Stephen Xu

June 23, 2023

Real-Time Constraint Aggregation Report

Task Description

* Aggregate historical MIS ERCOT data for 2023 into a large CSV while using the Yes Energy website to record corresponding ShadowPrices and FacilityTypes.
* Use this aggregated data to compute historical deltas of shadowPrice \* shiftFactor for a set of (source, sink) paths and write the results into a new table.
* Automate the task to update the table with new entries every morning at 6 AM. If successful, the task should finish within 10 minutes.

Solution Design

* Location:
  + Python scripts located at Y:\11\_Transmission Analysis\ERCOT\101 - Misc\CRR Limit Aggregates\Python Scripts\Real-Time Constraint Aggregation
  + Output data is located at Y:\11\_Transmission Analysis\ERCOT\101 - Misc\CRR Limit Aggregates\Data\Aggregated RT Constraint Data
* Steps to Run:
  + Running **RT\_Constraint\_Aggregator.py** compiles the CSVs located in \\Pzpwuplancli01\Uplan\ERCOT\MIS 2023\130\_SSPSF and outputs the result within 5-10 minutes.
  + If you want to make the compiled delta table, first run **RT\_Constraint\_Aggregator.py** to update the JSONs and then run **Delta\_Table\_Creator.py**. The whole process should take about 10 minutes.
  + You can also run the Batch file located on the E: drive in the pzpwuplancli01 Remote Desktop.
* High-level Details:
  + Refer to the documentation within the Python scripts for a detailed description of the implementation process. I’ve attempted to optimize the searching process as much as possible using JSONs and nested Python dictionaries.

Sample Output

A preview of the Delta Table is below:

A picture containing text, font, number, line

Description automatically generated

What I Learned

Gained more experience sending and reading requests from a website, refreshed memory on JSON files. Also gained more familiarity with the task scheduler on the Remote Desktop and writing batch command files.