[79] [Constrained Monotonic Charging/Discharging strategy for Optimal Capacity of BESS supporting wind farms](https://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=7437467)

* Yet another BESS to regulate discrepancy from wind farms
* e(t) power difference between output from wind farm and sent to grid’

Problem formulation: = p(t) – g(t)

* e(t) >0, BESS charges and <0, discharges
* 2n system of batteries
* Constraints on battery capacity
* \*\*\*Monotonic charging and discharging constraints\*\*\*
* Consider control on charging/dischardgin
* Given n, c(n) Optimal battery capacity if there does not exist any monotone charge/discharge for capacity c<c(n).

GOAL: Find optimal capacity c(n) and derive monotone charge/discharge stategy for battery capacity c(n).

…. Some results on c(n), basically n goes big, c(n) goes small

Diagram of a diagram of a battery

Description automatically generated

Now, for wind, Model predictive control to smooth wind output with J cost penalizing deviation of smoothed power from actual power

… Numerical results

Conclusions:

Optimal capacity decreases as number increase. Double battery, reduce cost operation???/