

SC-CH4 and SC-N2O Data File Description

The file entitled "SC-CH4 SC-N2O Addendum 2016 output.csv" contains the frequency distributions of the Social Cost of Methane (SC-CH4) and frequency distributions of the Social Cost of Nitrous Oxide (SC-N2O) presented in the August 2016 "Addendum to Technical Support Document on Social Cost of Carbon for Regulatory Impact Analysis under Executive Order 12866: Application of the Methodology to Estimate the Social Cost of Methane and the Social Cost of Nitrous Oxide."

The SC-CH4 and SC-N2O are the monetized damages associated with an incremental increase in methane or nitrous oxide emissions, respectively, in a given year. It is intended to include (but is not limited to) changes in net agricultural productivity, human health, property damages from increased flood risk, and the value of ecosystem services due to climate change. More detail about the SC-CH4 and SC-N2O and the interagency process that developed these estimates can be found in the aforementioned 2016 Addendum to the Technical Support Document (TSD) of the Social Cost of Carbon for Regulatory Impact Analysis.

As discussed in detail in the Addendum, the estimates were developed for emissions in 5 different years (2010, 2020, 2030, 2040, and 2050) using an ensemble of 3 integrated assessment models (DICE, FUND, and PAGE), each run with 5 separate socioeconomic-emissions scenarios (IMAGE, MESSAGE, MiniCAM Base, MERGE Optimistic, 5th Scenario), and 3 discount rates (2.5%, 3.0%, and 5.0%).

For each of the 225 combinations of the emissions year, integrated assessment model, socioeconomic-emissions scenario, and discount rate a Monte Carlo simulation was conducted to incorporate quantified sources of uncertainty. In each of these 225 Monte Carlo simulations the specified model was run 10,000 times, where each run was based on a different set of random draws from the probability distributions assumed to represent the uncertain parameters. For each run the output is an estimate of the SC-CH4. Analogous runs produce estimates of the SC-N2O.

The "nSC-CH4 and SC-N2O 2016 Addendum output.csv" file is a comma separated values (csv) file, where numbers and text are stored in plain ASCII text, each line represents a new row, and each column is separated by commas. The file can be read by text editors, most spreadsheet programs (e.g., Microsoft Excel), and statistical software packages.

File layout:

- 10,005 rows and 226 columns of data
- Column 1 contains an index for each of the 10,000 results in a Monte Carlo simulation
- Columns 2-226 contain the results for the 225 Monte Carlo simulations
- Rows 1-5 contain identifiers for each of the 225 Monte Carlo simulations:
 - Row 1 indicates the model used: DICE, FUND, or PAGE.
 - Row 2 indicates the emission year: 2010, 2020, 2030, 2040, or 2050.
 - Row 3 indicates the socio-economic scenario: IMAGE, MERGE Optimistic, MESSAGE, MiniCAM Base, or 5th Scenario.
 - Row 4 indicates the gas: CH4 or N2O.
 - Row 5 indicates the discount rate: 2.50%, 3.00%, or 5.00%.
- Rows 6-10,005 contain the 10,000 estimates of the SC-CH4 or SC-N2O from each Monte Carlo

simulation.