

ValidationSwissElectricityProduction

January 13, 2021

1 Validation of New Approach for Calculating Swiss Electricity Production

```
[1]: from parsers import CH
import pandas as pd
import datetime
from datetime import datetime, date, timedelta
import matplotlib.pyplot as plt
```

```
[2]: # Variables
target_datetime = datetime(2019,7,1)
```

1.0.1 Read data of new approach

Place this file in the root folder of the project to read the data.

```
[3]: def map_entsoe_data_point(entsoe_data_point):
    result = entsoe_data_point['production'].copy()
    result['hydro_storage'] = -entsoe_data_point['storage']['hydro']
    result['datetime'] = entsoe_data_point['datetime']
    return result

tmw_data = []
for i in range(7):
    raw_data = CH.fetch_production(target_datetime=target_datetime +
    ↪timedelta(days=2*i))
    tmw_data.extend(map(map_entsoe_data_point,raw_data))

tmw_df = pd.DataFrame \
    .from_records(tmw_data, index='datetime')

tmw_new = tmw_df \
    .sum(axis=1) \
    .rename("Tomorrow (New Approach)")

entsoe = tmw_df \
    .drop(columns="unknown") \
```

```
.sum(axis=1) \  
.rename("ENTSOE (Sum of all categories)")
```

1.0.2 Import Swissgrid values

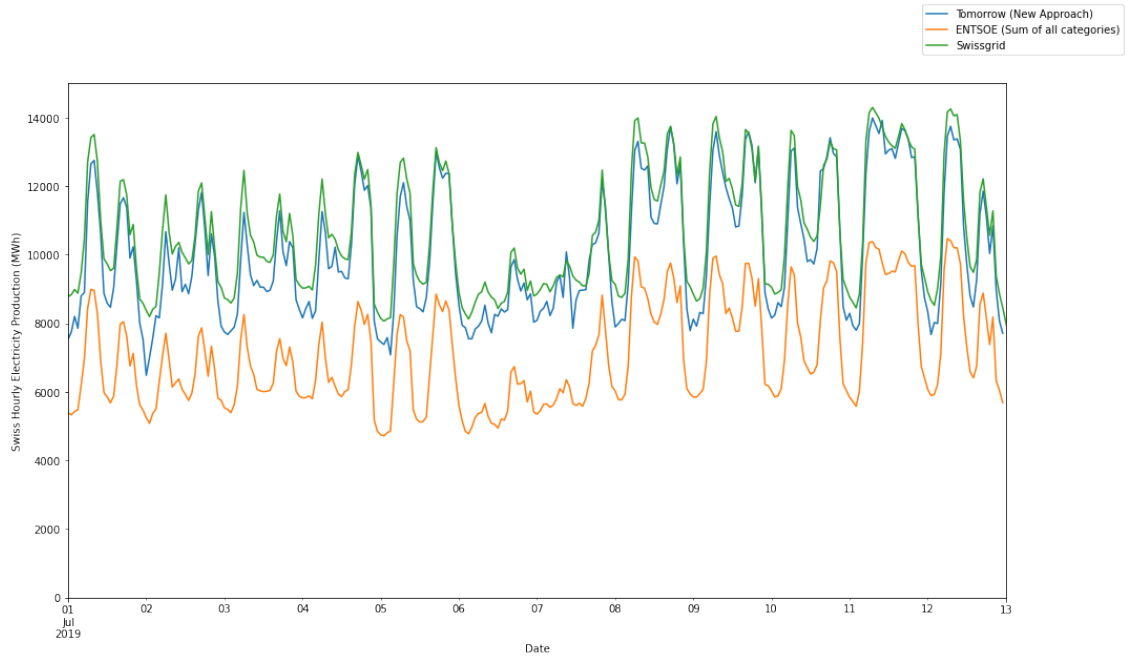
- Timezone is Swiss local time (even though not specified in the file).
- Timestamp 12:00 refers to timerange 11:45-12:00 -> Shifting data before resampling
- Data is in kWh

```
[4]: swissgrid = pd \  
      .read_excel(\  
          'https://www.swissgrid.ch/dam/dataimport/energy-statistic/  
→EnergieUebersichtCH-2019.xls',  
          "Zeitreihen0h15", \  
          index_col=0, \  
          parse_dates = True, \  
          skiprows=[1]) \  
      .tz_localize('Europe/Zurich', ambiguous='NaT') \  
      .tz_convert('utc') \  
      .shift(-1, freq=timedelta(minutes = 15)) \  
      .resample('H') \  
      .sum() \  
      .loc[:, "Summe produzierte Energie Regelblock Schweiz\nTotal energy\  
→production Swiss controlblock"] \  
      .rename("Swissgrid") \  
      .apply(lambda x : x / 1000)
```

1.0.3 Plot

```
[5]: fig, ax = plt.subplots(figsize=(16,9))  
      tmw_new.plot()  
      entsoe.plot(ax=ax, legend = False)  
      swissgrid.plot(ax=ax, legend = False)  
      ax.set_xlim(target_datetime, target_datetime + timedelta(days=12))  
      ax.set_ylim(0, 15000)  
      plt.ylabel('Swiss Hourly Electricity Production (MWh)')  
      plt.xlabel('Date')  
      fig.legend()
```

```
[5]: <matplotlib.legend.Legend at 0x176863ed250>
```



[]: