

<b>Webinar: EMT Model Intake and Quality Assurance</b>	
<b>Question</b>	<b>Answer</b>
You forgot TP's to check the models. They are the ones doing interconnection studies.	As stated in the presentation, TPs may and usually do check the models prior to doing the studies. In the ATC example, the GOs are asked to complete the testing, but that is just a screen followed by ATC also checking the models.
Can the PSCAD's generic test controller be shared?	<a href="https://www.atcllc.com/customer-engagement/connecting-to-the-grid/">https://www.atcllc.com/customer-engagement/connecting-to-the-grid/</a>
Is there a reason there is not a single line to ground fault in the requested scenarios from ATC? Based on recent events, it seems this may be useful.	The ATC example uses a fairly limited set of tests. Others look at SLG faults of various depths, operating points etc. You could add many more additional tests. See AEMO DMAT.
What are the limitations of using aggregated plant EMT model? Should grid operator require a detailed plant EMT model after plant commissioning?	Some limitations include possible misrepresentation of harmonic effects, and an inability to represent the different voltage profiles along a collector feeder (which can result in partial tripping). However, these disadvantages are offset by the huge advantage of simulation speed. Full detailed models are not usable beyond a relatively simple network model. Some studies require 10s or 100s of plant models. They already run very slowly with aggregated models.
How are the synchronous generators modelled in EMT?	Usually using similar controls as phasor domain, as that is the information available. The E-Tran tool translates a .dvr file directly, for example, but uses a detailed machine representation.
Could you comment on what delays should be considered in IBR's EMT modeling?	Sorry, I need more context to answer this question.
With controller DLLs, what are the considerations wrt time step of the overall model relative to the controller sample/update rate? Also, is output duty or PWM?	They do not need to match, but it is better if they do.
You mention in one the slides that TO should check the model prior to use? could you please elaborate on that?	Most TOs will check Usability, Accuracy, Site-specific, and Performance prior to using it in a study. Basically all the things discussed in the presentation are usually tested by the TO.
how do you get modeling data if the controller vendor says their information is proprietary and won't provide it?	You can get models from basically all IBR vendors now.
Would SSCI validation be sufficient for the verification purpose?	Sorry, I need more context for this question. Frequency scans can be a useful validation tool, but not sufficient.

<p>With significant IBR penetration on distribution and at homes, do those control loops need modeling too? How are they aggregated typically?</p>	<p>Good question. DER modeling in EMT is large topic and too much to answer here. See work by HECO, and reach out if you want to discuss... ai@electranix.com</p>
<p>Is the aggregated EMT model enough, or is a detailed EMT model of the IBR plant required?</p>	<p>Answered above.</p>
<p>How would you decide the size of the system model while doing interconnection studies, having more or fewer dynamics of machines affect the result differently?</p>	<p>This is a big question and needs more time. The size of the system needs to be appropriate to the phenomena being studied, include elements that bear significantly on dynamic performance, and must be balanced against simulation speed.</p>
<p>Are the issues found associated with IBR's things that can be adjusted via software, or are they typically hardcoded in the resources firmware?</p>	<p>Inverter controls is the first line of mitigation defence. Sometimes the controls are accessible by simulation engineer, but other times the OEM is required to assist. In some cases, the issues can't be solved by controls at all.</p>