A Comparison of Energy Consumption In 3 Saskatoon Neighbourhoods – Case Study

The City of Saskatoon produced the 2014 Saskatoon Greenhouse Gas Emissions Inventory. Neighbourhood emissions and demographics from page 65 and 66 of this report, include this information:

- *Predominant age of dwelling* refers to when most of the houses in the neighbourhood were built. Older homes, in general, have less insulation and draftier windows.
- *Average household size* refers to how many people, on average, live in each home. In general, if there are more people in a house, the household use more resources like water and electricity.
- *Consumption per household (GJ)* refers to how much energy each household uses (measured in gigajoules).

Here is information from 3 neighbourhoods, or check out your own neighbourhood:

	Briarwood	**Westview**	**Adelaide/Churchill**
Predominant age of dwelling	2001-2005	1961-1980	before 1960
Average household size	2.9 people	2.9 people	2.6 people
Consumption per household	118,601GJ	69,427GJ	77,382GJ

Here is a photo of a home from each of these neighbourhoods.
Briarwood

$639,900 CAD

$2,464 / mo Get Mortgage

3 Beds   4 Baths   2206 ft²/205 m²

Year Built 2005

Westview

$239,900 CAD

$928 / mo **Get Mortgage**

3 Beds   2 Baths

Residential

864 ft²/80.3 m²

Year Built 1969

Adelaide Churchill

$374,900 CAD

$1,444 / mo **Get Mortgage**

4 Beds   2 Baths

Residential

1044 ft²/97m²

Year Built 1959

Discussion

- Comparing the 3 neighbourhoods, which homes are likely the draftiest and most poorly insulated?
- Does the consumption per household match the age of the homes? If not, what other factors could be associated with higher energy use?
- The equation $Q=A\Delta T/R$ helps us design energy efficient homes:

    Q = heat flow. The **power** to keep the house warm.

    A = the size of the house. The **surface area** of all the outside walls, roof, and floor.

    ΔT = the **temperature difference** from inside to outside. ΔT = is said "delta T". Engineers use the Greek letter Δ to mean "difference".

    R = the average R value or **insulating value** of the building envelope.

In what ways does this equation help to answer why some neighbourhoods might use more energy than others?

Graphing

1. Create a bar graph that compares the energy consumption of the 3 neighbourhoods.
2. What are other interesting things about these houses and neighbourhoods? Choose one and create a graph that represents the comparison.

Going further: Comparing energy use in other neighbourhoods

Find information on other Saskatoon neighhourhoods on pages 65 and 66 of the [2014 Saskatoon Greenhouse Gas Emissions Inventory](#).

Notes:
1. *There is more information in the chart than has been included above.*
2. *New neighbourhoods have incomplete data because many buildings are still under construction. The "Total Households" section shows how many buildings are included in each neighbourhood.*

- Find your own neighbourhood. How does energy use in your neighbourhood compare to the 3 included in this case study? What are the differences between your neighbourhood and these 3?

- Which neighbourhoods should have better insulated homes? Why do you think this? Is energy consumption per household lower? If not, what other factors could increase energy consumption in these neighbourhoods?

- Which neighbourhoods probably have less well insulated homes? Why do you think this? Is energy consumption per household higher? If not, what other factors could decrease energy consumption in these neighbourhoods?

- Find a neighbourhood with high energy use, can you suggest a few reasons why these homes are using more energy than other neighbourhoods?

- Find a neighbourhood with a low average household size, and one with a high average household size. How does the energy consumption per household compare?