

Hydroelectric Pumping Station at King Talal Dam

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With the large variation in electric daily load curves between day and night, the improvement in the shape of the load curve has appreciable benefits. Hydroelectric pumping stations can offer such a benefit so that water is pumped up from the downstream lake to the upper lake at low values of load, usually after midnight, and water is let to flow downward generating electricity at peak load period. Usual efficiency for such system is more than 80%.

It is proposed in this paper to build a pumping station at King Talal Dam area. The topography of the surrounding area offers an ideal situation. The proposed design may have a reasonable payback period because of the big different of cost of electric energy generation between peak period and off peak period. Hence it can offer a good improvement in daily load curve.