

# Assignment 4 Energy and climate justice

## 1. Energy and climate justice

Check the launch of [NYC Climate Justice Hub](#), a partnership between the New York City Environmental Justice Alliance (NYC-EJA) and The City University of New York (CUNY) to advance climate solutions led by communities of color on the front lines.

Check also the New York State climate justice [programs and resources](#)

What is energy justice? How is it different from climate justice? Use one example to discuss how energy supply/demand or climate impact may affect equity and justice of specific groups or populations. Write a short essay (~400 words) to explain your thoughts. (Total 10pts)

## 2. Load forecast and EV penetration (Optional, for those who are interested)

Load forecast is very important for power system planning and operation. First visit NYISO website's [Custom Reports](#) to explore all sorts of data out there. We will be focusing on day-ahead market (DAM) forecast (1-hour interval), and actual load (5-min interval and 1-hour interval), and comparing them and analyze how to make forecast better. Download one whole year (2022) of [Real\\_Time\\_Dispatch\\_Actual\\_Load](#) and [Day Head Market Load Forecast](#) for New York City.

- Draw the load curve and load duration curve of New York City.
- Show the characteristics of average day hourly load curve in New York City
  - All days average
  - Weekday vs. weekend
  - Monthly average
  - Seasonal average
- Find the hour(s)/day(s) with the largest forecast error, and try to explain why?
- Now make reasonable assumptions of EV penetration and EV charging in New York City, and try to show how that would change the load curve.
- Should ConEdison worry about it, what policy/incentives should you use to change people's behavior of charging/discharging so to save costs for the utility companies?

### Further reading:

Arvind Jaggi, Senior Economist, Demand Forecasting & Analysis, [Electric Vehicle Forecast Impacts \(Gold Book 2021\)](#)

Play around the [En-ROADS](#) model, and change some of the parameters and check how assumptions affect modeling results.