**1. virtual\_battery\_data\_preparation.m**

* Load housing data and climate zone data for each county in US
* Load temperature data and saturation rate data for CA, WA, and OR
* Input
  + Housing data: ‘.\housing\_county\_DP04\ACS\_12\_5YR\_DP04\_with\_ann.xlsx’
  + Climate Zone data: '.\climate\_zone\_files\climate\_zones.xlsx'
  + CA temperature data: '.\temperature\_files\CA\_all\_stations.csv'
  + CA NCDC observation station names and counties they are located: '.\temperature\_files\NCDC\_obs\_locations\_county\_CA.csv'
  + File to map CA counties to CA NCDC observation station indices: '.\temperature\_files\CA\_county\_station\_map.csv'
  + Temperature data for WA:
    - Climate Zone #4: '.\temperature\_files\Washington\_zone\_4\_Temperature.csv';
    - Climate Zone #5: '.\temperature\_files\Washington\_zone\_5\_Temperature.csv';
    - Climate Zone #6: '.\temperature\_files\Washington\_zone\_6\_Temperature.csv';
  + Temperature data for OR
    - Climate Zone #4: '.\temperature\_files\Oregon\_zone\_4\_Temperature.csv'
    - Climate Zone #5: '.\temperature\_files\Oregon\_zone\_5\_Temperature.csv'
  + Saturation rate data for CA, WA, and OR: '.\saturation\_rate.csv'
* Output: 'virtualBatteryData\_org.mat'

**2. updateVB\_capacity.m**

* Update virtual battery capacity for CA, WA, and OR
* Input: 'virtualBatteryData\_org.mat'
* Function called:
  + updateVB\_capacity\_Temperrature\_data() to update virtual battery capacities for CA
  + updateVB\_capacity\_State() to update virtual battery capacities for WA and OR
* Output: updated virtual battery data structure with residential building virtual battery capacities for CA, WA, and OR: 'virtualBatteryData.mat'

**3. update\_commercial\_CA\_update1.m**

* Update commercial building virtual battery capacities for CA
* Input
  + Virtual battery data structure: 'virtualBatteryData.mat'
  + CA NCDC observation station names and counties they are located: '.\temperature\_files\NCDC\_obs\_locations\_county\_CA.csv'
  + Daily virtual battery capacities from simulation for counties that NCDC observation station are located: '.\SEB\_CA\_county\_daily\_temperature\';
  + Commercial building floor space for CA counties: '.\commercial\_buildings\DS\_California\_County\_Commercial\_Space\_for\_input.xlsx'
  + File to map CA counties to CA NCDC observation station indices: '.\temperature\_files\CA\_county\_station\_map.csv'
* Output: updated virtual battery data structure with CA commercial building virtual battery capacities: 'virtualBatteryData.mat'