

Hitachi-GE Nuclear Energy, Ltd.
UK ABWR GENERIC DESIGN ASSESSMENT
Resolution Plan for RO-ABWR-0063
ABWR compliance with UK grid code

RO TITLE:	ABWR compliance with UK grid code	
REVISION :	Rev.0	
Overall RO Closure Date (Planned):	31 st March 2016	
REFERENCE DOCUMENTATION RELATED TO REGULATORY OBSERVATION		
Regulatory Queries	-	
Linked ROs	-	
Other Documentation	-	

Scope of work :
<p>Background</p> <p>Hitachi-GE has considered the requirements of the Grid Code and is involved in ongoing discussions with National Grid and Horizon Nuclear Power (HNP) to present design information and the results of electrical system studies that demonstrate performance of UK ABWR against key Grid Code requirements. The Hitachi-GE assessment has included consideration of effects on the reactor control systems and the thermal effects on the reactor of grid transients within Grid Code limits. Hitachi-GE has previously presented a summary of the current status of compliance to ONR in its responses to RQ –ABWR-0344 and has identified a number of areas of potential non-compliance for the ABWR design.</p> <p>Regarding the UK ABWR compliance with UK Grid Code, Hitachi-GE and HNP are proceeding with the assessment of the compliance in line with milestone (Phase).</p> <p>Hitachi-GE and HNP are jointly reviewing design options to resolve areas of non-compliance using an agreed process which has previously been outlined to ONR. This process has reached the conclusion of Phase 2 which enables Hitachi-GE to confirm and explain the options under consideration. These options range from seeking derogation from Grid Code compliance to identification of design changes which will undergo further assessment in accordance with the process - Stage 3. This will be carried out during GDA Step 4 and is expected to complete end March 2016. Completion of Phase 3 of the process will enable Hitachi-GE to provide a detailed explanation of the options under consideration including an ALARP review.</p> <p>Accordingly Hitachi proposes the following staged process for the resolution of RO-ABWR-0063</p> <p>RO 0063 resolution Stage 1: Following completion of Stage 1 of the Grid Code compliance process - to advise the preferred options for addressing Grid Code compliance for the key requirements.</p>

RO 0063 resolution Stage 2: Following completion of Stage 3 of the Grid Code compliance process – to provide a detailed analysis of the options and ALARP review including an assessment of cross cutting and safety case implications.

Description of work:

RO-ABWR-0063 Action 1 :

The RO action states that:

Hitachi-GE to conduct an ALARP review of options to address areas of potential non-compliance with the UK Grid Code. The review should address the options under consideration for achieving full compliance taking account of nuclear safety, complexity of implementation of changes, cost to implement and potential programme effects on GDA completion. The review should confirm compliance with other Grid Code requirements which are not the subject to consideration of potential options.

Stage 1 Following completion of Stage 2 of the Grid Code compliance process Hitachi-GE will advise the preferred options for addressing Grid Code compliance for the key requirements.

Stage 2 Hitachi-GE will confirm the options and provide a full explanation of these options and a detailed analysis and ALARP review including cross cutting implications.

The analysis and ALARP review will include:

- Analysis of the potential effects on nuclear safety
- Complexity of implementation of changes
- Cost to implement
- Potential programme effects on GDA completion
- Assessment of compliance with other Grid Code requirements which are not the subject to consideration of potential design change options.

Summary of impact on GDA submissions:

GDA Submission Documents (Title / Document I.D.)	Related GDA RO Actions	Submission Date to ONR	Potential Impact
Submitted Document			
Planned submissions			
Evaluation report for the options under consideration / TBD	Action 1 Stage 1	October 2015 (to submit Rev. 0)	To modify the options under consideration
ALARP review report / TBD	Action 1 Stage 2	February 2016 (to submit Rev. 0 draft) March 2016 (to submit Rev. 0)	To modify the options under consideration

Programme Milestones/ Schedule:

See attached Gantt Chart (Table 1).

Reference:

-

Table 1 RO-ABWR-0063 Gantt Chart

Resolution Plan for RO-ABWR-0063 (2015/2016)				August			September			October			November			December			January			February			March			April			May			June			July														
				3	10	17	24	31	7	14	21	28	5	12	19	26	2	9	16	23	30	7	14	21	28	4	11	18	25	1	8	15	22	29	7	14	21	28	4	11	18	25	2	9	16	23	30	6	13	20	27
Level	Action Title	Start	Finish																																																
1	Preparation of Submissions and Closure of RO Actions	19-Aug-15	31-Mar-16																																																
1.1	RO Action 1	1-Oct-15	31-Mar-16																																																
1.1.1	[Stage 1] Optioning evaluation	1-Oct-15	30-Oct-15																																																
1.1.1.1	To confirm preferred options	1-Oct-15	30-Oct-15																																																
1.1.2	[Stage 2] ALARP review	2-Nov-15	31-Mar-16																																																
1.1.2.1	To review the options for addressing areas of potential non-compliance with the Grid Code	2-Nov-15	31-Mar-16																																																
1.1.2.2	To review the options under consideration	2-Nov-15	31-Mar-16																																																
1.1.2.3	To review compliance with other Grid Code requirements	2-Nov-15	31-Mar-16																																																