

## Kathleen Truesdell

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**From:** Jim McLucas <jim.mclucas@radback.com>  
**Sent:** Thursday, October 21, 2010 2:02 PM  
**To:** Kathleen Truesdell  
**Cc:** Greg Darvin  
**Subject:** Non-Spinning Reserve

Kathleen –

This is in response to your questions regarding non-spinning reserve and steam turbine startup times.

Unfortunately, we are unable to provide you with the specific “non-spinning” reserve value for the OGS as this information is subject to confidentiality agreements with both GE and PG&E. That said, Bryan Bertacchi found a magazine article that discusses this aspect of the 7FA.05 in a general sense (i.e. not specific to the OGS).

<http://www.allbusiness.com/environment-natural-resources/pollution-environmental/14239962-1.html>

During hot and warm starts, the steam turbine is expected to start providing electrical output within 40 minutes. During cold starts, the steam turbine is expected to start providing electrical output within 80 minutes. The steam turbine ramp rate is not uniform, however, we expect to have full output within 2 hours for hot and warm starts and within 3½ hours for cold starts. The estimates assume both gas turbines are started simultaneously and also assume Purge Credit. Without Purge Credit, all times would increase by about 15 minutes.

I hope this information is useful.

Thanks!

**Jim McLucas**

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