

Pumped Storage Hydro Plant: Battery of the Grid

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Abstract

With the announcement by the new Malaysian government to increase the portion of renewable energy in the country's total energy generation mix, there is concern arise on how the renewable energy penetration will impact the grid system stability and reliability. As you are aware, renewable energy particularly solar plant, is totally no dispatch-able. Since it is totally weather dependent, it is difficult to contain the energy supply to the grid. When the irradiance of the sun is gone, practically you lose all energy. There are lots of talk on battery storage to be embedded together with the solar plant. However, at current market price of one battery with the size of 1 MW is staggeringly expensive and almost financially unfeasible. With the recent advances in the field of applications, there are other alternatives that you can consider which is, pumped storage hydro plant (PSHP). It is technically and financially more realizable particularly by integrating with the existing conventional hydroelectric plant. During off peak demand, any excess of solar energy will be used to pump the water from lower pond to the upper pond. While during peak energy demand, the pumped storage hydro provide it fast and reliable service to the grid system