

**WECC Approved Dynamic Model Library**  
**Version August 2020: Effective date is 8/25/20**

**NOTES:**

WECC needs to input the data to the PSLF program, with conversion to the PSS/E program. Therefore, model data must be submitted that can be input to PSLF.

\* The PSLF models are converted to these PSS/E models by PTI's conversion program

Where different variants of the same model exist, the preferred version for submission to WECC is highlighted in green. Where only one model is available for a certain piece of equipment, no highlighting is used.

These models currently are not converted from PSLF to PSS/E.

These models are not approved for use in WECC.

**EXCITATION SYSTEM MODELS (Volt/Var Control Models)**

GE PSLF	PTI PSS/E*	PowerWorld Simulator	IEEE Standard	Status	Comments	Modifications/Actions Needed	PTI/GE/PowerWorld Comments
exac1	EXAC1	EXAC1	AC1A	approved 8/11/06	Brushless AC		
ssac1a	ESAC1A	ESAC1A	AC1A	approved 1/21/11	2005 IEEE standard - updated AC1A with OEL/UEL inputs		Differs from IEEE AC1A -- does not have OEL/UEL inputs and multiplies output by speed.
exac1a	EXAC1A	EXAC1A	AC1A	approved 8/11/06	exac1 with altered rate feedback source		In all programs
	AC1C	AC1C	AC1C	approved 4/22/20			
exac2	EXAC2	EXAC2	AC2A	approved 8/11/06	HR Brushless		Differs from IEEE AC2A -- no OEL/UEL inputs; different field current limit; speed multiplier
ssac2a	ESAC2A	ESAC2A	AC2A	approved 1/21/11	2005 IEEE standard - updated AC2A		In all programs
exac3	EXAC3	EXAC3	AC2C	never approved	Not used in WECC database		In all programs
	AC2C	AC2C	AC2C	approved 4/22/20			
cxac3a	ESAC3A	EXAC3A	AC3A	approved 8/11/06	GE Alterrex (rare)		Differs from IEEE AC3A -- no OEL/UEL inputs; different field current limit; speed multiplier; PSS/E Model same as IEEE AC3A model
ssac3a	ESAC3A	ESAC3A	AC3A	approved 1/21/11	2005 IEEE standard - updated AC3A		In all programs
	AC3C	AC3C	AC3C	approved 4/22/20			
exac4	EXAC4	EXAC4	AC4A	approved 8/11/06	Rotating AC with controlled rectifier (Althyrex) (rare)		Differs from IEEE AC4A -- no OEL/UEL inputs
ssac4a	ESAC4A	ESAC4A	AC4A	approved 1/21/11	2005 IEEE standard - updated AC4A		In all programs
	AC4C	AC4C	AC4C	approved 4/22/20			
esac5a	ESAC5A	ESAC5A	AC5A	approved 1/21/11	Simplified brushless exciter		In all programs
	AC5C	AC5C	AC5C	approved 4/22/20			
exac6a	ESAC6A	EXAC6A	AC6A	never approved	Alternator, noncontrolled rectifier, lead-lag		Differs from IEEE AC6A -- no OEL/UEL inputs; speed multiplier; not a new model for PSS/E (model already exists)
ssac6a	ESAC6A	ESAC6A	AC6A	approved 1/21/11	2005 IEEE standard - updated AC6A		In all programs
	AC6C	AC6C	AC6C	approved 4/22/20			
ssac7b	AC7B	ESAC7B and AC7B	AC7B	approved 1/21/11	2005 IEEE standard - new		In all programs
esac7c	AC7C	AC7C	AC7C	approved 4/22/20			
exac8b	ESAC8B	EXAC8B	ESAC8B	approved 8/11/06	Brushless exciter with PID voltage regulator		Differs from IEEE AC8B -- no exciter upper limit; added input limits and speed multiplier
ssac8b	AC8B	ESAC8B GE and AC8B	AC8B	approved 1/21/11	2005 IEEE standard - updated AC8B		In all programs
esac8c	AC8C	AC8C	AC8C	approved 4/22/20			
	AC9C	AC9C	AC9C	approved 4/22/20			
	AC10C	AC10C	AC10C	approved 4/22/20			
	AC11C	AC11C	AC11C	approved 4/22/20			
exbbc	BBSEX1	EXBBC and BBSEX1		approved 8/11/06	Static with ABB regulator		In all programs
exdc1	IEEEX1	EXDC1 and IEEEX1	DC1A	approved 8/11/06	Rotating DC		Differs from IEEE DC1A -- no UEL inputs; speed multiplier
ssdc1a	ESDC1A	ESDC1A	DC1A	approved 1/21/11	2005 IEEE standard - updated DC1A		In all programs
esdc1c	DC1C	DC1C	DC1C	approved 4/22/20			
exdc2	EXDC2	EXDC2_GE and EXDC2_PTI		approved 8/11/06	Rotating DC with terminal fed pilot, alternate feedback		
exdc2a	EXDC2A	EXDC2A and EXDC2_PTI	DC2A	approved 8/11/06	Rotating DC with terminal fed pilot		Differs from IEEE DC2A -- no UEL inputs; speed multiplier
ssdc2a	ESDC2A	ESDC2A	DC2A	approved 1/21/11	2005 IEEE standard - updated DC2A		In all programs
	DC2C	DC2C	DC2C	approved 4/22/20			
exdc4	IEEET4	EXDC4 and IEEET4	DC3A	approved 8/11/06	Rotating, noncontinuous - minor differences between models		If Kr = 0, should convert to IEEEX4 (IEEE DC3A). Model added in PSS/E -32.
ssdc3a	DC3A	ESDC3A and DC3A	DC3A	approved 1/21/11	Rotating, noncontinuous		In all programs
esdc4b	DC4B	ESDC4B	DC4B	approved 1/21/11	Rotating DC with PID		In all programs
esdc4c	DC4C	DC4C	DC4C	approved 4/22/20			
exeli	EXELI	EXELI		approved 8/11/06	Static PI transformer fed excitation system		
exst1	EXST1	EXST1_GE and EXST1_PTI	ST1A	approved 8/11/06	Static with double lead/lag		Differs from IEEE ST1A -- no OEL/UEL inputs; added Xe Ifd loading; RFB before field current limiter.
esst1a	ESST1A	ESST1A and ESST1A_GE	ST1A	approved 1/21/11			In all programs
esst1c	ST1C	ST1C	ST1C	approved 4/22/20			
exst2	EXST2	EXST2		approved 8/11/06	SCPT - lead/lag block (Tc, Tb) added		
exst2a	ESST2A	EXST2A	ST2A	approved 8/11/06	lead/lag block (Tc, Tb) is included to match the WECC FM		Differs from IEEE ST2A -- no UEL inputs; added lead/lag.
ssst2a	ESST2A	ESST2A	ST2A	approved 1/21/11	2005 IEEE standard - updated ST2A		
esst2c	ST2C	ST2C	ST2C	approved 4/22/20			
exst3	EXST3	EXST3	ST3	approved 8/11/06			
exst3a	ESST3A	EXST3A	ST3A	approved 8/11/06	Use for GE Generex		Differs from IEEE ST2A -- no UEL inputs; fewer time constants.
esst3a	ESST3A	ESST3A	ST3A	approved 1/21/11	2005 IEEE standard - updated ST3A		
	ST3C	ST3C	ST3C	approved 4/22/20			
exst4b	ESST4B	EXST4B	ST4B	approved 8/11/06	GE EX2000 bus fed potential source, static compound and Generex-PPS or -CPS, and SILCOMatic 5 excitation systems, with proportional plus integral (PI) voltage controller		Differs from IEEE ST2A -- no OEL/UEL inputs
ssst4b	ESST4B	ESST4B	ST4B	approved 1/21/11	2005 IEEE standard - updated ST4B		In all programs
esst4c	ST4C	ST4C	ST4C	approved 4/22/20			
esst5b	ST5B	ESST5B and ST5B	ST5B	approved 1/21/11	Variation of ST1A (New IEEE Model)		In all programs
esst5c	ST5C	ST5C	ST5C	approved 4/22/20			
esst6b	ST6B	ESST6B and ST6B	ST6B	approved 1/21/11	Variation of ST4B with field current limit (New IEEE model)		In all programs
esst6c	ST6C	ST6C	ST6C	approved 4/22/20			
esst7b	ST7B	ESST7B and ST7B	ST7B	approved 1/21/11	Static with limiters (Alstom) (New IEEE model)		In all programs
esst7c	ST7C	ST7C	ST7C	approved 4/22/20			
	ST8C	ST8C	ST8C	approved 4/22/20			
	ST9C	ST9C	ST9C	approved 4/22/20			
	ST10C	ST10C	ST10C	approved 4/22/20			
ieeet1	IEEET1	IEEET1		approved 8/11/06	Old type 1		
mexs	Not used			never approved	Manual excitation control with field circuit resistance		
pfqrg	Not used	PFQRG		never approved	Power factor / Reactive power regulator		The output of this model feeds into an exciter as the stabilizer input, thus this model can not be used in conjunction with another stabilizer
rexs	REXSYS	REXS		approved 8/11/06	General Purpose Rotating Excitation System Model		
scrx	SCRX	SCRX		approved 8/11/06	intended for use where negative field current may be a problem		
sexs	SEXS	SEXS_GE and SEXS_PTI		never approved	for use where details of the actual excitation system are unknown and/or unspecified		PSS/E has a SEXS (simplified excitation system) model (which is similar to the PSLF sexs model but without the PI control block)

texs	Not converted (9)	TEXS		never approved	Transformer Fed Excitation System Model	replace with esst6b	we don't convert this. Per our notes from previous M&V meetings, this model was not to be used in WECC.
oel1	Not converted (277)	OEL1		approved 4/27/12	Over excitation limiter		Please note that this is not an IEEE standard model. GE developed this model for WECC use. If we have to provide a corresponding PSS/E model, we have to get the block diagram from GE. Presentation at March 2012 M&VWG meeting, use OEL1. Has required functionality.
oel2c	OEL2C	OEL2C	OEL2C	approved 4/22/20			
oel3c		OEL3C	OEL3C	approved 4/22/20			
oel4c		OEL4C	OEL4C	approved 4/22/20			
	OEL5CU1	OEL5C	OEL5C	approved 4/22/20			
uel1	UEL1	UEL1	UEL1	approved 4/27/12	Under excitation limiter		
uel2	UEL2	UEL2	UEL2	approved 4/27/12	Under excitation limiter		
uel2c	UEL2C	UEL2C	UEL2C	approved 4/22/20			

## GENERATOR MODELS

GE PSLF	PTI PSS/E*	PowerWorld Simulator	IEEE Standard	Status	Comments	Modifications/Actions Needed	PTI/GE/PowerWorld Comments
gentpf	GENROU/IEEEVC	GENTPF		approved 8/11/06	USE gentpj INSTEAD per recommendation in "The Recommended Synchronous Generator Model: GENTPJ" white paper available on WECC web site.	This model is still approved but should be transitioned to gentpj model after future testing. Reference NERC Recommendation:	
genrou	GENROU/IEEEVC	GENROU		approved 8/11/06	Round rotor generator model. USE gentpj INSTEAD per recommendation in "The Recommended Synchronous Generator Model: GENTPJ" white paper available on WECC web site.	This model is still approved but should be transitioned to gentpj model after future testing. Reference NERC Recommendation:	
gensal	GENSAL/IEEEVC	GENSAL		retired 1/11	Salient pole generator model. Use for Hydro generator models, no longer approved Jan 2011, staff converts to gentpj with KIS=0	No longer approved 2011	
gentpj	GENTPJU1, GENTPJ1	GENTPJ		approved 1/23/09	modified gentpf with improved saturation modeling	The gentpj model should be used after future testing. Reference NERC Recommendation:	Available in PSS/E version 33.2
gencc	GENROU/IEEEVC	GENCC		approved 8/11/06	Cross Compound generator model	This model is still approved but should be transitioned to gentpj model after future testing. Reference NERC Recommendation:	
gencls	PLBVFU1 (for playback model), GENCLS (for classical generator model)	GENCLS		never approved	Used to force a signal, or classical generator model		We have a GENCLS model. The PSLF model gencls does get converted to the PSS/E model GENCLS. [Forcing signal (playback) feature not needed in library datasets.]

## PSS MODELS

GE PSLF	PTI PSS/E*	PowerWorld Simulator	IEEE Standard	Status	Comments	Modifications/Actions Needed	PTI/GE/PowerWorld Comments
wscsc	ST2CUT	WSCCST and ST2CUT		approved 8/11/06	Dual input PSS - Old WSCC model		
ps2a	PSS2A	PSS2A	PSS2A, PSS3	approved 8/11/06	Dual input PSS (delta P-omega)		
ps2c	PSS2C	PSS2C	PSS2C	approved 4/22/20			
ieeest	IEEEST	IEEEST	PSS1A	approved 8/11/06	Single input PSS, dual lead lag		
ps2b	PSS2B	PSS2B	PSS2A, PSS3	approved 8/11/06	ps2a + transient stabilizer		
ps1a	IEEEST	PSS1A	PSS1A	approved 11/17/16	Generic single input PSS		
ps2b	PSS2B	PSS2B	PSS2B	approved 8/11/06	Dual input PSS - Extra lead/lag (or rate) block added at end (up to 4 lead/lags total)		In all programs
	PSS2C	PSS2C	PSS2C	approved 4/22/20			
ps3b	PSS3B	PSS3B	PSS3B	approved 8/11/06	Thyripol, Unitrol		In all programs
	PSS3C	PSS3C	PSS3C	approved 4/22/20			
ps4b	PSS4B	PSS4B	PSS4B	approved 8/11/06	ABB multi-band		In all programs
	PSS4C	PSS4C	PSS4C	approved 4/22/20			
	PSS5C	PSS5C	PSS5C	approved 4/22/20			
	PSS6C	PSS6C	PSS6C	approved 4/22/20			
	PSS7C	PSS7C	PSS7C	approved 4/22/20			
ps2sh	PSS2H	PSS2H		never approved	Siemens H infinity PSS		

## LOAD MODELS

GE PSLF	PTI PSS/E*	PowerWorld Simulator	IEEE Standard	Status	Comments	Modifications/Actions Needed	PTI/GE/PowerWorld Comments
alwsc	IEELAR	WSCC assigned to an area		approved 8/11/06	Area load model		
blwsc	IEELBL	WSCC assigned to a bus or load		approved 8/11/06	Bus load model		
cmpldw	CMLDBLU1	CMPLDW and CMPLDWNF (with a separate Distribution Equivalent Model)		approved 1/25/13	Composite Load Model		
cmpldwg	CMLDBLDGU2			approved 6/13/19	Composite Load Model with distributive Generation		
ld1pac	ACMTBLU1	LD1PAC		approved 8/11/06	Single-phase AC model (performance based model)		
motor1	CIMTR4	MOTOR1		approved 8/11/06	Induction machine, represented in load flow as generator. Use to represent motor start-up. Should use generic wind model for wind machine		
motorw	CIMWBL	MOTORW		approved 8/11/06	Induction Motor Model		

## TURBINE/GOVERNOR MODELS

GE PSLF	PTI PSS/E*	PowerWorld Simulator	IEEE Standard	Status	Comments	Modifications/Actions Needed	PTI/GE/PowerWorld Comments
g2wscc	WSHYDD	G2WSCC and WSHYDD		approved 8/11/06	Use hyg3 for new models		
gast	URGS3T	GAST GE and URGS3T		retired 5/11/18			
ggov1	GGOV1	GGOV1		approved 8/11/06			
gpwscc	WSHYGP	GPWSCC and WSHYGP		approved 8/11/06	Use hyg3 for new models		
h6b		H6B		retired 6/15/16	Replaced by h6c		

h6c	H6EU1	h6c		approved	5/11/18			
hyg3	HYG3U1	HYG3		approved	8/11/06			
hygov	HYGOV	HYGOV		approved	8/11/06			
hygov4	IEEEG3	HYGOV4		approved	8/11/06			Need new acceptable model in PSS/E
hygovr	HYGOVR	HYGOVR		approved	2008	Added in 2008		
ieeeg1	WSIEG1	IEEEG1 and WSIEG1		approved	8/11/06			
ieeeg3	IEEEG3	IEEEG3		approved	8/11/06	Use hygov 4 for new models		
lcfb1	LCFB1	LCFB1 and LCFB1_PT1		approved	8/11/06			
pidgov	PIDGOV	PIDGOV		approved	8/11/06	Use hyg3 for new models		
tgov1	TGOV1	TGOV1		approved	8/11/06			
ggov2	GGOV2	GGOV2		never approved		new in GE PSLF		We have the new GGOV2 model in a user written format. We will see if this can be given to users as a user model in the next point release. We hope to make it a standard model for the next major release.
ggov3	GGOV3	GGOV3		approved	2010	new in GE PSLF		
	GGOV1DU/GGOV1D			approved	11/2019			General governor/turbine model with speed deadband
	IEEEG1SDU/IEEEG1CDU/IEEEG1D			approved	11/2019			IEEE type 1 speed-governing model with speed deadband
	IEESGODU/IEESGOD			approved	11/2019			IEEE standard model with speed deadband
	WESGOVDU/WESGOVD			approved	11/2019			Westinghouse digital governor for gas turbine model with speed deadband
	WPIDHYDU/WPIDHYD			approved	11/2019			PID hydro governor model with speed deadband
	GASTWDDU/GASTWDD			approved	11/2019			Gas turbine model with speed deadband
	GAST2ADU/GAST2AD			approved	11/2019			Gas turbine model with speed deadband
	GASTDU/GASTD			approved	11/2019			Gas turbine-governor with speed deadband
	HYGOVDU/HYGOVD			approved	11/2019			Hydro turbine-governor model with speed deadband
	TGOV1DU/TGOV1D			approved	11/2019			Steam turbine-governor model with speed deadband
	IEEEG3DU/IEEEG3D			approved	11/2019			IEEE type 3 speed-governing model with speed deadband
	DEGOV1DU/DEGOV1D			approved	11/2019			Diesel governor model with speed deadband
	PIDGOVDU/PIDGOVD			approved	11/2019			Hydro turbine-governor model with speed deadband
	TGOV3DU/TGOV3D			approved	11/2019			Modified IEEE type 1 speed-governing model with fast valving and speed deadband
	HYGOV2DU/HYGOV2D			approved	11/2019			Hydro turbine-governor model with speed deadband

## RENEWABLE ENERGY MODELS

GE PSLF	PTI PSS/E*	PowerWorld Simulator	IEEE Standard	Status	Comments	Modifications/Actions Needed	PTI/GE/PowerWorld Comments
pvd1		PVD1		approved	3/19/14	Distributed Photovoltaic system model	
der_a	DERAU1	DER_A		approved	1/26/18	Distributed Energy Resource model	
rege_a	REGCAU1, REGCA1	REGC_A		approved	3/19/14	Generator/converter model for Photovoltaic, Wind type 3/4	
rege_b	REGCBU1	REGC_B		approved	8/25/20	Generator/converter model for Photovoltaic, Wind type 3/4	
w1g	WT1G1	WT1G and WT1G1		approved	1/21/11	Wind Type 1 generic generator model	
w2g	WT2G1	WT2G and WT2G1		approved	8/28/09	Wind Type 2 generic generator model	
w2e	WT2E1	WT2E and WT2E1		approved	8/28/09	Wind Type 2 generic excitation/controller model	
reec_a	REECAU1, REECA1	REEC_A		approved	3/19/14	Renewable energy electrical control model for Wind type 3/4 and Photovoltaic	
reec_c	RECCU1	REEC_C		approved	3/18/15	Renewable energy electrical control model for Energy Storage Devices	
reec_d	RECCDU1	REEC_D		approved	8/25/20	Renewable energy electrical control model for Photovoltaic	
w1t	WT1T1	WT1T and WT12T1		approved	1/21/11	Wind Type 1 generic turbine model	
w1tp_b	WT1TA1	WT1P_B		approved	3/19/14	Wind Type 1 & Type 2 Pitch controller model/Pseudo Gov aerodynamics	
w2t	WT12T1	WT2T		approved	8/28/09	Wind Type 2 generic turbine model	
w2g_a	WTD1AU1, WTD1A1	WTGT_A		approved	3/19/14	Drive train model for Wind type 3/4	
w2g_b	WTARAU1, WTARA1	WTGA_A		approved	3/19/14	Aerodynamic model for Wind type 3	
w2g_c	WTPTAU1, WTPTA1	WTGPT_A		approved	3/19/14	Pitch control model for Wind type 3	
w2g_d	WTQAU1, WTQA1	WTGTRQ_A		approved	3/19/14	Torque control model for Wind type 3	
repe_a	Type 4: REPCAUI (v33), REPCA1 (v34) Type 3: REPCTAU1 (v33), REPCTA1 (v34)	REPC_A		approved	3/19/14	Power Plant Controller for Photovoltaic, Wind type 3/4, Energy Storage	
repe_b	PLNTBU1  Names of other models for interface with other devices:  REA3XBU1, REAX4BU1- for interface with Type 3 and 4 renewable machines  SWSXBU1- for interface with SVC (modeled as switched shunt in powerflow)  SYNAXBU1- for interface with synchronous condenser  FCTAXBUI- for interface with FACTS device	REPC_B		approved	6/16/16	Power Plant Controller for Photovoltaic, Wind type 3/4, Energy Storage. Controls several plants/devices.	
genwri	Vestas manufacturer specific models can be downloaded from PSS/E user support web page	GENWRI		never approved		Vestas Wind turbine generator, 1 instance in 08HS3 base case	Should be replaced with generic wind models  <i>We need details of this model. This will be replaced by generic Type 2 WTG generator model.</i>
gewtg	GEWTG manufacturer specific models can be downloaded from PSS/E user support web page	GEWTG		never approved		GE Wind turbine generator	Should be replaced with generic wind models  <i>We can convert this</i>
wt3g	WT3G1	WT3G and WT3G1		retired	4/22/20	<a href="#">Wind Type 3 generic generator model (GE Technology). Please reference the EPRI "Model User Guide for Generic Renewable Energy System Models" at this link for information on Renewable Phase 2 Models and conversion from Phase 1 to Phase 2.</a>	No longer approved April 2020

wt4g	WT4G1	WT4G and WT4G1		retired 4/22/20	<a href="#">Wind Type 4 generic generator model. Please reference the EPRI "Model User Guide for Generic Renewable Energy System Models" at this link for information on Renewable Phase 2 Models and conversion from Phase 1 to Phase 2.</a>	No longer approved April 2020	
exwtg1	Not converted (1)	EXWTG1		never approved	Excitation system model for wound-rotor induction wind-turbine generator	Should be replaced with generic wind models	We need details of this model This is a crude Vestas V80 model. This model is obsolete; a generic model should be used. PSS/E version 32 has support for all 4 types of generic wind models
exwtge	Not used	EXWTGE		never approved	Excitation (converter) control model for GE wind-turbine generators	Should be replaced with generic wind models	PSS/E version 32 has support for all 4 types of generic wind models
wt3e	WT3E1	WT3E and WT3E1		retired 4/22/20	<a href="#">Wind Type 3 generic excitation/controller model (GE Technology). Please reference the EPRI "Model User Guide for Generic Renewable Energy System Models" at this link for information on Renewable Phase 2 Models and conversion from Phase 1 to Phase 2.</a>	No longer approved April 2020	
wt4e	WT4E1	WT4E and WT4E1		retired 4/22/20	<a href="#">Wind Type 4 generic excitation/controller model. Please reference the EPRI "Model User Guide for Generic Renewable Energy System Models" at this link for information on Renewable Phase 2 Models and conversion from Phase 1 to Phase 2.</a>	No longer approved April 2020	
reec b	REECBU1, REECB1	REEC B		retired 6/13/19	Renewable energy electrical control model for Photovoltaic		
wt2p	WT12A1	WT2P		retired 4/22/20	<a href="#">Wind Type 2 generic Pitch controller model/Pseudo Gov.aerodynamics. Please reference the EPRI "Model User Guide for Generic Renewable Energy System Models" at this link for information on Renewable Phase 2 Models and conversion from Phase 1 to Phase 2.</a>	No longer approved April 2020	
wt3t	WT3T1	WT3T and WT3T1		retired 4/22/20	<a href="#">Wind Type 3 generic turbine model (GE Technology). Please reference the EPRI "Model User Guide for Generic Renewable Energy System Models" at this link for information on Renewable Phase 2 Models and conversion from Phase 1 to Phase 2.</a>	No longer approved April 2020	
wt3p	WT3P1	WT3P and WT3P1		retired 4/22/20	<a href="#">Wind Type 3 generic Pitch controller model. Please reference the EPRI "Model User Guide for Generic Renewable Energy System Models" at this link for information on Renewable Phase 2 Models and conversion from Phase 1 to Phase 2.</a>	No longer approved April 2020	
wt4t	transient features are inside the WT4E1 model	WT4T		retired 4/22/20	<a href="#">Wind Type 4 generic turbine model. Please reference the EPRI "Model User Guide for Generic Renewable Energy System Models" at this link for information on Renewable Phase 2 Models and conversion from Phase 1 to Phase 2.</a>	No longer approved April 2020	
wndtge	part of package for GE manufacturer specific models which can be downloaded from PSS/E user support web page			never approved	Wind turbine and turbine control model for GE wind turbines	Should be replaced with generic wind models	
wt1p	WT12A1	WT1P and WT12A1		retired 4/22/20	<a href="#">Wind Type 1 generic Pitch controller model/Pseudo Gov.aerodynamics. Please reference the EPRI "Model User Guide for Generic Renewable Energy System Models" at this link for information on Renewable Phase 2 Models and conversion from Phase 1 to Phase 2.</a>	No longer approved April 2020	

## OTHER MODELS

GE PSLF	PTI PSS/E*	PowerWorld Simulator	IEEE Standard	Status	Comments	Modifications/Actions Needed	PTI/GE/PowerWorld Comments
ccomp		CCOMP and COMPPC		retired 6/19	Cross & Joint current compensation model	No longer approved 2019	Use ccomp4
ccomp4		CCOMP4U1		approved 3/17/2015			
Not Used		Not Used		approved 3/17/2015	Colstrip Acceleration Trend Relay (ATR)		
colatr	not converted (1)	Not Used		never approved	Colstrip ATR relay		was developed for WECC. We don't have a PSS/E model for this, need details
dcmt		For 3-terminal version of PDCI: MTDC_PDCI_CONV_CELILO_E, CONV_CELILO_N_CONV_SYLMAR; For IPP model: MTDC_IPP, CONV_InMtnPP, CONV_Adelanto		approved 8/11/06	new PDCI DC model		We have just developed two new models (north to south and south to north) for the PDCI. GE needs details for data conversion to PSLF. All of these models originated as user-written models in GE using EPCL. Note: the PDCI model will be going away as the CELILO converters are being replaced. Full documentation describing the IPP model can be found at <a href="http://www.powerworld.com/files/clientconf2014/06DC%20Line%20Model%20to%20IPP.pdf">http://www.powerworld.com/files/clientconf2014/06DC%20Line%20Model%20to%20IPP.pdf</a>
		DISTRELAY		approved 6/15/17	Distance Relay		
chvdc2		CHVDC2U1		approved 10/5/17	Generic Line Commutated Converter HVDC model. It applies only to 2-terminal dc line records.		
epcdc		CDC6		approved 8/11/06	Intermountain DC model		
gp1	not converted (4)	GP1		approved 6/13/19	Generator Protection relay		We don't have a PSS/E model for this, need details
gp2		GP2		approved 6/13/19			
gp3		GP3		approved 4/23/20			
lhfrt		FRQTPAT, FRQDCAT		approved 8/9/13	Low/High frequency ride-through generator protection		
lhvrt		VTGPAT, VTGDCAT		approved 8/9/13	Low/High voltage ride-through generator protection		
locti		TIOCR1		approved 8/9/13	Branch overcurrent relay with inverse time characteristic		
lsd1		LDS3BL		approved 8/11/06	Underfrequency relay		
lsd2		LVS3BL		approved 8/11/06	Undervoltage relay		
lsd9		LDS3BL		approved 8/11/06	Underfrequency relay		
ooslen	not converted (11)	OOSLEN		approved 8/11/06	3 zone out of step relay	low priority	We don't convert this. The reason is not because we don't have a model, PSS/E has a double circle or lens out-of-step line relay model called 'CIROS1' (please note that like any other relay model, this also is a generic line-relay model not representing any particular manufacturer). The reason that the data is not converted is probably because the data requirements of the PSLF 'ooslen' model do not match the data requirements of the PSS/E 'CIROS1' model. However, this does not prevent the PSS/E users to create a DWR data record and include the CIROS1 model for every occurrence of the PSLF 'ooslen' model.
scmov		SCMOV		never approved	Series capacitor MOV and bypass model		In PSLF
stcon	not converted (2)	STCON		not approved	Static synchronous condenser		We don't convert this. This model, per our notes from the previous M&V meetings, was not to be used in WECC. This also is a generic model not representing any particular manufacturer. PSS/E also has two generic static condenser models - the CSTATT (use of this requires a generator model in load flow), and the CSTCNT (use of this requires a FACTS device model in load flow). We can not convert the PSLF STCON to PSS/E CSTATT or the CSTCNT models because the data requirements are different.
svcsvc		CSVGN5, CSVGN6		retired 2012	Static Var Source model, replace with appropriate generic model	No longer approved 2012	
svsmo1		SVSMO1U2, SVSMO1T2		approved 1/21/11	Generic Static Var Source model (continuous control)		
svsmo2		SVSMO2U2, SVSMO2T2		approved 8/26/11	Generic Static Var Source model (discrete control)		
svsmo3		SVSMO3U2, SVSMO3T2		approved 8/26/11	Generic STATCOM model (continuous control)		
msc1		SWSHNT		approved 1/21/11	Mechanically Switched Shunt model, links to svsmo models		
msr1		MSR1		approved 3/17/2015	Mechanically Switched Reactor		
msrf1		MSRF1		pending approval	Model Spec only was approved 3/17/15.		
tiocrs		TIOCRS		approved 8/9/13	Over-current relay		
tlin1	not converted (114)	TLIN1		approved 8/11/06	under frequency or under voltage line relay	Investigate better method for pump (Generator) tripping	We don't convert this, because PSS/E does not have the under frequency or under voltage line relay model. Our consulting group has a user written model and we can include it in PSS/E. We will add this in our list of task to do. As an interim solution we can check if we can make this available as a user written model before it becomes a PSS/E standard model. However, given the fact that this also is a generic model, the data requirements of the PSLF 'tlin1' may not match the data requirements of the PSS/E model, and hence we may not be able to convert from the PSLF to the corresponding PSS/E model. Nonetheless, a model can be made available for WECC PSS/E users.
vwsec		CSVGN5		approved 8/11/06	Static Var Source model		
		SCL1C	SCL1C	approved 4/22/20			
		SCL2C	SCL2C	approved 4/22/20			
		PF1		approved 4/22/20			
		PF2		approved 4/22/20			
		VAR1		approved 4/22/20			
		VAR2		approved 4/22/20			

The **fmata**, **vmata**, and **monit** PSLF metering models were removed from the Approved Dynamic Models list in June 2015 due to the fact that different manufacturers have different monitoring mechanisms, thus making it impossible to convert these models from one software program to another. Even though these models aren't approved, it's okay to use them in the WECC MDF since they provide metering functions only.