# PSCAD Model Requirements Supplier Checklist
Revision 2

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**Prepared By:** **Lukas Unruh**
**Andrew Isaacs**
**Electranix Corporation**



ELECTRANIX
SPECIALISTS IN POWER SYSTEM STUDIES

## Purpose

This document is a model requirements checklist which should be completed by the supplier of the model and submitted alongside each PSCAD model. This document accompanies the "Recommended PSCAD Model Requirements" document (RPMR)[1], which should be used for further reference to describe the requirements associated with each point. Generic testing of the model may be done using the "PSCAD Model Test Checklist"[2], which may be used as a reference.

Model supplier must review every item in the checklist and indicate compliance for each item. If the supplied model does not meet any of the requirements an explanation of the deficiency should be provided in the comments column.

| *Model Submission Summary (to be completed by model supplier)* | |
|---|---|
| Submission date: | |
| Project Name: | |
| Primary contact information for model related questions: | |
| Secondary contact information for model related questions: | |
| Manufacturer: | |
| Equipment type: (eg. PV or Wind) | |
| Equipment version: | |
| Documentation file(s): | |
| Model Files supplied: | |
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[1] Recommended PSCAD model requirements Rev. 8, Electranix Corporation, February 24, 2020
[2] PSCAD Model Test Checklist Rev. 4, Electranix, 2020

| Model Requirements Checklist | | RPMR[1] Reference | Model Complies? (Yes/No) | Comments |
|---|---|---|---|---|
| 1 | *Model Accuracy Features* | | | |
| 1.1 | Power electronic controls are modelled by interfacing with actual firmware code from the inverter ("real code" model), or includes detailed validation report. | A,B | | |
| 1.2 | Operating modes which require system specific adjustment are accessible. | B | | |
| 1.3 | Plant level controller is included.[3] | B | | |
| 1.4 | Model is capable of controlling frequency[4] | B | | |
| 1.5 | Includes pertinent electrical and mechanical features, such as gearboxes, pitch controllers, or other features which impact the plant performance in the simulation period.[5] | C | | |
| 1.6 | All protections which could impact ride-through performance are modelled in detail. | D | | |
| 1.7 | Model is configured for the specific site being evaluated, as far as they are known. | E | | |
| 2 | *Model and Project Documentation* | | | |
| 2.1 | Model includes documentation. | J | | |
| 2.2 | Documentation includes instruction for setup and running the model. | J | | |
| 2.3 | Model is supplied with a sample test case including site specific plant representation. | J | | |

[3] If the plant is part of a multi-plant control scheme, a description of the overall scheme should be provided, and corresponding PPC models should be configured to control multiple plants accordingly.
[4] Frequency control model requirements may vary by region. Example response time may be less than 10 seconds.
[5] Simulation period may vary depending on the model use, but 10 seconds of simulation following an event such as a fault is a typical period.

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|---|---|---|---|---|
| 2.4 | Plant single line diagram is provided, and aligns with model | J | | |
| 2.5 | Model documentation provides a clear way to identify site-specific settings and equipment configuration. | K | | |
| 3 | *Model Usability Features* | | | |
| 3.01 | Control or hardware options are accessible to the user as applicable. | F | | |
| 3.02 | Diagnostic flags are visible to the user. | F | | |
| 3.03 | Model uses a timestep greater than 10 µs. | G | | |
| 3.04 | Model allows a range of simulation timesteps (ie. not restricted to a single timestep). | H | | |
| 3.05 | Protection model may be disabled for troubleshooting | I | | |
| 3.06 | Model accepts external reference variables for active and reactive power and voltage setpoint, and these may be changed dynamically during the simulation. | L | | |
| 3.07 | Model is capable of initializing itself. | M | | |
| 3.08 | Active power capacity is scalable. | N | | |
| 3.09 | Active power is dispatchable. | O | | |
| 3.10 | Model reaches setpoint P, Q, and V in 5 seconds or less | P | | |
| 3.11 | Model compatible with Intel FORTRAN version 12 and higher. | Q | | |
| 3.12 | Model compiles using PSCAD version 4.5.3 or higher. | R | | |
| 3.13 | Model supports multiple instances of its own definition in a single PSCAD case. | S | | |
| 3.14 | Model supports PSCAD “snapshot” feature. | T | | |
| 3.15 | Model supports the PSCAD “multiple run” feature. | U | | |