

## KHNPDCRAIsPEm Resource

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**Sent:** Tuesday, June 16, 2015 10:26 AM  
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**Cc:**  
**Subject:** APR1400 Design Certification Application RAI 32-7946 (08.03.01 - AC Power Systems (Onsite))  
**Attachments:** APR1400 DC RAI 32 EEB 7946.pdf; image001.jpg

KHNP

The attachment contains the subject request for additional information (RAI). This RAI was sent to you in draft form. Your licensing review schedule assumes technically correct and complete responses within 30 days of receipt of RAIs. However, KHNP requests and we grant 45 days to respond to the RAI. We may adjust the schedule accordingly.

Please submit your RAI response to the NRC Document Control Desk.

Thank you,

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**Hearing Identifier:** KHNP\_APR1400\_DCD\_RAI\_Public  
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# REQUEST FOR ADDITIONAL INFORMATION 32-7946

Issue Date: 06/16/2015

Application Title: APR1400 Design Certification Review – 52-046

Operating Company: Korea Hydro & Nuclear Power Co. Ltd.

Docket No. 52-046

Review Section: 08.03.01 - AC Power Systems (Onsite)

Application Section:

## QUESTIONS

08.03.01-1

General Design Criterion (GDC) 17 states that:

"Electric power from the transmission network to the onsite electric distribution system shall be supplied by two physically independent circuits (not necessarily on separate rights of way) designed and located so as to minimize to the extent practical the likelihood of their simultaneous failure under operating and postulated accident and environmental conditions. A switchyard common to both circuits is acceptable. Each of these circuits shall be designed to be available in sufficient time following a loss of all onsite alternating current power supplies and the other offsite electric power circuit, to assure that specified acceptable fuel design limits and design conditions of the reactor coolant pressure boundary are not exceeded. One of these circuits shall be designed to be available within a few seconds following a loss-of-coolant accident to assure that core cooling, containment integrity, and other vital safety functions are maintained."

DCD Tier 2, Section 8.3.1.1, Page 8.3-1, states that "In case the power is unavailable from the UATs, the power source for the connected onsite power system Class 1E and non-Class 1E buses is automatically transferred to the standby auxiliary transformers (SATs)."

Please address the following:

1. How a loss of voltage at any one of the Class 1E buses of one division initiates an automatic fast transfer of the offsite power source to an unaffected bus of another division by switching the affected bus to an unaffected SAT
2. How the automatic transfer to a faulted bus will be prevented
3. For a potential failure in the fast transfer scheme (such as failure of a circuit breaker, or failure of control power), address the vulnerability of the scheme so that the fast transfer scheme failure does not affect the capability of the Class 1E emergency diesel generators (EDG) to perform their safety function of supplying electrical power to the Class 1E emergency buses in a loss of voltage condition
4. Discuss how the automatic fast transfer prevents a bus transfer to an out-of-phase source, and discuss the sync-check logic scheme

