

National Grid Response

This issue is widespread and given the changing generation portfolio is more a matter of timing in each area than if it is going to occur or not. The difference is that the rates of embedded generation growth are more dramatic in the Southern and Welsh areas (UKPN, SSE, WPD).

Just a couple of quick points on the WPD proposal specifically:

- We have not actually requested that WPD exceed 0.95 lead, as we recognise that would probably be the best that could be delivered on generation plant designed to GC and or current EU specs - but if more can be done it is of course welcome.
- It is important that any decision to operate at 0.95 lead or more does not compromise other performance areas such as fault ride through in response to a transmission fault. Further mindful of the issues of transient voltage stability following fault clearance (voltage depression and cascade risk that has been noted in SW for example) it is important that the pre-fault operation does not preclude the generator behaving flexibly across an incident. We would prefer to be involved in any work on this so that we could have a view of the potential consequences.

Something similar to this table has already been presented to the DNOs at a previous demand seminar; if it would help the workgroup, we would be very happy to attend a meeting to discuss.

DNO	Mitigation – generation in lead	Ability to de-load/ remove following fault	Need to de-load/ remove pre-fault	Voltage regulation impact	Range of technical issues this mod would impact
UKPN (SE coast)	Yes-now	Yes- ahead off new interconnectors	Yes- following interconnector connection 2016 onwards against certain demand thresholds TBC	Yes-now	TOV, High Volts, Thermal, transient Voltage Stability, voltage collapse.
UKPN (general)	Yes now	Possibly- in east Anglia- TBC in statement of works	Not known to be an issue as of yet	Yes-now	High volts, thermal
WPD(SW)	Yes-now	Yes- now; but as a capability to allow future projected levels 2016 onwards against voltage regulation	None as of yet	Yes- now	TOV, High Volts , transient Voltage Stability, voltage collapse.

WPD (general)	Yes- timeframe TBC in StOW	None identified at this time	None identified at this time	Yes-now	High volts only and in selected areas (west mids, north london bar, lincs)
SSE	Yes	None identified at this time	None identified at this time	Yes- now	TOV (west london), High Volts across the patch- limited data on new solar instations from them (but expected to be big)
Manweb	Already doing 0.95 lead now	Already doing within their system- not clear as yet if we need to do so- Nwales stability studies suggests 0.95 is sufficient	Not aware of any issues	Yes- now	TOV, voltage stability (north wales), voltage collapse.
SPD	Yes	Yes- needed c.2020 or damping solution on boundary	Yes- possibly as an alternative to post-fault where other intertripping already applies	Yes- now- focused in borders	High volts & voltage stability (post fault damping)
SHEPD	Yes- arguably has been needed since Beaully- Denny which relies on this during SVC loss conditions	Yes- needed to resolve voltage stability issues if compensation/ DNO reinforcement does not follow	As above	Yes- across the patch	High volts & voltage stability (post fault damping)
NPG	Yes-now- due to developments in north humber and NE	Not aware of a requirement for this as yet	Not aware	Yes- NE and north humber	Thermal, high volts
ENW	Not aware of	Not aware of	Not aware of requirement	Yes-	High volts

	any particular issues at present- developments within Cumbria post 2023 could drive	requirement		Cumbria only	
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