

# *Network Innovation Competition Full Submission*

## *Supplementary Answer Form*

Tick if this answer is Confidential: ☐

Tick if this answer has been provided verbally: ☐

Project code:	SPTEN01/V0	Question Number	5
Question date	15 August 2013	Answer date	19 August 2013
Submission section question relates to	Appendix A12		
Topic	Technical Description of project		
Question	Can SP provide evidence of both continuous and discontinuous SSO successful implementation elsewhere?		
Notes on question	N/A		
Answer	<p>As described in the answer to Q4, continuous Sub-Synchronous Oscillations (SSO) processes are implemented and available, embedded in relays used for protecting plant from the severe effects of unstable oscillations.</p> <p>As illustrated below, the Discontinuous approach uses the same analytical components as the Continuous process, but with the analysis carried out centrally. This has the advantage that the Discontinuous approach can use industry standard field devices, already deployed throughout the GB grid, with no modification of field hardware or software.</p> <p>The Continuous approach requires a more specific monitoring device, which is commercially available, but not yet widely deployed in GB, with a minor development to export values that are already computed by the device.</p> <p>While there is no direct evidence of the discontinuous approach being implemented elsewhere, the components to deliver the approach are all standard and proven. The innovation lies in making the information from diverse plants and measurement sources available centrally, and in a way that the information can be much more useful for analysis and operations.</p>		

	<div><div><h3>Continuous SSO</h3><p>Commercially Available</p><p>SSO Protection Relay</p><p>Waveform Meas</p><p>SSO Processor</p><p>Threshold &amp; DIG O/P</p><p>New Data Transfer</p><p>Central WAMS Server</p></div><div><h3>Discontinuous SSO</h3><p>Commercially Available</p><p>Disturbance Recorder</p><p>Waveform Meas</p><p>Standard Transfer</p><p>Central WAMS Server</p><p>SSO Processor</p></div><div><p>① SSO Data Protocol, tbc e.g. IEEE C37.118, DNP3, etc</p><p>② DFR Protocol, vendor-specific Remote triggering &amp; retrieval of Disturbance Records</p></div></div>
Attachments	N/A
Verbal Clarifications (Consultants )	