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STATEMENT OF COMPLIANCE WITH 2020 GREENHOUSE GAS EMISSIONS LIMIT

Pursuant to the Global Warming Solutions Act (GWSA, Chapter 298 of the Acts of 2008 as amended and codified at M.G.L. c. 21N) and drawing upon the best available data and measurements, I hereby state that the Commonwealth has achieved the 2020 greenhouse gas (GHG) emissions limit of 25 percent below the 1990 level with estimated emissions of 31.4 percent below the 1990 level in 2020.

Background

In 2008, Massachusetts passed the GWSA and became one of the first states to adopt a comprehensive approach to reducing GHG emissions to address climate change. The GWSA required the Massachusetts Department of Environmental Protection (MassDEP) to determine the statewide GHG emissions level in 1990 and a projected 2020 business as usual level if no additional emissions reduction measures were implemented. On July 1, 2009, MassDEP issued its Statewide Greenhouse Gas Emissions Level: 1990 Baseline and 2020 Business as Usual Projection.[1]

The GWSA also required the Secretary of Energy and Environmental Affairs (EEA) to establish a statewide GHG emissions limit for 2020 and issue a plan for achieving those reductions while growing the clean energy economy. In December 2010 a limit was established of 25 percent below the 1990 level as the emissions limit for 2020 and the Massachusetts Clean Energy and Climate Plan for 2020 (2020 CECP) was released, outlining a portfolio of policies designed to achieve the 2020 emissions limit.

In 2015, the 2020 CECP (2020 CECP Update) was updated to reflect research and analyses commissioned by EEA and to outline specific emission reduction policies designed to

[1] *Statewide Greenhouse Gas Emissions Level: 1990 Baseline and 2020 Business As Usual Projection*, July 2009 at https://www.mass.gov/doc/statewide-greenhouse-gas-emissions-level-1990-baseline-2020-business-as-usual-projection/download

achieve the 2020 GHG emissions limit. Following the 2020 CECP Update, MassDEP updated the 1990 baseline in 2016 using revised and updated data sources and methodologies.[2]

In September 2016, Governor Baker signed Executive Order 569: Establishing an Integrated Climate Change Strategy for the Commonwealth, recognizing that climate change presents a serious threat to the Commonwealth and that achieving the ambitious GWSA goals will mitigate the effects of climate change. Governor Baker directed the Secretary of EEA to coordinate, make consistent, and lead new and existing efforts to mitigate and reduce greenhouse gas emissions, to build resilience and adapt to the impacts of climate change, and to coordinate efforts across the secretariats to achieve Massachusetts' climate goals.

In December 2018, the GWSA 10-Year Progress Report was submitted to the Legislature describing the Commonwealth's efforts to reduce GHG emissions in compliance with the GWSA. Analysis conducted for the progress report indicated that implementation of policies highlighted in the 2020 CECP Update, as well as additional policies and regulations implemented since the 2020 CECP Update was issued, were helping the Commonwealth effectively reduce GHG emissions and stay on track to meet the GWSA emissions limit in 2020.

To incorporate significant new data, MassDEP proposed in May 2021[3] to update the 1990 Baseline for a second time but did not finalize the update due to a continuing series of data improvements and corrections made by federal agencies, which MassDEP relies on to develop the inventory. Thus, in February 2022,[4] MassDEP proposed an Addendum to the 1990 Baseline update proposed in May 2021. In developing the Massachusetts 2025 and 2030 Clean Energy and Climate Plan (2025/2030 CECP), EEA relied on the 1990 values in the February 2022 Addendum.

In March 2022, the United States Environmental Protection Agency (EPA) released substantial changes to the national GHG inventory for all years going back to 1990. This led MassDEP to release a 2nd Addendum in June 2022 to the May 2021 Baseline update to reflect the changes from the EPA.[5] This statement presents the reductions from two separate 1990 statewide GHG emissions values: one from the Addendum, and the other from the 2nd Addendum.

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[2] *Statewide Greenhouse Gas Emissions Level: 1990 Baseline and 2020 Business As Usual Projection Update*, July 2016 at https://www.mass.gov/doc/statewide-greenhouse-gas-ghg-emissions-baseline-projection-update-including-appendices-a-b/download

[3] *Statewide Greenhouse Gas Emissions Level: 1990 Baseline Update*, May 2021 at https://www.mass.gov/doc/statewide-greenhouse-gas-emissions-level-proposed-1990-baseline-update-including-appendices-a-b/download

[4] *Addendum to the Statewide Greenhouse Gas Emissions Level: 1990 Baseline Update*, February 2022 at https://www.mass.gov/doc/addendum-to-statewide-ghg-level-proposed-1990-baseline-update-february-2022/download

[5] *2nd Addendum to the Statewide Greenhouse Gas Emissions Level: 1990 Baseline Update*, June 2022 at https://www.mass.gov/doc/2nd-addendum-to-statewide-ghg-level-proposed-1990-baseline-update-june-2022/download

Statutory Mandate

The GWSA requires the Secretary of EEA to issue a statement not more than 18 months after the last day of 2020, indicating the degree of compliance achieved by the Commonwealth with the statewide 2020 GHG emissions limit, drawing upon the best available data and measurements. The Secretary's statement "shall reasonably quantify the extent to which emissions exceeded or did not exceed the limit and shall consider the lessons to be learned from any success or failure to comply with said limit."[6]

Approach to Evaluating Compliance

MassDEP relies on a variety of data sources to develop the Massachusetts GHG emissions inventory. For 2020, most, but not all, of the data is currently available.[7] The remaining data are from sectors whose emissions typically do not vary much from year to year. In order to develop a range of estimated 2020 emissions for the remaining sectors, MassDEP took the highest, average and lowest emissions from 2017, 2018, and 2019, for each sector. This approach likely overestimates transportation sector methane (CH_4) and nitrous oxide (N_2O) emissions because transportation sector carbon dioxide (CO_2) emissions data that are available show a substantial drop in 2020, but MassDEP has not adjusted the estimates of CH_4 and N_2O to correspond to the decrease in CO_2 emissions. Since transportation sector CH_4 and N_2O are a very small portion of the inventory and the actual values are expected to be smaller than the estimate, this approach does not affect the conclusion that Massachusetts complied with the 2020 statewide GHG limit of 25 percent.

To determine 2020 compliance with the statewide GHG emission limit of at least a 25 percent reduction from 1990 level, both 1990 and 2020 emissions must be known. Sufficient data are available for 1990 and 2020 to be able to say with certainty that Massachusetts complied with the 2020 statewide GHG limit of 25 percent below 1990 GHG emissions. However, there is specific information to consider with 1990 and 2020 statewide emissions, as discussed above.

Drawing upon the best available data and measurements, as detailed in this statement, the tables below summarize the degree of compliance achieved by the commonwealth with the 2020 statewide GHG emissions limit of 25 percent below the 1990 level and reasonably quantifies the extent to which emissions did not exceed the limit. The Commonwealth fully achieved compliance with the 2020 statewide GHG emissions limit of at least 25 percent below 1990 emissions. Estimated emissions for 2020 are approximately 64 million metric tons of carbon dioxide equivalents ($MMTCO_2e$), which is 31 to 32 percent below the 1990 level, depending which 1990 value is used. Whether using the 1990 statewide GHG emissions from the

[6] M.G.L. c. 21N § 4(g).

[7] The remaining data not currently available are for: transportation sector methane (CH_4) and nitrous oxide (N_2O); agriculture sector carbon dioxide (CO_2), CH_4 and N_2O; and industrial processes (limestone, dolomite, soda ash and urea CO_2 and ozone depleting substance substitutes, semiconductor manufacturing, and electricity transmission hydrofluorocarbons (HFC), perfluorocarbons (PFC), sulfur hexafluoride (SF_6), and nitrogen trifluoride (NF_3).

Addendum or the 2nd Addendum, the result is the same: Massachusetts complied with the 2020 statewide GHG limit of 25 percent.

	$MMTCO_2e$	% Reduction from 1990
1990 emissions level from February 2022 Addendum	94.0	n/a
2020 Limit from February 2022 Addendum	70.5	25%
2020 available partial emissions	60.4	n/a
2020 high emissions estimate	64.2	31.8%
2020 mid emissions estimate	64.1	31.8%
2020 low emissions estimate	64.0	31.9%

	$MMTCO_2e$	% Reduction from 1990
1990 emissions level from June 2022 2nd Addendum	93.5	n/a
2020 Limit from June 2022 2nd Addendum	70.1	25%
2020 available partial emissions	60.4	n/a
2020 high emissions estimate	64.2	31.4%
2020 mid emissions estimate	64.1	31.4%
2020 low emissions estimate	64.0	31.5%

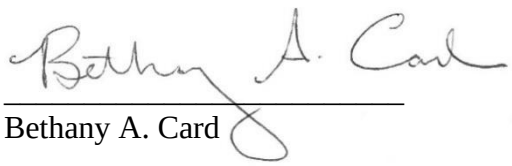
Lessons to be Learned From 2020 Success

Despite Massachusetts' overachievement of emissions reductions in 2020, the year 2020 was an abnormal year for emissions due to the coronavirus pandemic. In March of 2020, the World Health Organization declared COVID-19 a pandemic and Governor Baker declared a state of emergency. Over the following nine months, the measures implemented to control the spread of COVID-19 resulted in a significant slowdown in economic activities across the Commonwealth, which greatly reduced GHG emissions. A part of that slowdown was a decrease in driving, and therefore a significant reduction in the GHG emissions associated with transportation resulted. Despite the enormous success of meeting the 2020 emissions limit, the 31.4 percent reduction in emissions as compared to the 1990 level is partially associated with the pandemic.

The effects of the COVID-19 pandemic on the Commonwealth's overachievement of the 2020 limit demonstrated that the measures that were implemented to stop the spread of COVID-19 highlight changes in economic behavior that decreased statewide emissions. The policies to achieve the 2025 and 2030 limits and maximize the Commonwealth's ability to achieve net zero in 2050 must consider the significant emissions reductions that were partially due to the unusual circumstances in 2020. Further, Massachusetts' climate policy should seize the opportunity to build on the "new normal" created by the pandemic to encourage lower-emissions activities to continue beyond the pandemic.

Statement of Compliance

Massachusetts has fully complied with the statewide GHG emissions limit of 25 percent below 1990 level by achieving emissions level at least 31.4 percent below 1990 level, based on best available data and measurements.



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