Capstone Project - GHGs emission hotspots in Edmonton

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Introduction

- Emission of greenhouse gases (GHGs) is increasingly becoming a major concern for major cities around the world, and the city of Edmonton in the province of Alberta, Canada is of no exception. As the Economist for the Ministry of Environment and Parks of the Government of Alberta, I have been tasked to use machine learning techniques to identify the areas in the city of Edmonton where emission of carbon dioxide (CO2) is likely to be much more concentrated in order for appropriate measure to be taken to enhance abatement.

Introduction

- GHGs results in warm temperatures by trapping heat in the atmosphere. Studies show that human activities are the main cause of increase in these GHGs in the atmosphere.
- For the purposes of this study, I will concentrate on CO2 emissions. This is because it is the most common GHG emitted in Canada and also the most difficult to deal with since it stays in the atmosphere for relatively longer periods.
- The primary sources of CO2 emissions in Canada are: transportation, electricity production, industry, commercial and residential, agricultural, land use and forestry.

Business Problem

- The increase in temperatures due to CO2 emissions has several impacts. Chief among them is the human health impacts, not to mention the environmental and economic impacts.
- Higher temperatures and extreme weather events may increase the risk of deaths, and of injuries from intense local weather changes. There may also be greater risk of respiratory problems.
- Activities that results in an increase in CO2 emissions may be concentrated in certain neighborhoods. These may include locations where industries such as oil fields, restaurants, and farmlands are located.
- The main objective is to find areas in the city where restaurants and other activities that result in CO2 emissions are concentrated the most.