

<b>REGULATORY OBSERVATION</b>	
<b>REGULATOR TO COMPLETE</b>	
<b>RO unique no.:</b>	RO-ABWR-0063
<b>Date sent:</b>	19th August 2015
<b>Acknowledgement required by:</b>	10th September 2015
<b>Agreement of Resolution Plan Required by:</b>	30th September 2015
<b>Resolution of Regulatory Observation required by:</b>	31st October 2015
<b>TRIM Ref.:</b>	2015/311365
<b>Related RQ / RO No. and TRIM Ref. (if any):</b>	
<b>Observation title:</b>	ABWR compliance with UK grid code
<b>Technical area(s)</b> 7. Electrical Power Supply	<b>Related technical area(s)</b> 5. Fault Studies 6. Control & Instrumentation
<b><i>Regulatory Observation</i></b>	
<b>Summary</b>	
<p>Hitachi-GE has developed safety claims and supporting arguments during Step 3 as part of the Basis of Safety Case for electrical engineering. Safety claim EPS SPC 5.1 is that the electrical power system is designed to be robust to offsite power transients with supporting arguments that the Class 1 and Class 2 systems are robust to offsite voltage and frequency transients as defined in the National Grid Code. During Step 4 Hitachi-GE will be required to provide supporting evidence to substantiate these claims.</p> <p>The UK Grid Code defines requirements for generating plants to connect to the UK electricity grid and compliance with the Grid Code is a requirement for connection to the grid. In order to protect the integrity of the grid, requirements are defined in the Grid Code for generating stations to remain connected to the grid following defined voltage and frequency disturbances. Safety Claim EPS SPC 5.1 will require evidence that operating the plant within the grid code limits will not impact upon nuclear safety.</p>	
<b>Background</b>	
<p>Hitachi-GE has considered the requirements of the Grid Code and is involved in ongoing discussions with National Grid to present design information and the results of electrical system studies. 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 presented the current status of compliance to ONR and has identified a number of areas of potential non-compliance for the ABWR design.</p> <p>Hitachi-GE is evaluating options to resolve areas of non-compliance which range from making requests for derogations from Grid Code compliance to significant design changes which would require to be completed for assessment during GDA for completion of Step 4. Any requests to the grid regulator OFGEM for derogations from compliance with the grid code will require full substantiation and justification of the reasons behind the request.</p> <p>ONR require Hitachi-GE to provide a full explanation of the options under consideration in order to understand the potential effects on nuclear safety and possible effects on GDA completion if significant design changes are under consideration.</p>	
<b>Regulatory Expectation</b>	
<p>ONR require a full ALARP review to be conducted of options for addressing all areas of potential non-compliance with the Grid Code. For each Grid Code requirement where there is potential for full compliance</p>	

not being achievable the ALARP review should assess the options under consideration 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 all other Grid Code requirements which are not the subject to consideration of potential options.

**Regulatory Observation Actions**

**RO-ABWR-0063.A1**

Hitachi-GE to conduct an ALARP review of options to address all 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. The ALARP review should confirm full compliance with all other Grid Code requirements.  
Resolution required by 31st October 2015.

**Resolution required by 31<sup>st</sup> October 2015**

**REQUESTING PARTY TO COMPLETE**

**Actual Acknowledgement date:**

**RP stated Resolution Plan agreement date:**