SCC Complete Data Runs - File Description

The file entitled "SCC 2013 TSD output - July 2015 revision.csv" contains the frequency distributions of the Social Cost of Carbon (SCC) developed by the United States Government's Interagency Working Group on Social Cost of Carbon. These estimates were developed for the July 2015 revision to the SCC.

The SCC is the monetized damages associated with an incremental increase in carbon emissions 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 SCC and the interagency process that developed these estimates can be found in the 2016 revision to the TSD for the Technical Update of the Social Cost of Carbon for Regulatory Impact Analysis.

There are 225 frequency distributions

In developing the SCC estimates, three integrated assessment models (IAMs) were used:
- The DICE (Dynamic Integrated Climate and Economy) model by William Nordhaus.
- The PAGE (Policy Analysis of the Greenhouse Effect) model was developed by Chris Hope.
- The FUND (Climate Framework for Uncertainty, Negotiation, and Distribution) model, developed by Richard Tol.

Each of these models was run using:
- Three constant discount rates: 2.5, 3, and 5 percent.
- Five socioeconomic and emission scearios from the Stanford Energy Modeling Forum exercise, EMF-22. There are four business-as-usual trajectories used by IMAGE, MESSAGE, the base scenario from MiniCAM, and the optimistic scenario from MERGE. There is also a 5th scenario representing the emissions pathway that achieves stabilization at 550 ppm CO2e.
- Five representative years for an incremental increase in carbon emissions: 2010, 2020, 2030, 2040, and 2050.

The models were run using a Monte Carlo approach, in which uncertain parameters are represented by random draws from defined probability distributions. Each model run -- representing one IAM, one discount rate, one emission scenario, and one emission year -- was conducted with 10,000 random draws from the probability distributions. The random draws for each model run are independent of each other, so the observations across models are not related to each other.

This exercise produced 225 separate frequency distributions of the SCC: the product of 3 models, 3 discount rates, 5 emission scenarios, and 5 emission years. Each distribution contains 10,000 estimates per model run.

The "SCC 2013 TSD output - July 2015 revision.csv" file description
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The "SCC 2013 TSD output - July 2015 revision.csv" file is a comma-separated file, which means that the numbers and text are stored in plain ASCII text and separated by commas. This type of file can be read by most spreadsheet programs (for example, Microsoft Excel) and statistical software.

The file layout is as follows:

- There are 10,004 lines. Each line has 226 data fields containing number or text separated by commas.
- If this file is imported by a spreadsheet (e.g. Mircosoft Excel), the lines represent rows in the spreadsheet and the data fields represent columns. So there would be 10,004 rows and 226 columns.

- The first row contains the model name: DICE, FUND, or PAGE.
- The second row contains the emission year: 2010, 2020, 2030, 2040, or 2050.
- The third row contains the emission scenario: IMAGE, MERGE Optimistic, MESSAGE, MiniCAM Base, or 5th Scenario.
- The fourth row contains the discount rate: 2.50%, 3.00%, or 5.00%.
- The next 10,000 rows represent the estimates of the SCC for a given model, emission year, emission scenario, and discount rate.

- The first column is a label or index number.
- Each of next 225 columns contain the frequency distributions for one model run.