

Network grid assessment of hydrostatic transmission-based wind farms

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Extracted from:

<https://vaportiecuador.files.wordpress.com/2017/03/loja.jpg>

The gearbox of a conventional wind turbine drivetrain is very heavy, expensive and fragile, and its replacement or maintenance is difficult and costly. Replacing the gearbox drivetrain with hydrostatic transmission (HST) potentially offers a much longer life cycle, and it can significantly reduce the nacelle mass by mounting the motor and generator in the tower base, so that maintenance becomes much easier. Since HST provides continuously variable transmission from the rotor/pump shaft to the motor/generator shaft, a synchronous generator can be used without the need for a converter to match the grid frequency. Consequently, it is noteworthy that being based on converter-free synchronous machines, HST wind farms exhibit a form of inertial response, which is of clear value to the larger power system. Our goal is to assess performance of HST wind farms against grid code specifications, and existing/future system ancillary service definitions and performance scalars.



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