



## Economy-Wide Mechanisms

### I. Introduction

The Economy-Wide Mechanisms Chapter proposes three market-based policy options: carbon pricing, cap-and-invest, and a clean energy supply standard. For the reasons discussed below, Commenters support a carbon pricing scheme. And while the discussion to date has largely focused on pricing carbon dioxide, an effective pricing scheme must include all significant greenhouse gases since methane and nitrous oxide contributed about a third of total greenhouse gas emissions in the state.

### II. Endorsement of Carbon Pricing

Commenters support a carbon pricing scheme with safeguards to ensure that the cost burden is not regressive and that the State provides targeted relief for low- and moderate-income (“LMI”) consumers and disadvantaged communities (“DACs”). Additionally, it is critical that the revenue raised by a carbon pricing scheme be dedicated to investments in clean energy and energy efficiency measures and compliant with the Climate Law’s mandate that at least 35%-- and the goal that 40%--of such investments be made in DACs.<sup>1</sup>

<sup>1</sup> See, e.g., ECL § 75-0117; PSL § 66-p(6).

**A. Carbon pricing will provide a reliable source of revenue, which must be invested in clean energy and energy efficiency measures.**

It is critical that New York establish a reliable source of revenue for climate investments. As the DSP recognizes, cap-and-invest is vulnerable to fluctuations in pricing,<sup>2</sup> and therefore could result in insufficient revenue; and a clean energy supply standard would not raise any revenue.<sup>3</sup> By contrast, carbon pricing provides certainty with respect to the revenue that will be generated.<sup>4</sup> Mechanisms can be developed, as needed, to adjust the price upward or downward in response to emission reduction levels. Moreover, adjusting a carbon price as necessary is easy compared to course-correcting a cap-and-invest system in which allowances are annually auctioned off and where there are fewer opportunities to adjust on a continual basis. Additionally, the primary advantage of a cap-and-invest system is the ability to set a binding and certain emissions cap.<sup>5</sup> Because the Climate Law itself sets binding emissions caps, doing so through a pricing mechanism is unnecessary.<sup>6</sup>

Raising revenue is critical, as the State will need significant investments in energy efficiency, electrification, and renewable energy measures to achieve the just transition envisioned by the Climate Law. The CAC estimates that \$10 billion of annual investments in the early years will be needed to achieve the Climate Law mandates.<sup>7</sup> NY Renews, joined by multiple State lawmakers, called for \$15 billion of climate funding in the 2022–23 budget based on its assessment that such a sum was required to jumpstart implementation of the Climate Law.<sup>8</sup> The final 2022–23 budget woefully underfunds climate measures—headlined by a one-time \$4.2 billion environmental bond subject to voter approval—underscoring the urgent need for a dedicated revenue stream to fund the State’s transition to a clean energy economy.<sup>9</sup>

Any revenue raised by a carbon pricing scheme must be protected against “budget raids” that divert funding towards non-climate programs. According to an analysis by Environmental Advocates NY, \$251 million in funds raised by the Regional Greenhouse Gas Initiative (“RGGI”) has been raided since the program’s creation in 2008.<sup>10</sup> While the 2022–23 budget finally included language to prevent future raids of RGGI funds, the Climate Action Council

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<sup>2</sup> N.Y. Climate Action Council, *Draft Scoping Plan* (“DSP”) 256 (2021), <https://climate.ny.gov/-/media/Project/Climate/Files/Draft-Scoping-Plan.pdf>.

<sup>3</sup> *Id.* at 259.

<sup>4</sup> *Id.* at 256.

<sup>5</sup> *Id.* at 255.

<sup>6</sup> ECL § 75-0107.

<sup>7</sup> *Climate Action Council October 14, 2021 Meeting*, Climate Action Council (2021), <https://climate.ny.gov/-/media/Migrated/CLCPA/Files/2021-10-14-CAC-Meeting-presentation.ashx>.

<sup>8</sup> *State Legislators and NY Renews Coalition Call for \$15 Billion Investment in Climate, Jobs, and Justice*, NY Renews (Jan. 27, 2022), <https://www.nyrenews.org/news/2022/1/27/state-legislators-and-ny-renews-coalition-call-for-15-billion-investment-in-climate-jobs-and-justice>.

<sup>9</sup> Sen. Alessandra Biaggi, *2022-2023 New York State Budget Breakdown*, N.Y. State Senate (Apr. 16, 2022), <https://www.nysenate.gov/newsroom/articles/2022/alessandra-biaggi/2022-2023-new-york-state-budget-breakdown>.

<sup>10</sup> Reinvent Albany, *Memo of Support: S6268B (May)/A7611B (Kelles)* (2022), <https://reinventalbany.org/2022/03/ending-raids-on-clean-energy-funds/>.

(“CAC”) should propose safeguards to ensure that the same does not happen to the revenue raised by a new carbon pricing scheme.

Finally, any revenue raised must be invested in compliance with the Climate Law’s requirement that at least 35% of investments in clean energy and energy efficiency programs be made in and benefit DACs; and should meet the goal that at least 40% of such investments are funneled into DACs.<sup>11</sup>

## **B. Carbon pricing will support the transition from fossil fuels to electrification.**

A price on carbon is also the most equitable and efficient way to usher in the transition from a fossil fuel-based economy to one powered by clean power and electrification.

By contrast, a clean energy supply standard would fail to raise much-needed revenue and would promote gaseous fuels, which would prolong exposure to health-harming co-pollutants like particulate matter and nitrogen oxides and delay a transition to zero-emissions economy. Focusing on carbon intensity, rather than emissions reductions, does not address dangerous co-pollutants that disproportionately harm communities of color—and does not achieve the greenhouse gas (“GHG”) cuts required to meet the Climate Law mandates. Reliance on alternative “low-carbon” fuels, such as hydrogen blends, would slow decarbonization by prolonging the use of natural gas while increasing dangerous co-pollutants. For example, hydrogen combustion creates significant emissions of nitrogen dioxide, a precursor to both ground-level ozone and fine particulate matter.<sup>12</sup> These pollutants adversely impact local air quality and can cause serious health problems, and disproportionately affect communities of color.<sup>13</sup> New York already suffers from unhealthy ozone levels. The New York Metropolitan Area (“NYMA”) failed to attain the 2008 ozone National Ambient Air Quality Standards

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<sup>11</sup> ECL § 75-0117.

<sup>12</sup> See, e.g., Jeffrey Goldmeer et al., Gen. Elec., *Hydrogen as a Fuel for Gas Turbines: A Pathway to Lower CO<sub>2</sub>* 5 (2021), [https://www.ge.com/content/dam/gepower-new/global/en\\_US/downloads/gas-new-site/future-of-energy/hydrogen-fuel-for-gas-turbines-gea34979.pdf](https://www.ge.com/content/dam/gepower-new/global/en_US/downloads/gas-new-site/future-of-energy/hydrogen-fuel-for-gas-turbines-gea34979.pdf) (finding that a 50/50 mixture of hydrogen and fossil gas (by volume) increased concentrations of NO<sub>x</sub> in gas exhaust by 35% using General Electric combustion turbines); Mirko Bothien et al., ETN Global, *Hydrogen Gas Turbines: The Path Towards a Zero-Carbon Gas Turbine 9* (2020), <https://etn.global/wp-content/uploads/2020/01/ETN-Hydrogen-Gas-Turbines-report.pdf> (warning that higher flame temperatures for hydrogen-gas blends will produce more health-harming NO<sub>x</sub> emissions “if no additional measures are undertaken”); Mehmet Salih Celtek & Ali Pinarbasi, *Investigations on Performance and Emission Characteristics of an Industrial Low Swirl Burner While Burning Natural Gas, Methane, Hydrogen-Enriched Natural Gas and Hydrogen as Fuels*, 43 Int’l J. of Hydrogen Energy 1994, 1205 (2018) (finding that hydrogen combustion can emit more than six times as much NO<sub>x</sub> as does methane combustion).

<sup>13</sup> NO<sub>x</sub> is a pollutant that damages heart and respiratory function, impairs lung growth in children, and leads to higher rates of emergency room visits and premature death. Further, the state’s Department of Health has identified the reduction of air pollution, including ozone, as a key indicator to drive improvements in asthma rates and public health outcomes throughout the state. The New York State Prevention Agenda 2019-2024 notes the “extensive evidence” linking ozone with respiratory and cardiovascular illness and death and establishes a goal to “reduce exposure to outdoor air pollutants,” with an emphasis on vulnerable groups. See N.Y. State Dep’t of Health, *New York’s State Health Improvement Plan: Prevention Agenda 2019-2024* 72–3, [https://www.health.ny.gov/prevention/prevention\\_agenda/2019-2024/docs/ship/nys\\_pa.pdf](https://www.health.ny.gov/prevention/prevention_agenda/2019-2024/docs/ship/nys_pa.pdf) (last updated Sept. 2, 2021); see also *Nitrogen Dioxide & Health*, CA. Air Res. Bd., <https://ww2.arb.ca.gov/resources/nitrogen-dioxide-and-health> (last visited Feb. 3, 2022); see also Christopher W. Tessum et al., *PM<sub>2.5</sub> Polluters Disproportionately and Systemically Affect People of Color in the United States*, 7 Sci. Advances eabf4491 (2021).

(“NAAQS”) by the required date and was reclassified to be in “Serious” nonattainment effective September 23, 2019.<sup>14</sup> Earlier this year, the U.S. Environmental Protection Agency proposed to downgrade NYMA to “Severe” nonattainment, given persistent challenges in meeting the standard.<sup>15</sup> In 2018, NYMA was designated in nonattainment of the 2015 ozone NAAQS as well.<sup>16</sup>

Production of other non-fossil fuels such as “renewable natural gas” (“RNG”) also results in harmful environmental impacts and can increase net GHGs.<sup>17</sup> As discussed more fully in comments on the Electric Sector, collection and generation of RNG facilities usually involves expensive and complicated systems that frequently leak and do not address the majority of GHG emissions from these facilities. They encourage systems that generate *more* methane to increase a feedstock, rather than systems that generate far less methane. Not only is this extremely expensive, but dairy RNG is likely to produce little to no climate change benefit.<sup>18</sup>

Moreover, because RNG is chemically identical to natural gas,<sup>19</sup> its combustion emits the same level of GHGs.<sup>20</sup> A recent study suggests that combustion exhaust from biomethane (RNG used for heating and cooking) is even more toxic than exhaust from fossil gas.<sup>21</sup> Additionally, the available and climate- or environmentally-beneficial supply of RNG is very small. The supply of true, capturable waste methane (e.g., from uncontrolled landfills and wastewater treatment plants) amounts to less than 1% of current gas demand.<sup>22</sup>

Biodiesel, another “low-carbon” liquid fuel often touted by industry, has been shown to have a negligible impact on reducing PM emissions and can actually increase nitrous oxide, hydrocarbon, and carbon monoxide emissions, and its widespread use would therefore violate the

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<sup>14</sup> Reclassification of Several Areas Classified as Moderate for the 2008 Ozone National Ambient Air Quality Standards, 84 Fed. Reg. 44238 (Aug. 23, 2019).

<sup>15</sup> *Proposed Determinations of Attainment by the Attainment Date, Extension of the Attainment Date, and Reclassification of Several Areas Classified as Serious for the 2008 Ozone National Ambient Air Quality Standards*, EPA, [https://www.epa.gov/system/files/documents/2022-04/fact-sheet-proposed-2008-ozone-determinations-revised\\_0.pdf](https://www.epa.gov/system/files/documents/2022-04/fact-sheet-proposed-2008-ozone-determinations-revised_0.pdf) (last updated Apr. 14, 2022).

<sup>16</sup> Additional Air Quality Designations for the 2015 Ozone National Ambient Air Quality Standards, 83 Fed. Reg. 25794 (June 4, 2018).

<sup>17</sup> See Sasan Saadat et al., Earthjustice & Sierra Club, *Rhetoric vs. Reality: The Myth of “Renewable Natural Gas” for Building Decarbonization* (2020), [https://earthjustice.org/sites/default/files/feature/2020/report-decarb/Report\\_Building-Decarbonization-2020.pdf](https://earthjustice.org/sites/default/files/feature/2020/report-decarb/Report_Building-Decarbonization-2020.pdf).

<sup>18</sup> *Id.* at 24.

<sup>19</sup> *Alternative Fuels Data Center: Natural Gas Fuel Basics*, U.S. Dep’t of Energy, [https://afdc.energy.gov/fuels/natural\\_gas\\_basics.html#:~:text=RNG%20qualifies%20as%20an%20advanced,liquefied%20for%20use%20in%20vehicles](https://afdc.energy.gov/fuels/natural_gas_basics.html#:~:text=RNG%20qualifies%20as%20an%20advanced,liquefied%20for%20use%20in%20vehicles) (last visited Apr. 27, 2022).

<sup>20</sup> As discussed in comments on the Electricity Chapter, NRG, the developer behind a recent NY gas plant proposal acknowledged as much in their Draft Supplemental Environmental Impact Statement: “RNG does not result in zero onsite GHG emissions. As RNG is methane and fully interchangeable with conventional natural gas, onsite GHG emissions would remain the same whether the Project is operating on RNG or conventional natural gas.” AECOM, *Draft Supplemental Environmental Impact Statement: Astoria Replacement Project* 3-51 (2021), [https://www.nrg.com/assets/documents/legal/astoria/00\\_2021/astoria-draft-dseis-06-30-2021.pdf](https://www.nrg.com/assets/documents/legal/astoria/00_2021/astoria-draft-dseis-06-30-2021.pdf).

<sup>21</sup> See Michael J. Kleeman et al., California Energy Commission, Publ’n No. CEC-500-2020-034, *Air Quality Implications of Using Biogas to Replace Natural Gas in California* (2020).

<sup>22</sup> Saadat, *supra* note 16, at 9.

CLCPA’s requirement that agencies prioritize reductions of co-pollutants in DACs.<sup>23</sup> Furthermore, full lifecycle analyses of biodiesel and biofuel production demonstrate that when accounting for land-use impacts of corn-based ethanol or electricity from wood combustion, these products harm rather than benefit the climate due to releases of carbon from land conversion and reductions in carbon storage and sequestration relative to native vegetation, among numerous other harms to biodiversity, water quality, and other ecosystem processes.<sup>24</sup>

In the transportation sector, policies like the Advanced Clean Trucks rule and a 100% zero-emission vehicle sales mandate, both adopted last year, have set the State up to leapfrog “low-carbon fuels” and directly eliminate not just carbon emissions but all tailpipe emissions. Moreover, there is strong agreement that reaching zero-emissions by 2050, as the Climate Law requires, will require the total “phase-out of internal combustion engine (ICE) vehicles” in favor of battery-electric and fuel-cell vehicles.<sup>25</sup>

In the buildings sector, existing natural gas pipelines can only handle low hydrogen blends without safety risks.<sup>26</sup> Additionally, due to the different chemical properties of natural gas and hydrogen, hydrogen cannot be readily swapped for methane for use in heating or consumer appliances above a 5-20% blend with natural gas without enormous costs and disruption, and low blends achieve very few GHG emissions reductions while increasing emissions of nitrogen oxides.<sup>27</sup> Relying heavily on hydrogen to power appliances would require utilities to retrofit or replace most pipelines, a huge capital investment, whereas electrification is significantly less disruptive because equipment and appliance replacements can occur incrementally using existing electrical infrastructure.<sup>28</sup> Moreover, as the DSP recognizes, by 2050 the vast majority of building space statewide must be electrified with energy-efficient heat pumps in order to meet the Climate Act’s requirements.<sup>29</sup>

Additionally, while a cap-and-invest scheme is distinct from cap-and-trade, experience with cap-and-trade programs suggests that a model that relies on allowances does not necessarily ensure direct emission reductions in communities that experience the highest levels of

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<sup>23</sup> Jane O’Malley & Stephanie Searle, *Air Quality Impacts of Biodiesel in the United States* 19-20 (2021), <https://theicct.org/wp-content/uploads/2021/06/US-biodiesel-impacts-mar2021.pdf>.

<sup>24</sup> See Carrie Apfel & Matt Ellis-Ramirez, *Biofuels: Why Growing Food for Fuel is a Foolish Choice*, *Earthjustice* (Apr. 15, 2022), <https://earthjustice.org/from-the-experts/2022-april/biofuels-why-growing-food-for-fuel-is-a-foolish-choice>; See also Timothy D. Searchinger et al., *Assessing the Efficiency of Changes in Land Use for Mitigating Climate Change*, 564 *Nature* 249, 249 (2018); Matthew N. Hayek et al., *The Carbon Opportunity Cost of Animal-Sourced Food Production on Land*, 4 *Nature Sustainability* 21 (2021); Tyler J. Lark et al., *Cropland Expansion Outpaces Agricultural and Biofuel Policies in the United States*, 10 *Env’t Rsch. Letters* 044003 (2015); Tyler J. Lark et al., *Environmental Outcomes of the US Renewable Fuel Standard*, 119 *Proceedings of the Nat’l Acad. of Scis.* e2101084119 (2022).

<sup>25</sup> Nat’l Acad. of Scis., *Accelerating Decarbonization of the U.S. Energy System* 64 (2021).

<sup>26</sup> Sara Baldwin et al., *Assessing the Viability of Hydrogen Proposals: Considerations for State Utility Regulators and Policymakers* 7 (2022), <https://energyinnovation.org/wp-content/uploads/2022/03/Assessing-the-Viability-of-Hydrogen-Proposals.pdf>.

<sup>27</sup> *Id.* at 3.

<sup>28</sup> *Id.* at 10.

<sup>29</sup> DSP at 122.

pollution.<sup>30</sup> Lessons from California caution against this approach. For example, one study of California’s cap-and-trade system found that during the program’s first three years, “average co-pollutant emissions rose most in neighborhoods with higher concentrations of people of color, residents with low educational attainment and lower socioeconomic status, and in ‘disadvantaged communities.’”<sup>31</sup> Additionally, California saw both vehicle miles traveled and transportation emissions increase after it incorporated transportation fuels into its cap-and-trade program,<sup>32</sup> showing that the guarantee at the heart of a cap-and-trade system is the number of allowances only, not the amount of actual emissions. Indeed, a report issued by a state-appointed panel concluded that the number of allowances held in private and public accounts cast uncertainty over California’s ability to meet its emissions limit.<sup>33</sup> Additionally, although offsets would be very limited under the CLCPA, a system that depends on auctioning allowances still permits polluters to continue polluting for at least some time, and therefore fails to address the systematic nature of the status quo energy system that has led to disproportionate impacts on low-income communities and communities of color.

### **C. Carbon pricing must be designed and implemented to avoid regressive impacts.**

It is critical that any carbon pricing scheme require polluters to pay and reduce regressive cost burdens on DACs and LMI New Yorkers. The FSP should recommend measures to reduce those burdens by returning revenue directly to consumers who need it and who are disproportionately impacted by rising energy costs. Potential mechanisms include feebates, rebates, incentives, and subsidies for early transition to electric vehicles, home heating, efficiency upgrades, and other clean energy and energy efficiency measures. Additionally, New York should begin making disbursements early—before revenue is raised if possible—to cushion overburdened households before cost impacts hit to avoid food insecurity, evictions, and other consequences of high energy burdens that can destabilize families and the State.

The CAC should also consider recommending measures to address the cost impacts on small businesses and the tax implications for municipalities, as well as potential challenges for energy-intensive industries that the State hopes to retain.

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<sup>30</sup> See, e.g., Lara Cushing et al., *Carbon Trading, Co-Pollutants, and Environmental Equity: Evidence from California’s Cap-and-Trade Program (2011-2015)*, 15 Pub. Libr. Sci. Med. e1002604 (2018); see also generally Lara J. Cushing, et al., *A Preliminary Environmental Equity Assessment of California’s Cap-and-Trade Program* 5 (2016),

[https://dornsife.usc.edu/assets/sites/242/docs/Climate\\_Equity\\_Brief\\_CA\\_Cap\\_and\\_Trade\\_Sept2016\\_FINAL2.pdf](https://dornsife.usc.edu/assets/sites/242/docs/Climate_Equity_Brief_CA_Cap_and_Trade_Sept2016_FINAL2.pdf).

<sup>31</sup> Manuel Pastor, et al., *Up in the Air: Revisiting Equity Dimensions of California’s Cap-and-Trade System* 5 (2022), [https://dornsife.usc.edu/assets/sites/1411/docs/CAP\\_and\\_TRADE\\_Updated\\_2020\\_v02152022\\_FINAL.pdf](https://dornsife.usc.edu/assets/sites/1411/docs/CAP_and_TRADE_Updated_2020_v02152022_FINAL.pdf).

<sup>32</sup> CA. Air Res. Bd., *California Greenhouse Gas Emissions for 2000 to 2017: Trends of Emissions and Other Indicators* 7-8 (2018), [https://ww3.arb.ca.gov/cc/inventory/pubs/reports/2000\\_2016/ghg\\_inventory\\_trends\\_00-16.pdf](https://ww3.arb.ca.gov/cc/inventory/pubs/reports/2000_2016/ghg_inventory_trends_00-16.pdf) (showing transportation emission increases after 2015, when California incorporated transportation fuels into its cap-and-trade program); CA. Dep’t of Transp. (CALTRANS), *Historical Monthly Vehicle Miles of Travel 1972 - 2016*, <https://dot.ca.gov/-/media/dot-media/programs/traffic-operations/documents/f0017712-vmthist1.pdf> (showing vehicle miles traveled increased after 2015 as well).

<sup>33</sup> Dallas Burtraw, et al., *Indep. Emissions Mkt. Advisory Comm., 2021 Annual Report of the Independent Emissions Market Advisory Committee* 4 (2022), <https://calepa.ca.gov/wp-content/uploads/sites/6/2022/02/2021-IEMAC-Annual-Report.pdf>.

### **III. A Carbon Pricing Plan Must Include Pricing for Methane and Nitrous Oxide and Must Not Exempt the Agriculture, Forestry or Waste Sectors.**

For a carbon pricing plan to effectively impact total GHG emissions, it must include pricing for non-CO<sub>2</sub> GHGs, in particular methane and nitrous oxide. These two GHGs account for 36% of New York’s GHG emissions and have global warming potentials 84 and 264 times greater than CO<sub>2</sub> on 20-year timescales, respectively.<sup>34</sup> Thus, a carbon pricing plan exclusively focused on CO<sub>2</sub> emissions would fail to address some of the most potent GHG emissions in the state.

Agriculture and waste account for 46% of New York’s methane emissions and 72% of the state’s nitrous oxide emissions.<sup>35</sup> These sectors must be included in emission pricing schemes to ensure such schemes represent an economy-wide strategy.

Although emissions of methane and nitrous oxide from agricultural activities are very different from carbon dioxide emissions from transportation, electricity, and other sectors and may be more challenging to measure, several feasible strategies exist to support pricing structures. These pricing schemes could be phased in over time to allow for producers to transition to more climate-friendly practices and adopt or install technologies that would significantly reduce their exposure to the fee.

Farmers routinely apply fertilizer at higher rates than crops require for a variety of reasons: as a form of insurance or risk avoidance, hope for a great year, over-focus on yield over return, habit, and misinformation.<sup>36</sup> Due to losses to the atmosphere, retention in soil, and runoff to waterways, only a proportion of the nitrogen applied to annual grains as fertilizer is removed at harvest.<sup>37</sup> In addition, in New York, application of manure from CAFOs in the winter or on saturated ground is allowed, even though plants will not take up any nutrients at those times. These practices result in large losses of nutrients, leading to nitrous oxide emissions among other negative consequences.

Improvements in fertilizer management are possible — and profitable — with accompanying reductions in nitrous oxide emissions. The FSP should include consideration of imposing a fertilizer fee that could directly encourage and fund assistance for farmers’ enhancing fertilizer use efficiency. For example, New York can apply a fertilizer fee upstream on the few fertilizer distributors in the state, similar to applying fees upstream for transportation carbon dioxide emissions. This fee structure should account for the fact that nitrous oxide emissions have a global warming potential 264 times that of carbon dioxide emissions, as well as

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<sup>34</sup> See N.Y. State Dep’t of Env’t Conservation, *2021 Statewide Greenhouse Gas Emissions Report*, at iv Table ES.2, and at 5 Table 2 (2021), [https://www.dec.ny.gov/docs/administration\\_pdf/ghgsumrpt21.pdf](https://www.dec.ny.gov/docs/administration_pdf/ghgsumrpt21.pdf).

<sup>35</sup> *Id.*

<sup>36</sup> Farmers often apply excess fertilizer “in the hopes that ‘this year will be the one in ten’ when extra N will pay off.” G. Philip Robertson & Peter M. Vitousek, *Nitrogen in Agriculture: Balancing the Cost of an Essential Resource*, 34 Ann. Rev. Env’t & Res. 97, 117 (2009). As discussed in the Forestry and Agriculture Chapter, both incentives, such as a payment-for-ecosystem-services program that rewarded farmers using best management practices, and disincentives, such as a tax on fertilizer, could be used to reduce overfertilization.

<sup>37</sup> G. Philip Robertson, *Nitrogen Use Efficiency in Row-Crop Agriculture: Crop Nitrogen Use and Soil Nitrogen Loss*, in *Ecology in Agriculture* 351 (1997).

consideration of the fact that emissions are primarily associated with *excess* fertilizer use. This fee should be structured to apply only to excess fertilizer, such as applying over per-acre amounts that represent the plants' nutritional needs. More sophisticated fee schemes could provide a base rate with discounts for enhanced-efficiency fertilizers that emit less nitrous oxide. To assist in the transition, such a fee could be phased in with significant outreach and technical assistance beforehand to enable farmers to adopt precision and other improved fertilizer management regimes. And all revenue from the fee should be directed to farmer support.

Similarly, a pricing plan for methane is also feasible. Most agricultural methane emissions in New York are from enteric fermentation and wet manure management at CAFOs. Thus, a fee on animal feed purchases for ruminants at these facilities could place a cost on these emission sources. In contrast, dry manure management and pasture-based systems generate far less methane, and these types of operations may be exempted from such a pricing scheme.<sup>38</sup> This fee could also be reduced for feed that includes feed additives shown to reduce methane generation or for facilities that reduce manure methane emissions through improvements in manure management or cover and flare systems.

As described in further detail in our comments in response to the Waste Chapter of the DSP, a pricing plan would also be feasible to address methane emissions from the waste sector. For example, a per-ton surcharge on waste is a tried-and-true approach to creating a funding stream for waste reduction, reuse, and recycling infrastructure and programs while disincentivizing landfilling and incineration as waste management practices. Typically, these surcharges are added to per-ton tipping fees, and they can be charged to waste haulers or even at the generator-level so that businesses are taxed directly based on the waste they generate.

#### **IV. Conclusion**

In sum, Commenters support a pricing scheme with safeguards to ensure that the cost burden is not regressive and that the State provides targeted relief for LMI consumers and DACs. This approach will allow the State to generate sufficient revenue to meet the GHG reduction mandates while consistent with the Climate Law's equity requirements. Additionally, we urge the CAC to include in the FSP a recommendation to put a price on all GHGs, in addition to carbon dioxide.

Respectfully submitted,

Acadia Center  
All Our Energy  
Alliance for a Green Economy

Brookhaven Landfill Action and  
Remediation Group  
Catskill Mountainkeeper

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<sup>38</sup> See Adam Kotin et al., CA Climate & Agric. Network, *Diversified Strategies for Reducing Methane Emissions from Dairy Operations* 9 (2015), <https://calclimateag.org/wp-content/uploads/2015/11/Diversified-Strategies-for-Methane-in-Dairies-Oct.-2015.pdf>; See also, Olga Gavrilova et al., *Emissions from Livestock and Manure Management*, in 2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories 67 Table 10.17 (2019), [https://www.ipcc-nggip.iges.or.jp/public/2019rf/pdf/4\\_Volume4/19R\\_V4\\_Ch10\\_Livestock.pdf](https://www.ipcc-nggip.iges.or.jp/public/2019rf/pdf/4_Volume4/19R_V4_Ch10_Livestock.pdf).



Clean Air Coalition of WNY  
Climate Reality Project, Capital Region NY  
Chapter  
Climate Reality Project, Finger Lakes  
Greater Region NY Chapter  
Climate Reality Project, Hudson Valley and  
Catskills Chapter  
Climate Reality Project, Long Island  
Chapter  
Climate Reality Project, NYC  
Climate Reality Project, Westchester NY  
Chapter  
Climate Reality Project, Western New York  
Chapter  
Climate Solutions Accelerator of the  
Genesee-Finger Lakes Region  
Committee to Preserve the Finger Lakes  
Community Food Advocates  
CUNY Urban Food Policy Institute  
Earthjustice  
Environmental Advocates NY

Fossil Free Tompkins  
Gas Free Seneca  
Green Education and Legal Fund  
HabitatMap  
Hotshot Hotwires  
Jobs to Move America  
Long Island Progressive Coalition  
Nassau Hiking & Outdoor Club  
Network for a Sustainable Tomorrow  
New Clinicians for Climate Action  
North Brooklyn Neighbors  
NY Renews  
People of Albany United for Safe Energy  
Roctricity  
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South Shore Audubon Society  
Sustainable Finger Lakes  
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WE ACT for Environmental Justice