Memorandum

To: Vinay Nagabhushana, NHTSA, Contracting Officer Representative

From: ICF, Climate Team

Date: 28 August 2023

Re: DRAFT EIS – Climate ICF Generated Data Administrative Record (AR) Files

Comments: This memo is intended to explain the use of the climate team's ICF generated data files included as part of the DRAFT EIS AR.

Final Data Used in Final DEIS > Emissions Data

1. **HD annual_societal_effects_summary_report.csv –** A comma-separated values file that contains all raw data for the annual societal effects for all climate scenarios and proposed alternatives, specifically for heavy-duty vehicles (heavy-duty pickup trucks and vans).
2. **LD annual_societal_effects_summary_report.csv –** A comma-separated values file t that contains all raw data for the annual societal effects for all climate scenarios and proposed alternatives, specifically for light-duty vehicles (passenger cars and light trucks).

Final Data Used in Final DEIS > Processing Tools:

1. **MAGICC Interpolation.xlsm –** An Excel Macro-enabled spreadsheet that includes climate data for each reference case (including: SSP245, SSP370, and SSP126) as well the CAFE emissions data by each proposed alternative. Each alternative is added to each of the separate reference cases and the result is translated into an emission profile format that can be read by MAGICC6. This tool automates the parsing each of these translated outputs to the MAGICC6 model, runs MAGICC6, and collects the unformatted results. A selection can be made within the spreadsheet tool to complete a standard or sensitivity analysis.
2. **run_icf_api.py –** A Python file that prepares the unformatted results of running MAGICC6 for later use in preparing the analysis of those results.
3. **MAGICC Results.xlsm –** An Excel Macro-enabled spreadsheet that translates the results of the unformatted, standard MAGICC6 analysis output into tabular and graphic results, which are used in Chapter 5, *Greenhouse Gas Emissions and Climate Change*, and Appendix A, *Modeling Results Reported Separately by Vehicle Class*, of the DEIS.
4. **MAGICC Sensitivity Results.xlsm –** An Excel Macro-enabled spreadsheet that translates the results of the unformatted, sensitivity MAGICC6 analysis output into tabular and graphic results, which are used in Chapter 8 and Appendix A of the DEIS.

5. **CO2Sys_v2.3_CAFE6_MAGICC Results_SLR –** An Excel Macro-enabled spreadsheet that uses two of four measurable parameters of the CO_2 system (total alkalinity (TA), total inorganic CO_2 (TCO_2), pH, and either fugacity (fCO_2) or partial pressure of CO_2 (pCO_2)) to calculate the remaining two input parameters. For each action alternative, TA and pCO_2 were selected as inputs and the TA input was held constant at 2,345 micromoles per kilogram (µmol/kg) seawater. The projected atmospheric CO_2 concentration (ppm) data was obtained from MAGICC6 model runs using each action alternative. A range of values derived from certified reference materials of sterilized natural seawater and seawater parameters provided by the model were used for other required constants.

Final Data Used in DEIS > Results:

1. Ocean Acidification Folder *(further details in* Final Data Used in DEIS > Results > Ocean Acidification*)*
2. **MAGICC Results_SSP245_Combined_3.17.23.xlsm –** An Excel Macro-enabled spreadsheet that translates the results of the unformatted, standard MAGICC6 analysis utilizing the SSP245 climate scenario with the combined (light-duty and heavy-duty) vehicle class as the reference case into tabular and graphic results, which are used in Chapter 8 and Appendix A of the DEIS.
3. **MAGICC Results_SSP370_HD_2_20_23.xlsm –** An Excel Macro-enabled spreadsheet that translates the results of the unformatted, standard MAGICC6 analysis utilizing the SSP370 climate scenario with the heavy-duty vehicle class as the reference case into tabular and graphic results, which are used in Chapter 8 and Appendix A of the DEIS.
4. **MAGICC Results_SSP370_LD_2_20_23.xlsm –** An Excel Macro-enabled spreadsheet that translates the results of the unformatted, standard MAGICC6 analysis utilizing the SSP370 climate scenario with the light-duty vehicle class as the reference case into tabular and graphic results, which are used in Chapter 8 and Appendix A of the DEIS.
5. **MAGICC Results_SSP370_Light Trucks_3.16.23.xlsm –** An Excel Macro-enabled spreadsheet that translates the results of the unformatted, standard MAGICC6 analysis utilizing the SSP370 climate scenario with the light trucks vehicle class as the reference case into tabular and graphic results, which are used in Chapter 8 and Appendix A of the DEIS.
6. **MAGICC Results_SSP370_Passenger_3.16.23.xlsm –** An Excel Macro-enabled spreadsheet that translates the results of the unformatted, standard MAGICC6 analysis utilizing the SSP370 climate scenario with the passenger vehicle class as the reference case into tabular and graphic results, which are used in Chapter 8 and Appendix A of the DEIS.
7. **MAGICC Sensitivity Results_SSP126_Combined_3.17.23 - 17th Percentile.xlsm –**

An Excel Macro-enabled spreadsheet that translates the results of the unformatted, sensitivity MAGICC6 analysis utilizing the SSP126 climate with the combined (light-duty and heavy-duty) vehicle class as the reference case into tabular and graphic results, which are used in Chapter 8 and Appendix A of the DEIS.

8. **MAGICC Sensitivity Results_SSP126_Combined_3.17.23 - 83rd Percentile.xlsm –** An Excel Macro-enabled spreadsheet that translates the results of the unformatted, sensitivity MAGICC6 analysis utilizing the SSP126 climate with the combined (light-duty and heavy-duty) vehicle class as the reference case into tabular and graphic results, which are used in Chapter 8 and Appendix A of the DEIS.
9. **MAGICC Sensitivity Results_SSP245_Combined_3.17.23 - 17th Percentile.xlsm –** An Excel Macro-enabled spreadsheet that translates the results of the unformatted, sensitivity MAGICC6 analysis utilizing the SSP245 climate with the combined (light-duty and heavy-duty) vehicle class as the reference case into tabular and graphic results, which are used in Chapter 8 and Appendix A of the DEIS.
10. **MAGICC Sensitivity Results_SSP245_Combined_3.17.23 - 83rd Percentile.xlsm –** An Excel Macro-enabled spreadsheet that translates the results of the unformatted, sensitivity MAGICC6 analysis utilizing the SSP245 climate with the combined (light-duty and heavy-duty) vehicle class as the reference case into tabular and graphic results, which are used in Chapter 8 and Appendix A of the DEIS.
11. **MAGICC Sensitivity Results_SSP245_HD_2_20_23 17th Percentile.xlsm –** An Excel Macro-enabled spreadsheet that translates the results of the unformatted, sensitivity MAGICC6 analysis utilizing the SSP245 climate with the heavy-duty vehicle class as the reference case into tabular and graphic results, which are used in Chapter 8 and Appendix A of the DEIS.
12. **MAGICC Sensitivity Results_SSP245_HD_2_20_23 83rd Percentile.xlsm –** An Excel Macro-enabled spreadsheet that translates the results of the unformatted, sensitivity MAGICC6 analysis utilizing the SSP245 climate with the heavy-duty vehicle class as the reference case into tabular and graphic results, which are used in Chapter 8 and Appendix A of the DEIS.
13. **MAGICC Sensitivity Results_SSP245_LD_2_20_23 - 17th Percentile.xlsm –** An Excel Macro-enabled spreadsheet that translates the results of the unformatted, sensitivity MAGICC6 analysis utilizing the SSP245 climate with the light-duty vehicle class as the reference case into tabular and graphic results, which are used in Chapter 8 and Appendix A of the DEIS.
14. **MAGICC Sensitivity Results_SSP245_LD_2_20_23 83rd Percentile.xlsm –** An Excel Macro-enabled spreadsheet that translates the results of the unformatted, sensitivity MAGICC6 analysis utilizing the SSP245 climate with the light-duty vehicle class as the reference case into tabular and graphic results, which are used in Chapter 8 and

Appendix A of the DEIS.

15. **MAGICC Sensitivity Results_SSP370_Combined_3.17.23 - 17th Percentile.xlsm –** An Excel Macro-enabled spreadsheet that translates the results of the unformatted, sensitivity MAGICC6 analysis utilizing the SSP370 climate with the combined (light-duty and heavy-duty) vehicle class as the reference case into tabular and graphic results, which are used in Chapter 8 and Appendix A of the DEIS.
16. **MAGICC Sensitivity Results_SSP370_Combined_3.17.23 - 83rd Percentile.xlsm –** An Excel Macro-enabled spreadsheet that translates the results of the unformatted, sensitivity MAGICC6 analysis utilizing the SSP370 climate with the combined (light-duty and heavy-duty) vehicle class as the reference case into tabular and graphic results, which are used in Chapter 8 and Appendix A of the DEIS.
17. **MAGICC Sensitivity Results_SSP370_HD_2_20_23 - 17th Percentile.xlsm –** An Excel Macro-enabled spreadsheet that translates the results of the unformatted, sensitivity MAGICC6 analysis utilizing the SSP370 climate with the heavy-duty vehicle class as the reference case into tabular and graphic results, which are used in Chapter 8 and Appendix A of the DEIS.
18. **MAGICC Sensitivity Results_SSP370_HD_2_20_23 - 83rd Percentile.xlsm –** An Excel Macro-enabled spreadsheet that translates the results of the unformatted, sensitivity MAGICC6 analysis utilizing the SSP370 climate with the heavy-duty vehicle class as the reference case into tabular and graphic results, which are used in Chapter 8 and Appendix A of the DEIS.
19. **MAGICC Sensitivity Results_SSP370_LD_2_20_23 - 17th Percentile.xlsm –** An Excel Macro-enabled spreadsheet that translates the results of the unformatted, sensitivity MAGICC6 analysis utilizing the SSP370 climate with the light-duty vehicle class as the reference case into tabular and graphic results, which are used in Chapter 8 and Appendix A of the DEIS.
20. **MAGICC Sensitivity Results_SSP370_LD_2_20_23 - 83rd Percentile.xlsm –** An Excel Macro-enabled spreadsheet that translates the results of the unformatted, sensitivity MAGICC6 analysis utilizing the SSP370 climate with the light-duty vehicle class as the reference case into tabular and graphic results, which are used in Chapter 8 and Appendix A of the DEIS.

Final Data Used in DEIS > Results > Ocean Acidification:

1. **CO2Sys_v2.3_CAFE6_MAGICC Results_SSP126_Combined_2_20_23.xls –** An Excel spreadsheet that contains ocean pH results from the CO2SYS model for MAGICC6 atmospheric concentration, specifically for the SSP126 climate scenario with the combined (light-duty and heavy-duty) vehicle class, which is used in Chapter 5.

2. **CO2Sys_v2.3_CAFE6_MAGICC Results_SSP245_Combined_2_20_23.xls –** An Excel spreadsheet that contains ocean pH results from the CO2SYS model for MAGICC6 atmospheric concentration, specifically for the SSP245 climate scenario with the combined (light-duty and heavy-duty) vehicle class, which is used in Chapter 5.
3. **CO2Sys_v2.3_CAFE6_MAGICC Results_SSP245_HD_2_20_23.xls –** An Excel spreadsheet that contains ocean pH results from the CO2SYS model for MAGICC6 atmospheric concentration, specifically for the SSP245 climate scenario with the heavy-duty vehicle class, which is used in Chapter 5.
4. **CO2Sys_v2.3_CAFE6_MAGICC Results_SSP245_LD_2_20_23.xls –** An Excel spreadsheet that contains ocean pH results from the CO2SYS model for MAGICC6 atmospheric concentration, specifically for the SSP245 climate scenario with the light-duty vehicle class, which is used in Chapter 5.
5. **CO2Sys_v2.3_CAFE6_MAGICC Results_SSP370_Combined_2_20_23.xls –** An Excel spreadsheet that contains ocean pH results from the CO2SYS model for MAGICC6 atmospheric concentration, specifically for the SSP370 climate scenario with the combined (light-duty and heavy-duty) vehicle, which is used in Chapter 5.
6. **CO2Sys_v2.3_CAFE6_SSP126_Combined_Alt 1 Compared.xls –** An Excel spreadsheet that compares Alternative 0 to Alternative 1 utilizing the SSP126 climate scenario with the combined (light-duty and heavy-duty) vehicle class into tabular results, which are used in Chapter 5 and Chapter 8 of the DEIS.
7. **CO2Sys_v2.3_CAFE6_SSP126_Combined_Alt 3 Compared.xls –** An Excel spreadsheet that compares Alternative 0 to Alternative 3 utilizing the SSP126 climate scenario with the combined (light-duty and heavy-duty) vehicle class into tabular results, which are used in Chapter 5 and Chapter 8 of the DEIS.
8. **CO2Sys_v2.3_CAFE6_SSP245_Combined_Alt 1 Compared.xls –** An Excel spreadsheet that compares Alternative 0 to Alternative 1 utilizing the SSP245 climate scenario with the combined (light-duty and heavy-duty) vehicle class into tabular results, which are used in Chapter 5 and Chapter 8 of the DEIS.
9. **CO2Sys_v2.3_CAFE6_SSP245_Combined_Alt 3 Compared.xls –** An Excel spreadsheet that compares Alternative 0 to Alternative 3 utilizing the SSP245 climate scenario with the combined (light-duty and heavy-duty) vehicle class into tabular results, which are used in Chapter 5 and Chapter 8 of the DEIS.
10. **CO2Sys_v2.3_CAFE6_SSP245_HD_Alt 1 Compared.xls –** An Excel spreadsheet that compares Alternative 0 to Alternative 1 utilizing the SSP245 climate scenario with the heavy-duty vehicle class into tabular results, which are used in Chapter 5 and Chapter 8 of the DEIS.
11. **CO2Sys_v2.3_CAFE6_SSP245_HD_Alt 3 Compared.xls –** An Excel spreadsheet that compares Alternative 0 to Alternative 3 utilizing the SSP245 climate scenario with the

heavy-duty vehicle class into tabular results, which are used in Chapter 5 and Chapter 8 of the DEIS.

12. **CO2Sys_v2.3_CAFE6_SSP245_LD_Alt 1 Compared.xls –** An Excel spreadsheet that compares Alternative 0 to Alternative 1 utilizing the SSP245 climate scenario with the light-duty vehicle class into tabular results, which are used in Chapter 5 and Chapter 8 of the DEIS.
13. **CO2Sys_v2.3_CAFE6_SSP245_LD_Alt 4 Compared.xls –** An Excel spreadsheet that compares Alternative 0 to Alternative 4 utilizing the SSP245 climate scenario with the light-duty vehicle class into tabular results, which are used in Chapter 5 and Chapter 8 of the DEIS.
14. **CO2Sys_v2.3_CAFE6_SSP370_Combined_Alt 1 Compared.xls –** An Excel spreadsheet that compares Alternative 0 to Alternative 1 utilizing the SSP370 climate scenario with the combined (light-duty and heavy-duty) vehicle class into tabular results, which are used in Chapter 5 and Chapter 8 of the DEIS.
15. **CO2Sys_v2.3_CAFE6_SSP370_Combined_Alt 3 Compared.xls –** An Excel spreadsheet that compares Alternative 0 to Alternative 3 utilizing the SSP370 climate scenario with the combined (light-duty and heavy-duty) vehicle class into tabular results, which are used in Chapter 5 and Chapter 8 of the DEIS.
16. **CO2Sys_v2.3_CAFE6_SSP370_HD_Alt 1 Compared.xls –** An Excel spreadsheet that compares Alternative 0 to Alternative 1 utilizing the SSP370 climate scenario with the heavy-duty vehicle class into tabular results, which are used in Chapter 5 and Chapter 8 of the DEIS.
17. **CO2Sys_v2.3_CAFE6_SSP370_HD_Alt 3 Compared.xls –** An Excel spreadsheet that compares Alternative 0 to Alternative 3 utilizing the SSP370 climate scenario with the heavy-duty vehicle class into tabular results, which are used in Chapter 5 and Chapter 8 of the DEIS.
18. **CO2Sys_v2.3_CAFE6_SSP370_LD_Alt 1 Compared.xls –** An Excel spreadsheet that compares Alternative 0 to Alternative 1 utilizing the SSP370 climate scenario with the light-duty vehicle class into tabular results, which are used in Chapter 5 and Chapter 8 of the DEIS.
19. **CO2Sys_v2.3_CAFE6_SSP370_LD_Alt 4 Compared.xls –** An Excel spreadsheet that compares Alternative 0 to Alternative 4 utilizing the SSP370 climate scenario with the light-duty vehicle class into tabular results, which are used in Chapter 5 and Chapter 8 of the DEIS.