

26 - RES

From: Don Marksberry  
To: BUELR@inel.gov  
Date: Fri, Jul 2, 2004 8:06 AM  
Subject: Palo Verde Unit 2 results

Bob

Please check over the GEM report and the changes that I made to the PV model.

I did not use the GTG tree based on the event that we were modeling---offsite power was recoverable within 1 hour and the steps to get GTG or grid power to the first vital bus is about the same, so the power source should not make any difference. However, I realize that this will not work for analysis of offsite power > 1 hr.

This is for Unit 2.

Thanks.

don

>>> <BUELR@inel.gov> 06/29/04 09:19PM >>>

Don,

I looked into the issues that you broached concerning the Palo Verde model and have the following fixes/comments:

Project rule not being used - It does not directly impact your results and especially since you are setting a two hour mission. Either delete this rule or comment it out by placing a "!" in front of each line as follows:

```
|if system(EPS) * system(AFW) * AFW-TDP-FR-A then  
| DeleteEvent = AFW-TDP-FR-A;  
| AddEvent = AFW-TDP-FR-TD1HR;  
|endif
```

HPI failure events missing from SBO sequence #11 - This was indeed an error in the model. A flag was inadvertently omitted from the tops of several fault trees in the SBO logic. This flag (FLAG-SYS-LOOP) should be added to the tops of the HPI, COOLDOWN, SDC, CSR and, HPR fault trees.

Multiple power recovery events in a given cutset - The presence of two power recovery events in a single cutset in the model results is OK. As you noted, these are in fact conditional events. However, I went back and recalculated all of the power recovery events as well as reviewed the GEM/GEMDATA configurations. I did find an error in the GEMDATA configuration that does impact the value of the power recovery events. The updated GEMDATA configuration yields the following recovery values (OEP-XHE-NOREC-BD - 2.080E-001, OEP-XHE-NOREC-SL - 4.460E-001, OEP-XHE-NOREC-ST - 3.000E-001, RCS-MDP-LK-SEALS - 3.990E-2). In

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addition to changing these values, the updated GEMDATA.GDF file will have to be imported into the GEMDATA program.

I have attached two models with these fixes in them. The first (PVNG\_304) is the current model off the SAGAN server. The second model (PVNG\_304\_DAVE2) has the gas turbine alignment restrictions that I added for Dave Loveless. If you have a significant number of modifications to the model that you are working with and don't feel like incorporating these changes or starting with one of the updated models you can ZIP it up and send it to me and I can incorporate these changes into your model in a few minutes. Note, I will be out of the office tomorrow morning until lunch time. Also, I have changed the file extensions to \*.abc to get past your email filters. You will need to change them back to \*.zip.

Thanks,  
Robert Buell

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(See attached file: PVNG\_304.abc)(See attached file: PVNG\_304\_DAVE2.abc)

CC: David Loveless; Gary Demoss; Michael Cheok