Slide 1

- Our data was sourced from Kaggle and covers data looking at energy consumption, weather conditions and ACORN groups
- The timeframe covers November 2011 to February 2014 and the data was collected from roughly 5500 London households
- Fortunately the data was already fairly clean, which made it easy to merge and analyse

Slide 2

- We looked into three areas of variables that might affect energy consumption: consumer demographic, the time of week/year, the weather

Slide 3

- ACORN is a segmentation tool that categorises the UK population into demographic types using social factors and population behaviour
- As might be expected, there's a clear pattern showing that those with a higher income (ACORN-A) consume more energy on average than those with a lower income (ACORN-Q)

Slide 4

- We then looked at which days of the week see the most energy consumption
- Again, as expected, there isn't a huge different in day-to-day consumption, but the weekends saw the highest levels

Slide 5

- The next stage was to look at average monthly consumption by ACORN group
- We already know that the higher income groups consumer more energy than the lower income groups, but from this plot we can see that there's a clear seasonal pattern

Slide 6

- Following on from the apparent seasonal pattern, this next slide shows what appears to be a negative correlation between the number of daylight hours and energy consumption

Slide 7

- And this slide also shows a clear negative correlation between the average daily temperature and energy consumption
- The R-squared value is -0.84, confirming the fact that there is a strong negative correlation between the two variables

Slide 8

- We dived deeper into temperature, plotting for each day the total energy consumption against the minimum temperature
- We found an outlier that doesn't reflect the rest of our dataset (energy consumption of almost zero at a temperature of 4 degrees is odd), so we dropped the outlier to make our model more accurate

Slide 9

- We plotted a line of regression based on our model
- R-squared value = 0.68…68% of the dependant variable and be explained by the independent variable
- Extended the line to predict energy consumption for temperatures of 21 degrees and above
- May not be totally accurate, as you'd expect consumption to go up when the temperature is super high due to people using air-conditioning units

Slide 10

- We looked at energy consumption overall in London over the time period
- Line shows a slight downward trend over time
- Perhaps this shows that the smart meters are working and leading to a decrease in energy consumption

Slide 11

- Thanks for listening, I'd now like to welcome questions from the floor should there be any