Title: Model predictive control framework for congestion management with large batteries in subtransmission grid.

Abstract:
RTE will build and put into operation 3 large battery storage systems in 2020 (12MW/24MWh). These batteries, together with intermittent renewable generation curtailment, will be used to manage congestions in 3 small subtransmission zones (63kV or 90kV). A local controller will send orders to the battery and to power plants every 5 seconds, using all the flexibility offered by permanent and emergency ratings. This local controller will not have any forecast and will not be able to manage preventive actions, so a higher level scheduler will be in charge of security analysis (N-1 analysis), battery preventive actions, pre-discharging the battery for forthcoming congestions. Morever, this higher level scheduler will be in charge of computation of capacity tunnels; these capacity tunnels will to share the use of the batteries with other services when there are no congestions.