Target and requirements for Wind power and Solar power

1. Collect the historic data, filter with important fields (Here I will list the important fields and you can give some advice and decide the final important fields for our project. If you also need any fields for forecast, you can also list below, otherwise we will store all the data.)

电脑屏幕的照片

低可信度描述已自动生成

* 1. for wind power -> wind speed/wind direction/wind power every hour up to 6 hours ahead.
     1. Elexon API: <https://bscdocs.elexon.co.uk/guidance-notes/bmrs-api-and-data-push-user-guide>
     2. 5.1.22 B1610 – Actual Generation Output per Generation Unit
     3. Steps to get data:
        1. Registration in the website on <https://www.elexonportal.co.uk/news/latest?cachebust=cgux65jtrf>
        2. ly8us8nfodbrypm (This is the scripting key generate by my self’s outlook account)
        3. The link to get data in the website: <https://api.bmreports.com/BMRS/B1610/v2?APIKey=ly8us8nfodbrypm&SettlementDate=2016-01-01&Period=10&NGCBMUnitID=DRAXX-2&ServiceType=csv>
  2. for solar power -> radiation forecast and also cloud cover forecast. NOAA API: <https://www.ncdc.noaa.gov/cdo-web/webservices/v2#data>.
  3. Registering for APIs and getting Tokens:
     1. Email: [TeamSH33@outlook.com](mailto:TeamSH33@outlook.com)
     2. Password: Yl%Y5aFhqVTb

1. Create database, tables, and stored these data into MySQL database of our project (Create a relation database)
   1. Download and install the MySQL database
   2. Use pyodbc to connect to and operate the database
   3. Backup of sql script:

|  |
| --- |
| -- The below table is created based on the fields shown in website  -- CREATE TABLE windpower(  -- time\_series\_id TEXT,  -- quantity TEXT,  -- settlement\_date DATE,  -- settlement\_period INT,  -- psr\_type TEXT,  -- registered\_resource\_eic\_code TEXT,  -- market\_generation\_unit\_eic\_code TEXT,  -- market\_generation\_bm\_unit TEXT,  -- market\_generation\_ngc\_bm\_unit TEXT,  -- bm\_unit\_id TEXT,  -- ngc\_bm\_unit\_id TEXT,  -- document\_type TEXT,  -- business\_type TEXT,  -- process\_type TEXT,  -- resolution TEXT,  -- curve\_type TEXT,  -- active\_flag TEXT,  -- document\_id TEXT,  -- document\_rev\_num TEXT  -- ); |

1. Display the historic data with some graphs and used for forecast
   1. power (y axis), wind speed (wind turbine) (x axis) -> cubic relationship, increasing scope then constant line then linear decreasing straight line graph. (=wind turbine)
   2. wind is preferred for us to start with. better quality forecasts for wind power based on the data available, but the api to get wind power data. Solar power api is easier to implement but for wind power.
2. Check and update the power data from API automatically
3. Leaving some interface for later extensibility, such as another type of power or other graphs.

Information for the requirements

1. Connecting and operating MySQL with pyodbc

https://github.com/mkleehammer/pyodbc/wiki/Getting-started

https://github.com/mkleehammer/pyodbc/wiki/Connecting-to-MySQL