Machine Learning Group Project Proposal:

Predicting Electricity Supply and Demand

Team Members (alphabetical order):

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1. Project/challenge Name

* **Predicting Electricity Supply and Demand**

2. Problem description - **Supervised Learning**

* Predict the electricity supply required to meet the demand
* Predict the demand from environmental and economic factors

3. Data format: tabular (csv), text, image, video, audio, etc.

* **csv**

4. Data size: number of records and features

* Number of records: ~44,000 records over five years
* Granularity: Hourly
* Features Under Consideration:
  + Weather (mean Toronto temperature)
  + Power demand (consumption)
  + Region
  + "Fuel Type" (Nuclear, Hydro, Wind, etc.)
  + Industrial load by sector (under consideration)
  + Day of the week
  + Hour
  + Public holiday indicator
  + Electricity price category (On-peak, Mid-peak or Off-peak)
  + Daylight indicator (by hour)
  + Population

5. Data source - link to data file

* Independent Electricity System Operator (IESO)
  + <http://reports.ieso.ca/public/GenOutputbyFuelHourly/>
  + <http://reports.ieso.ca/public/DemandZonal/>
  + <http://reports.ieso.ca/public/IndustrLoadBySector/>
* Environment Canada
  + <https://climate.weather.gc.ca/historical_data/search_historic_data_e.html>
* Toronto Economy, Labour Force & Demographics
  + <https://www.toronto.ca/city-government/data-research-maps/toronto-economy-labour-force-demographics/>

6. Link to the competition page

* No competition.

7. Your motivation to work on this project

* Personal interest in the transition to renewable sources of energy
* Relevance to the economy and the environment of generating only as much power as needed without excess or shortage.