

Review of wind generation within adequacy calculations and capacity markets for different power systems

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Abstract-

The integration of renewable energy sources, including wind power, in the adequacy assessment of electricity generation capacity becomes increasingly important as renewable energy generation increases in volume and replaces conventional power plants. The contribution of wind power to cover the electricity demand is less certain than conventional power sources; therefore, the capacity value of wind power is smaller than that of conventional plants. This article presents an overview of the adequacy challenge, how wind power is handled in the regulation of capacity adequacy, and how wind power is treated in a selection of jurisdictions. The jurisdictions included in the overview are Sweden, Great Britain, France, Ireland, United States (PJM and ERCOT), Finland, Portugal, Spain, Norway, Denmark, Belgium, Germany, Italy and the Netherlands.

Index Terms- Adequacy; Capacity credit; Capacity markets; Market integration; Power system; Wind power

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Citation:

Söder, L.; Tómasson, E.; Estanqueiro, A.; Flynn, D.; Hodge, B.M.; Kiviluoma, J.; Korpas, M.; Neau, E.; Couto, A.; Pudjianto, D.; Strbac, G.; Burke, D.L.; Gómez, T.; Das, K.; et al., "Review of wind generation within adequacy calculations and capacity markets for different power systems", Renewable & Sustainable Energy Reviews, vol.119, no.109540, pp.109540-1-109540-15, March, 2020.