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(54) **Title:** METHOD AND SYSTEM FOR CONTROLLING HYDROELECTRIC TURBINES

(57) **Abstract:** A control system for controlling an operation of a hydroelectric turbine. The control system comprises a converter system to convert AC power, supplied by a generator connected to the turbine, and having a voltage and frequency that is a function of a rotational speed of the turbine, to AC power having a voltage and frequency of a transmission system for transmitting the AC power to a receiving station. The system further comprises a control unit that is arranged to co-operate with the converter system to adjust the AC voltage supplied by the generator in response to a water flow speed through the turbine to thereby control rotation of the turbine. The converter system comprises a first-stage converter and a second-stage converter, with a DC link provided between the first and second-stage converters. The first-stage converter is arranged to convert the AC power supplied by the generator to DC power. The second-stage converter is arranged to convert the DC power to the AC Power for transmission to the receiving station and the second-stage converter is of a current- source inverter type.

