

# Good Visualization

<https://public.tableau.com/app/profile/gbolahan.adebayo/viz/TheChangeinGreenhouseGasesintheAtmosphere/GasEmissions>

**Intended audience:** General public

**Intended medium:** Web

**Cognitive load:** Medium

**Audience:** Living in the year 2023, many of us are generally aware of the effects that global warming has had on our planet, or at least have heard of this widely sought out notion, so its not too much of a niche area where background research is required in order to grasp the concept. The author of this visualization provides a brief explanation of greenhouse gas emissions and radiative forcing on the top right of the visualization, which gives a good headway digging deeper into what these graphs have to offer. <sup>1</sup>

**Appearance and colours:** Contrast wise, the green and white background's are not distracting to the data that's being presented, as well as the colour contrast used in the graph's are easily distinguishable, making it easy to understand the percent changes from year-to-year. The font of the names of gas's are sufficiently large, showing the audience the widely used abbreviation, and also the long-form. <sup>2</sup>

Secondly, working all together, the orange font of "RISE!", along with looking at the legend and actual data, helps the audience to understand that year-over-year from 1979, most of the gas's have been showing an uptrend. The only outlier being the CFC's which show a down trend from the late 90's going forward.<sup>3</sup>

Thirdly, it's a dynamic visualization, and the ease of the ability to change the year (below the title), and the bar chart adjusting accordingly are seamless. <sup>4</sup>

**Cognitive load:** The cognitive load is not too much. The brief background information at the top right gives a good introduction as to what the graph's are trying to convey. Also, the dynamic aspect of the data and visualization is not too busy where one is trying to understand what part of the visualization has changed and where. The user adjusts the year according to their desire, and they see the adjustments in the graph. <sup>5</sup>

**Improvements:** The only question that one may have is why the charts start off as a negative percentage, and hence it would have nice to have explanation regarding that. Secondly, another detail that would have been nice to have been include is the raw data for each year in watts/metre<sup>2</sup>, specified at the end of the intro, but not described anywhere else. Only the percentage difference is noted on the charts. <sup>6</sup>

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<sup>1</sup> Data Visualization – Graphing our Date: Choosing the Right Visualization (pg 24,25)

<sup>2</sup> Data Visualization – Graphing our Date: Choosing the Right Visualization (pg 25)

<sup>3</sup> Data Visualization – Visualization with Purpose: Refine Your Plots (pg 16)

<sup>4</sup> Data Visualization – Graphing our Date: Choosing the Right Visualization (pg 29-32)

<sup>5</sup> Data Visualization – Graphing our Date: Choosing the Right Visualization (pg 33,34)

<sup>6</sup> <https://xdgov.github.io/data-design-standards/components/legends>

# Bad Visualization

<https://public.tableau.com/app/profile/dennis.kao/viz/OttawaA15-MinuteCity30DayChartChallengeDay16Environment/Dashboard1>

**Intended audience:** Those who can walk and/or ride a bike in Ottawa

**Intended medium:** Web

**Cognitive load:** Very high

**Addressing a very narrow audience:** This visualization serves a narrow audience, which are those individuals who live in the specific Ottawa area outlined in the map, those who are interested in traveling to this area, and want to understand travel distance, and those who are able to walk and/or bike. It does not serve those who can't walk (ie: individuals with disability) and/or bike, and those who don't live in this region and travel in this area, and therefore, serves a narrow audience.<sup>7</sup>

**Appearance and Colours:** It's understandable that a heat map was used for this visualization, but the contrast between each colour is very hard to distinguish, and layering all of this on the black background makes it even harder to separate and distinguish the differentiation, especially if the computer that it's been visualized on is not in a dark environment, because if it's bright and sunny, distinguishing between the different colours is very difficult.<sup>8</sup>

Secondly, the bar chart on the bottom right is not easily understandable of what it's trying to convey. Example, what is the unit?<sup>9</sup>

Thirdly, the map of the city and the information it's trying to convey is too busy, even for a local. For example, which dot is the local supposed to know which to press? It feels like a trial and error. Maybe there's a rough area that the user will know, but I think not a specific dot.<sup>10</sup>

**Cognitive load:** This visualization seems like something one really needs to study and understand before trying to use for his/her purpose. Even then, there's always the guess work of the trial and error mentioned above.<sup>11</sup> At the point in which the neighbourhood is identified, the information that is provided with regards to the pop up map with purple dots and the bar chart on the bottom right seems like it does not add any context as to if the business's in the area is something that the user will enjoy or not. On top of this, the various categories that are provided in the bar chart, is not identified in the pop-up map.<sup>12</sup>

**Improvements:** Change the contrast of the city map colouring palette so the change is more distinguishable between colours. A second improvement may be to colour code the different business categories shown on the right bar chart so that when it shows up as round dots on the map, people can make the distinction, even though they may not know the exact address.<sup>13</sup>

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<sup>7</sup> Data Visualization – Graphing our Data: Choosing the Right Visualization (pg 24,25)

<sup>8</sup> Data Visualization – Graphing our Data: Choosing the Right Visualization (pg 25)

<sup>9</sup> <https://xdgov.github.io/data-design-standards/components/labels>

<sup>10</sup> <https://xdgov.github.io/data-design-standards/visualizations/dot-distribution-map>

<sup>11</sup> <https://xdgov.github.io/data-design-standards/visualizations/choropleth-map>

<sup>12</sup> <https://xdgov.github.io/data-design-standards/components/labels#map-labels>

<sup>13</sup> <https://xdgov.github.io/data-design-standards/components/colors>