

Introduction to the Stranded Fossil Fuel Assets Excel Model¹

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The stranded assets Excel model supplements the article titled, “Stranded Assets and Reduced Profits: Analyzing the Economic Underpinnings of the Fossil Fuel Industry’s Resistance to Climate Stabilization”³ (hereafter, “main paper”). This model can be used to obtain the main stranded assets (stranded reserves and stranded capital) results in the paper.⁴ It also contains formulas for estimating stranded assets using alternative discount rates, methods of projecting oil and gas supply, and production decline curves (used in the sensitivity analysis in the main paper and the supplementary material).

The methods, data, and data adjustments are described in the main paper. Due to copyright limitations, I removed all data from the model. All data sources for the stranded assets analysis are referenced in the main paper and publicly available.

The model consists of three Excel workbooks titled: (1) “Stranded Assets Estimation – Scenario Projection Method,” (2) “Stranded Assets Estimation – Practitioner Method (Developed Reserves),” and (3) “Stranded Assets Estimation – Practitioner Method (Undeveloped Reserves).” Workbooks (2) and (3) should be used to estimate stranded oil and gas reserves and workbook (1) stranded coal reserves. Cells that require data entry are highlighted in yellow. Workbook (1) also includes formulas for estimating stranded oil and gas assets using the scenario projection method, but as noted in the main paper, the practitioner method is more accurate for oil and gas. The scenario projection method, however, was used to estimate the timing of profit losses for oil and gas (see Section 3.1 in the main paper).

I also included a fourth workbook titled, “Stranded Assets Estimation – Aggregate Results,” which displays the aggregate stranded assets results.⁵

Abbreviations not already in the main paper are listed below:

- “(1.5)” in worksheet names: The 1.5 °C scenario (instead of the 1.8 °C scenario).
- Exp - 8%: Exponential decline curve; 8% annual decline.
- Exp - 10%: Exponential decline curve; 10% annual decline.
- Hyp - 20%, 0.5: Hyperbolic decline curve; 20% initial decline; $b = 0.5$.
- Hyp - 30%, 0.5: Hyperbolic decline curve; 30% initial decline; $b = 0.5$.
- Percentage in worksheet name (e.g., “SOR 10.0%”): refers to the discount rate.
- SCR/SGR/SOR: Stranded coal/gas/oil reserves.

¹ Hansen, Tyler A. 2022. Stranded fossil fuel assets Excel model. Technical University of Denmark. Dataset. Available from: <https://doi.org/10.11583/DTU.18357251>. This work is licensed under [CC-BY version 4.0](#).

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³ Hansen, Tyler A. 2022. Stranded Assets and Reduced Profits: Analyzing the Economic Underpinnings of the Fossil Fuel Industry’s Resistance to Climate Stabilization. Renewable & Sustainable Energy Reviews. Available from: <https://doi.org/10.1016/j.rser.2022.112144>.

⁴ This is a simplified version of the model. Do not hesitate to email with questions (see footnote 1).

⁵ Note that the results workbook pulls data from the other three workbooks (open the others first).