EREC P28 Workgroup

MINUTES

Meeting – Wednesday 31st January 2024, 10:00 – 12:00

MS Teams Meeting

ATTENDEES	INITIAL	COMPANY
Nataliia Myrhorodska	NM	ENA
Mark Dunk	MD	ENA
Simon Scarbro	SS	NGED
Joseph Weston	JW	NPg
Veronique Martre	VM	UKPN
Peter Twomey	PT	ENWL
Mark Friese	MF	SPEN
Gary Eastwood	GE	Threepwood

APOLOGIES		
Chris McCann	CMc	ENA
Afshni Pashaei	AP	NGET
Saad Khan	SK	GTC
Zivanayi Musanhi	ZM	UKPN
Milana Plecas	MP	SPEN
Rula Sha	RS	SSEN

NOTE: MD joined the call in the absence of CMc

MEETING NOTES AND ACTIONS		LEAD
Agenda item 1.	**Welcome and acceptance of agenda**	**NM**
In the absence of CMc, NM agreed to deputise and chair the meeting. GJE agreed to take minutes. Attendees briefly introduced themselves around the table.		
Actions	None	
Agenda item 2.	**Review of previous actions**	**NM**
MN led the group through the actions from the previous meeting, each action and approach was discussed in detail as follows.		
Action 1.1	No movement – action ongoing.	CMc
Action 3.3	There was no update regarding engagement with Stakeholders at the next ENA led BESS workgroup. An updated version of the response to BESS Stakeholders had been circulated to Stakeholders by CMc. One Stakeholder is believed to have responded in writing to date. SS advised he had provided a response to that Stakeholder's written response. SS informed the attendees that himself, CMc and GE had participated in a Team call on 29/01/2024 with another Stakeholder to informally discuss their response to the consultation. The Stakeholder had committed to respond in writing in due course. GE advised that CMc had corresponded with the P28 WG regarding the request from Stephen Sommerville (Aurora Power Consulting) to become a member. No objections had been raised.	CMc
Action 6.5	No operational data has been received from BESS parties as yet. SS highlighted the potential problem of assessing BESS with stacked services (e.g. Balancing Mechanism and Frequency Response). An article produced by Modo Energy points to a limit on the rate of power change where services are provided in the opposite direction to Frequency Response. JW believed that arbitrage and wholesale trading should not pose a problem (from an EREC P28 perspective). Arbitrage can involve slow power changes over several minutes. SS pointed out that BESS can provide an instantaneous power change and that a limit on ramp rate might need to be set. PT commented that National Grid ESO and the G99 application form requires the maximum ramp rate to be declared. PT also commented that ENWL requires connectees to provide details of the service to be	ALL

	provided by the BESS and that any limitations are captured in the connection agreement. It is understood that most DNOs assess BESS compliance with P28 for a power swing from full power import power to full export power and vice-versa. VM pointed out that the connection application forms do not always contain useful information for assessing the BESS compliance with P28. GE asked the attendees whether they interpret the 3% step voltage change limit as the maximum voltage change from the initiation of an event until the end of the event or until the tap-changer operates to change the voltage. There was general agreement this is how the 3% limit is interpreted. JW pointed out that tap-changers have different initial tap delays and operation times depending upon the system voltage. This might require the specific automatic voltage control/tap-changer setting to be obtained for assessment. The concept of a standard time/observation window for assessment (until the tap-changer operates) was tabled. GE agreed to prepare and circulate a standard template of AVC settings for members of the P28 WG to complete for their company.	
Action 6.7	No movement – action ongoing.	PT
Action 7.1	SS pointed out that a consultant such as Stephen Sommerville (Aurora Power Consulting) could provide some good examples for inclusion in the Annex section of the new EREP. The attendees discussed possible examples to be defined and added, which included: • More than one BESS connected to the same PCC SS described NGED internal design policy for voltage change limits within a group (as opposed to at the PCC), which he agreed to share with the P28 WG.	ALL
Action 8.1	SS believed that CMc had been liaising with NGESO on engaging with the P28 WG but that no nomination had been received to date. SS has the name of a NGESO policy engineer if required. The attendees discussed the importance of getting NGESO's input on standard frequency-time data and changes to system inertia. Currently 1s frequency data for each month is published by NGESO. SS described how this data could be used in a Markov State Estimation model to determine how frequency changes over time. This could be used to assess the likelihood of power swings from 49.8 Hz to 50.2 Hz (i.e. pre-fault response). SS believed the state estimation was the preferred approach.	ALL

	The attendees discussed whether 1s data was sufficient. VM stated that 1 s data would not have picked up oscillatory type responses and agreed to provide further information. SS pointed out that DC frequency responses outside the 49.8 Hz to 50.2 Hz band could be considered to be outside the scope of EREC P28 as they are considered post-fault responses. PT agreed but pointed out that DC frequency responses within the band 49.8 Hz and 50.2 Hz should be within scope. SS also pointed out the need to check for oscillations that can occur due to the controller when controlling frequency at or near the knee points on the frequency response curves (in light of an oscillation that took place on a BESS providing Dynamic Containment (DC) at the 5% power response knee point. SS discussed how response curve could be determined for power change and consequent voltage change.	
Action 8.2	No movement – action ongoing.	AP
Action 8.3	JW to forward relevant BESS controller contact details to group	JW
Action 8.4	It is understood that CMc has circulated the Stakeholder Response document and has received on written response to date. SS confirmed that he had provided a response to this written response. Action can be closed. CMc to collate any other responses and share with the P28 WG.	CMc
Action 9.1	Prepare and circulate a standard template of AVC settings.	GE
Action 9.2	Share NGED Design Policy Table 1 and Table 2.	SS
Action 9.3	Provide information on incident where sub 1 s frequency data was required to identify a voltage fluctuation issue.	VM
Action 9.4	Collate responses to Stakeholder Response document and share with P28 WG.	CMc
Agenda item 3.	**Update on stakeholder engagement**	**NM**
SS stepped through his response to the written response received from one stakeholder (see file 'SJS Comments on 231204_Stakeholder Document_0.5'. SS2: The relationship between the maximum possible rate of change of frequency and system inertia was raised and the possibility of calculating maximum ramp rates for BESS providing dynamic frequency response services. SS presented a calculation method for determining frequency ramps for different loss of power or power changes. The possible need to account for greater rates of frequency change due to lower system inertia was discussed. SS3: SS pointed out that the P28 WG do not know how BESS are designed to operate and whether power can swing from full export to full import under certain stacked services/scenarios.		

SS5: SS confirmed that flicker indices (Pst and Plt) were still valid measures of voltage fluctuation as confirmed at IEC Committee level. SS6: Nothing to note. SS9: It is clear that guidance on limits and assessment of coincident voltage changes caused by multiple BESS at the PCC is required. Will the 3% limit apply to each BESS individually and the DNO will adjust for multiple BESS operation? SS stated more research might be required. SS10: The possible need to assess the different frequency response services separately was raised. The benefits of allowing the BESS to operate in voltage control mode was discussed, particularly at 132kV and 33kV system voltage levels. There is a precedent for this in SHET's licensed area. GE highlighted the joint UKPN and NGESO trial of voltage droop control for distributed energy resources (DER). GE agreed to circulate a copy of the technical brochure explaining the trial.		
Action 9.5	Circulate a copy of the joint UKPN/NGESO Technical Brochure dealing with operating DER on voltage droop control mode.	GE
Agenda item 4.	**Agree stakeholder engagement**	**ALL**
See discussion in Agenda item 3.		
Action	None	
Agenda item 5.	**Discussion on worked examples**	**CMc**
GE outlined the current status of the worked examples and how to advance them. The need to establish a sub-group was discussed. Attendees were tasked with an action to submit any examples they believe need to be worked for BESS. MD stressed the importance of progressing these examples and the guidance document so it can be issued as soon as possible in 2024. The benefits of inviting Stephen Sommerville to contribute to the examples was raised given he will have conducted several BESS assessments. MD stated that the merit of inviting other consultants needed to be carefully considered as to the value they would bring and any vested interests they would have. Possible additional worked examples raised by attendees were: • How to address coincident voltage fluctuations from more than one BESS in a group.		
Action 9.6	Advise any examples that need to be worked for BESS	ALL
Action 9.7	Investigate any data in NGED for coincident voltage changes caused by multiple BESS.	SS
Agenda item 6.	**AOB**	**CMc**
None		
Actions	None	

Agenda item 7.	Next meeting	CMc
The group agreed the next workgroup meeting date as 31st January 2024, CMc to circulate invites.		
Actions	None	

ACTIONS LIST

1.1	Propose nominations for workgroup chair. **Ongoing**	ALL
3.3	Engage with Stakeholders at the next ENA led BESS workgroup. **Q3 2023**	CMc
6.5	Engagement with BESS parties for operational data request **28/07/23**	ALL
6.7	Engage with NGESO for Response contract data **25/08/23**	PT
7.1	Consider examples from P28 for inclusion in Annex section of EREP **27/10/23**	ALL
8.1	Liaise with NGESO on engagement with the WG **01/12/23**	FG/CMc
8.2	Confirm use of P_{st} CAD modelling in Stakeholder Responses **22/12/23**	AP
8.3	Forward relevant BESS controller contact details to group **22/12/23**	JW
9.1	Prepare and circulate a standard template of AVC settings. **29/02/24**	GE
9.2	Share NGED Design Policy Table 1 and Table 2. **29/02/24**	SS
9.3	Provide information on incident where sub 1 s frequency data was required to identify a voltage fluctuation issue. **29/02/24**	VM
9.4	Collate responses to Stakeholder Response document and share with P28 WG. **Before next meeting**	CMc
9.5	Circulate a copy of the joint UKPN/NGESO Technical Brochure dealing with operating DER on voltage droop control mode.	GE

	29/02/24	
9.6	Advise any examples that need to be worked for BESS **29/02/24**	ALL
9.7	Investigate any data in NGED for coincident voltage changes caused by multiple BESS. **Next meeting**	SS