SMART GRID SYSTEM CHEAT SHEET

PLC (tap changer)
alg. con. states
yTT
cont. states
xTT
discrete states
tresT
onT
parameters
tauT

PLC (capacitor bank)
alg. con. states
yTC
cont. states
xTC
discrete states
tresC
onC
parameters
tauC

SUPERVISOR (PLC)

Tap switch controller

DES (UMDES)	DAE (MATLAB)
T6_sup events: E_tap T_timer events: tton,ttoff, ttstop	DYNAMICS dTimerT JACOBIAN jTimerT
EVENT TRIGGERS: eTimerT, eNetwork	

Capacitor bank controller

DES (UMDES)	DAE (MATLAB)
C6_sup events: E_cap C_timer events: tcon,tcoff, tcstop	DYNAMICS dTimerC JACOBIAN jTimerC
EVENT TRIGGERS: eTimerC, eCapacitor	

Network

DES (UMDES)	DAE (MATLAB)
T_switch events: tf,tp,tm T_sensor events: vn,vm,vp	DYNAMICS dNetwork JACOBIAN jNetwork
EVENT TRIGGERS: eNetwork, PLC	

Random perturbations
probability model
frequnecy function f

Load

DES (UMDES)	DAE (MATLAB)
	DYNAMICS dLoad JACOBIAN jLoad

Node 0 (slack)
parameters
V0R, V0I

Node 1
alg. con. states
V1R, V1I

Node 2
alg. cont. states
V2R, V2I

Node 3
alg. cont. states
V3R, V3I

X1

TAP CONTROL

X2

V sensor
parameters
Vm, Vp

Q sensor
parameters
Qm, Qp

CAPACITOR CONTROL

Tap changer
discrete states
nT, nTq
parameters
nsT

PQ load (water pump)
alg. cont. states
Pd, Qd
cont. states
xd
parameters
Tp, Ps, Pt

Capacitor bank

DES (UMDES)	DAE (MATLAB)
C_switch events: cf,cp,cm cpp, cmm C_sensor events: qn,qm,qp	DYNAMICS dCapacitor JACOBIAN jCapacitor
EVENT TRIGGERS: eCapacitor, PLC	

Capacitor bank
alg. cont. states
IcR, IcI

discrete states
nC, nCq

parameters
C, nCT

Turbine

DES (UMDES)	DAE (MATLAB)
	DYNAMICS dTurbine JACOBIAN jTurbine

SMART GRID SIMULATION FLOW CHART