b>Capital Grant Program</b>				
<b>Round 1</b>				
<b>St. Nicks Alliance</b> <i>New York City</i>	Fund the relocation of a workforce training center to a new facility that will host trainings for banking, tech, construction, and healthcare	Job readiness and digital literacy support; post-placement support (job replacement, job progression, wage increase, career coaching, alumni/networking events)	Software, Agribusiness, Finance	\$1,275,000 (+\$1,278,800)
<b>Round 2</b>				
<b>Questar III BOCES</b> <i>Capital</i>	Fund a state-of-the-art training center for high-demand trade programs in welding and metal fabrication, as well as heavy equipment maintenance and operation	Job shadowing, transportation, mentorship, paid internship	Advanced Manufacturing, Construction	\$1,645,985 (+\$2,468,977)
<b>Capital Subtotal</b>				<b>\$2,920,985</b> <b>(+\$3,747,777)</b>
<b>Grand Total (All Programs)</b>				<b>\$13,322,052</b> <b>(+\$10,396,411)</b>

## Appendix C: Key Workforce Characteristics of High-Growth Target Industries

Industry	Total Jobs	Growth (2011-21)	Median Earnings	% Jobs Typically Requiring less than a B.A.	% Female Workers	% BIPOC Workers	Economic Multiplier
Advanced Manufacturing and Materials	231,000	-11%	\$64,000	71%	30%	27%	2.30
Biotech and Life Sciences	113,000	13%	\$79,000	47%	47%	37%	2.45
Cleantech and Renewable Energy	125,000	1%	\$71,000	81%	18%	32%	2.82
Construction	456,000	14%	\$65,000	85%	15%	34%	1.74
Electronics and optics, photonics, and imaging (OPI)	71,000	-19%	\$84,000	42%	38%	27%	2.12
Film and TV Production and Post-Production <sup>1</sup>	114,000	3%	\$77,000	36%	41%	30%	3.67
Software and Digital Media	280,000	46%	\$97,000	33%	38%	37%	3.42
<b>All Priority Sectors</b>	<b>1,194,000</b>	<b>12%</b>	<b>\$75,000</b>	<b>62%</b>	<b>28%</b>	<b>33%</b>	<b>2.57</b>
<b>All Industries in NYS</b>	<b>9,869,000</b>	<b>4%</b>	<b>\$64,000</b>	<b>67%</b>	<b>51%</b>	<b>42%</b>	<b>2.11</b>

<sup>1</sup>A 2020 economic impact report commissioned by Empire State Development found that the NYS Film Production and Post-Production Tax Credits generated 57,300 jobs in New York State, representing 54% growth between 2004 and 2020. OSWD's job count includes all jobs in the film and TV sectors, including those not tied to industry tax credits, and uses a broader industry definition that includes Sound Recording Studios (512240), Television Broadcasting (515120), Cable and Other Subscription Programming (515210), Other Sound Recording Industries (512290), and Independent Artists, Writers, and Performers (711510) sub-sectors, which are integral to the film and TV industry but not captured by tax credit reporting.



## Appendix D: Methodology

Information contained in this report was sourced from stakeholder interviews, recent reports on the state’s workforce system and economy, and proprietary quantitative analysis.

### Proprietary quantitative analysis:

- Industry definitions:** HR&A Advisors developed and refined a list of industries for each of the seven statewide target industries in conjunction with ESD, based on the 2017 NAICS codes as defined by the U.S. Census Bureau. HR&A reviewed the industry cluster definitions used by the Regional Economic Development Councils in their regional industry analyses in the summer and fall of 2022, cross-referenced nationally recognized industry definitions, and consulted labor experts among sister agencies to refine the definitions to capture the most important jobs within the State’s seven target industries. These discussions allowed HR&A to develop the final definitions used in the report. A complete list of sectors included in each target industry definition is below.
- Analysis:** HR&A utilized Lightcast to estimate the number and characteristics of jobs within each of the State’s target industries as well as their associated wages, educational requirements, and demographics. HR&A reported employment, demographic and wage information for sectors based on industry-level (NAICS) data. HR&A reported employment, demographic, and wage information for occupation categories based on occupation-level (SOCS) data.

### Additional technical notes about Lightcast:

Lightcast (formerly known as EMSI Burning Glass) is a leading national provider of employment data. Lightcast gathers and integrates labor market data from a wide array of sources, including the U.S. Bureau of Labor Statistics Quarterly Census of Employment and Wages (QCEW) and Occupational Employment Statistics (OES), U.S. Bureau of Economic Analysis, O\*NET, U.S. Census Bureau American Community Survey (ACS) and County Business Patterns (CBP), and State Departments of Labor. Integrating data from multiple sources allows Lightcast to provide a broad accounting of employment that is unavailable from any one traditional source. To fully account for the New York State workforce, HR&A relied on Lightcast data pertaining to three classes of workers:

- QCEW/UI employees:** All jobs covered by federal/state unemployment insurance.
- Non-QCEW employees:** Jobs exempt from unemployment insurance coverage including the military, railroads, and small non-profits.
- Self-Employed:** Jobs held by people who consider self-employment a significant part of their income.

Lightcast reports industry level data to the six-digit NAICS code, and occupational data to the five-digit SOC code. Moreover, Lightcast provides a “cross-walk” between industry and employment data (staffing patterns and reverse staffing patterns) that enabled HR&A to account for the share of each occupation’s workforce in the priority sectors. Lightcast also reports the most common educational or training requirements for each of the 800+ SOC codes based upon data from the U.S. Bureau of Labor Statistics.

## Industry Definition Table

Priority Sector	NAICS	Description	NAICS	Description
<b>Advanced Manufacturing and Materials</b>				
	3241	Petroleum and Coal Products Manufacturing	3274	Lime and Gypsum Product Manufacturing
	3251	Basic Chemical Manufacturing	3279	Other Nonmetallic Mineral Product Manufacturing
	3252	Resin, Synthetic Rubber, and Artificial and Synthetic Fibers and Filaments Manufacturing	3311	Iron and Steel Mills and Ferroalloy Manufacturing
	3253	Pesticide, Fertilizer, and Other Agricultural Chemical Manufacturing	3312	Steel Product Manufacturing from Purchased Steel
	3254	Pharmaceutical and Medicine Manufacturing	3313	Alumina and Aluminum Production and Processing
	3255	Paint, Coating, and Adhesive Manufacturing	3314	Nonferrous Metal (except Aluminum) Production and Processing
	3256	Soap, Cleaning Compound, and Toilet Preparation Manufacturing	3315	Foundries
	3259	Other Chemical Product and Preparation Manufacturing	3331	Agriculture, Construction, and Mining Machinery Manufacturing
	3261	Plastics Product Manufacturing	3332	Industrial Machinery Manufacturing
	3262	Rubber Product Manufacturing	3333	Commercial and Service Industry Machinery Manufacturing

3271	Clay Product and Refractory Manufacturing	3336	Engine, Turbine, and Power Transmission Equipment Manufacturing
3272	Glass and Glass Product Manufacturing	3339	Other General Purpose Machinery Manufacturing
3273	Cement and Concrete Product Manufacturing	3341	Computer and Peripheral Equipment Manufacturing

### Biotech and Life Sciences

325411	Medicinal and Botanical Manufacturing	339115	Ophthalmic Goods Manufacturing
325412	Pharmaceutical Preparation Manufacturing	339116	Dental Laboratories
325413	In-Vitro Diagnostic Substance Manufacturing	541713	Research and Development in Nanotechnology
325414	Biological Product (except Diagnostic) Manufacturing	334516	Analytical Laboratory Instrument Manufacturing
334510	Electromedical and Electrotherapeutic Apparatus Manufacturing	541380	Testing Laboratories
334517	Irradiation Apparatus Manufacturing	541714	Research and Development in Biotechnology (except Nanobiotechnology)
339112	Surgical and Medical Instrument Manufacturing	541715	Research and Development in the Physical, Engineering, and Life Sciences (except Nanotechnology and Biotechnology)
339113	Surgical Appliance and Supplies Manufacturing	621511	Medical Laboratories
339114	Dental Equipment and Supplies Manufacturing	621512	Diagnostic Imaging Centers

### Cleantech and Renewable Energy

221111	Hydroelectric Power Generation	333415	Air-Conditioning and Warm Air Heating Equipment and Commercial and Industrial Refrigeration Equipment Manufacturing
221113	Nuclear Electric Power Generation	333611	Turbine and Turbine Generator Set Units Manufacturing
221114	Solar Electric Power Generation	335121	Residential Electric Lighting Fixture Manufacturing
221115	Wind Electric Power Generation	335122	Commercial, Industrial, and Institutional Electric Lighting Fixture Manufacturing
221116	Geothermal Electric Power Generation	335311	Power, Distribution, and Specialty Transformer Manufacturing
221117	Biomass Electric Power Generation	335312	Motor and Generator Manufacturing
221118	Other Electric Power Generation	335313	Switchgear and Switchboard Apparatus Manufacturing
221121	Electric Bulk Power Transmission and Control	335314	Relay and Industrial Control Manufacturing
221122	Electric Power Distribution	335911	Storage Battery Manufacturing
221330	Steam and Air-Conditioning Supply	335912	Primary Battery Manufacturing
238210	Electrical Contractors and Other Wiring Installation Contractors	335931	Current-Carrying Wiring Device Manufacturing
325180	Other Basic Inorganic Chemical Manufacturing	335999	All Other Miscellaneous Electrical Equipment and Component Manufacturing
332117	Powder Metallurgy Part Manufacturing	423690	Other Electronic Parts and Equipment Merchant Wholesalers
332119	Metal Crown, Closure, and Other Metal Stamping (except Automotive)	562920	Materials Recovery Facilities
333414	Heating Equipment (except Warm Air Furnaces) Manufacturing		

### Construction

236115	New Single-Family Housing Construction (except For-Sale Builders)	238150	Glass and Glazing Contractors
236116	New Multifamily Housing Construction (except For-Sale Builders)	238160	Roofing Contractors
236117	New Housing For-Sale Builders	238170	Siding Contractors
236118	Residential Remodelers	238190	Other Foundation, Structure, and Building Exterior Contractors
236210	Industrial Building Construction	238210	Electrical Contractors and Other Wiring Installation Contractors
236220	Commercial and Institutional Building Construction	238220	Plumbing, Heating, and Air-Conditioning Contractors

237110	Water and Sewer Line and Related Structures Construction	238290	Other Building Equipment Contractors
237120	Oil and Gas Pipeline and Related Structures Construction	238310	Drywall and Insulation Contractors
237130	Power and Communication Line and Related Structures Construction	238320	Painting and Wall Covering Contractors
237210	Land Subdivision	238330	Flooring Contractors
237310	Highway, Street, and Bridge Construction	238340	Tile and Terrazzo Contractors
237990	Other Heavy and Civil Engineering Construction	238350	Finish Carpentry Contractors
238110	Poured Concrete Foundation and Structure Contractors	238390	Other Building Finishing Contractors
238120	Structural Steel and Precast Concrete Contractors	238910	Site Preparation Contractors
238130	Framing Contractors	238990	All Other Specialty Trade Contractors
238140	Masonry Contractors		

### Electronics and OPI

325992	Photographic Film, Paper, Plate, and Chemical Manufacturing	334412	Bare Printed Circuit Board Manufacturing
333314	Optical Instrument and Lens Manufacturing	334413	Semiconductor and Related Device Manufacturing
333316	Photographic and Photocopying Equipment Manufacturing	334416	Capacitor, Resistor, Coil, Transformer, and Other Inductor Manufacturing
334111	Electronic Computer Manufacturing	334417	Electronic Connector Manufacturing
334112	Computer Storage Device Manufacturing	334418	Printed Circuit Assembly (Electronic Assembly) Manufacturing
334118	Computer Terminal and Other Computer Peripheral Equipment Manufacturing	334419	Other Electronic Component Manufacturing
334210	Telephone Apparatus Manufacturing	335110	Electric Lamp Bulb and Part Manufacturing
334220	Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing	335129	Other Lighting Equipment Manufacturing
334290	Other Communications Equipment Manufacturing	541713	Research and Development in Nanotechnology
334310	Audio and Video Equipment Manufacturing	541715	Research and Development in the Physical, Engineering, and Life Sciences (except Nanotechnology and Biotechnology)

### Film and Television Production and Post-Production

512110	Motion Picture and Video Production	515120	Television Broadcasting
512120	Motion Picture and Video Distribution	515210	Cable and Other Subscription Programming
512191	Teleproduction and Other Postproduction Services	512290	Other Sound Recording Industries
512199	Other Motion Picture and Video Industries	711510	Independent Artists, Writers, and Performers
512240	Sound Recording Studios		

### Software and Digital Media

511210	Software Publishers	519120	Libraries and Archives
517311	Wired Telecommunications Carriers	519130	Internet Publishing and Broadcasting and Web Search Portals
517312	Wireless Telecommunications Carriers (except Satellite)	519190	All Other Information Services
517410	Satellite Telecommunications	541511	Custom Computer Programming Services
517911	Telecommunications Resellers	541512	Computer Systems Design Services
517919	All Other Telecommunications	541513	Computer Facilities Management Services
518210	Data Processing, Hosting, and Related Services	541519	Other Computer Related Services
519110	News Syndicates		

# Endnotes

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- <sup>xi</sup> NYSERDA (2022, December 28) New Framework Announced to Achieve Nation-Leading Six Gigawatts of Energy Storage by 2030. Retrieved from <https://www.nyserda.ny.gov/About/Newsroom/2022-Announcements/2022-12-28-Governor-Hochul-Announces-New-Framework-to-Achieve-Nation-Leading-Six-Gigawatts-of-Energy>
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# Image Reference

Cover: Spencer Davis / Unsplash

Figure 1: Mike Groll / Office of Governor Kathy Hochul

Figure 2: Kevin P. Coughlin / Office of Governor Kathy Hochul

Figure 3: Office of Governor Kathy Hochul

Figure 4: NYS Department of Labor

Figure 5: Emily Mijatovic / Empire State Development

Figure 6: Empire State Development

Figure 7: NYS Department of Labor

Figure 8: Empire State Development

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Figure 10: Mike Groll / Office of Governor Kathy Hochul

Figure 11: Empire State Development

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Figure 13: Mike Groll / Office of Governor Kathy Hochul