

Reactive Power Requirements for Asynchronous Resources

Comments of ElectronVault, Inc.

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We support requiring all asynchronous sources to be required to provide reactive power support, rather than the current case-by-case model requiring some new facilities to provide the capability and some not to provide voltage and frequency support.

Something not covered in this draft that appears to be critical to the success of asynchronous resource integration is a discussion of **ramp rate controls**, both in terms of output power levels, and in terms of output power factors.

This speaks to the fact that many systems on the grid today are capable of ramping from zero to maximum output in timescales shorter than one minute, often shorter than one second, and that other resources on the grid may react to the abrupt changes in grid condition with different ramp rates and control loops. It is possible to induce oscillations in both delivered generation and, much more frequently, in local power factor. This can cause over and underramping of both conventional and asynchronous sources seeing the sudden ramping events.

Limiting system ramp rates, both in output power levels, and in output power factor, can dampen this tendency to induce transient instabilities to the system. These transients are one major source of the quote on page 14 of the draft document:

"Once an asynchronous project is interconnected and is commercially operable, actual system conditions could be far different from the conditions studied."

A mild statement of a giant problem.

Respectfully,

-- Rob Ferber