

Dr. Nilesh Modi
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— **Amendments to the Power System Model Guidelines**

Dear Dr. Modi,

Siemens Gamesa Renewable Energy welcomes the opportunity to make a submission regarding the Australian Energy Market Operator's consultation paper on the proposed amendments to the Power System Model Guidelines (PSMG).

Siemens Gamesa Renewable Energy Pty Ltd. (SGRE) is a trusted supplier of wind power and has an installed base of 122 GW globally. SGRE has world leading capabilities in both onshore and offshore wind generating systems and green hydrogen.

Siemens Gamesa supports AEMOs updates to the PSMG and encourages AEMO to take the feedback of all stakeholders on board.

Please find our detailed replies to some consultation questions below, feel free to contact us should you require any further information.

Yours Sincerely,

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Kim Jensen,

12. Are there any other methods that could guarantee that models remain usable for the life of the plant despite changes to simulation tools, versions, or compiler toolchains that AEMO has not considered here?

We would like to highlight that PSCAD models are in general forward compatible for new intel compilers as highlighted by the Manitoba Hydro¹ (MHI). It is likely that the model compatibility issues are only experienced for PSCAD models from some manufacturers. Thus, we encourage alternatives to be considered that allow AEMO to request the model updates it requires from these OEMs rather than wide model sweeping requirements for all OEMs, which would have cost implications for all products.

One alternative to the options that AEMO has considered to ensure PSCAD models remain usable for the life of the plant is that service agreements for model updates and support could be entered into either directly between AEMO and OEMs, or between OEMs and market participants to ensure continued availability of model updates.

13. Would there be any issues with developing a DLL to conform with a standardised explicit linking routine?

Having a specific .dll interface defined by AEMO may not provide any benefit regarding compatibility for OEMs who's PSCAD models are already forward compatible, yet will force PSCAD model re-work for the models, .dlls generation process and tools, for all OEMs. In our experience, .dlls are generally forward compatible in terms of IVF version so long as an appropriate x64 or x32 bit compiler is used. This is a significant engineering effort and large amount of engineering hours for no benefit.

As per the MHI website, "If the model does not contain any non-Fortran code, the general rule is that you should be able to use any version of Visual Studio that is compatible with your PSCAD and Intel versions." Therefore, when only fortran code is used in the interface, the VS version is not relevant for running the .dll.

Our proposal would be that, instead of a requirement for OEMs to adhere to a strict .dll interface template, a set of rules/specifications for the interface development are created, such as a requirement for explicit linking, and prohibition of non-Fortran code in the interface file. This allows each manufacturer to create a specific interface that best fits their needs. This would be enough to assure compatibility across versions, while imposing a lower cost on the industry to implement.

AEMO could then review the interface files, potentially in a data room, to ensure compliance of the models with these requirements.

To summarize, If a specific interface is forced, then the extremely significant engineering hours² required to implement this would increase costs of products on the market and increase barriers to OEMs to develop new products for Australia.

¹ <https://www.pscad.com/knowledge-base/article/861>

² SGRE is happy to discuss the quantum of this further on a commercially sensitive basis,