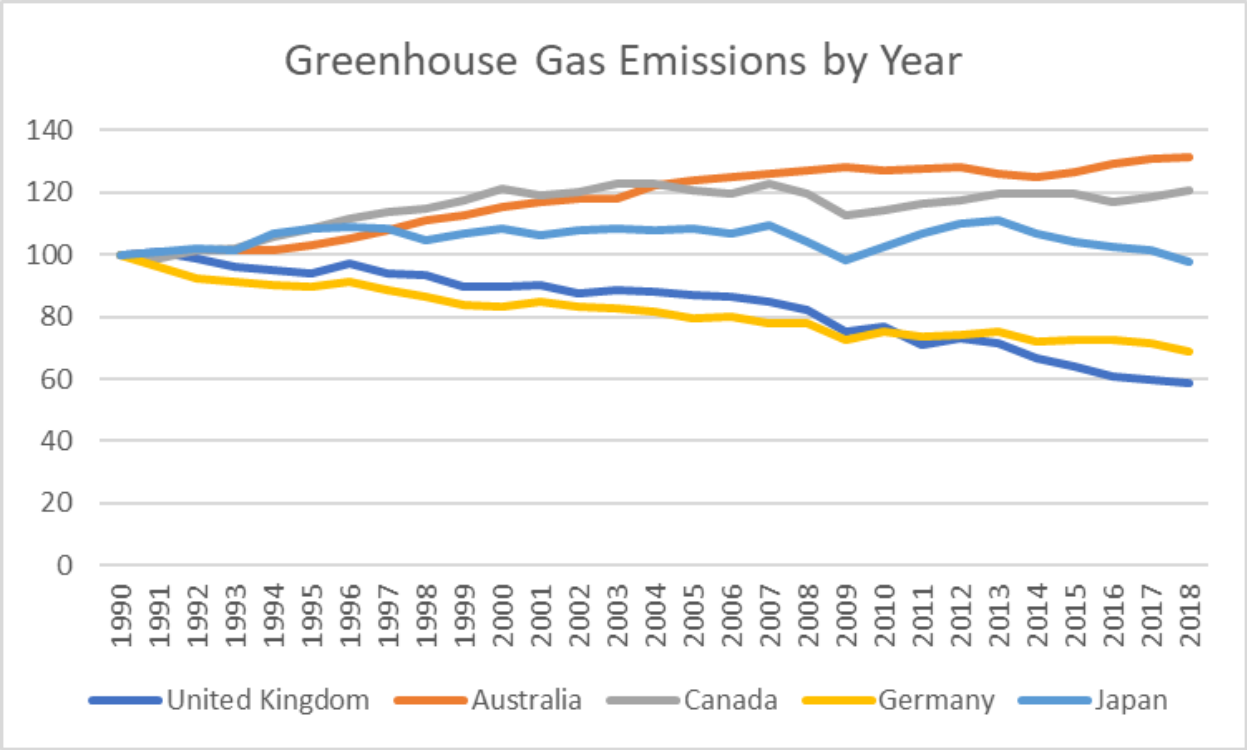
DISCLAIMER: This visualization was created as part of a visualization ethics assignment. Please use the information presented here with caution, as it may have been intentionally designed to be misleading.



Index 1990=100

Visualization: Black Hat

Title: Greenhouse Gas Emissions by Year.

Legend: Included in graph.

Description:

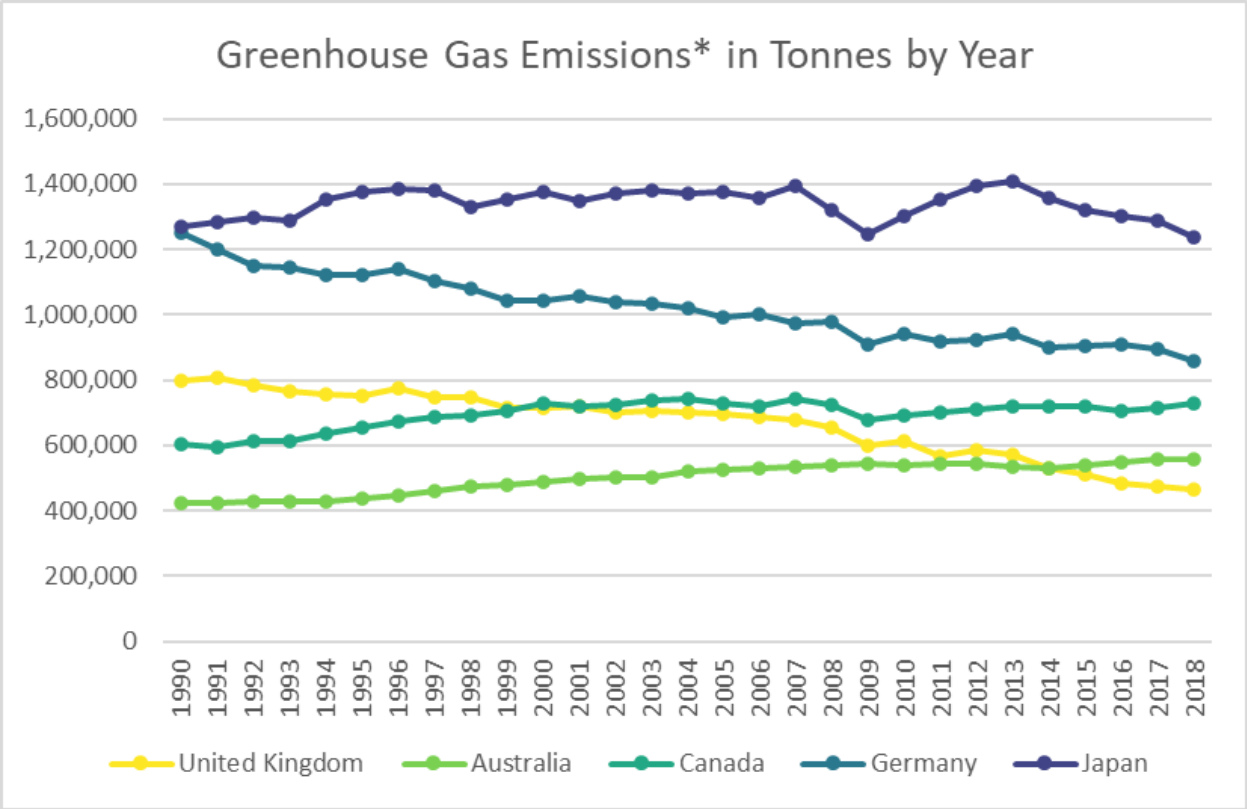
This visualization utilizes the Greenhouse Emissions dataset, which describes different types of pollution produced by certain countries from 1990 to 2018. This visualization shows the greenhouse gas emissions of each of the given countries, but the country's emissions in 1990 are adjusted to the value of 100. Each line in the chart represents a given country's change in emissions compared to the country's emissions in 1990. From this graph, you can see that Australia and Canada produced more greenhouse gas emissions in 2018 than in 1990, Germany and the United Kingdom produced less emissions in 2018 than in 1990, and Japan produced a similar amount in both years.

Design Motivation:

This visualization is very misleading. The visual conventions of a line graph are used, but the visual encodings differ from that of a traditional line graph. Each line in the chart is intended to be compared only to itself, but is presented in conversation with other lines. For example, a viewer may see this chart and conclude that Australia's and Canada's emissions far exceed Germany's in 2018. In reality, though it is true that Australia's and Canada's emissions increased between 1990 and 2018 and Germany's fell, Germany's emissions exceeded both Australia's and Canada's in 2018.

This visualization is also misleading in other ways. The lines use the default Microsoft Office color palette, which contains two very similar blues. It is not specified that "Greenhouse Gasses" excludes Land Use, Land-Use Change and Forestry, or what units the emissions are measured in. The chart also does not adequately explain how to read it besides containing the barest of explanations in the footer. The data's source is not specified.

DISCLAIMER: This visualization was created as part of a visualization ethics assignment. Please use the information presented here with caution, as it may have been intentionally designed to be misleading.



* Excluding Land Use, Land-Use Change and Forestry

Data Sourced from OECD Statistics.

Visualization: White Hat

Title: Greenhouse Gas Emissions (Excluding Land Use, Land-Use Change and Forestry) in Tonnes by Year.

Legend: Included in graph.

Description:

This visualization utilizes the Greenhouse Emissions dataset, which describes different types of pollution produced by country from 1990 to 2018. This visualization shows the greenhouse gas emissions in metric tons (tonnes) of each of the given countries. Using this visualization, a viewer could compare the emissions of different countries in a particular year, compare how a single country's emissions have changed over time, and compare how different countries' emissions have changed over time.

Design Motivation:

This visualization is far less misleading than the first. No transformations are made on the raw data, and the units (tonnes) are clearly communicated. This graph follows the conventions of a line graph and actually functions as a line graph. It can be read exactly like any other line graph, so is easily understandable by the general public. The source of the data is cited and linked in the footnote.

There are several additions made to this graph to make it especially clear. The numbers in the thousands or millions (on the y-axis) are divided by commas, making them easier to read. The colors are now colorblind-friendly and easier to distinguish. The title is more descriptive and doesn't omit any information. Finally, the datapoints are emphasized using points, making them easier to compare.