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Submitted via TCI Regional Policy Design Stakeholder Input Form ("TCI portal")

Re: Comments on the Draft Memorandum of Understanding of the Transportation and Climate Initiative

The Environmental Defense Fund (EDF) commends the collaborative effort of the Transportation and Climate Initiative (TCI) jurisdictions to design and implement a regional program to cap and reduce climate pollution from the transportation sector in the Northeast and Mid-Atlantic regions of the U.S. EDF would like to applaud the focus on equity in approaching the development of this program, as equitable outcomes are essential to the future success of our transportation systems.

The cap-and-invest program proposed by TCI presents a unique opportunity to achieve emission reductions and provide funding for improvements to our transportation systems. EDF strongly supports the development of this framework and welcomes the release of this Memorandum of Understanding (MOU) outlining the core components of the program.

It makes sense to leverage a cap & invest framework to tackle the region's single largest source of climate pollution—we have been successfully harnessing the power of markets for decades to solve our most pressing environmental challenges. In the 1990s as acid rain caused by sulfur dioxide emissions from power plants threatened our aquatic life and forests, a cap-and-trade program was put in place, requiring drastic reductions in sulfur dioxide emissions but allowing each company to decide how to make the cuts. This approach drove emissions down faster than predicted for a fraction of the originally projected cost,[1] and it dramatically reduced the impact of acid rain in North America. Importantly, a cap on emissions can guarantee the environmental outcome, and deploying a flexible compliance framework to achieve that cap such as an emissions trading system can reduce overall compliance costs. The flexibility inherent in the program design allows regulated entities to determine the most efficient and cost-effective ways to reduce pollution. This, in turn, enables greater ambition in the policy design—which is critical given the urgency of addressing the climate challenge on a timeframe that avoids the worst impacts on our communities and the environment.

[1] According to a 2015 discussion paper from Resources for the Future, cost savings of the program were estimated to be at least 15 percent and perhaps as high as 90 percent compared to a counterfactual command and control program. See Schmalensee, R. and Stavins, R. 2015. Lessons Learned from Three Decades of Experience with Cap-and-Trade. Resources for the Future. Available online: https://media.rff.org/archive/files/document/file/RFF-DP-15-51.pdf

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EDF has extensive experience with carbon market design: we appreciate the challenges and opportunities of developing a regional framework for reducing carbon pollution through a market-based program, and we respectfully offer the following comments and recommendations for consideration to the Draft MOU of the Transportation and Climate Initiative.

Program Design

1. **The emissions cap should put the region on track to reduce economy-wide emissions in line with IPCC recommendations.** The IPCC found that annual global GHG emissions must decrease by 45% from 2010 levels by 2030 and reach net-zero by 2050 to limit warming to 1.5°C.[2] The states should evaluate the development of an emissions cap, considering the modeled impacts of different cap trajectories on both transportation and electric power sector emissions, that is likely to put the states on the trajectory needed to avoid the worst impacts of climate change.
    a. **While evaluating cap stringencies, consider potential advantages of a target emissions cap based on historical emissions rather than a modeled baseline.** Critically, what matters to the atmosphere is not emission levels below business-as-usual, but absolute reductions. It is important that the cap is not artificially inflated (which occurred in the first phase of the EU ETS).[3] The emissions cap under California's cap-and-trade program was set based on historical emissions by setting the cap 2% below 2012 emissions in 2013, declining by 2% in 2014, and 3% annually from 2015 through 2020. The cap was determined based on the requirements of California's overall target of reducing state-wide emissions to 1990 levels by 2020.[4] Using historical emissions as the basis for the cap can, under some circumstances, provide more predictable reductions to emissions below historical levels. We would urge the states to consider both approaches in the context of developing the cap level that is driving reductions over historical benchmarks, and at levels consistent with what is needed for states to achieve economy-wide targets.
2. **The program should consider covering liquefied petroleum gas and natural gas to avoid continued emissions from certain fleets due to fuel switching.** In its covered fuel types, the draft MOU only mentions, "motor gasoline and on-road diesel fuel." While encouraging the transition to cleaner fuels is a desired outcome of the program, not including LPG and natural gas may lead vehicle fleets, such as transit buses, to convert to other fossil fuels not covered by the program. Studies evaluating emissions from CNG trucks have shown that, due to methane leaks both from the vehicle and from upstream in the fuel's lifecycle, switching to CNG can result in little climate benefit,[5] especially when considering the short-term warming impact of methane. By not including CNG and other fuels, the program will not reduce emissions from these fuels and may be limited in its

[2] See https://www.ipcc.ch/2018/10/08/summary-for-policymakers-of-ipcc-special-report-on-global-warming-of-1-5c-approved-by-governments/.
[3] See Anderson, B. & Di Maria, C. 2011. Abatement and Allocation in the Pilot Phase of the EU ETS. Environ Resource Economics 48: 83. Available online at: https://doi.org/10.1007/s10640-010-9399-9.
[4] See CARB. Overview of ARB Emissions Trading Program. Available online at: https://ww3.arb.ca.gov/cc/capandtrade/guidance/cap_trade_overview.pdf.
[5] See Camuzeaux, J., Alvarez, R., Brooks, S., Browne, J., and Sterner, T. 2015. Influence of Methane Emissions and Vehicle Efficiency on the Climate Implications of Heavy-Duty Natural Gas Trucks. Environmental Science and Technology. Available online at: https://pubs.acs.org/doi/pdf/10.1021/acs.est.5b00412.

ability to pursue a net-zero emissions target for the transportation sector in the long term without expanding the applicability of the program. While the inclusion of CNG under the cap will not fully address the impacts of upstream emissions, covering emissions from combustion will provide greater environmental benefits, including additional reductions in climate pollution. EDF notes that California's cap-and-trade program successfully covers liquefied petroleum gas and natural gas,[6] and such a design choice helps to ensure that electricity—the emissions from which are covered under the Regional Greenhouse Gas Initiative—is not disadvantaged as a fuel choice.

3. **If offsets are allowed for compliance, they should be real, permanent, quantifiable, verifiable, enforceable, and additional.** Offsets can provide additional compliance flexibility and encourage decarbonization in other sectors of the economy, but if included, the TCI jurisdictions should define specific requirements for eligible offset projects that provide verifiable and additional reductions in greenhouse gas emissions. The Regional Greenhouse Gas Initiative (RGGI) limits offsets to 3.3 percent of a regulated plant's compliance obligation and defines five eligible offset categories.[7]
4. **EDF supports the intent to develop the program with the potential to link with other carbon markets in mind.** Linking with other allowance markets, like RGGI, can improve efficiency, lower compliance costs, and provide flexibility to covered entities by allowing emission reductions to be achieved in sectors and geographies where it is most cost effective to do so. Linking should be done with careful consideration and analysis of how costs and benefits will be distributed.
5. **Stability and flexibility mechanisms will help maintain an effective program and should be crafted in a way that does not undermine the efficacy of the program in reducing emissions.** EDF supports using mechanisms similar to those used in RGGI,[8] including cost and emissions containment reserves, a multi-year compliance period, banking, and a price floor. The price floor should increase over the course of the program to encourage continued emission reductions and ensure funding for complementary policies.

Investments and Complementary Policies

Equity should be at the forefront of decisions about how to invest proceeds from allowance sales, and the TCI jurisdictions should clearly outline how the program prioritizes equitable mitigation outcomes. Low-income residents, rural communities, and other populations that might be especially susceptible to any costs associated with the program should be a primary focus of complementary policies and investments. Additionally, the program should direct investments to reduce the impacts of local pollution in communities of color and low-income communities, which often have the highest exposures to airborne pollutants.[9] Research has shown that low income residents use public transit more,[10] so any

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[6] See California Air Resources Board. "Information for Entities That Take Delivery of Fuel for Fuels Phased into the Cap-and-Trade Program Beginning on January 1, 2015." Available online at: https://ww3.arb.ca.gov/cc/capandtrade/guidance/faq_fuel_purchasers.pdf.
[7] See https://www.rggi.org/allowance-tracking/offsets.
[8] See https://www.rggi.org/program-overview-and-design/elements.
[9] See Bell, M. L., & Ebisu, K. 2012. Environmental inequality in exposures to airborne particulate matter components in the United States. Environmental health perspectives. Available online at: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3546368/.
[10] See PPIC. Transportation Spending by Low-Income California Households: Lessons for the San Francisco Bay Area. Available online at: https://www.ppic.org/content/pubs/report/R_704LRR.pdf.

transportation solution that prioritizes equitable outcomes must provide access to affordable and efficient transit options for low-income and vulnerable communities. Facilities such as airports generate a significant amount of vehicle traffic, which has deleterious impacts on neighboring communities. However, they are also ripe opportunities for electrification of buses and ground operations, as well as for transit investments to limit single-passenger vehicle trips. The California Air Resources Board is pursuing a regulation to electrify all airport shuttles, which will generate both climate and local air quality benefits.[11] While EDF recognizes the importance of allowing individual jurisdictions to identify investments and complementary policies most relevant for their residents, the draft MOU does not clearly articulate how the program guarantees equitable mitigation outcomes, and a robust approach should be evaluated to support vulnerable communities. In California's cap-and-trade program, 35 percent of proceeds must benefit people in vulnerable populations.[12] Policy elements like this can help mitigate costs for vulnerable populations, including low-income and rural residents. Additionally, community engagement should be incorporated into jurisdictions' decision-making processes when determining how to invest proceeds raised from the program.

Participating jurisdictions should consider, among other options, investments in:

1. **Vehicle electrification and clean energy sources that complement each other to reduce transportation emissions.** Investment strategies should recognize that vehicle electrification works in tandem with reducing the emission intensity of electricity production as shifting to clean and renewable sources reduces the carbon footprint of electric vehicles already on the road. TCI jurisdictions should invest in rebates and incentives to reduce the upfront cost of zero emission vehicles, including electric passenger vehicles, trucks, and buses, especially for communities where costs present significant barriers and/or have poor local air quality resulting, in part, from vehicle operations. Investments should also target market barriers to reducing emissions that a carbon price alone may not directly address, such as improving and expanding electric vehicle charging networks. Charging infrastructure investments are particularly important for multi-family buildings, where many low- and moderate-income residents live and often have little direct control over building amenities.
2. **Opportunities to Catalyze VMT reduction through Reinvestment Strategies.** Reducing climate pollution should be the primary focus of the TCI program, but creating equitable and efficient transportation systems requires that we go beyond increasing vehicle efficiency and transitioning to low/zero-carbon fuel sources. Reducing congestion, increasing mobility for all, and providing safe and reliable multi-modal transportation options is an important part of the path forward. Expanding affordable transit options can also contribute to an equitable transportation system, as low-income residents rely more on public transit. TCI jurisdictions should further investigate policy design elements—particularly reinvestment strategies—that help secure VMT reductions and enhance access to clean mobility to all communities in order to take advantage of related health, safety, and efficiency benefits.

[11] See https://ww2.arb.ca.gov/our-work/programs/zero-emission-airport-shuttle.
[12] See https://ww3.arb.ca.gov/cc/capandtrade/auctionproceeds/communityinvestments.htm.

Modeling

1. **Identify and evaluate emissions trajectories that put the region on track to reduce economy-wide emissions by 45% from 2010 levels by 2030.** As part of the modeling effort, the states should evaluate transportation and electric power sector emissions scenarios to develop an emissions cap that would require reductions from the transportation sector consistent with this economy-wide target.
2. **The modeling process should provide additional transparency on modeled emissions caps and impacts on electricity sector emissions, allowing stakeholders and the public to review and provide input on assumptions and results.** EDF appreciates that the TCI jurisdictions have outlined several key assumptions and data sources through publicly available summaries and webinars so far. Further information is needed about how the emission caps and trajectories included in the modeling were selected in order to allow stakeholders to better understand and provide input on these assumptions. Electricity sector results should also be provided to stakeholders and the public to improve understanding of the projected impacts of electrification on power generation and transmission.

We appreciate the work the TCI jurisdictions have done to date in taking the initiative to address the impacts of the transportation sector on climate change. We look forward to the release of the final MOU and additional modeling results. Thank you for your consideration of these comments.

Sincerely,

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