

Chapter 14. Industry

14.1 State of the Sector

Overview

This chapter contains incentive-based strategies for mitigating the direct greenhouse gas (GHG) emissions attributable to certain industrial activities within the State. In general, the sector strategies in this chapter target the direct, on-site emissions that originate from stationary sources in sectors including manufacturing, mining, and quarrying,²⁴⁹ where such emissions are not already addressed separately in this Scoping Plan.²⁵⁰ Strategies for addressing emissions from the oil and gas sector are discussed in *Chapter 18. Gas System Transition*. Each sector is described in additional detail below.

Emissions Overview

Industrial emissions made up 9% of statewide emissions in 2019, including emissions from methane leaks and combustion from the oil and gas system in New York (45%), the direct combustion of on-site fuel (27%), emissions from imported fuels (20%), and non-combustion industrial processes (6%).

Manufacturing

Manufacturing-based GHG emissions addressed by the strategies in this chapter are those associated with the combustion of fossil fuels and non-combustion industrial processes in the production of goods. The largest share of GHG emissions is created by the production of food, paper, bulk chemicals, glass, cement, metals, semiconductors, wood products, and plastics.

As described in *Chapter 4. Current Emissions*, most emissions in the manufacturing sector come from a small subset of energy- or emission-intensive and trade-exposed industries,²⁵¹ causing emission mitigation strategies in this chapter to emphasize approaches that are less likely to result in emissions and economic

²⁴⁹ Manufacturing, mining, and quarrying are identified as Industrial Sectors by the North American Industry Classification System (NAICS) utilized by the U.S. Census Bureau. More specific production activities, including food, paper, and chemical manufacturing, are considered subsectors within manufacturing.

²⁵⁰ As an example, the sectoral strategies in the Industry chapter do not address the indirect emissions associated by industry's use of electricity or transportation vehicles.

²⁵¹ Energy-intensive industries consume a high amount of energy as a share of their economic output. In general, energy intensity is measured by comparing an industry's energy expenditures as a percentage of its revenue (Appendix C, pg. C-4). Emissions-intensive industries are those that emit a high amount of GHG emissions relative to the value of their economic output. They include emissions produced directly or indirectly, such as through the use of electricity (Appendix C pg. C-5). Trade-exposed industries are producers in highly competitive markets where consumers are sensitive to price. Trade exposure is often measured by the extent to which products are bought and sold across jurisdictional boundaries (Appendix C pg. C-5).

leakage. Appendix C sets out a method by which the State could identify energy- or emissions-intensive and trade-exposed industries.

Traditionally, energy-intensive and trade-exposed (EITE) industries have been defined as those industries that exceed thresholds set for both energy intensity and trade exposure. With the increase in non-emitting energy supply, however, EITE industries are now more frequently defined as those that exceed thresholds for emissions intensity and trade exposure.

Mining and Quarrying

Mining and quarrying activities produce stationary-source GHG emissions primarily from grinding equipment and diesel-powered material handling

and moving equipment. Only a small share of the State’s GHG emissions are produced by mining and quarrying activities, some of which also occur within energy- or emission-intensive and trade-exposed industries and are thus addressed in these strategies similar to manufacturing activities.

Other Energy- and Emission-Intensive Industries

Given the 30-year time horizon of this Scoping Plan, it is possible that new potential industrial GHG emission sources may emerge or grow to become significant sources of GHG emissions. For example, energy-intensive operations such as data centers and cryptocurrency mining operations have the potential to consume significant amounts of electricity and, in some cases, have sought to generate their own electricity from fossil fuel combustion. While many grid-based electricity-intensive activities will be automatically decarbonized by 2040 in concert with the elimination of GHG emissions from the electricity sector (100x40), as covered in *Chapter 13. Electricity*, the additional electricity load could make it more difficult to meet the Climate Act’s 100x40 requirement. In addition, it is possible that new sources of fuel combustion and non-combustion process emissions will also emerge. Accordingly, the State should monitor and evaluate emerging industries and develop policy responses needed to ensure that those industries do not interfere with meeting the statewide emission limits or other Climate Act requirements.

Industrial Sector Considerations

In formulating sectoral strategies for industry, this Scoping Plan reflects several considerations specific to industrial emissions. The heterogeneous nature of industry, and the resulting need for customized solutions on an industry-specific and even factory-specific basis, may result in higher cost per ton of emissions reduced than from larger-scale measures in other economic sectors such as power generation or transportation. In addition, energy- or emission-intensive and trade-exposed industries are likely to represent a high share of industry sector emissions. These industries are both highly sensitive to increases

in the cost of energy or emissions, as well as limited in their ability to pass along higher costs to consumers due to trade competition. As a result, non-incentive-oriented approaches are likely to cause leakage, whereby businesses leave or avoid the State and locate in other jurisdictions where they can emit higher levels of GHGs than they could have had they remained in the State. This results in less economic activity in the State but may achieve no progress on reducing global emissions; in fact, it may increase emissions overall. The Climate Act requires that the Scoping Plan include mechanisms to limit emissions leakage, some of which were developed by the Just Transition Working Group (JTWG) and are described in *Chapter 7. Just Transition*.

Near-term emission reduction opportunities in industry are likely to come primarily from energy efficiencies and some limited electrification for lower temperature processes. Greater emissions reductions (via the use of carbon capture, alternative fuels, or other) will likely occur in the longer term as innovation takes place and technologies scale, mature, and become more viable. However, significant opportunities for emission reductions currently do exist in industry and can be achieved primarily through increased organizational focus on energy management and efficiencies.

Vision for 2030

Industry's contribution to meeting the 2030 GHG emission reduction requirement would be met primarily with continued investment in energy efficiency and some limited electrification within the sector.

The Climate Act requires 40% GHG emissions reductions economywide from 1990 levels by 2030 and statewide energy efficiency of 185 trillion British thermal units (Btu) energy reduction from the forecasted 2025 energy demand. Industry's contribution to meeting these targets would be primarily with continued investment in energy efficiency and some limited electrification within the sector. Energy efficiency has been embraced by the manufacturing sector because it is one of the most cost-effective methods for reducing its GHG emissions. Due to the potential to reduce the amount of energy that must be purchased, and thereby saving money, efficiency measures may at times be able to pay for themselves without government subsidy. Specific efficiency measures can include upgrading motors and drives, making operational changes to improve compressed air efficiency, and adopting smart manufacturing methods and strategic energy management principles. Due to the heterogeneity of the industrial sector, energy efficiency solutions will need to be customized to address specific needs.

Vision for 2050

To meet the Climate Act requirement of an economywide 85% reduction in GHG emissions by 2050 relative to 1990 and the goal of net zero emissions across the economy, the pillars of a decarbonized electricity supply and negative emissions will play a more significant role in the industrial sector. Most industrial facilities need high temperature heat in their manufacturing process, and solutions to reduce emissions from industrial heat could include green hydrogen and/or alternative fuels, as well as carbon capture, use, and storage. The use of alternative fuels is not a substitute for electrification, where it is reasonable and appropriate, for the sector. A few of these solutions are at the early stages of development and will require investment in research, development, and demonstration (RD&D) to prove at scale and to advance to market. In some limited instances, industrial sources might be able to qualify for the use of an alternative compliance mechanism if the New York State Department of Environmental Conservation (DEC) has established such a mechanism and if the source can meet the stringent requirements set out in the Climate Act to govern its use. To reduce emissions in the industrial sector by 2050, six key strategies have been identified.

Existing Sectoral Mitigation Strategies

Mitigation strategies are those that directly reduce emissions or sequester carbon. The State has already adopted several mitigation strategies that address industrial GHG emissions. The New York State Energy Research and Development Authority (NYSERDA), New York Power Authority (NYPA), and Empire State Development (ESD) each offer programs in this area, while DEC employs a regulatory approach.

NYSERDA offers support to industry through a variety of programs, with a goal to promote energy efficiency, reduce GHG emissions, and deploy renewable energy. Programmatic support can be broadly categorized into four areas: technical assistance and training, equipment incentives, competitive grants, and RD&D support. An example of one of NYSERDA's programs is the Strategic Energy Management Program, through which it offers training to industrial facilities to help optimize energy use through a continuous improvement approach.

NYPA's mission is to lead the transition to a carbon-free, economically vibrant New York through customer partnerships, innovative energy solutions, and the responsible supply of affordable, clean, and reliable electricity. NYPA Energy Services programs develop projects in the areas of energy efficiency, electric vehicles (EVs), distributed energy resources (DERs) such as solar and storage, smart street lighting, data-driven energy reduction, and other clean energy initiatives.

ESD offers financial assistance (loans, grants, tax credits, venture investments) to incentivize industry in exchange for investment or job commitments, as well as technical assistance to conceive and scale disruptive technologies. For example, ESD’s Division of Science, Technology, and Innovation encourages greater collaboration between private industry and universities in the development and application of new technologies, including alternative energy systems. Another ESD program is New York Ventures, the State’s innovation venture capital fund that provides seed and early-stage venture capital funding to support and attract new high-growth businesses.

DEC, as a regulatory agency, reviews air pollutant and other relevant permit applications for new industrial facilities, modifications to existing facilities, and relevant renewals of existing facility permits to ensure that the proposed actions are not inconsistent with and will not interfere with the attainment of the statewide GHG emission limits established under the Environmental Conservation Law (ECL).

Key Stakeholders

Engaging stakeholder input is critical in the implementation of the various strategies to ensure the solutions will have the intended impact and meet the needs of the market. Included in the dialogue should be entities such as, but not limited to, industrial trade associations, business associations, affected workers and unions, universities, manufacturing corporations, energy service and engineering companies, industrial equipment suppliers, New York electric and gas utilities, the U.S. Department of Energy, NYSERDA, NYPA, New York State Department of Public Service (DPS), DEC, ESD, New York State Department of Labor (DOL), the Office of Just Transition, and New York State Office of General Services (OGS).

14.2 Key Sector Strategies

There are six key strategies highlighted in this sector, as shown in Table 15. As described there in greater detail, the labor standards discussed in *Chapter 7. Just Transition* are intended to apply throughout this Scoping Plan, including for the industry sector, as a means of promoting good, family-sustaining, union jobs accessible to all New Yorkers and achieving a true just transition.

Table 15. Industry Sector Key Strategies

Strategies	
11.	Provide Financial and Technical Assistance
12.	Incentivize Procurement of Low-Carbon Products
13.	Support Workforce Development
14.	Facilitate Research, Development, and Demonstration
15.	Establish Greenhouse Gas Registry and Reporting System
16.	Provide Economic Incentives

11. Provide Financial and Technical Assistance

The industrial sector is confronted with many barriers and other challenges to implement emission reduction strategies, the most significant of which include risk aversion that solutions will interrupt manufacturing processes, lack of in-house expertise in new technologies, lack of time to commit to energy savings solutions, lack of trust that the solution will deliver the intended benefits, and intense competition for internal company capital. The State should help overcome these barriers by providing technical and financial assistance in implementing various solutions for decarbonization. Specific solutions could include NYSERDA's engineering study support, financial incentives to buy down project costs, and potentially NYPA's Energy Solutions programs and its Power Proceeds programs within the geographic regions they serve.

Implementation of this mitigation strategy would continue from the present until 2050. Most emissions reductions prior to 2030 will be achieved through energy efficiency and low-temperature electrification. As technology advances, support through this mitigation strategy will further enhance emission reductions by 2050 through other means.

The transition for industry to decarbonize and embrace new technological solutions will take time and require State support. Providing clear market signals of long-term commitments would bolster industry confidence in decarbonizing the sector.

The CJWG supports directing State assistance toward reducing industrial emissions in Disadvantaged Communities. Industrial facilities often disproportionately affect Disadvantaged Communities, and investments can be prioritized to target industries with the greatest impact on these communities. In addition, the CJWG noted that emissions reductions strategies for the industry sector do not mention regulation to drive down industrial emissions as close to zero as is technically possible. Additional regulation on industrial sources must be carefully considered within the Climate Act requirements to limit emissions leakage.

In consideration of the CJWG feedback, it is acknowledged that, within the Climate Act requirements to limit emissions leakage, other potential measures must be carefully considered in the event that incentive-based strategies do not achieve sufficient reductions of industrial emissions. This includes DEC's authority under the Climate Act to promulgate regulations to control industrial emissions. In assessing the appropriateness of other measures, a primary consideration shall be the impact on the workforce and industry.

Components of the Strategy

- **Efficiency and decarbonization programs:** The PSC should continue to support and approve of funding for development of programs that embrace energy efficiency, electrification, and decarbonization and to adjust its efforts to ensure alignment with the Climate Act while also focusing investments and their associated benefits in Disadvantaged Communities. State programs administered by NYSERDA and investor-owned utilities should be complementary and coordinated to maximize both market impacts and federally supported decarbonization initiatives pursuant to the Inflation Reduction Act, the CHIPS and Science Act, and other federal funding streams.
- **Low-cost power programs:** The State should continue to provide qualified industries and businesses with lower electric energy cost through allocations of NYPA power.

12. Incentivize Procurement of Low-Carbon Products

Another strategy that has been identified to reduce emissions in the industrial sector is to create State procurement incentives so that manufacturers will produce less emission-intensive goods to capitalize on the increased demand for such goods.

The initial focus for this effort should be to incentivize the manufacturing of lower-carbon building materials such as cement, steel, and aluminum. The public sector purchases a large proportion of building materials produced in the market. This enables the State to exert significant influence on the producers of building materials to develop low-carbon options across its entire range of products. At the same time, the standards for verifying what constitute a low-carbon product are relatively well-established for these types of materials.

At present, about 28% of annual emissions associated with buildings can be allocated to the use of construction materials, primarily emissions associated with the production of concrete and steel as well as aluminum, glass, and insulation material.²⁵² Demand for greener building materials from the private sector will spur manufacturers to reduce the embodied carbon in their products. However, there is an

²⁵² International Energy Agency and the United Nations Environment Programme. 2018. *2018 Global Status Report: Towards a Zero-Emission, Efficient and Resilient Buildings and Construction Sector*.

opportunity to accelerate the growth of this demand via public procurement directives, given that nearly 50% of all cement and 20% of all steel that is purchased in the U.S. is paid for with tax dollars.²⁵³

There are many available pathways to offer advantages to providers of these low-carbon materials in the public procurement process. California’s Buy Clean program, for example, created a system in which selected building materials – structural steel, concrete reinforcing steel, flat glass, and mineral wood board insulation – used in public projects would need to meet minimum global warming potential (GWP) standards.²⁵⁴ Another option to enable low-carbon material procurement is to discount bid prices submitted for public work projects if the bidders are utilizing building materials with low GWP. New York recently passed a law that instructs OGS to examine available incentives, including bid discounts, to encourage the use of low-embodied carbon concrete in State agency projects.²⁵⁵ The exact method of supporting procurement of low-carbon products should be established through coordinated efforts of expert government stakeholders, with the interagency GreenNY Council, including NYSERDA, DEC, and other State agencies, leading the effort. The development of low-carbon procurement rules should seek to consider the product’s full life cycle emissions, where feasible, and safety and engineering validations should be addressed with regard to low-carbon construction materials and methods.

Increasing demand for low-carbon building materials with public procurement directives will have a positive impact on the emissions associated with the State’s manufacturing sector. Just as the manufacturing sector is generally heterogeneous in nature, specific methods of reducing the GWP of a given building material vary by subsector (such as cement, glass, and steel). In general, interventions to reduce the GWP of a building material are identical to reducing overall emissions, and principally include, but are not limited to, more energy-efficient production, process changes, greener production inputs, and/or the sequestration or utilization of captured carbon dioxide (CO₂). Some of the components in this strategy relate closely to those presented in *Chapter 12. Buildings* (Strategy B11) and several strategies in *Chapter 15. Agriculture and Forestry*.

The cost implications of providing preferential procurement standards for low-carbon building materials are likely to be marginal given the relatively small share of overall project costs that these materials

²⁵³ Dell, Rebecca. 2020. *Build Clean: Industrial Policy for Climate and Justice*.

²⁵⁴ California Department of General Services. “Buy Clean California Act.” Accessed September 27, 2021, at <https://www.dgs.ca.gov/PD/Resources/Page-Content/Procurement-Division-Resources-List-Folder/Buy-Clean-California-Act>.

²⁵⁵ Chapter 724 of the Laws of 2021.

represent. Cement, for example, represents only an estimated 1.5% of public construction costs. Moreover, even today, many lower-carbon alternative products have comparable cost characteristics to legacy materials, and even more advanced methods of drastically reducing the GWP of building materials are unlikely to have a significant impact on costs.

The CJWG supports this strategy, as well as other demand-side approaches, since State procurement preferences for low-carbon building materials can encourage less energy-intensive manufacturing in some sectors. The CJWG also recommended using a “best value” procurement framework to score bids that commit to climate mitigation efforts and related workforce, training, local hire, and apprenticeship programs targeted to residents in Disadvantaged Communities.

In consideration of this CJWG feedback, it is recommended that the possibility of utilizing a “best value” procurement framework as described in the feedback be explored. Additional work is necessary to determine the legal and regulatory changes that might be required for such a “best value” procurement framework to be adopted. Development and utilization of such a “best value” procurement framework should include the application of labor standards, as discussed in *Chapter 7. Just Transition*.

Components of the Strategy

Given the public sector’s significant share of market demand for building materials and the critical need for increased supply of low-embodied carbon building materials, the State should increase purchases of low-carbon materials to provide manufacturers with an economic incentive to increase supply.

- **Identify carbon intense materials:** First, the interagency GreenNY Council should develop a list of the most carbon-intensive building materials and products eligible for incentives or preferential treatment in procurement.
- **Develop standards:** After identification of eligible products, the interagency group should work with manufacturers, trade associations, researchers, and other like-minded states or federal agencies to set standards for determining the GWP of each building material.
- **Provide policy support:** The State should implement policy mechanisms that provide advantages to projects or procurement bids utilizing products that meet or exceed GWP targets.

13. Support Workforce Development

The workforce development enabling initiative is intended to expand the State’s existing green workforce and focus on training workers on existing decarbonization technologies and on newer solutions as they

become available. As of 2019, there were nearly 164,000 clean energy jobs in New York, a 16% increase since 2015. Jobs in this area are expected to continue to grow as skills will be needed for industry to plan, operate, and maintain various clean energy technology solutions.

Industrial companies face several barriers in this area, including the need to invest the time and other resources necessary to provide the training and to maintain the dedicated in-house expertise to deliver it. However, these barriers can be mitigated by State programs designed to share in the risk of such investment by providing financial support for the training and by developing training programs geared to industry's specific needs. NYSERDA and DOL have a long history of collaborating and delivering successful clean energy workforce development and training programs and can build upon that success to meet the Climate Act requirements and goals between now and 2050.

The CJWG recommends these strategies ensure consideration of individuals in Disadvantaged Communities in business and workforce development efforts.

Components of the Strategy

The industrial sector will have both short- and long-term needs to train workers to assist in decarbonization. The State should undertake the following steps to assist in workforce development and training.

- **Expand training capacity:** NYSERDA should partner with training organizations and businesses to increase the number of individuals being provided with training, with particular attention to displaced workers and increasing the number of individuals from Disadvantaged Communities being served by these programs.
- **Update training content:** NYSERDA should work with training organization and businesses to update training content to prepare workers for jobs with both established and newly emerging clean energy technologies and strategies. This could be accomplished by issuing competitive solicitations, developing strategic partnerships with industry organizations, and supporting training activities that meet industry's specific needs.

14. Facilitate Research, Development, and Demonstration

While currently available market solutions for reducing industrial GHG emissions can help the State's manufacturers make substantial progress in achieving the State's 2030 and 2050 statewide GHG emission

limits, they will not be sufficient. Given the heterogeneity of the industrial sector, the specific solutions for subsectors will vary, but they broadly include four main categories:

- Energy efficiency
- Industrial electrification
- Alternative fuels, feedstocks, and energy sources, and utilizing more renewable electricity
- Carbon capture, utilization, and sequestration

Given current trends, many of the required technologies for deep decarbonization of the industrial sector will not be available in the timeframe necessary for the State to meet its targets. However, the State could speed the deployment of some of these solutions with a robust RD&D agenda. This includes impacts on not only the industrial sector, but the buildings, transportation, and power sectors, which are all likely to benefit from advancement of many of these solutions. Research should also determine guidelines that indicate which solutions should be incentivized and the manner in which they should be deployed. These guidelines should be set to prioritize those with lowest cost and those that will result in the greatest reduction of GHG emissions. The guidelines also should ensure that solutions are pursued only if they meet benchmarks for environmental justice and equity as well as for economic and technical scalability. After this analysis, public capital should be directed at supporting solutions via research funding as well as pilot and demonstration projects.

The CJWG has raised concerns around technology solutions such as carbon capture and storage and hydrogen. The CJWG supports reducing fossil fuel combustion for industrial heat, replacing it with electric heat whenever feasible. The CJWG inquired specifically as to the future use of green hydrogen and made the point that combusting hydrogen has the potential to produce potentially harmful levels of nitrous oxide (NO_x) emissions. The CJWG recognized, however, that some industrial high-heat processes may not be electrifiable and that in these cases green hydrogen is a potential alternative fuel. In consideration of this CJWG feedback, it is recommended that identifying, quantifying, and mitigating or avoiding potential harmful effects associated with such new technologies and approaches, such as NO_x emissions from hydrogen combustion, will be a necessary, critical concern of future research efforts.

Components of the Strategy

As mentioned above, the State can speed the deployment of industrial decarbonization solutions with a robust RD&D agenda. This agenda should be informed by an analysis of which solutions will have the greatest impact on the State's emissions.

- **Develop a scope of work for research:** NYSERDA should develop a research agenda for industrial decarbonization solutions. This research should account for impacts on not only the industrial sector but also the buildings, transportation, agriculture, waste, and power sectors, which could benefit from advancement of these solutions. The research agenda should include:
 - Rigorous energy, GHG, and environmental sustainability guidelines and metrics
 - Analysis of the potential air quality and health impacts and best practices to minimize these impacts, such as emissions control technologies, as well as mitigating localized impacts in Disadvantaged Communities
 - Life cycle GHG accounting, with strong preference given to zero- or negative-emissions sources
 - The safety of green hydrogen
- **Issue a solicitation:** NYSERDA should issue a solicitation for third-party services to conduct research and provide recommendations on the most appropriate areas for investment in emerging industrial decarbonization solutions.
- **Provide funding for research and pilot/demonstration projects:** Based on the results of the analysis, NYSERDA should work to provide funding to optimally scale identified solutions.

15. Establish Greenhouse Gas Registry and Reporting System

The ECL requires DEC to consider establishing a mandatory registry and reporting system for individual sources to obtain data on GHG emissions that exceed an established threshold.²⁵⁶ DEC should promulgate regulations to establish a new GHG registry and reporting system or expand the existing GHG reporting requirements. This could be accomplished as a component of another regulatory program, such as an economywide program of the type discussed in *Chapter 17. Economywide Strategies*. The system should include sources that currently report emissions data to DEC on an annual basis and expand the universe of facilities that are required to report by establishing a lower reporting threshold than currently exists.

²⁵⁶ ECL § 75-0105(4).

Having a more complete picture of the amount of GHGs emitted from a larger percentage of facilities would allow for a more focused effort to reduce GHG emissions from existing industrial sources, which can often be accomplished by reducing fuel combustion. Since fuel combustion also releases other contaminants, including hazardous air pollutants, the communities in which these facilities are located can be expected to experience improved air quality and health outcomes.

The registry and reporting system would allow DEC to collect, review, and make publicly available the submitted GHG emissions data. Facilities required to report GHG emissions to the new system would be responsible for the costs involved in generating and reporting the data. Reporting of GHG emissions by industry and verification of reported GHG emissions would not be expected to vary significantly from methods used by DEC for other pollutants but could result in additional administrative costs associated with the development of new or additional electronic reporting platforms and associated infrastructure. DEC would attempt to align, to the extent possible, the new reporting requirements with existing DEC and U.S. Environmental Protection Agency (EPA) GHG emissions reporting programs.

Components of the Strategy

- **Develop internal draft of GHG reporting regulation:** DEC should promulgate regulations to establish new or expand the existing GHG reporting requirements, which may be a component of another regulatory program, such as an economywide program of the type discussed in *Chapter 17. Economywide Strategies*. When developing the regulatory program, DEC should evaluate existing online reporting systems such as those established by EPA and the California Air Resources Board. DEC should work with the State's Office of Information Technology Services or other appropriate entity to develop an online electronic reporting platform for this regulatory program.
- **Provide training to regulated entities:** DEC should work with impacted facilities to ensure information exchange and to ensure that applicable reporting requirements are clearly understood.

16. Provide Economic Incentives

The State should continue to develop an in-state supply chain of green economy businesses by offering economic incentives like loans, grants, tax credits, technical assistance programs, or even venture capital investments.

One of the most prominent economic incentives that the State can use in attracting these businesses is the enhanced Excelsior Jobs Program for green economy companies that make products or develop

technologies that are primarily aimed at reducing GHG emissions or supporting the use of clean energy. This program awards refundable tax credits to green businesses that are committed to hiring workers, undertaking research and development, or making capital investments in the State, with credits provided only after the fact under a pay-for-performance model.

NYPA has several economic development programs that support industry, other businesses, and not-for-profits in the State. These programs provide either project funding or low-cost power, including hydroelectric power, primarily in exchange for commitments to retain or create jobs and invest capital in the State. An example is ReCharge New York, a program through which NYPA provides low-cost hydroelectric power to businesses and not-for-profit organizations throughout the State in exchange for investment or job commitments. In late 2020, NYPA adjusted the criteria for evaluating economic development awardees to include the applicants' support of green jobs and manufacturing in the New York.

The CJWG supports directing State assistance toward developing green economy businesses in Disadvantaged Communities.

Components of the Strategy

Green economy industries are poised for significant growth. Anchoring an in-state supply chain of growing green businesses will help the State meet its climate goals and requirements while also attracting new investments and jobs.

- **Offer economic incentives:** These incentives should operate to secure green economy attraction, expansion, and retention projects. Implementation should include engagement with green economy businesses to identify potential in-state economic opportunities, engagement with awardees and suppliers of State green procurements to discuss potential in-state economic opportunities, and coordination with State partners to identify all relevant incentives. There should be coordination with Regional Economic Development Councils (REDCs) to identify sites in Disadvantaged Communities and legacy/rust belt cities with strong potential for revitalization, utilizing incentives to attract green economy business investment to those areas.
- **Implement complementary initiatives:** These initiatives should focus on growing the workforce, supplier base, and market demand that will increase the State's attractiveness as a location for these new green businesses.