18.1 PVEU1

Electrical Control Model for PV Converter

This model is located at system bus   #_____   IBUS,

Machine identifier   #_____   ID,

This model uses:

This model uses: CONs starting with   #_____   J,

STATEs starting with   #_____   K

VARs starting with   #_____   L

ICONs starting with   #_____   M

CONs	#	Value	Description
J			Tw, Filter time constant in voltage regulator (sec(
J+1			Kpv, Proportionalgain in voltage regulator(pu)
J+2			Kiv, Integrator gain in voltage regulator (pu)
J+3			Kpp, Proportional gain in torque regulator (pu)
J+4			Kip, Integrator gain in torque regulator (pu
J+5			Kf, rate feedback gain (pu)
J+6			Tf, rate feedback time constant (sec.)
J+7			Qmx, Max limit in voltage regulator (pu)
J+8			Qmn, Min limit in voltage regulator (pu)
J+9			IPmax, Max active current limit (pu)
J+10			Trv, voltage sensor time constant (sec.)
J+11			dPMX, maximum power order rate (pu)
J+12			dPMN, minimum power order rate (pu)
J+13			Tpower, Power reference filter time constant, sec.
J+14			KQi, volt/Mvar gain
J+15			Vmincl, min. voltage limit
J+16			Vmaxcl, max. voltage limit
J+17			KVi, Int. volt/Term. voltage gain
J+18			Tv, Lag in WindVar controller (sec)
J+19			Tp, Pelec filter in fast PF controller (sec)
J+20			ImaxTD, Converter current limit (pu)
J+21			Iphl, Hard active current limit (pu)
J+22			Iqhl, Hard reactive current limit (pu)
J+23			PMX, Max power from PV plant, MW

STATEs	#	Value	Description
K			Filter in Voltage regulator

STATEs	#	Value	Description
K+1			Integrator in Voltage regulator
K+2			Integrator in active power regulator
K+3			Active power regulator feedback
K+4			Voltage sensor
K+5			Power reference filter
K+6			Mvar/Vref integrator
K+7			Verror/Internal machine voltage integrator
K+8			Lag of the WindVar controller
K+9			Input filter of PELEC for fast PF controller

VARs	#	Value	Description
L			Remote bus reference voltage
L+1			Q ref. if PFAFLG=0 & VARFLG=0
L+2			PF angle ref if PFAFLG=1
L+3			Power reference

ICONs	#	Value	Description
M			Remote bus # for voltage control; 0 for local control
M+1			PFAFLG: 1 if PF fast control enabled 0 if PF fast control disabled
M+2			VARFLG: 1 if Qord is provided by WindVar 0 if Qord is not provided by WindVar if VARFLG=PFAFLG=0 then Qord is provided as a Qref=const
M+3			PQFLAG: P/Q priority flag: 0 - Q priority, 1- P priority

Four possible configurations:

1. Current North American configuration with WindVAR:

   VARFLG=1, PFAFLG=0, KQi small (e.g., KQi = 0.1)

2. Current North American configuration without WindVAR:

   VARFLG=0, PFAFLG=0, KQi very small (e.g., KQi = 0.001)

3. European (PFA control) with WindVAR:

   VARFLG=1, PFAFLG=0, KQi large (e.g., KQi = 0.5), KVi large

4. European (PFA control) without WindVAR:

    VARFLG=0, PFAFLG=1, Specify desired PFA, KQi

    large (e.g., KQi = 0.5), KVi large

IBUS 'USRMDL' ID 'PVEU1' 102 0 4 24 10 4 ICON(M) to ICON(M+3) CON(J) to CON(J+23) /