Advisory Panel on:

Energy-Intensive and Trade-Exposed Industries

March 10, 2021

Meeting 8

NEW YORK STATE OF OPPORTUNITY. | Climate Action Council

Logistics and Meeting Procedures

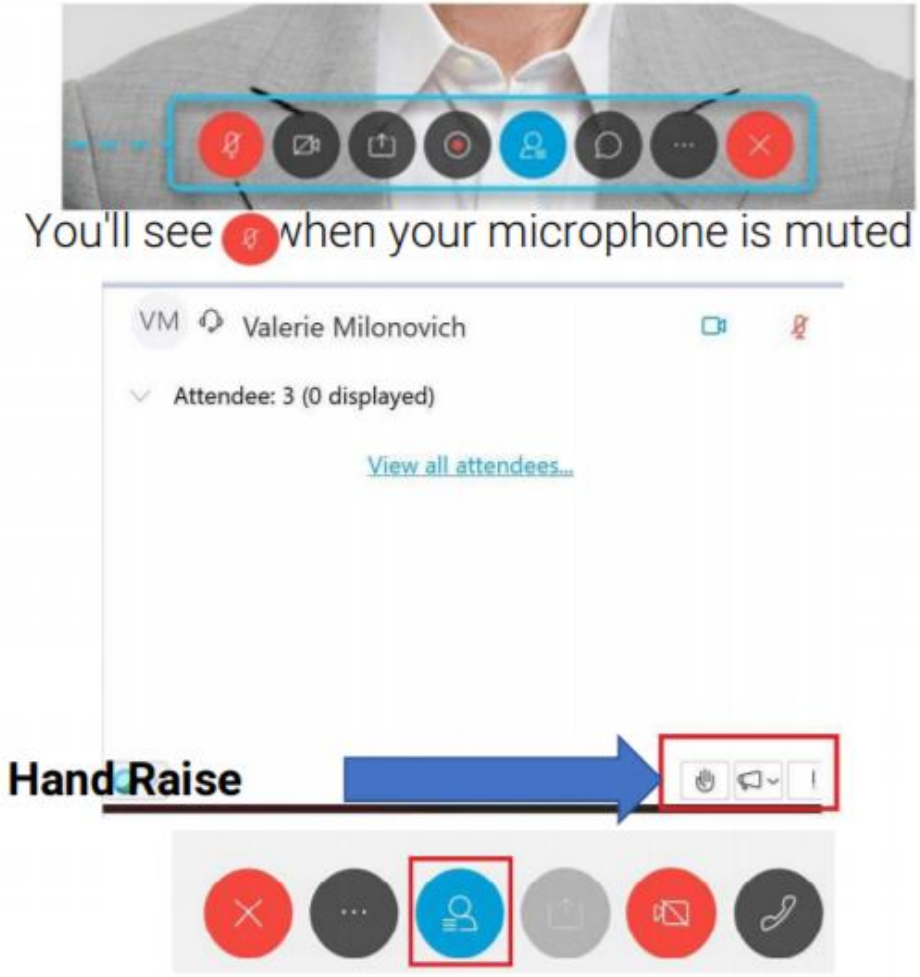
Before beginning, a few notes to ensure a smooth discussion:

> Panel Members should be on mute if not speaking
  - If using phone for audio, please tap the mute button
  - If using computer for audio, please click the mute button on the computer screen (1st visual)

> Video is encouraged for Panel Members, in particular when speaking

> In the event of a question or comment, please use the hand raise function (2nd visual). You can get to the hand raise button by clicking the participant panel button (3rd visual). The Chair will call on members individually, at which time please unmute.

> If technical problems arise, please contact James.Bottomley@cadmusgroup.com or (207)595-5473.



Recap of progress to-date

- Defined panel scope and work plan
- Reviewed industrial emission sources, technology and process solutions for reducing emissions
- Identified potential policies to foster deployment of solutions
- Synthesized preliminary emission reduction strategies
- Collected public input on preliminary strategies
- Discussed detailed draft of recommended strategies

Meeting Objective

- Review proposed changes to finalize strategies

Agenda

- Welcome and updates
- Review proposed changes to EITE panel final strategies

Energy-Intensive and Trade-Exposed Industries Advisory Panel

Eric Gertler, Chair
President & CEO: Empire State Development

Keith Hayes, Co-Chair
Senior VP of Clean Energy Solutions: NYPA

Heather Briccetti
President & CEO: The Business Council of New York State

Tristan Brown
Associate Professor of Energy Resource Economics: SUNY ESF

Jason Curtis
Vice President & General Manager: Nucor Steel

Carlos García
Energy Policy Planner: New York City Environmental Justice Alliance

Leah George VanScott
VP of Business Development: Greater Rochester Enterprise

Doug Grose
President: NY CREATES

Michael LeMonds
Vice President of Environment, Land and Government Affairs: Lafarge

Melanie Littlejohn
Vice President and Regional Executive Director-Upstate New York: National Grid

Elisa Miller-Out
Managing Partner: Chloe Capital

Stephen Tucker
President & CEO: Northland Workforce Training Ctr

David Wasiura
Assistant to the Director: United Steelworkers District 4

Lourdes Zapata
President & CEO: South Bronx Overall Econ. Devt. Corp.

Energy-Intensive and Trade-Exposed Industries Staff Working Group

Dave Work
Sr. Director, Contract & Program Ops., NYPA

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Kara Allen
Senior Adviser, NYSERDA

Kevin Hannel
Chief, Bureau of Labor Statistics, DOL

Adam Polmateer
Utility Consumer Assistance Specialist, DPS

Update

- Integration Analysis Assumptions for Industry

CLCPA draft integration analysis assumptions: climate.ny.gov/Climate-Resources

Power Generation AP

Power Grid Study

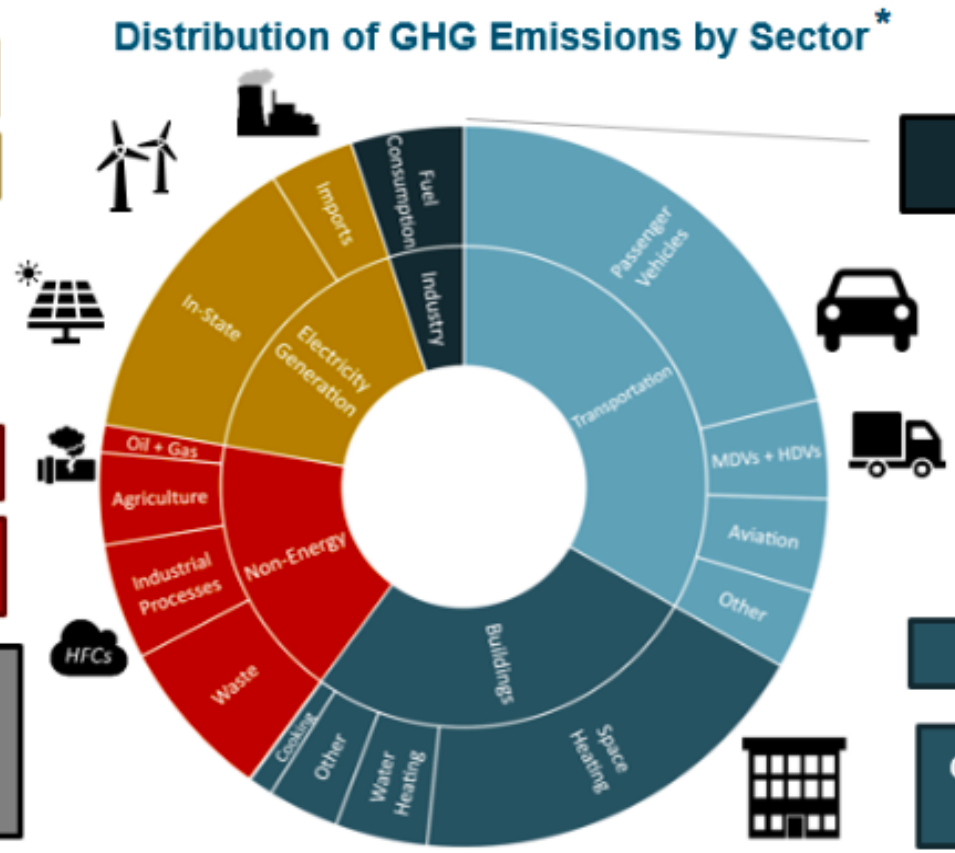
CES Cost Study

Waste AP

Agriculture & Forestry AP

Methane Mitigation Potential from in-State Oil & Gas Systems Study

Land Use & Local Gov't AP
Climate Justice WG
Just Transition WG (Jobs Study)
Updated GHG Accounting



Energy Intensive & Trade Exposed Industries AP

Transportation AP

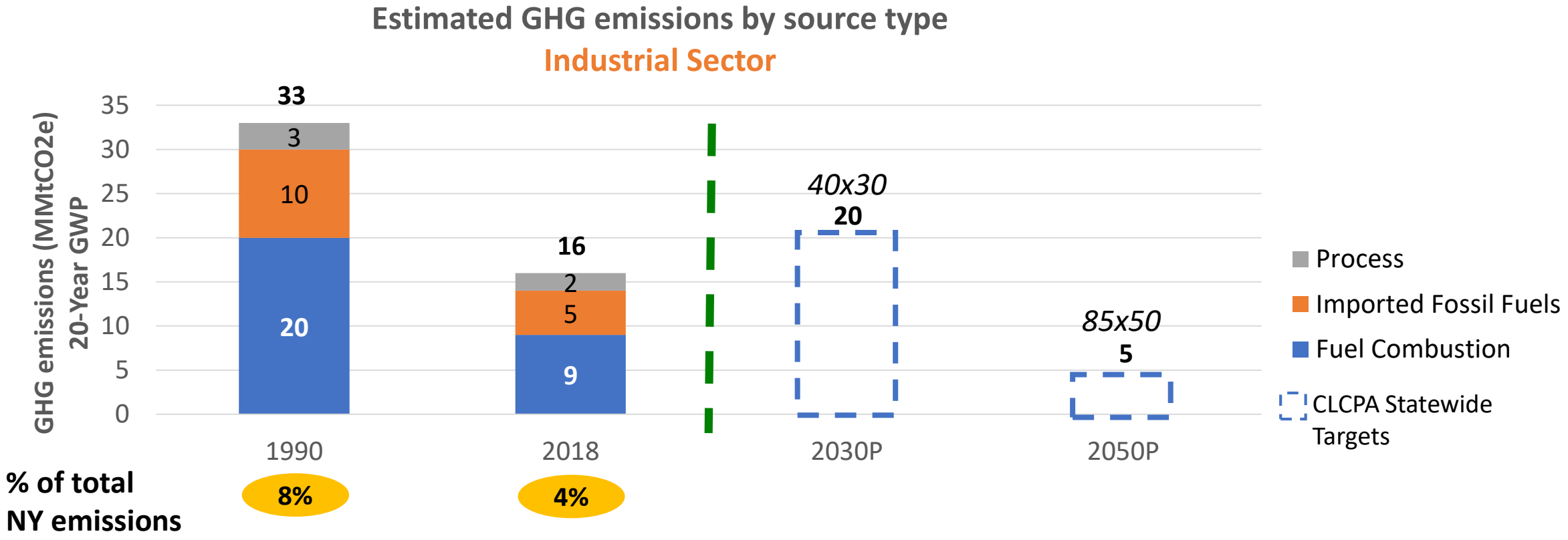
Transportation Roadmap

Energy Efficiency & Housing AP

Carbon Neutral Buildings & Building Electrification Roadmaps

Draft and Preliminary

Industrial sector GHG emissions estimates for EITE panel to-date vs. 2030/2050 CLCPA targets



Source: Draft DEC/NYSERDA analysis subject to public review

Notes: Excludes indirect emissions from electricity consumption and product use emissions; "Imported Fossil Fuels" includes estimates of upstream GHG emissions associated with fuel combustion; "Fuel Combustion" GHG emissions include combustion of all fuel types at industrial facilities; "Process" GHG emissions include all non-combustion emissions related to industrial production.

Draft and Preliminary

Discussion -

Detailed Industrial GHG Emission Mitigation Strategies and Enabling Initiatives

Reminder: Public and Stakeholder Input Process

- All EITE Advisory Panel meetings have been open for viewing by the public; all meeting presentations and notes have been posted to climate.ny.gov.
- December – input from Climate Action Council, Climate Justice Working Group
- January – input from public in virtual forum (verbal and written)
- Ongoing – written comments accepted at:
  - E-mail (preferred): climate@esd.ny.gov
  - Letter:
    - EITE Advisory Panel
    - c/o Empire State Development
    - 633 Third Avenue
    - New York, NY 10017
- February – input from EITE advisory panel on draft strategies
- March – finalize EITE advisory panel strategies for Climate Action Council
- April 2021 and beyond – public input will be collected on Climate Scoping Plan, which will consider and incorporate EITE, other panel recommendations under the guidance of the Climate Action Council

Discussion: Summary of Proposed Changes to Strategies

- #3 - Research, Development, and Demonstration
  - Changes:
    - Alter strategy description to highlight that meeting CLCPA goals for EITE sector are not currently feasible without technical and/or economic maturity of solutions
    - Eliminate references to specific solutions or classes of solutions
    - Incorporate comments regarding the availability of federal funding to assist in both research and demonstration projects given priorities of the new administration.

- #5 - GHG Reporting
  - Change:
    - Clarify that, to the extent possible, EITE industries would not be required to also report redundant information under any new reporting requirement.

Next Steps

Next Steps

- EITE Chair will present recommendations to Climate Action Council in April.

- Future Panel meetings will then shift to an as-needed basis for further potential collaboration and recommendation refinement during the remaining Scoping Plan process.

- Panel and public can still submit comments to climate@esd.ny.gov.

Appendix - 1

Proposed Final EITE Recommended Strategies for Climate Action Council Consideration

Reminder: EITE considerations for Industrial emission mitigation strategies

- Industrial sectors within EITE panel scope (Manufacturing, Mining) total a small share (~4%) of State emissions
  - ***Construction emissions are now being addressed by the Transportation Advisory Panel.***
- "Heterogeneous" nature may result in higher cost per tons of emissions reduced.
- "EITE" industries are likely to represent a high share of Industry sector emissions; non-incentive-oriented approaches may cause leakage.
- Emissions will decline with decarbonization of Power Generation sector; near-term opportunities likely focused on energy efficiency, while most deep decarbonization (carbon capture, low-carbon fuels, etc.) is est. to occur further into the future as new technologies scale, mature and become more viable.

Reminder: Preliminary EITE Strategies

Mitigation strategies: Directly reduce emissions and contribute to the achievement of the GHG emission limits or carbon seq. needed to achieve net zero, where applicable:

1. Provide financial incentives and technical assistance for the decarbonization of EITE sectors
2. Create procurement incentives for business to capitalize on low-carbon economic opportunities

Enabling initiatives: No direct emissions benefit, but enable or magnify the mitigation strategies, enhance climate justice, or just transition. (*Examples: outreach, education, and awareness; capacity building; workforce development; and research and development.)*

3. Identify and support technological innovation to enable deep industrial decarbonization
4. Workforce development training to support Energy-Intensive and Trade Exposed (EITE) industries
5. Increase the available data on industrial GHG emissions to help prioritize efforts and monitor progress
6. Provide economic incentives to grow the green economy

Mitigation strategy – Initiative #1: Financial and Technical Assistance Overview

Description:	Provide technical assistance to help identify economically viable decarbonization projects and provide comprehensive energy management planning. Provide financial assistance for decarbonization projects and leverage low-cost hydropower to support industry.		
Action type:	Engineering support and financial incentives		
GHG reduction by 2030:	Low	**GHG reduction by 2050:**	High
Cost and funding considerations:	Costs to support industry can be through utility collections of a System Benefits Charge, agency funding or federal grants and support.		
Ease of implementation:	Easy		
Example case studies:	NYSERDA's Clean Energy Fund, NYPA's Low-Cost Power Program, Investor-Owned Utility Energy Efficiency Programs.		

Risks / Barriers to success	Possible mitigants
Industries' internal competition for resources may prohibit investment in implementation of GHG reduction strategies	Provide clear market signals of long-term resource commitments and benefits to industry

Draft and Preliminary

Mitigation strategy – Initiative #1: Financial and Technical Assistance
Components of the strategy

Components required for delivery *(Brief description of action required)*	**Implementation lead** *(Entity responsible for completing)*	**Time to implement** *(Time required to implement)*	**Other key stakeholders** **(***Entities that need to be engaged)*
NYSERDA financial and technical initiatives • Approval of continuation of Clean Energy Fund • Market Engagement and Outreach	NYSERDA	Ongoing	DPS, NYSERDA, NYPA Utilities, Regional Economic Development Councils
Utility Energy Efficiency Programs	Utilities	Ongoing	DPS, NYSERDA, NYPA
Low-cost Hydro Power Programs	NYPA	Ongoing	DPS, Utilities

Mitigation strategy – Initiative #1: Financial and Technical Assistance
Benefits and impacts

Anticipated Benefits and Impacts	
Disadvantaged communities	Industrial facilities implementing GHG emission reduction projects or receiving low-cost hydro power may be located within a disadvantaged community.
Health and co-benefits	Significant health benefits are expected from lowering GHG emission reductions at energy intensive industrial facilities in which some facilities are in heavily populated areas.
Just transition: businesses and industries, workers	Over 127,000 clean energy jobs exist in energy efficiency in New York and as increased investments in GHG emission reduction projects occur opportunities exist for job growth in the sector.* *2020 New York Clean Energy Industry Report, p. 37.
Other	

Draft and Preliminary

Mitigation strategy – Initiative #2: Low-Carbon Procurement Policies Overview

Description:	Develop preferential procurement standards for low-carbon building materials. Low-carbon materials will be required to reduce emissions in the built environment. Providing a value proposition for manufacturers to produce low-carbon products will help reduce process related emissions.		
Action type:	Legislative/Regulatory		
GHG reduction by 2030:	Low	**GHG reduction by 2050:**	Medium
Cost and funding considerations:	Low-carbon products available in the near have comparable cost characteristics to legacy materials. Long-term costs can be controlled by capping preferential standards (e.g. maximum % discount on bid price when proposal contains low-carbon products)		
Ease of implementation:	Medium		
Example case studies:	Buy Clean California; EU 2014 Public Procurement Directives		

Risks / Barriers to success	Possible mitigants
• Availability of different types of low-carbon products • Life Cycle Analyses (LCAs) of products require standardized accounting frameworks to ensure accurate accounting of emission reduction.	• RD&D funding for product development • Work with federal government as well as other states and municipalities on LCA best practices to ensure that compliance is favorable to business interests.

Draft and Preliminary

Mitigation strategy – Initiative #2: Low-Carbon Procurement Policies
Components of the strategy

Components required for delivery *(Brief description of action required)*	**Implementation lead** *(Entity responsible for completing)*	**Time to implement** *(Time required to implement)*	**Other key stakeholders** **(***Entities that need to be engaged)*
Establishment of eligible product list	OGS	<1 year	NYSERDA, DEC, DOT, PANYNJ
Global Warming Potential (GWP) assessment framework	NYSERDA	<1 year	DEC
Environmental Product Declaration verification and compliance processes	OGS	1-2 years	NYSERDA, DOT, PANYNJ
Continuous monitoring and updating of standards	NYSERDA	1-2 years	DEC

Mitigation strategy – Initiative #2: Low-Carbon Procurement Policies
Benefits and impacts

Anticipated Benefits and Impacts	
Disadvantaged communities	The production methods utilized to manufacture low-carbon products often reduce other harmful co-pollutants relative to the production of the legacy products being replaced. As a result, production of low-carbon products may have beneficial local health impacts in disadvantaged communities where industrial facilities are often located.
Health and co-benefits	See above.
Just transition: businesses and industries, workers	Development of low-carbon products and associated markets will offer new business opportunities, including to NYS-certified M/WBE and SDVOBs. Technologies that will enable large scale production of low-carbon goods will be developed by startups and other new business ventures that will spur job growth and new innovative industries in NY State.
Other	

Mitigation strategy summary

Initiative #	Description	Action type	Emissions impact	Ease of implementation	Cost
1.	Provide financial incentives and technical assistance for the decarbonization of EITE sectors	Financial and technical assistance	High	Easy	$$$
2.	Create procurement incentives for business to capitalize on low-carbon economy opportunities	Low-carbon procurement policies	Low	Medium	$$

Enabling initiative – Initiative #3: Research Development & Demonstration (RD&D) Overview

Description:	Develop a comprehensive Innovation Roadmap to determine priorities for deep decarbonization RD&D investment. Meeting the CLCPA goals for industry is not technically and/or economically feasible with currently available technologies alone. This research effort should analyze the social, financial, and technological characteristics of solutions that will enable industry to meet CLCPA goals. The research should consider the intersection of the industrial/manufacturing, agriculture, transportation, and power generation sectors when determining investment priorities.
Action type:	Research initiative
Cost and funding considerations:	• Funding required for initial roadmap analysis with additional funding for further research and early-stage pilots to be determined pending the outcome of analysis. • Potential to leverage federal spending in these areas given developments with the new administration
Ease of implementation:	Easy
Example case studies:	*Electrifying U.S. Industry* (Renewable Thermal Collective); *Getting to Neutral* (Lawrence Livermore National Lab); *Low-Carbon Heat Solutions for Heavy Industry* (Columbia University)

Risks / Barriers to success	Possible mitigants
• Research scope will need to be tightly defined to ensure meaningful recommendations can be ascertained	• Form collaborative stakeholder group to provide input on research scope

Draft and Preliminary

Enabling initiative – Initiative #3: Research Development & Demonstration
Components of the initiative

Components required for delivery *(Brief description of action required)*	**Implementation lead** *(Entity responsible for completing)*	**Time to implement** *(Time required to implement)*	**Other key stakeholders** **(***Entities that need to support)*
Development of research agenda scope	NYSERDA	< 1 year	
Release of solicitation to perform research	NYSERDA	1-2 years	
Fund research and pilot/demonstration projects	NYSERDA	Ongoing	ESD, NYPA, DEC

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Enabling initiative – Initiative #3: Research Development & Demonstration: Benefits and impacts

Anticipated Benefits and Impacts	
Disadvantaged communities	Research must take into account environmental justice concerns when making recommendations for areas of action and investment.
Health and co-benefits	Research must take into account public health concerns when making recommendations for areas of action and investment.
Just transition: businesses and industries, workers	A robust RD&D program will attract private investment, highly skilled personnel resources, and new businesses to NY state.
Other	

Draft and Preliminary

Enabling initiative – Initiative #4: Workforce Development Overview

Description:	Provide workforce development training on existing and new innovative emission reduction technologies
Action type:	Regulatory (Clean Energy Fund)-- NYS Labor
Cost and funding considerations:	Costs for training are mitigated by expanding job opportunities for clean energy workforce in addition to cost savings at facilities as GHG strategies are implemented.
Ease of implementation:	Easy
Example case studies:	NYSERDA Workforce Development Programs , NYS Dept of Labor Programs

Risks / Barriers to success	Possible mitigants
• Training programs not aligned with business needs • Risk aversion for businesses to invest in training • Long lead time to find skilled workers	• Develop and or expand training to meet the needs and capacity • Offset cost of training

Draft and Preliminary

Enabling initiative – Initiative #4: Workforce Dev. Components of the initiative

Components required for delivery *(Brief description of action required)*	**Implementation lead** *(Entity responsible)*	**Time to implement** *(Time required to implement)*	**Other key stakeholders** (*Entities supporting)*
NYSERDA will partner with training organizations and businesses to expand training capacity in NY and update training content to prepare workers for jobs with clean energy technologies. • Issue Competitive Solicitations • Develop strategic partnerships with industry organizations • Support training activities that will include job preparation and job placement initiatives • Support business-facing intermediaries such as community-based organizations	NYSERDA	Ongoing	NYSDOL, ESD, Utilities

Draft and Preliminary

Enabling initiative – Initiative #4: Workforce Development
Benefits and impacts

Anticipated Benefits and Impacts	
Disadvantaged communities	Many industrial facilities are in or near disadvantaged communities, efforts will encourage participation by and job placement for disadvantaged workers.
Health and local air quality	Significant health benefits are expected from lowering GHG emission reductions at energy intensive industrial facilities, some of which are in heavily populated areas.
Just transition: businesses and industries, workers	Opportunities exist for worker training, especially within disadvantaged communities, including partnering with unions, engineering companies, energy efficiency service providers.
Other	

Draft and Preliminary

Enabling initiative – Initiative #5: GHG Reporting Overview

Description:	Expand the universe of facilities that are required to report on their GHG emissions.
Action type:	Regulatory
Cost and funding considerations:	Reporting facilities would be the bearer of cost. DEC would be the bearer of cost for data collection and review.
Ease of implementation:	Medium – regulation adoption takes 12-24 months typically, but process is well established.
Example case studies:	Existing regulations (6 NYCRR Part 202-2) that require GHG reporting for major sources of criteria pollutants.

Risks / Barriers to success	Possible mitigants
- Establishing a GHG emissions threshold at which reporting will be required. There will likely be disagreement between state and regulated community as to what the threshold should be. - Concern about placing additional regulatory requirements on facilities already highly regulated by DEC.	- Evaluate whether to align this requirement with reporting already done to meet EPA GHG Reporting Program. - To the extent possible the new regulatory requirement should make clear that EITE industries already reporting GHG emissions to DEC would not be required to also report under any new reporting requirement.

Draft and Preliminary

Enabling initiative – Initiative #5: GHG Reporting
Components of the initiative

Components required for delivery *(Brief description of action required)*	**Implementation lead** *(Entity responsible for completing)*	**Time to implement** *(Time required to implement)*	**Other key stakeholders** (*Entities that need to support)*
Develop Rule Initiation Memorandum (RIM)	DEC	1 month	N/A
Initial draft of GHG reporting regulation	DEC	4 months	N/A
Public outreach to get input on initial draft regulation	DEC	4 months	Regulated facilities, business council, industrial sector organizations, environmental advocacy organizations.
Finalize draft regulation	DEC	3 months	N/A
Public notice of draft regulation	DEC	1 – 2 months	As above
Prepare response to comments and finalize regulation	DEC	3 months	N/A
Adopt regulation	DEC	1 month	N/A

Draft and Preliminary

Enabling initiative – Initiative #5: GHG Reporting Benefits and impacts

Anticipated Benefits and Impacts	
Disadvantaged communities	Having a more complete picture of GHG emitting facilities will allow a more focused effort to reduce GHG emissions as much as possible. Since most often GHG emissions are the result of fuel combustion any reduction in fuel combustion will also result in lower emissions of criteria and hazardous air pollutants, which tend to be elevated in Disadvantaged Communities.
Health and local air quality	As described the initiative has the potential to result in lower criteria pollutant emissions. Reductions in criteria pollutant emissions have long been known to be beneficial to the health of individuals.
Just transition: businesses and industries, workers	Collecting emissions data from a larger universe of industrial facilities will enable a more complete picture of greenhouse gas emissions, allowing the State to better track its emission reduction progress, identify the potential for additional reductions in the EITE sectors and prioritize emission reduction efforts.
Other	

Draft and Preliminary

Enabling initiative – Initiative #6: Economic incentives Overview

Description:	Leverage the State's climate policies to develop an in-state supply chain of green economy companies by engaging in business development discussions and offering loans, grants, tax credits, and other economic incentives.
Action type:	Economic Incentives
Cost and funding considerations:	Costs are offset by attracting additional spending, which produces State and local tax revenues; State programs already in existence: Excelsior Jobs Program, NY Ventures, NY Green Bank, etc.
Ease of implementation:	Easy / Operational
Example case studies:	In April 2020, New York State created special "Green Economy Tax Credits" as economic incentives under the Excelsior Jobs Program, which have helped to attract several projects, including: • Li-cycle: Will recycle lithium-ion batteries, resulting in 100 jobs. NYS committed $5 million. • Plug Power: Will produce hydrogen fuel cell stacks and electrolyzers, resulting in 377 jobs. NYS committed $13 million in tax credits.

Risks / Barriers to success	Possible mitigants
• Many green industries will require additional conditions to grow in NYS; greater market demand, workforce and suppliers. • Many jurisdictions are competing for green economy jobs.	• To be effective, economic incentives may need to be supported by workforce planning and other efforts to stimulate demand (e.g., clean energy and low-carbon procurements).

Enabling initiative – Initiative #6: Economic incentives
Components of the initiative

Components required for delivery *(Brief description of action required)*	**Implementation lead** *(Entity responsible)*	**Time to implement** *(Time required to implement)*	**Other key stakeholders** *(Entities supporting)*
• **Offer economic incentives to secure green economy attraction and expansion projects, including**: ○ Engagement with green economy businesses to identify potential in-state economic opportunities; ○ Engagement with awardees and suppliers of State green procurements (e.g., offshore wind energy and port investment solicitation) and contests (e.g., 76 West clean energy business plan competition) to discuss potential in-state economic opportunities; ○ Coordinating with State partners to identify all relevant incentives (ESD, NY Green Bank, NYPA, etc.) ○ Offering and administering economic incentives where necessary.	ESD	Ongoing	NYSERDA, NYPA
• **Implement complementary initiatives to grow workforce, supplier base and market demand.**	Various	Ongoing	NYSERDA, NYPA, SUNY

Draft and Preliminary

Enabling initiative – Initiative #6: Economic incentives Benefits and impacts

Anticipated Benefits and Impacts	
Disadvantaged communities	• Green economy projects may occur within disadvantaged communities. Project location decisions are typically business-driven, not State-driven.
Health and local air quality	• Certain green economy projects, while bringing local jobs and investment, may also bring air quality or other environmental impacts, which would be need to be reviewed under State law.
Just transition: businesses and industries, workers	• Certain former power plant facilities may be available to be repurposed for green economic development projects – e.g., offshore wind projects that leverage fossil fuel electric generation facilities as interconnection points – potentially offsetting economic losses from decarbonization. • Green economy companies may provide supplier opportunities to EITE businesses, and vice versa.
Other	• Green economy industries are poised for significant growth, and anchoring an in-state supply chain of growing green businesses will both make it easier for the State to achieve its climate goals while also attracting new investments and jobs.

Draft and Preliminary

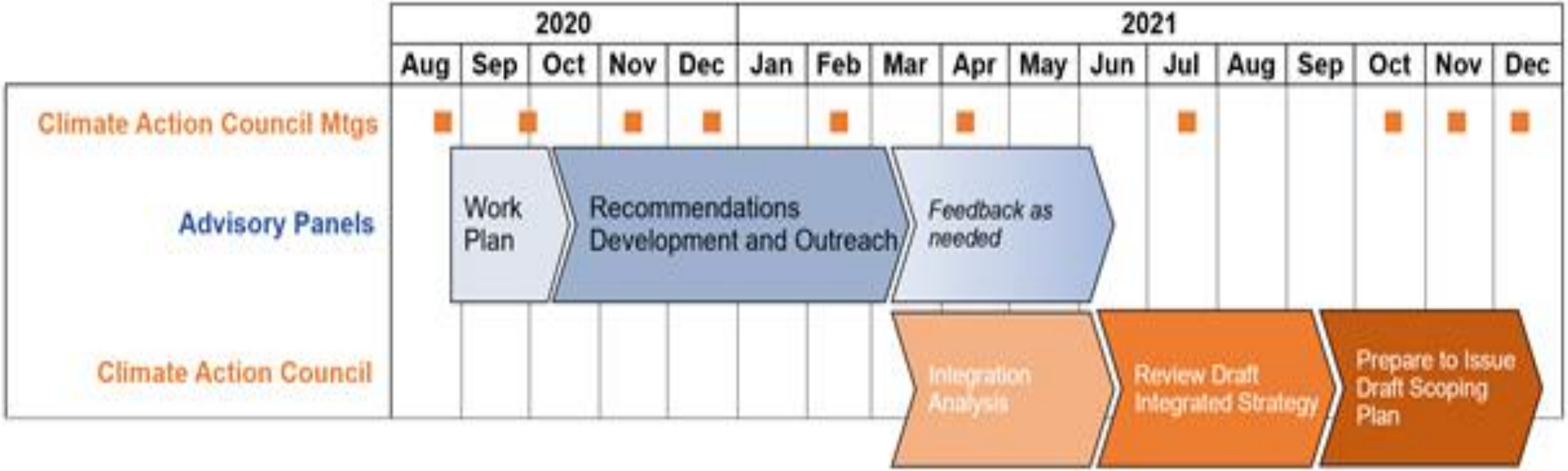
Enabling initiatives summary

Initiative #	Description	Action type	Ease of implementation	Cost
3.	Identify and support technological innovation to enable deep industrial decarbonization	Research, Dev. & Demonstration	Medium/Hard	$$
4.	Workforce development training to support Energy-Intensive and Trade Exposed (EITE) industries	Workforce development	Easy	$$
5.	Increase the available data on industrial GHG emissions to help prioritize efforts and monitor progress	Reporting requirement	Medium	$
6.	Provide economic incentives to grow the green economy	Economic incentives	Easy	$

Draft and Preliminary

Appendix - 2

Reminder: Timeline Overview



Reminder: EITE Advisory Panel Work Plan – Draft Timeline of Meetings, Expertise Provided

Date	Group	Anticipated Panel-Related Topics	Expertise Provided to Panel for Meeting
Oct 8.	*CAC*	➢ *EITE Chair to present Work Plan and solicit input from CAC*	
Late Oct.	**EITE**	• Discuss any CAC input on Work Plan • Review potential technologies and policies	• Deep dives on: i) industry emission sources; ii) technologies & policies to reduce emissions.
Nov.	*CAC*	➢ *EITE Chair to present progress and solicit input from CAC*	
Nov.	**EITE**	• Identify potential recommendation options	• Input from JTWG, CJWG and EJAG • List of potential recommendations compiled by Panel, staff, Industry, public, engagement
Dec.	*CAC*	➢ *EITE Chair to present potential recommendation options and solicit input from CAC*	
Dec.	**EITE**	• Select preliminary recommendations and any input on goals	• Initial evaluation of identified recommendations
Jan.	**EITE**	• Public, panel/working group, and/or expert input session(s)	
Feb.	**EITE**	• Identify potential refinements to recommendations and goals	• Summary of input from public, JTWG, CJWG, EJAG • Ongoing evaluation of recommendations
Feb.	*CAC*	➢ *EITE Chair to attend CAC Meeting*	
Mar.	**EITE**	• Finalize panel recommendations and any input on assumptions	• Evaluation of potential refinements
Apr.-June	*CAC/EITE*	• Respond to CAC inquiries as necessary.	

Note: EITE Staff Working Group also expects to hold internal meetings on an approximately weekly basis.

Reminder - Key Takeaways: Overview of NYS Programs Applicable to Industry

> The State offers many existing programs in *financial assistance*, *technical assistance*, *low-cost power and workforce development* to:

- **lower the emissions produced** by industrial activities in New York State;
- **support the transition** of energy-intensive and trade-exposed industries throughout the decarbonization of the state's economy; and
- **mitigate leakage** from energy-intensive and trade-exposed industries by supporting their attraction, retention and expansion.

Empire State Development (ESD) Programs

Program	Purpose
Excelsior Jobs Program, including Green Economy Tax Credits	Provides performance-based refundable tax credits to private businesses in exchange for achieving annual milestones in employment, investment and R&D spending, with enhanced benefits for green economy projects. $5 million is reserved for the workforce training Employee Tax Incentive Program credit.
Centers and Programs – Division of Science, Technology and Innovation (NYSTAR)	NYSTAR annually provides $55 million to a total of approximately 70 NYSTAR centers, including a number that impact or support the green economy by providing a forum for experts to work with big and small industry partners to conceive, validate and scale disruptive technologies. *Sample Programs: Centers of Excellence (COE), Centers for Advanced Technology (CAT) and Manufacturing Extension Partnership (MEP) programs.*
Other Economic Assistance – Loans, Grants, Tax Credits and Technical Assistance	ESD administers dozens of general programs devoted to providing loans, grants, tax credits, technical assistance and venture investment; some of these programs may be available to support EITE industries or serve as models for new programs.

New York Power Authority (NYPA) Programs

Program	Purpose
High Load Factor Power (HLF)	Allocates power from pumped storage facilities to businesses that utilize power at a high rate (~75% load factor or higher) and have an electric demand of 5 MW or higher.
Industrial Economic Development Power Program	Allocations of power including hydro and market are granted to the electric systems with new, expanding, or relocating businesses within their service territory, in exchange for a commitment of new jobs at the facility.
Northern NY Power Proceeds	Allocates funding for economic development In St. Lawrence County. 15% of the program is dedicated to supporting energy related projects, programs and services.
Preservation Power	Allocates hydropower to eligible businesses expanding or businesses looking to locate operations in St. Lawrence, Franklin or Jefferson counties.
ReCharge New York (RNY)	Provides low-cost power to businesses and not-for-profit organizations statewide in return for commitments to retain/create jobs and invest capital in their facilities.
WNY Hydropower	Allocated hydropower to expanding businesses or businesses seeking to locate within 30 miles of the Niagara Power Plant.
Western NY Power Proceeds	Low-cost hydropower is allocated to businesses and others to reduce electricity costs and spur economic development. 15% of the program is dedicated to supporting energy related projects, programs and services.
Distributed Energy Resource Program	Advance NYS Clean Energy goals by partnering with our customers to implement distributed solar and storage with NYPA operating as the owner's representative. This work is done at no cost to the customer and is paid by the solar or storage developer if their overall project economics meet the customer's financial requirements.
eMobility Program	Installation of electric vehicle charging equipment for multiple purposes: fast charging for highway corridors and urban centers, commuter lot EV charging, transit bus depot charging and charging for workplaces within the ReCharge NY program. Advisory services for fleet electrification.
Energy Efficiency Program	Partnering with NYPA customers to implement comprehensive Energy Efficiency projects. This program provides our customers with the expertise to identify and evaluate facility improvements that not only provide solutions to aging equipment, but also produce significant energy and environmental benefits.
Smart Street Lighting NY	Advance NYS Clean Energy goals by offering a full turnkey service to assist customers with the acquisition and conversion of street lights to energy efficient LEDs.
Street Lighting Maintenance Service	The Maintenance Service begins once municipalities gain ownership and convert their street lights to LED through Smart Street Lighting NY.

New York State Energy Research and Development Authority (NYSERDA) Programs

Program	Purpose
Buildings of Excellence Competition	Recognizes and rewards the design, construction, and operation of very low or zero carbon emitting multifamily buildings.
Clean Energy Workforce Development Programs	Provides clean energy workforce development and training funds.
Clean Heating and Cooling Programs	Heat pumps are a more efficient heating and cooling option that eliminate fossil fuels, can provide up to 100 percent of your heating and cooling needs, and help you save on your energy bills.
Commercial and Industrial (C&I) Carbon Challenge	Helps large commercial and industrial companies and organizations implement their best energy-saving/carbon-reduction projects.
Commercial New Construction Program	Provides technical assistance and support to design teams and building owners involved in building energy-efficient structures.
Energy Storage Program	Offers funding and technical support to building owners, municipalities, energy storage developers, contractors, and integrators for installing energy storage technologies.
Energy to Lead	Challenged student-supported coalitions across the State to develop and implement plans to advance clean energy on their campuses and in their local communities in new ways.
Flexible Technical Assistance (FlexTech) Program	Shares the cost to produce an objective, site-specific, and targeted study on how best to implement clean energy and/or energy efficiency technologies.
Ground Source Heat Pump Program	Offers support for the installation of ground source heat pump systems at residential, commercial, institutional, and industrial buildings.
NY-SUN	Provides incentives and financing to make solar-generated electricity accessible and affordable for all New York homeowners, renters, and businesses. include training for installers and public officials, standardized permitting processes, and consumer education.
Real Time Energy Management Program (RTEM)	RTEM technologies analyze data and recommend actionable insights, resulting in lower operating and utility costs, and a smarter building with greater comfort, appeal and marketability.
Strategic Energy Management Program	Offers training to industrial facilities that are interested in optimizing energy use through a continuous improvement approach