

# Video Tutorial Scripts

## Introduction to motion chart features

Welcome to the EPA's sulfur dioxide - or SO<sub>2</sub> - motion chart video guide. During this video, I will introduce you to the features on these motion charts and in subsequent videos, I will show you how to use and explore each individual chart. The three motion charts are located on the SO<sub>2</sub> tracking website towards the bottom of the page here.

Now let's go to one of the motion charts and discuss the various features and types of data it can show. Each circle on the motion chart represents a facility in the Acid Rain Program with one or more units that burn coal to create electricity.

The size and color of these circles tell us something about the facility. To the right of the motion chart you'll find two legends. The color spectrum at the top represents the emissions generated per unit of fuel (also known as the SO<sub>2</sub> emission rate), with warmer colors (yellow through red) representing a high emission rate and cooler colors (green through blue) representing a low emission rate. Emission rate is an indicator of environmental efficiency. A higher emission rate indicates a less efficient or dirtier power plant, while a lower emission rate indicates a cleaner burning power plant. A decrease in emission rate can be a result of the use of scrubbers (which is a piece of equipment used to reduce the amount of SO<sub>2</sub> emissions leaving a smokestack), or it could be the result of a switch to a cleaner burning, low sulfur coal. An increase in the emission rate may be the result of using a scrubber less or switching to dirtier, less-expensive coal with higher sulfur content.

The size of the circle on the chart is proportional to the emissions from that plant. The circle in the legend provides a point of reference. As you can see here, the circles represent the total emissions in tons from each power plant and you can see how the size compares to the largest circle represented in the legend.

If you are interested in data for a specific facility you can use the alphabetical listing on the right to locate that power plant on the motion chart. If you move your mouse over the name of a facility, that power plant will be circled on the motion chart and its name will appear. If you want to focus on a particular facility you simply check the box next to the name and then all the other facilities will be dimmed out. You can also do this by hovering over the circle in the chart itself and clicking on it.

The x- and y-axis show various kinds of data, in this case, the x-axis shows sulfur dioxide emissions while the y-axis shows heat input for a particular plant. Heat input is a measure of the energy content of fuel and it can also tell us about energy demand at a plant. High heat input levels at a facility tell us that there is high demand for electricity at that particular plant.

So, all of this data can be displayed if you hover over a circle. And you can see that the data is displayed on the axes and in the legend at the right. You can change what data is displayed by clicking on the label bar. So let's say we wanted to look instead at emissions over time.

We can even watch this data move through time by clicking on this play button here. We can change the playback speed by moving this arrow up or down. In this case we are watching emissions change between 1990 and 2008.

If we wanted to watch that specific change for a certain plant, in this case let's say Cumberland, we can click on that plant either in the chart or in the list to the right and then click play. You will notice that each data point is linked by these trailing lines so you can very clearly see how emissions have changed for this particular plant.

Ok, you should now have a general feel for the various features of these charts. In the next three videos, we will explore how to use each individual motion chart and to understand some of the stories they tell.