oasis-as-req-dam

October 2, 2019

1 OASIS AS_REQ DAM

OASIS AS_REQ Day Ahead Market Report(s)

1.1 Download Data

To run this report, first downloaded the database into the same directory as this notebook, and unzip it. See this page for the list of available reports and the download links:
https://github.com/energy-analytics-project/energy-dashboard/blob/master/docs/datasets.md

1.2 Preview Data

Then check to see what tables are available using the command line and sqlite3

```
$ sqlite3 data-oasis-as-req-dam_00.db ".tables"
```

```
disclaimer_item  messagepayload   report_data      report_item
messageheader    oasisreport      report_header    rto
```

Look at table structure

```
$ sqlite3 data-oasis-as-req-dam_00.db ".tables" | sed 's/ /\n/g' | sed '/^\s*$/d'
```

```
disclaimer_item
messagepayload
report_data
report_item
messageheader
oasisreport
report_header
rto
```

```
sqlite3 data-oasis-as-req-dam_00.db ".tables" | sed 's/ /\n/g' | sed '/^\s*$/d' | xargs -L 1 -I
```

```
0|disclaimer|TEXT|0||1
1|rto_name|TEXT|0||0

0|id|TEXT|0||1
```

```
1|oasisreport_id|TEXT|0||0

0|interval_num|INTEGER|0||1
1|interval_start_gmt|TEXT|0||2
2|resource_name|TEXT|0||3
3|interval_end_gmt|TEXT|0||4
4|opr_date|TEXT|0||5
5|value|INTEGER|0||6
6|data_item|TEXT|0||7
7|report_item_id|TEXT|0||0

0|id|TEXT|0||1
1|rto_name|TEXT|0||0
0|timedate|TEXT|0||1
1|source|TEXT|0||2
2|version|TEXT|0||3
3|oasisreport_id|TEXT|0||0

0|id|TEXT|0||1

0|report|TEXT|0||1
1|system|TEXT|0||2
2|uom|TEXT|0||3
3|mkt_type|TEXT|0||5
4|sec_per_interval|INTEGER|0||4
5|interval|TEXT|0||6
6|tz|TEXT|0||7
7|report_item_id|TEXT|0||0

0|name|TEXT|0||1
1|messagepayload_id|TEXT|0||0
```

So it's clear that report_data, report_header, and report_item are the important tables here.

1.3 Load Data

```
In [1]: import sqlite3
        import pandas as pd
        import matplotlib.pyplot as plt
        from pandasql import sqldf

        # Create the connection to the unzipped database
        cnx  = sqlite3.connect(r'./data-oasis-as-req-dam_00.db')
```

1.4 Preview the schema

```
In [5]: for table in ['disclaimer_item','messagepayload','report_data','report_item','messageh
            print("-------------------------------------------------")
```

```
            print("table: %s" % table)
            print("-------------------------------------------------")
            for row in cnx.execute("PRAGMA table_info([%s]);" % table):
                 print(row)
```

```
-------------------------------------------------
table: disclaimer_item
-------------------------------------------------
(0, 'id', 'TEXT', 0, None, 1)
(1, 'disclaimer', 'TEXT', 0, None, 0)
(2, 'rto_id', 'TEXT', 0, None, 0)
-------------------------------------------------
table: messagepayload
-------------------------------------------------
(0, 'id', 'TEXT', 0, None, 1)
(1, 'oasisreport_id', 'TEXT', 0, None, 0)
-------------------------------------------------
table: report_data
-------------------------------------------------
(0, 'id', 'TEXT', 0, None, 1)
(1, 'interval_end_gmt', 'TEXT', 0, None, 0)
(2, 'interval_start_gmt', 'TEXT', 0, None, 0)
(3, 'opr_date', 'TEXT', 0, None, 0)
(4, 'value', 'REAL', 0, None, 0)
(5, 'resource_name', 'TEXT', 0, None, 0)
(6, 'interval_num', 'INTEGER', 0, None, 0)
(7, 'data_item', 'TEXT', 0, None, 0)
(8, 'report_item_id', 'TEXT', 0, None, 0)
-------------------------------------------------
table: report_item
-------------------------------------------------
(0, 'id', 'TEXT', 0, None, 1)
(1, 'rto_id', 'TEXT', 0, None, 0)
-------------------------------------------------
table: messageheader
-------------------------------------------------
(0, 'id', 'TEXT', 0, None, 1)
(1, 'version', 'TEXT', 0, None, 0)
(2, 'source', 'TEXT', 0, None, 0)
(3, 'timedate', 'TEXT', 0, None, 0)
(4, 'oasisreport_id', 'TEXT', 0, None, 0)
-------------------------------------------------
table: oasisreport
-------------------------------------------------
(0, 'id', 'TEXT', 0, None, 1)
-------------------------------------------------
table: report_header
-------------------------------------------------
```

```
(0, 'id', 'TEXT', 0, None, 1)
(1, 'report', 'TEXT', 0, None, 0)
(2, 'uom', 'TEXT', 0, None, 0)
(3, 'sec_per_interval', 'INTEGER', 0, None, 0)
(4, 'tz', 'TEXT', 0, None, 0)
(5, 'mkt_type', 'TEXT', 0, None, 0)
(6, 'system', 'TEXT', 0, None, 0)
(7, 'interval', 'TEXT', 0, None, 0)
(8, 'report_item_id', 'TEXT', 0, None, 0)
------------------------------------------------
table: rto
------------------------------------------------
(0, 'id', 'TEXT', 0, None, 1)
(1, 'name', 'TEXT', 0, None, 0)
(2, 'messagepayload_id', 'TEXT', 0, None, 0)
```

1.5 Select Data

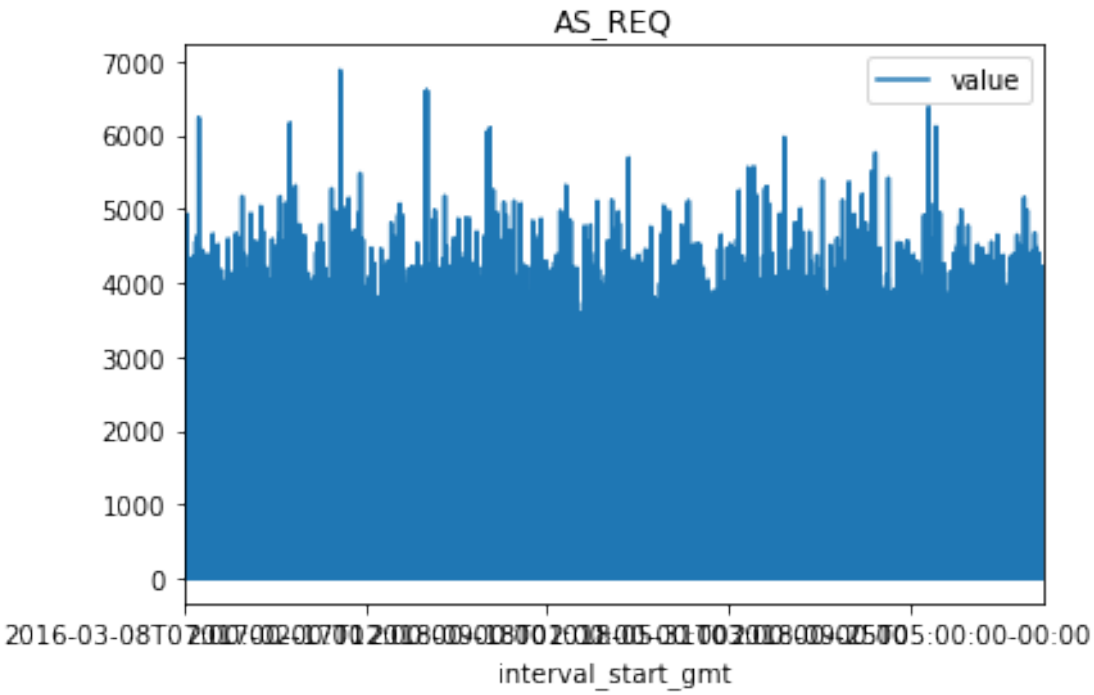
```
In [3]: df = pd.read_sql("select report_data.data_item, report_data.value, report_header.uom, r
        df[0:5]
```

Out[3]:

	data_item	value	uom	report	mkt_type	interval_start_gmt	interval_end_gmt
0	NS_REQ_MAX_MW	0.00	MW	AS_REQ	DAM	2016-03-08T07:00:00-00:00	2016-03-08T08:00:00-00:00
1	NS_REQ_MIN_MW	407.59	MW	AS_REQ	DAM	2016-03-08T07:00:00-00:00	2016-03-08T08:00:00-00:00
2	RD_REQ_MAX_MW	500.00	MW	AS_REQ	DAM	2016-03-08T07:00:00-00:00	2016-03-08T08:00:00-00:00
3	RD_REQ_MIN_MW	10.00	MW	AS_REQ	DAM	2016-03-08T07:00:00-00:00	2016-03-08T08:00:00-00:00
4	RU_REQ_MAX_MW	0.00	MW	AS_REQ	DAM	2016-03-08T07:00:00-00:00	2016-03-08T08:00:00-00:00

1.6 Reports

```
In [4]: for title, group in df.groupby(['report']):
            group.plot.line(x='interval_start_gmt', y='value', title=title)
```


AS_REQ
value
7000
6000
5000
4000
3000
2000
1000
0
2016-03-08T07:00:00-00:00
interval_start_gmt