Introduction

Green Energy Consumers Alliance ("Green Energy Consumers") is a non-profit organization with a mission to harness the power of energy consumers to speed the transition to a low-carbon future. Since 1982, we have run a series of programs and services for residents of Massachusetts to enable smart energy choices. The experience we've gained interacting with energy consumers and suppliers informs our advocacy work at the state and local level.

We commend the Commonwealth for the ambition in its interim 2030 Clean Energy and Climate Plan ("2030 CECP" or "the Plan") and thank you for the opportunity to submit the following comments. We applaud the Commonwealth for including several strategies that, from our perspective, will do the most to move the needle on reducing carbon emission in the next decade, specifically:

- Increasing the Clean Energy Standard to at least 60% by 2030;
- Implementing the Transportation Climate Initiative;
- Creating a Low Carbon Fuel Standard;
- Adopting California's Advanced Clean Car regulations in order to put one million electric vehicles (EVs) on the road by 2030;
- Establishing a Heating Fuels Emissions Cap.

Although there are many possible paths to net zero by 2050, all models agree that investing in energy efficiency, electrifying heating and transportation, and bringing renewables onto the grid—especially through offshore wind development—are essential by 2030. The strategies in the CECP are fundamental to progress in the years ahead. Our organization stands ready to work with the Executive Office of Energy and Environmental Affairs (EOEEA) on the public processes regarding the development and implementation of the policies and regulations.

In preparing these comments, we have reviewed the Massachusetts 2050 Decarbonization Roadmap ("2050 Roadmap") and its supporting technical reports in addition to the interim 2030 CECP. Our comments follow the structure of the 2030 CECP and are divided into three sections: Transportation, Buildings, and Electricity Supply. Before diving into specific strategy categories, we would like to offer the following over-arching comments on the 2030 CECP:

1. ***Emissions reductions are too backloaded to the end of the coming decade.***

Across the 2030 CECP's Strategy Actions, we find that the emission reductions are backloaded to the years 2025-2029, which poses a considerable risk that the Plan's emissions reduction target of 45% by 2030 will not be achieved. This concern is exacerbated by the legislature's intent to raise the emission reduction to 50% by 2030 and to require a new limit to be set for 2025 in "An Act creating a next-generation roadmap for Massachusetts climate

policy" ("the climate bill"). We strongly support both of those provisions in the climate bill, believe they are feasible and appropriate, and recommend that they be incorporated into the final 2030 CECP.

As we make specific recommendations on various Strategy Actions, we will point out which ones appear to be on a schedule that is most at risk for non-achievement. While the Plan might serve well as a guidance document, the regulations required to carry out the Plan need to be promulgated at a pace that might be unusually fast for state government.

2. ***The Plan lacks specificity in key Strategy Actions.***

The number of instances in which words the Plan uses words such as "explore" and "investigate" concerns us. In some of those cases, we would urge the Plan to declare a firm commitment because the stated policy makes obvious good sense. In other cases, our ability to express support or opposition is hindered until we see more detail.

3. ***The Plan should more fully consider equity implications in addition to greenhouse gas emission reductions, particularly in the area of public transit.***

The area in which we deem the Plan to be the most deficient has to do with a surprising lack of expressed support for public transportation. The Transportation and Climate Initiative (TCI) offers funding that could greatly help boost our regional transit authorities. The benefits of doing so are clear – increased mobility for people who need buses and trains to get to work and reduced localized air pollution, public health impacts, vehicle miles traveled in cars, and greenhouse gas emissions. Investing in public transportation, in addition to reducing greenhouse gas emissions, is a key strategy to support communities currently overburdened and underserved by our transportation systems.

4. ***The Plan should consider changes at the federal level.***

Finally, we question whether the 2030 CECP and the 2050 Roadmap adequately incorporate the impact of federal policies that we can expect from the Biden administration and significant changes to the Congress. These policies will raise both the floor and ceiling for what we can accomplish here in Massachusetts. The more we lean into clean energy, the more likely we will be able to capture federal incentives, and the more our Commonwealth will benefit.

Transportation

The 2030 CECP rightly identifies the transportation sector as a major opportunity – and challenge – for emissions reductions in the next decade. We applaud the Commonwealth for setting ambitious targets and for recognizing the enormous role that electrification will play in meeting these targets. Though electrification is a critical piece of the puzzle, expanding and electrifying public transit should be prioritized more than the 2030 CECP suggests,

especially to equitably distribute the benefits of this clean energy transition, and the Plan in general should put greater emphasis and offer more specificity on *early* action to avoid backloading emissions reductions until the latter half of the decade. The comments that follow expand on these over-arching points by strategy.

As we go through the transportation strategies, it's important to remember the value of the benefits provided by electrifying transportation. Every additional electric vehicle (EV) on the road in Massachusetts provides energy savings to the driver (whether an individual, a business, or transit agency), a resource to help reduce the costs of maintaining our electric grid, and local public health benefits, in addition to greenhouse gas emission from which we all benefit. And, as both the 2030 CECP and the 2050 Decarbonization Roadmap study explain, we send dollars out of state when we import petroleum but keep dollars in-state and in-region when we electrify. These benefits add greater urgency and purpose in setting a target of one million EVs by 2030. However, we will not reach that target on time unless we implement policies soon.

Strategy T1: Cap Transportation Sector Emissions and Invest in Clean Transportation Solutions

1. ***Specify via a third "Strategy Action" how TCI-P revenue will be invested and how investment decision will be made.***

We support the Transportation & Climate Initiative program (TCI-P) and applaud the Commonwealth for its work in leading the development of this regional program to reduce greenhouse gas emissions from the transportation sector. We understand that how revenue from this initiative will be invested in Massachusetts is to be determined by an open and public process. In addition to committing to implementing TCI-P in 2023 via a "Strategy Action," we encourage the Commonwealth to list a "Strategy Action" detailing the process and timeline for public engagement and investment decisions.

2. ***Create a "Strategy Action" to begin the TCI-P equity work earlier than 2023.***

In signing the final regional Memorandum of Understanding for TCI-P, the Commonwealth agreed to invest a *minimum* of 35% of program proceeds to "overburdened and underserved communities" and to "establish and support an Equity Advisory Body… composed of diverse stakeholder groups, with a majority of members being representatives of overburdened and underserved communities or populations to advise on decision making and equitable outcomes for TCI-P."[1] The work of this Body need not wait until 2023; in fact, the Commonwealth and the "overburdened and underserved communities" TCI-P hopes to

[1] See p. 3 of the final MOU, available at: https://www.transportationandclimate.org/sites/default/files/TCI%20MOU%2012.2020.pdf.

support would be better served by beginning this work intentionally, thoughtfully, and pro-actively before 2023.

3. ***Provide more specificity about the proposed regional Low Carbon Fuel Standard.***

Strategy T1 directs the Massachusetts Department of Environmental Protection (MassDEP) to develop and implement a regional Low Carbon Fuel Standard (LCFS) no later than 2026. Again, we applaud the administration for this proposal. We encourage the Commonwealth to include more detail about this plan in its final draft of the 2030 CECP: How would the LCFS interact with TCI-P?

Strategy T3: Reduce Upfront ZEV Purchase Cost Burden

1. ***Commit to implementing point-of-sale rebates and a low and moderate income (LMI) consumer program in 2021.***

We applaud the Commonwealth's ambition to increase the number of EVs in Massachusetts to 750,000 to 1,000,000 by 2030 and agree that reducing the upfront cost burden is a critical lever for accelerating EV adoption. However, we feel that the listed "Strategy Actions" in Strategy T3 should be more certain and immediate. Specifically, the "Strategy Actions" direct the Department of Energy Resources (DOER) to "explore" a point-of-sale program and EEA and the Massachusetts Clean Energy Center (MassCEC) to "investigate" a LMI program. Those are ideas worthy of implementation in 2021, and we urge the Commonwealth to commit to doing so.

Over the past couple of years, EV adoption (as measured by the percentage of Massachusetts car sales that are electric) has increased by about 1% each year; to reach the goal of the 2030 CECP, which is equivalent to 50% of new car sales being electric in 2030, we need to increase sales by about 4% each year. We cannot achieve that level of growth without making EVs more accessible to more people; making the MOR-EV rebate point-of-sale and offering a LMI program would begin to do just that.

We took the liberty of attempting to depict what the market penetration would have to be in this decade[2]. Even with the recognition that technology adoption generally does not happen linearly, Figure 1 (below) tells us that the sooner we get the big new programs described in the 2030 CECP, the better. Otherwise, the slope of the curve gets too steep.

[2] Data from EVAdoption.com. https://evadoption.com/ev-market-share/ev-market-share-state/

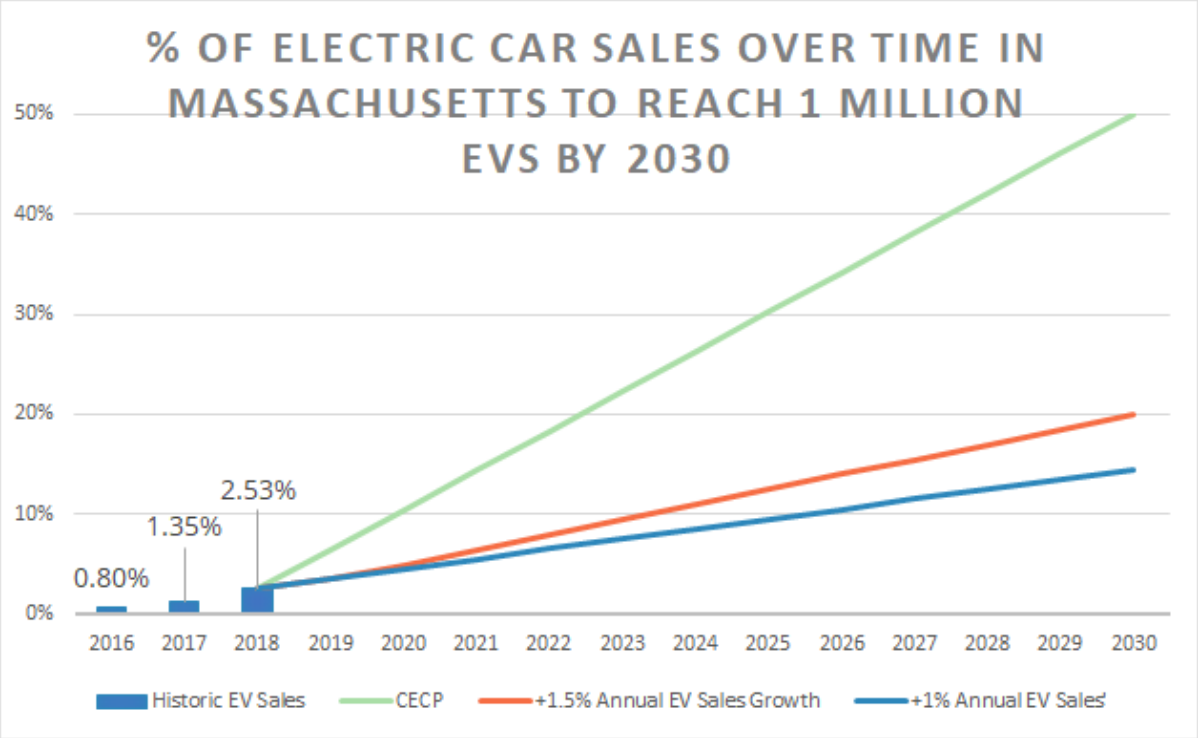

Figure 1 - Percentage of EV car sales under several EV adoption scenarios. The CECP recommends that at least 50% of all new cars in Massachusetts must be electric by 2030.

2. Rebates are important, but don't forget there are other tools in the toolbox.

Purchase rebates are a critical tool to accelerating EV adoption at this time because the upfront costs of EVs make switching to an electric car cost-prohibitive for many people. Lithium-ion battery costs, which make up the bulk of the cost differential between EVs and gas-powered cars, are falling quickly, and analysts expect EVs to reach cost-parity with gas-powered cars sometime in this decade[3]. Our interpretation of the 2030 CECP is that the adoption of California's Advanced Clean Cars II standard, with funding support from TCI-P, will complement these market-based cost reductions to the point where EV adoption rapidly accelerates.

The Transportation Sector Report of the 2050 Roadmap indicates that it may take rebates up to $8,000 per vehicle to accelerate EV adoption to the point of one million cars by 2030.[4] We believe that $8,000 is too high for several reasons:

- Our observations of how fast EVs have improved in recent years on cost, range, and other key factors. We expect the pace of improvement to accelerate in the next few years.

[3] "Batteries for Electric Cars Speed Towards a Tipping Point." Bloomberg New Energy Finance, December 2020.
[4] Available at: https://www.mass.gov/doc/transportation-sector-technical-report/download

- Optimism that the federal government will support EV adoption through several policies. The impact of these potential policies is difficult to quantify, but announcements made by the Biden administration in recent weeks have clearly changed the game from what it was when the 2030 CECP was written.
- A 2019 study by Synapse Energy Economics[5] for New York State, which found that a rebate of $5,000 per car would be sufficient to increase adoption in NYS to a point that is comparable to the goals in the 2030 CECP. Our view that the 2030 CECP and 2050 Roadmap both lean too heavily on rebates and not enough on utility ratemaking that could both incentivize car buyers and grid integration by offering significant incentives for charging off-peak. We discuss this point further in our comments on Strategy T4.

Strategy T6: Stabilize Light-Duty VMT & Promote Alternative Transportation Modes

1. Establish a more ambitious goal for VMT reduction.

Although we appreciate the 2030 CECP's focus on electrification, the state should be willing to use all the tools available to reduce greenhouse gases, and investing in transit to reduce vehicle-miles-traveled (VMT), rather than settling for stabilizing its growth, should be integrated in the 2030 CECP for the following reasons:

- VMT reduction is a safe bet to reduce emissions amid the uncertainty of how electric vehicle technology will develop and how quickly it will decrease in cost.
- Other state goals, including air quality benefits, quality of life, and equity, are advanced by investing in transit, in addition to reducing VMT.
- More ambitious VMT reduction goals make 100% electric vehicle sales by 2035 more reachable by providing alternatives to car ownership.

The 2030 CECP, in its lack of enthusiasm for transit and VMT reduction, seems to follow the logic presented by the transportation technical appendix of the 2050 Roadmap. This appendix argues that, as most of Massachusetts' car travel occurs in the Boston-Metro area where a large number of drivers travel short distances and with so many individual actors at play, it is difficult to reduce VMT in a meaningful way. However, this analysis fails to recognize that short trips in dense urban areas are most likely to be replaced with non-vehicle alternatives that reduce VMT.

[5] *"TRANSFORMING TRANSPORTATION IN NEW YORK; Roadmaps to a Transportation Climate Target for 2035."* *Synapse Energy Economics,* Sept. 2019.

Furthermore, getting 100% EV sales by 2035 (as is recommended in Strategy T2) is made easier by a stronger commitment to VMT reduction. Providing alternatives to car travel (walking, biking, and transit) can end up replacing vehicle ownership altogether. Even a modest reduction in car ownership could make the prospect of 100% all-electric vehicles sales by 2035 easier and less expensive.

As an example, Boston is estimated in the 2050 Roadmap to require 130,000 charging ports to support city-wide electrification. Reduce the need for car ownership in the city, and the infrastructure investment to support electrification is dramatically lower. Likewise, the total expected cost of consumer purchase rebates for EVs will be lower if the state enables more commuters to trade in their gas-powered vehicle for a transit pass.

2. ***Explicitly name transit as a priority investment to support VMT reduction, densification, and smart growth.***

Strategy T6 of the 2030 CECP implies that "smart growth" policies will lead to 1% reduction in climate-warming emissions, with the implication that housing stock near transit will reduce emissions by providing an adequate alternative to car ownership. Pursuing smart growth policies is a good strategy, but without a commitment to maintaining or improving transit, transit-oriented development will not lead to substantial VMT reduction. Transit cannot be taken for granted.

- In the last year, transit ridership has taken a nosedive due to COVID-19 and recently announced MBTA service cuts will make matters worse. Many essential workers and low-income workers rely on transit. Cutting service while office workers stay at home is a direct threat to their livelihoods.
- Once transit service is disrupted, it sends a clear message that transit is unreliable. It discourages ridership, and those with the financial means to purchase a vehicle will do so. Until EVs are the norm, most of these vehicles will be gasoline-powered and undermine electrification efforts.
- The lack of fare revenue from the drop in riders justifies further service cuts. If transit service ever returns to normal, riders that switched to driving a personal vehicle now own a vehicle and have no reason to return to transit. Those riders are lost to the public transit system.

The report from the Commission on the Future of Transportation from 2018 directed the Commonwealth to "*prioritize investment in public transit as the foundation for a robust, reliable, clean, and efficient transportation system.*"[6] It goes on to assert that "*only by attracting and retaining new riders can the Commonwealth see the benefits that transit can provide for GHG*

[6] Available at: https://www.mass.gov/orgs/commission-on-the-future-of-transportation

reduction, congestion relief, economic growth, and community revitalization." We urge the Commonwealth to follow these directives. Without a strong commitment to transit, smart growth policies will not decrease VMT or reduce climate-warming emissions, nor will they address Boston's worst-in-the-nation congestion.

3. ***Establish a plan and target date to implement congestion pricing in the Boston Metro Area.***

With a million EVs on the road, gas tax revenue, which is a primary funding source for transit, will take a big hit by 2030. TCI-P will only be around through 2032, which means the Commonwealth needs to develop a plan to make up for the lost revenue without putting EVs at a disadvantage to gas-powered cars or cutting the transit budget. Major cities around the world are increasing tolls on cars entering the city during peak traffic times and using the toll revenue for public transit. Congestion pricing is a smart, fair strategy that aligns with the goals of the 2030 CECP.

Congestion pricing would reduce car traffic and congestion in the Boston Metro Area, provide a consistent source of funding for commuter rail, bus, and subway service, and improve quality of life in the city. Based on an analysis of expected revenue loss from the gas tax and EV uptake, the state should establish a plan and target date to implement congestion pricing in the urban core of the Boston Metro Area.

Strategy T2: Coordinated Advanced Clean Vehicle Emissions and Sales Standards

1. ***Advanced regulations starting in 2026 need to be balanced with more concrete action in the next five years.***

The Strategy Action to adopt California's Advanced Clean Cars, Advanced Clean Trucks, and Advanced Clean Fleet rules is excellent. We're thrilled by Massachusetts' willingness to follow California by banning the sale of new internal-combustion engine (ICE) vehicles by 2035 and hope that Massachusetts' leadership inspires other states to do the same.

However, some of these regulations (including the ICE ban) are still being written in California and won't take effect until 2026. Although the advanced regulations will ensure that automakers deliver an adequate supply of EVs to the Commonwealth, the impact of the policies will be backloaded to the latter half of the decade. This is a high-stakes gamble.

To avoid putting more pressure on the last couple years of the decade to overperform, we urge the state to focus on actions it can take in the next five years to account for the delayed effects of adopting California's regulations.

2. ***Segment and prioritize within the medium- and heavy-duty space. 100% of school bus and transit bus procurements should be electric by 2030.***

Though the market for medium- and heavy-duty electric vehicles is nascent, the state has already signed onto a regional agreement with the goal of making 30% of medium and heavy-duty vehicle sales electric by the end of the decade. We applaud the state for its commitment and look forward to seeing more details on this. We also suggest that *starting with* electrifying school buses and transit buses is a good first step for several reasons.

- As a matter of equity, investments to electrify buses would deliver the air quality benefits of electrification to children and transit bus riders, who are more likely to be low-income, people of color, and/or overburdened by air pollution.
- Electric buses are proven to have lower lifetime cost of ownership compared to their diesel counterparts. Transit agencies and school bus operators, however, are often cash-strapped and lack the capital to afford the higher upfront cost. State support can help overcome this barrier and help public-serving entities realize cost savings of electrification.
- School bus schedules include a lot of downtime, which will be forgiving as drivers and fleet operators get the hang of charging.
- Electric school buses and transit buses are market ready. That is, they can be procured now and be on the roads in the near-term. This road-readiness is significant because it will allow us to make tangible progress in the first half of the decade, while model availability for other medium- and heavy-duty vehicles continues to develop.
- With a good number of diesel-guzzling school and transit buses on the road, starting here can help develop a path forward for long haul trucks, urban delivery vans, and other high-duty vehicles. Investing in electric school and transit buses will lead to market transformation, rather than a few one-off demonstration projects.
- Since transit agencies are quasi-government organizations, the decision to electrify can be planned in conjunction with the state. Switching a large fleet over to electric vehicles will require long-term planning for charging infrastructure. So far, the MBTA has dragged its feet on bus electrification by arguing about the extent to which the soon-to-be renovated Quincy bus depot should be prepared for all-electric buses. With more support from the state on this issue, the MBTA and other regional transit agencies can make sure its infrastructure plans align with the state's electrification goals.

100% of transit and school bus purchases should be electric by 2030. Our estimates show that electrifying the current MBTA and school bus fleets would cut 167,000 MT CO_2e annually. The complete electrification of all the Massachusetts Regional Transit Authority (RTA) fleets,

including the Pioneer Valley Transit Authority, Worcester Regional Transit Authority, and others, would cut emissions by another 55,000 MT CO_2e per year in the Commonwealth[7].

Figure 2 – Massachusetts transit and school bus fleet inventory and estimated annual greenhouse gas reduction associated with electrification.

Fleet	**Number of Vehicles**	**Annual GHG Reduction (MT CO_2e)**
MBTA diesel	500	33,750
MBTA diesel hybrid	285	14,108
MBTA CNG	175	8,570
Diesel school	9,000	110,190
RTA diesel & diesel-hybrid	1,600	55,000

3. ***Appoint an "Electric Bus Czar" responsible for coordinating across state offices to deploy electric school and transit buses.***

Altogether, the full conversion of all public transit and school bus fleets would amount to roughly 222,000 metric tons CO_2e, or 12% of the state's 2030 cuts from medium-and-heavy-duty vehicles, a good start to achieve the 2030 limit. The state should appoint an "Electric Bus Czar" who would be responsible for facilitating the procurement of electric school buses and regional transit authority buses, as well as planning for charging infrastructure. Since 100% electrification of all transit and school buses would require coordination across many stakeholders (including bus charter companies, RTAs, electric bus manufacturers, charging network companies, school districts, and utility companies, to name a few), having a designated leader within the state to focus on the big picture of procurement is essential.

[7] "The road to net-zero is paved by electric buses." Green Energy Consumers Alliance, 2020.

The position would also allow a centralization of knowledge and experience to ensure that best practices from the electrification of one school district fleet or transit fleet would carry over to the others.

Strategy T4: Deploy Electric Vehicle Supply Equipment & Enable Smart Charging

1. ***Commit to directing electric utilities to implement residential charging incentive programs and time-varying rate structures that account for* all *the benefits of smart-charging EVs.***

The "Strategy Actions" in T4 direct EEA and DOER to "explore a utility-based residential charging incentive program" and "explore and support Time-Varying Rates (TVR) and Active Demand Response (ADR) programs". Exploration and investigation, however, will not result in smart-charging unless *programs are implemented that benefit consumers*. And without programs that benefit consumers, these efforts will not result in higher EV adoption. Therefore, we recommend that the Commonwealth change these "Strategy Actions" to *committing to implement* residential charging incentive programs and time-varying rate structures. Those time-varying rate structures should account for *all* of the benefits of charging an electric vehicle off-peak: not just generation/supply benefits, but distribution, transmission, and greenhouse gas benefits, too. Accounting for the full benefits of charging off-peak will result in much higher cost-savings for consumers and do a better job of shifting demand, all through a durable and self-sustaining funding mechanism.

Specifically, we propose that the DPU mandate utilities to:

- Offer a large discount for off-peak charging that will both prompt behavior change and serve as an incentive for EV purchases. The amount of the off-peak charging discount should exceed the 3-5 cent savings on wholesale electricity costs associated with shifting charging to off-peak hours, specifically by including transmission, distribution, and greenhouse gas benefits.
- Include an up-front rebate of up to $1,000 for the installation of a smart Level II charger tied to participation in the off-peak charging program or managed charging program. That would take some pressure off MOR-EV and provide an incentive to join an off-peak charging program. Properly calibrated, it would not be a subsidy to EV drivers paid for on the backs of those without EVs.[8]

[8] "Good things happen when you smart charge your electric car." Green Energy Consumers Alliance, 2019.

- Standardize NIST Handbook 44 Codes for smart Level II charging stations so they can collect utility-grade metering data to implement time-varying rates on EV charging without requiring the installation of a second meter.
- Offer time-of-use rates without placing an upfront cost burden on participants. Since off-peak charging saves money for consumers and the entire system, EV drivers should be able to easily switch rates without paying to upgrade their own meter or pay a high customer fee.
- Make the benefits and cost savings of off-peak charging clear and easy-to-understand. For example, offer "ghost billing" to explain how electricity bills under a new time-varying rate would change. Consumer acceptance of time-varying rates and managed EV charging is critical to reducing EV fuel costs and supporting EV adoption.
- Design rate options and programs that ensure maximum consumer participation. That means offering both time-varying rates and managed charging programs. Consumers should have flexibility to select an EV charging utility program that works best for them without being inundated with too many options, too much confusion, or too many hurdles in the registration process.

2. ***Move swiftly to develop rate structures that facilitate and accelerate the build-out of public charging infrastructure.***

The 2030 CECP rightly identifies rate structures – particularly demand charges – as an impediment to the build-out of a robust public charging infrastructure network. We are glad to see "Strategy Actions" directing EEA, DOER, and MassCEC to work on this important issue, particularly with an eye towards DC Fast Charging. However, the lack of a listed timeline for these actions is worrisome; we cannot afford to wait until the latter half of the decade to address rate design for public charging. For the final draft of the 2030 CECP, we recommend that these "Strategy Actions" specify that this exploration and analysis take place in 2021 and that changes to rate structures get implemented by 2022, so that these changes can contribute to EV adoption in this decade.

Strategy T5: Engage Consumers & Facilitate Markets

1. ***Yes, more work to raise consumer awareness is sorely needed.***

We appreciate the attention paid to consumer education in the 2030 CECP, as well as the mention of Green Energy Consumers' Drive Green[9] program. From our experience running this program and interacting with both EV drivers and car dealerships, we are very familiar with the main barriers to EV adoption, such as the upfront costs and the lack of a robust charging network, and are glad to see the 2030 CECP take these challenges head-on. However, our interaction with consumers has demonstrated a huge – and continuing – need

[9] Available at: https://www.greenenergyconsumers.org/drivegreen

for programs like ours that fill the education and awareness gap left by car dealers and manufacturers, neither of whom is preparing today's consumers well to make the switch to EVs. We are prepared to meet that need at Green Energy Consumers. Also, group-buy programs like Drive Green, which make EVs more accessible through dealer discounts, reduce costs in a way that leverages MOR-EV funding well.

In addition to formal educational programming, there are other, less obvious policies that increase awareness of EVs, such as allowing EV access to HOV lanes, offering EV-specific license plates, designated parking spaces for EVs, and leading by example. The Commonwealth would do well to consider these strategies as well as related measures such as adopting "pay by the mile" auto insurance and the placement of warning labels on gas pumps.

Buildings

According to the Plan, over a third of the GHG reductions in the whole plan would come from the buildings sector. And the lion's share of that reduction will be enabled by the establishment of a Heating Fuel Emissions Cap. As such, the final draft of the CECP should lay out a clear path towards timely development and implementation of the cap. The current draft does not provide sufficient detail or commitment on the cap or on the high-performance building code, another key aspect of reducing emissions by 2030.

Strategy B3: Convene the Commission and Task Force on Clean Heat & Cap Heating Fuel Emissions

1. ***The declining cap on heating fuel emissions is essential. Let's get started as soon as possible.***

We commend the administration for proposing a long-term, declining cap on heating fuel emissions. We deem it as essential. Without such a rigorous system for limiting emissions and funding investment in this sector, we will not be able to shift homes and businesses quickly enough away from fossil fuels. We see this cap as the necessary foundation to support related policies such as building codes, Mass Save programs, and thermal electrification.

Based upon the Plan's description of the cap, we are enthusiastic in general, but have a lot of questions. We support the establishment of a Commission on Clean Heat to take on the difficult and complex task of fleshing out the cap, and we would appreciate the opportunity to serve on this Commission. As you may know, Green Energy Consumers has worked with heating fuel consumers, mostly residential, since 1982 and still operates what might be the largest heating oil buyers-group in the country. Over the years, we have gained expertise in other areas of building heat through our advocacy on Mass Save and by conducting two heat pump buyers-group pilots.

Our main concern today about the cap, however, has to do with timing. Strategy B3 indicates that the Commission on Clean Heat will complete its work by the end of this year and have the cap in place by 2023. Despite the large task before the group, it is critical to meet that schedule in order to put this system in place and begin funding investment in thermal electrification and other energy efficiency measures.

Strategy B2: Pivot the Market for Building Envelope Retrofits and Clean Heating Systems

1. ***Increase the planned rate of heat-pump adoption for 2022-2024.***

Regarding electrification, we acknowledge the Plan's goals to install heat pumps in a million homes and in 300-400 million square feet of commercial real estate. We took the liberty of graphing a possible trajectory for heat pump adoption at that scale. Mass Save's current Three Year-Plan for 2019-2021 has a target of installing about 15,000 heat pumps per year. If the Three Plan for 2022-2024 *doubled* the rate to 30,000 per year, the trajectory will have to be quite steep after 2024 to reach one million installations by 2030.

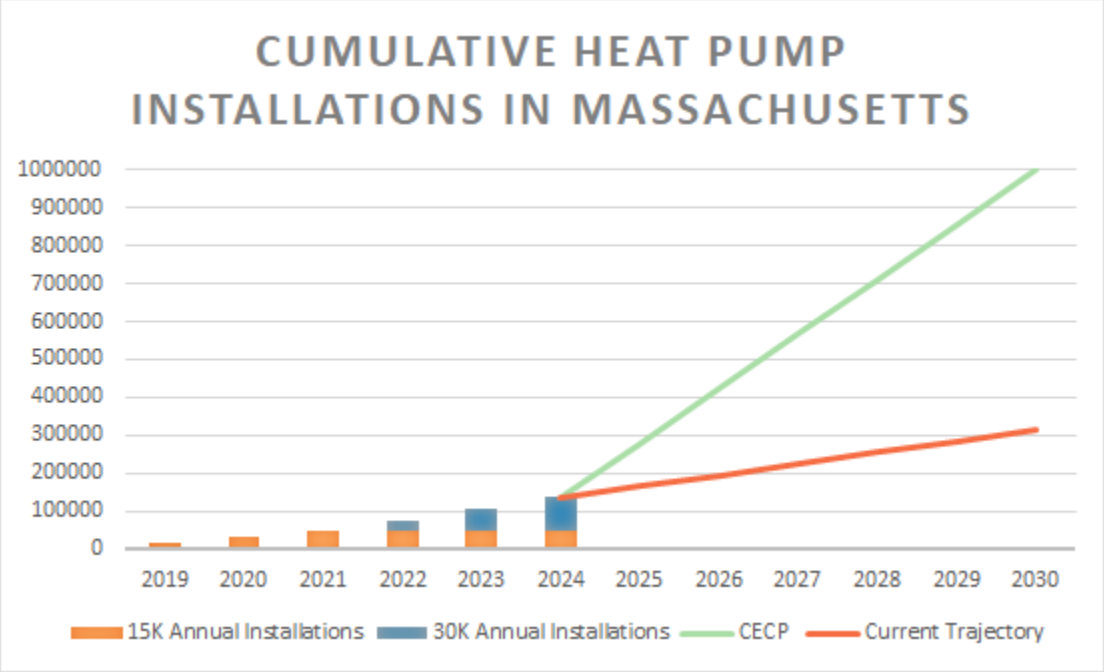

Figure 3 – Trajectory for cumulative heat pump installations in Massachusetts. Even if Mass Save heat pump installations double in 2022, Massachusetts will not reach the goal established by the CECP.

From this graph, we can see that the first order of business for the administration will be to require Mass Save program administrators and municipal utilities to dramatically increase their capacity to install heat pumps in the 2022-2024 time period. This rate of heat pump

installation will be especially challenging given the current program's consistent and concerning shortfalls on promoting heat pumps.

2. ***Stop funding Mass Save's heat pump incentives through the energy efficiency surcharge on electricity bills after 2022-2024.***

We believe that it would unwise to continue Mass Save's current practice of financing heat pump incentives through very significant energy efficiency surcharges on electricity bills beyond 2024. If we continue to rely on the current method, we will be making the electrification of buildings and transportation economically far more difficult. Already, electricity rates in Massachusetts are a factor working against heat pump market penetration. This is why we conclude that the Heating Fuel Emissions Cap is so critical.

3. ***Support equitable investments in energy efficiency.***

We commend the CECP for specifying that Massachusetts must ensure equitable access to energy efficiency. Energy efficiency and clean heating are especially important when it comes to Environmental Justice communities. Although low-income energy consumers, renters, non-English speakers, and other vulnerable communities stand the most to gain from the economic, health, and environmental benefits of the efficiency programs, they have often been left out of the programs historically. We urge the CECP to commit to the recommendations of the Implementation Advisory Committee's Climate Justice Working Group. These recommendations include specific outlines to which the CECP should commit that would center equity and justice in this plan, especially in the building sector.

Strategy B1: Avoid Lock-In of Building Systems That Are Not 2050-Compliant

1. ***Adopt a Net Zero Energy Code early in the decade.***

The CECP commits to a "high-performance stretch energy code" that will be available as opt-in starting in 2023 and mandatory beginning in 2028. Although the high-performance stretch energy code is described as having a "focus on deep efficiency and electrification" and as requiring "passive-house level building envelope efficiency," the CECP does not provide further detail. The 2050 Decarbonization Roadmap report modeled the importance of rapid adoption of a Net Zero code in avoiding emissions from new construction.

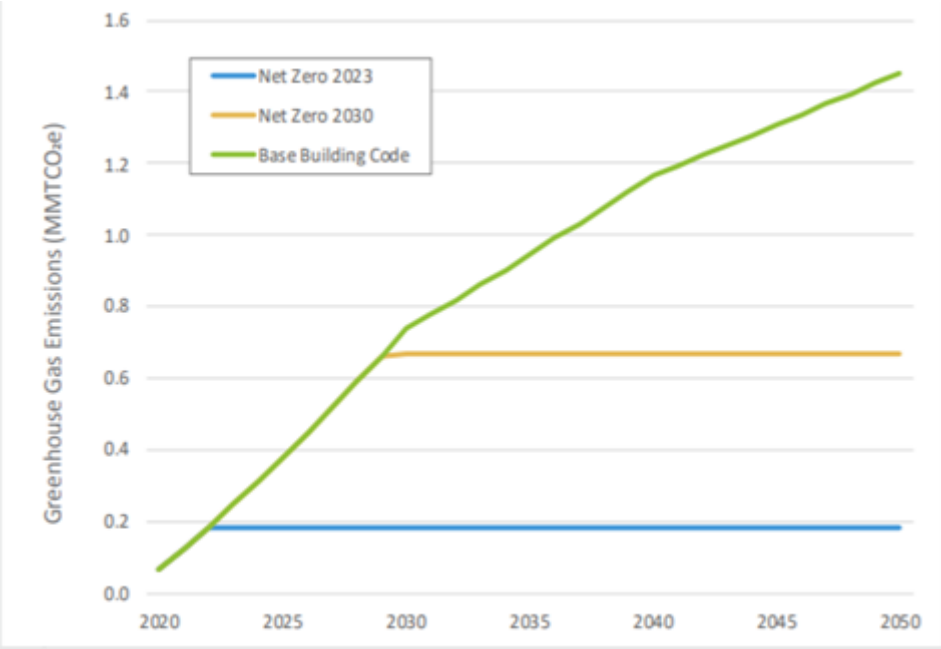

Figure 4 – Emissions from new buildings with and without a Net Zero code.

It is clear that adoption of a high performance stretch energy code early in the decade—and the statewide requirement of this code sooner than 2028—will make it much easier to meet our challenging building sector targets.

2. ***Continue to update state appliance efficiency standards as efficiency technology improves.***

Green Energy Consumers commends the General Court and the administration for supporting appliance efficiency standards during the 2019 – 2020 legislative session and again in S9. We sincerely hope that the final climate bill enacts the long-awaited updates to appliance standards. Over the next decade, efficiency technology will continue to improve, which means that appliance standards will again become outdated. The CECP should acknowledge that existing appliance standards should be updated as often as necessary to reflect the best standards nationally every two years.

Energy Supply

Even though Massachusetts has made great progress in the electricity sector, there are opportunities to make the grid even cleaner. According to the Plan, 21% of the emission reductions this decade would come from cleaning up the state's electricity resources**.** Since the 2030 CECP's approach to emissions reductions in the transportation and buildings sector largely relies on electrifying transportation and heating, progress in the electricity sector underpins the whole plan. The faster we decarbonize the grid, the more we will benefit from the installation of every new heat pump and electric vehicle.

Strategy E3: Align attribute markets with GWSA compliance

1. ***Raise the Clean Energy Standard to at least 60% by 2023 and 100% by 2030.***

More than half of the power sector emission reductions in the plan come from adjusting the Clean Energy Standard (CES) to "at least 60%" by 2030. We strongly support increasing the CES to at least 60% because, without it, already-planned clean energy procurements will flood the REC market and render the CES and Renewable Energy Portfolio Standard (RPS) ineffective. In 2023 or 2024, Massachusetts will begin receiving about 20% of its power from Hydro Quebec. Shortly thereafter, we will have 1,600 megawatts of offshore wind power coming from the Vineyard Wind and Mayflower Wind projects.

On top of that, we will have increasing amounts of solar power all the way through 2030. These additions will add up to more clean power than needed to meet the current CES in 2030. If the standard is not adjusted upwards, Massachusetts would have to sell off a lot of that clean power to other states and forfeit the right to those associated emission reductions. For that reason, we strongly support raising the CES to at least 60% by 2023, when the hydro power is expected to come online, and to 100% by 2030.

We're optimists that there are many ways to reduce emissions in ways that are inherently fair or that can be made to fair to everyone. Increasing the CES is inherently fair insofar as everyone pays into it, everyone benefits, and low-income people can qualify for electricity rate discounts. Offshore wind prices[10] are proving to be affordable, and with the right workforce development efforts in place, we can ensure that everyone is given a fair shot at the good-paying jobs that will be created in the growing offshore wind and solar industries.

[10] "Renewable energy is affordable – look at these offshore wind prices." Green Energy Consumers Alliance, 2020.

Rhode Island[11] appears to be headed towards adopting policies to reach 100% renewable electricity by 2030. Other states are moving towards that goal and President Biden wants the nation to be there by 2035. Given the offshore wind resource we have in the Bay State, along with solar and Canadian hydro coming online in 2023, Massachusetts should set the CES to 100% by 2030 in the 2030 CECP. It would be one of the easiest policies to implement in the plan and could make up for potential shortfalls from other strategies described in the plan. Since the 2030 CECP's plan for emissions reductions in the transportation and buildings sector largely rely on electrifying transportation and heating, greater progress in the electricity sector maximizes the impact of each electric vehicle and heat pump installed by 2030.

The 2030 CECP may have to be revised in order to accommodate certain aspects of An Act to Create a Next Generation Roadmap for Climate Policy. In particular, the new law would require the administration to set an emissions limit in five-year increments, starting with 2025. Accelerating the CES increase to a date before 2025 would help greatly to meet any limit proposed for 2025. The climate bill also increases the Renewable Portfolio Standard by 5% between 2025 and 2030. That would contribute to Massachusetts' ability to meet a 100% CES by 2030. For all these reasons, a CES much greater than 60% will be necessary. A 100% by 2030 CES is doable and could be the key to ensuring that the state meets the 2030 limit.

2. ***Incentivize more communities to adopt Green Municipal Aggregation (GMA) and encourage the DPU to approve GMA proposals in a timely manner.***

We recommend that the Plan be revised to include a set of measures designed to foster the model that we call "Green Municipal Aggregation[12]" (GMA) (aka "Community Choice Aggregation") which a growing number of communities in the Commonwealth have adopted since 2016, when Melrose and Dedham were the first. With GMA, communities choose an electricity supplier that includes in the default product more Class I renewable energy content than required by the RPS. Communities also offer "opt-up" products that allow consumers to receive 100% Class I renewable energy.

We estimate that by the end of 2021, the GMA model will be responsible for increasing voluntary demand (over and above the RPS) for Class I power by roughly 700,000 to 1 million megawatt-hours per year, the equivalent of about 200 large-scale wind turbines. Put another way, GMA increases demand for green power as much as a 2% increase to the RPS. GMA is perhaps the most cost-effective and most equitable carbon reduction measure available through public policy.

[11] "Getting to 100% Renewable Energy in Rhode Island." Green Energy Consumers Alliance, 2020.
[12] Available at: https://www.greenenergyconsumers.org/aggregation

Unfortunately, communities that have adopted GMA at the local level have been waiting too long[13] for their plans to be approved by the Department of Public Utilities (DPU) – often on the order of one full year. This delay has slowed down emission reduction efforts and is sending the wrong message to communities that might be contemplating aggregation.

Beyond the initial approval of aggregation plans, the 2030 CECP should also provide financial support to aggregations. A small incentive would leverage the voluntary purchase of even more green power. For example, we suggest that communities with GMA be placed at the head of the line for funding under the Green Communities program[14].

Strategy E6: Incorporate GWSA into Distribution-Level Policy Considerations

1. ***Discuss and expand upon the role of energy efficiency and the Three Year Plans as a strategy to reduce emissions in the electric sector.***

Although the CECP recognizes the importance of energy efficiency in reducing emissions from the building sector, it neglects to include energy efficiency in the electric sector. Although much of the low hanging fruit of electric sector efficiency is gone due to the prior success of Massachusetts' energy efficiency programs, energy efficiency remains an important strategy for electricity emissions. The CECP should describe and quantify the role that appliance standards, building codes, energy efficient appliance incentives, and active demand management initiatives can play in reducing electricity emissions.

Green Energy Consumers Alliance supports continued progress on distribution system planning and grid modernization. The CECP begins to outline ways in which grid-focused investments can accelerate emissions reductions in line with the 2030 goal, but it falls short of making specific commitments. The CECP should commit to investing in the grid modernization technology most important for emissions reduction, including grid sensors that will reduce renewable energy curtailment and smart meters or comparable devices that will enable time of use electricity rates.

[13] "Municipal aggregation in Massachusetts is being slowed down by state government: Consumers & the environment are paying the price." Green Energy Consumers Alliance, 2020.
[14] Available at https://www.mass.gov/green-communities-designation-grant-program

Strategy E2: Develop and Coordinate Regional Planning and Markets

1. ***Provide more detail about developing and coordinating regional efforts to clean up the power sector.***

According to the 2030 CECP, a large portion of the emission reductions from the power sector (roughly 30-43%) comes from making changes to the regional power grid in collaboration with the five other New England states. This approach makes a lot of sense, but this part of the plan needs more elaboration. How exactly would regional coordination lead to 1.3 to 2.2 $MMTCO_2e$ reduction by 2030? What kind of process can advocates expect to see in the coming years?

Conclusion

We thank the Commonwealth for its interim 2030 CECP and appreciate the opportunity to provide feedback. Our view is that every year within this decade is crucial, which is why we have studied the 2030 CECP in such great detail. We look forward to working with various agencies on policy formulation and implementation.