

ENERGY STORAGE SYSTEM FOR HYDRAULIC WIND ENERGY TRANSFERS

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Gearless hydraulic transmissions are considered noble candidates for wind power transfer systems. Hydraulic wind power transfer systems allow collecting the energy of multiple wind turbines into one generation unit. Furthermore, elimination of the gearbox as a bulky and expensive to maintain component reduces the cost of energy conversion. The hydraulically connected harvesting systems require controllers to maintain the frequency and generate the required power. However, the intermittent nature of wind imposes fluctuation on the amount of generated wind power and on the frequency of the output voltage. This poster introduces a wind energy storage technique through a hydraulically connected wind power transfer system. The simulation results demonstrate the successful operation of the storage to maintain the fluid in the system to keep the generator speed at a predetermined value. The system is mathematically modeled and the control system is derived.

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