

ANEXO A

Datos del sistema barra infinita – carga.

Tabla A.1 Datos de Lineas								
Nombre	Terminal i	Terminal j	Long.	Inom	R1	X1	R0	X0
	Subestación	Subestación	km	kA	Ohm	Ohm	Ohm	Ohm
L_E_V	SE1	SE2	4.0442	0.5272	0.5451	1.9044	1.5789	6.7204
L_V_V2	SE2	SE3	4.0442	0.5272	0.5451	1.9044	1.5789	6.7204
2_L_E_V_2	SE1	SE2	8.0885	0.5272	1.0901	3.8088	3.1577	13.4408
2_L_E_V_1	SE1	SE2	8.0885	0.5272	1.0901	3.8088	3.1577	13.4408

Tabla A.2 Datos de Generadores				
Nombre	Barra de conexion	Tipo Barra	Tensión de Operación	Ángulo
			p.u.	deg
Sistema	E_138	SL	1	0

Tabla A.3 Datos de Cargas							
Nombre	Tipo	Terminal	Pot.Act.	Pot.React.	Fact.Pot.	cos(phi)	Factor de escala
		Subestación	MW	Mvar			
Corriente Constante	Corriente Constante	SE2	100	32.8684	0.95	ind.	1
Impedancia Constante	Impedancia Constante	SE2	100	32.8684	0.95	ind.	1
Potencia Constante	Potencia Constante	SE2	100	32.8684	0.95	ind.	1

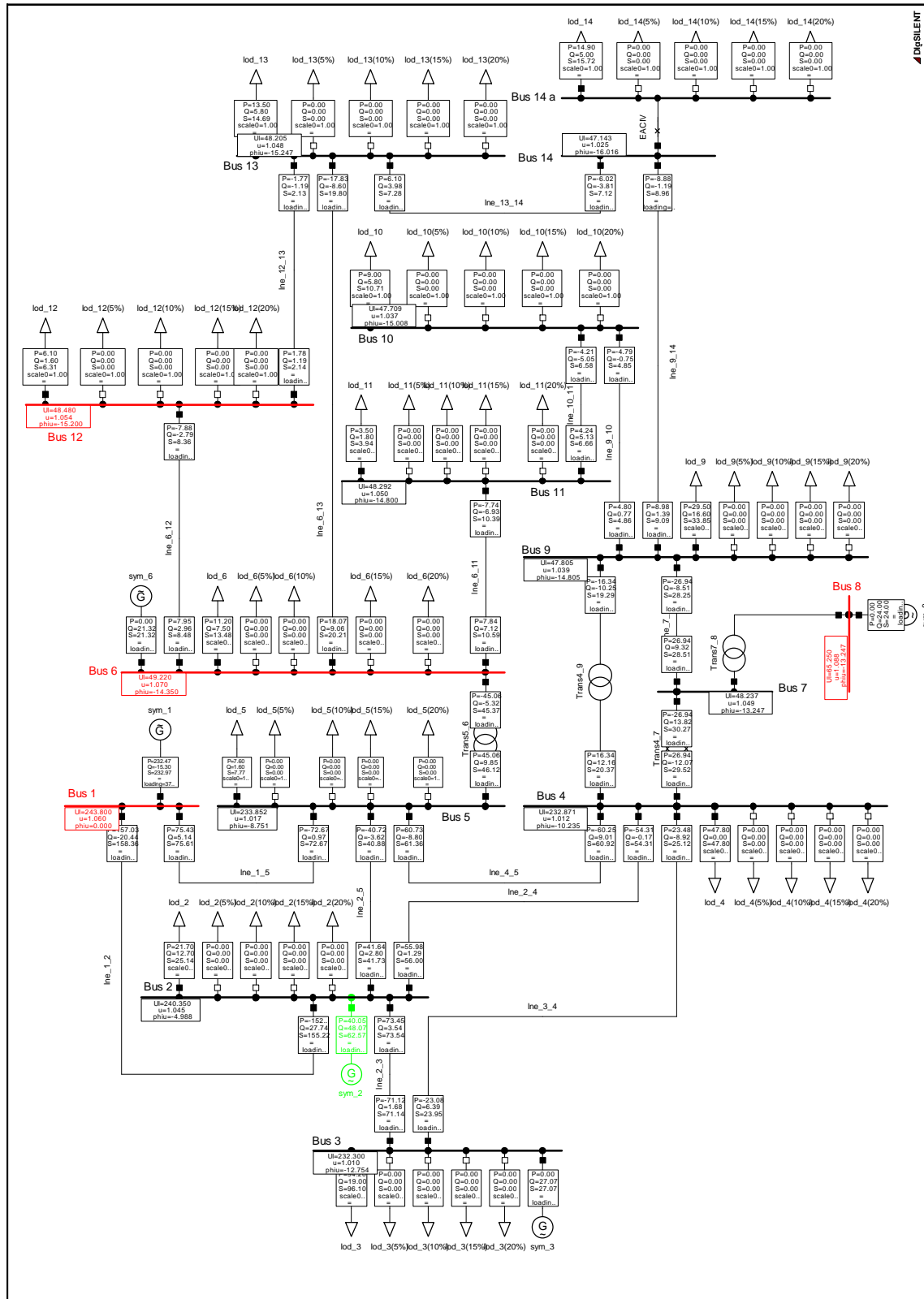
Nota:

Para la simulacion del modelo ZIP se utilizan las tres cargas conectadas simultaneamente con un valor de 1/3 de la potencia indicada en esta tabla

Tabla A.4 Datos de Compensacion		
Nombre	Terminal	Qact
	Subestación	Mvar
Capacitor	SE2	100
Reactor	SE2	100

ANEXO B.

Diagrama unifilar del sistema IEEE14 reconfigurado para la actuación del EACIV.



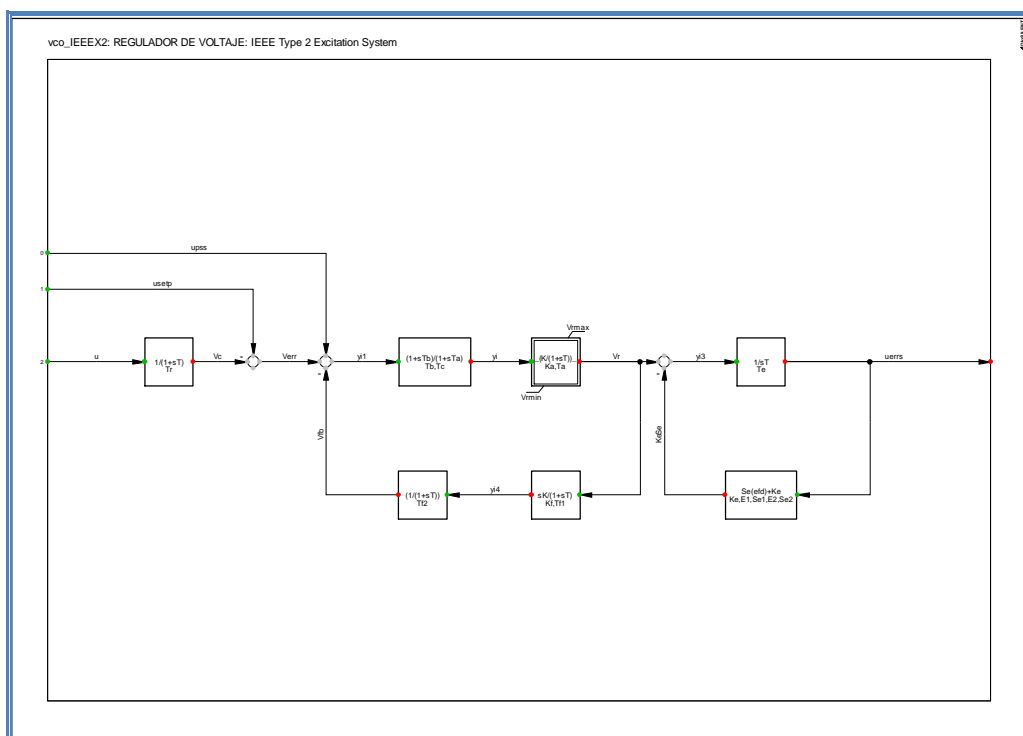
Datos del sistema IEEE14.

Tabla B.1 Datos de Lineas					
Nombre	Terminal i	Terminal j	Long.	R1	X1
	Subestación	Subestación	km	Ohm	Ohm
Ine_10_11	Bus 10	Bus 11	1	1.7362	4.0642
Ine_12_13	Bus 12	Bus 13	1	4.6747	4.2295
Ine_13_14	Bus 13	Bus 14	1	3.6169	7.3641
Ine_1_2	Bus 1	Bus 2	1	10.2520	31.3009
Ine_1_5	Bus 1	Bus 5	1	28.5819	117.9882
Ine_2_3	Bus 2	Bus 3	1	24.8577	104.7261
Ine_2_4	Bus 2	Bus 4	1	30.7402	93.2733
Ine_2_5	Bus 2	Bus 5	1	30.1266	91.9825
Ine_3_4	Bus 3	Bus 4	1	35.4483	90.4749
Ine_4_5	Bus 4	Bus 5	1	7.0622	22.2762
Ine_6_11	Bus 6	Bus 11	1	2.0098	4.2087
Ine_6_12	Bus 6	Bus 12	1	2.6008	5.4129
Ine_6_13	Bus 6	Bus 13	1	1.3997	2.7565
Ine_7_9	Bus 7	Bus 9	1	0.0000	2.3278
Ine_9_10	Bus 9	Bus 10	1	0.6731	1.7880
Ine_9_14	Bus 9	Bus 14	1	2.6896	5.7212

Tabla B.2.a Datos de Generadores														
Nombre	Barra de conexión	Tipo Barra	Tensión de Operación		Ángulo deg	Pot. Act.	Pot. React.	Pn	Pmin	Pmax	Límite Min. Q	Límite Max. P	Modelo de Regulador de Voltaje	Controlador Secundario Externo
			kV	p.u.		MW	Mvar	MW	MW	MW	p.u.	p.u.		
sym_1	Bus 1	SL	230	1.06	0	232	-15.43	615	0	615	-1.63	1.63	vco_IEEE2	grdctf_1 IEEE 14
sym_2	Bus 2	PV	230	1.05	-4.95	40	47.27	60	0	60	-0.67	0.83	vco_IEEE2	grdctf_1 IEEE 14
sym_3	Bus 3	PV	230	1.01	0	0	26.40	60	0	60	0	0.67	vco_IEEE2	grdctf_1 IEEE 14
sym_6	Bus 6	PV	46	1.07	0	0	21.80	25	0	25	-0.06	0.96	vco_IEEE2	grdctf_1 IEEE 14
sym_8	Bus 8	PV	60	1.09	0	0	24.71	25	0	25	-0.06	0.96	vco_IEEE2	grdctf_1 IEEE 14

Tabla B.2.b Datos de Generadores															
Nombre	H	D	xl	ra	xd	xq	Td'	Tq'	Td''	Tq''	xd'	xq'	xd''	xq''	
	s	p.u.	p.u.	p.u.	p.u.	p.u.	s	s	s	s	p.u.	p.u.	p.u.	p.u.	
sym_1	5.148	2.000	0.230	0.000	0.898	0.646	7.400	0.000	0.030	0.033	0.300	0.646	0.230	0.400	
sym_2	6.540	2.000	0.000	0.003	1.050	0.980	6.100	0.300	0.040	0.099	0.185	0.360	0.130	0.130	
sym_3	6.540	2.000	0.000	0.003	1.050	0.980	6.100	0.300	0.040	0.099	0.185	0.360	0.130	0.130	
sym_6	5.060	2.000	0.100	0.001	1.250	1.220	4.750	1.500	0.060	0.210	0.232	0.715	0.120	0.120	
sym_8	5.060	2.000	0.100	0.001	1.250	1.220	4.750	1.500	0.060	0.210	0.232	0.715	0.120	0.120	

Diagrama de bloques del regulador de voltaje: vco_IEEE2



Datos del regulador vco_IEEE2					
Variable	sym_1	sym_2	sym_3	sym_6	sym_8
► Tr Measurement Delay [s]	0	0	0	0	0
Ka Controller Gain [p.u.]	20	20	20	20	20
Ta Controller Time Constant [s]	0.02	0.02	0.02	0.02	0.02
Tb Filter Delay Time [s]	0	0	0	0	0
Tc Filter Derivative Time Constant [s]	0	0	0	0	0
Te Excitor Time Constant [s]	0.19	1.98	1.98	0.7	0.7
Kf Stabilization Path Gain [p.u.]	0.0012	0.001	0.001	0.001	0.001
Tf1 Stabilization Path 1th Delay Time [s]	1	1	1	1	1
Tf2 Stabilization Path 2th Delay Time [s]	0	0	0	0	0
Ke Excitor Constant [p.u.]	1	1	1	1	1
E1 Saturation Factor 1 [p.u.]	0	0	0	0	0
Se1 Saturation Factor 2 [p.u.]	0	0	0	0	0
E2 Saturation Factor 3 [p.u.]	0	0	0	0	0
Se2 Saturation Factor 4 [p.u.]	0	0	0	0	0
Vmin Controller Minimum Output [p.u.]	0	0	0	1.395	1.395
Vmax Controller Maximum Output [p.u.]	2.5	2.1	2.4	2.6	2.6

Controlador secundario externo: grdctrl_1 IEEE14

Datos del Controlador Secundario Externo: grdctrl_1 IEEE14					
Generador	sym_1	sym_2	sym_3	sym_6	sym_8
Porcentaje de Potencia Activa %	78.34	7.64	7.64	3.18	3.18

El ajuste del controlador externo mediante "porcentaje de potencia activa" permite una repartición de la potencia activa requerida por el sistema, ante cambios en la demanda, en función de la potencia nominal de cada máquina.

Tabla B.3 Datos de Cargas							
Nombre	Tipo	Terminal	Pot.Act.	Pot.React.	Fact.Pot.	cos(phi)	Factor de escala
		Subestación	MW	Mvar			
lod_10	Potencia Constante	Bus 10	9.00	5.80	0.84	ind.	1
lod_10(10%)	Potencia Constante	Bus 10	0.90	0.58	0.84	ind.	1
lod_10(15%)	Potencia Constante	Bus 10	1.35	0.87	0.84	ind.	1
lod_10(20%)	Potencia Constante	Bus 10	1.80	1.16	0.84	ind.	1
lod_10(5%)	Potencia Constante	Bus 10	0.45	0.29	0.84	ind.	1
lod_11	Potencia Constante	Bus 11	3.50	1.80	0.89	ind.	1
lod_11(10%)	Potencia Constante	Bus 11	0.35	0.18	0.89	ind.	1
lod_11(15%)	Potencia Constante	Bus 11	0.53	0.27	0.89	ind.	1
lod_11(20%)	Potencia Constante	Bus 11	0.70	0.36	0.89	ind.	1
lod_11(5%)	Potencia Constante	Bus 11	0.18	0.09	0.89	ind.	1
lod_12	Potencia Constante	Bus 12	6.10	1.60	0.97	ind.	1
lod_12(10%)	Potencia Constante	Bus 12	0.61	0.16	0.97	ind.	1
lod_12(15%)	Potencia Constante	Bus 12	0.92	0.24	0.97	ind.	1
lod_12(20%)	Potencia Constante	Bus 12	1.22	0.32	0.97	ind.	1
lod_12(5%)	Potencia Constante	Bus 12	0.31	0.08	0.97	ind.	1
lod_13	Potencia Constante	Bus 13	13.50	5.80	0.92	ind.	1
lod_13(10%)	Potencia Constante	Bus 13	1.35	0.58	0.92	ind.	1
lod_13(15%)	Potencia Constante	Bus 13	2.03	0.87	0.92	ind.	1
lod_13(20%)	Potencia Constante	Bus 13	2.70	1.16	0.92	ind.	1
lod_13(5%)	Potencia Constante	Bus 13	0.68	0.29	0.92	ind.	1
lod_14	Potencia Constante	Bus 14	14.90	5.00	0.95	ind.	1
lod_14(10%)	Potencia Constante	Bus 14	1.49	0.50	0.95	ind.	1
lod_14(15%)	Potencia Constante	Bus 14	2.24	0.75	0.95	ind.	1
lod_14(20%)	Potencia Constante	Bus 14	2.98	1.00	0.95	ind.	1
lod_14(5%)	Potencia Constante	Bus 14	0.75	0.25	0.95	ind.	1
lod_2	Potencia Constante	Bus 2	21.70	12.70	0.86	ind.	1
lod_2(10%)	Potencia Constante	Bus 2	2.17	1.27	0.86	ind.	1
lod_2(15%)	Potencia Constante	Bus 2	3.26	1.91	0.86	ind.	1
lod_2(20%)	Potencia Constante	Bus 2	4.34	2.54	0.86	ind.	1
lod_2(5%)	Potencia Constante	Bus 2	1.09	0.64	0.86	ind.	1
lod_3	Potencia Constante	Bus 3	94.20	19.00	0.98	ind.	1
lod_3(10%)	Potencia Constante	Bus 3	9.42	1.90	0.98	ind.	1
lod_3(15%)	Potencia Constante	Bus 3	14.13	2.85	0.98	ind.	1
lod_3(20%)	Potencia Constante	Bus 3	18.84	3.80	0.98	ind.	1
lod_3(5%)	Potencia Constante	Bus 3	4.71	0.95	0.98	ind.	1
lod_4	Potencia Constante	Bus 4	47.80	0.00	1.00	ind.	1
lod_4(10%)	Potencia Constante	Bus 4	4.78	0.00	1.00	ind.	1
lod_4(15%)	Potencia Constante	Bus 4	7.17	0.00	1.00	ind.	1
lod_4(20%)	Potencia Constante	Bus 4	9.56	0.00	1.00	ind.	1
lod_4(5%)	Potencia Constante	Bus 4	2.39	0.00	1.00	ind.	1
lod_5	Potencia Constante	Bus 5	7.60	1.60	0.98	ind.	1
lod_5(10%)	Potencia Constante	Bus 5	0.76	0.16	0.98	ind.	1
lod_5(15%)	Potencia Constante	Bus 5	1.14	0.24	0.98	ind.	1
lod_5(20%)	Potencia Constante	Bus 5	1.52	0.32	0.98	ind.	1
lod_5(5%)	Potencia Constante	Bus 5	0.38	0.08	0.98	ind.	1
lod_6	Potencia Constante	Bus 6	11.20	7.50	0.83	ind.	1

Tabla B.4 Datos de Transformadores								
Nombre	Lado HV	Lado LV	Pot.Nom.	Frecuencia Nominal	Vnom .HV	Vnom.LV	Zcc	Grupo vectorial
	Subestación	Subestación	MVA	Hz	kV	kV	%	
Trans4_7	Bus 4	Bus 7	100	60	230	46	20.912	YNyn0
Trans4_9	Bus 4	Bus 9	100	60	230	46	55.618	YNyn0
Trans5_6	Bus 5	Bus 6	100	60	230	46	25.202	YNyn0
Trans7_8	Bus 8	Bus 7	100	60	60	46	17.615	YNyn0

ANEXO C

Código de programación del EACIV – “EACIV_SHEDDING”

El programa “EACIV_SHEDDING” corresponde a un código desarrollado en DlgSILENT Programming Language (DPL), y permite una integración del modelo del dispositivo de cálculo del IEVZ (RELE_EACIV), desarrollado en DlgSILENT Simulation Language (DSL), con la definición del esquema de desconexión de carga establecido para cada sistema.

VARIABLES BASICAS DEL PROGRAMA “EACIV_SHEDDING”

Comando DPL - P19\EACIV_SHEDDING.ComDpl

Opciones Básicas | Opciones Avanzadas | Escrito | Descripción

Nombre: EACIV_SHEDDING

Selección General: P19\General Conjunto

Parámetros de Entrada:

	Tipo	Nombre	Valor	Uni...	Descripción
▶ 1					

Objetos Externos:

	Nombre	Objeto	Descripción
1	oBUS	EMELMANABI_69	Barra a ser analizada
2	oIEV	Calculo IEV	Ajustes del relé analizado
3	oRMS	Ejecutar Simulación	Simulacion RMS
▶ 4	oEvent_lipijapa	Evento de Switcheo(2)	Disparo carga

Ejecutar

Cerrar

Cancelar

Guardar

Verificar

Contenido

CODIGO DEL PROGRAMA "EACIV_SHEDDING"

```

!----DEFINICION DE VARIABLES E INICIALIZACION DEL PROGRAMA----
int x,dt;
double t,tf,n;
object Ldf,Rms;
string so;
ClearOutput();!Limpia la ventana de salida
Echo.Off();!Evita la salida de mensajes de alerta
ResetCalculation();Results.Clear();!Borra la carpeta de resultados
t=0;tf=30;oRMS:tstop=t;IEVZo=0;dt=0;x=0;DISPARO=0;
!----PRESENTACION----
output('ESQUEMA DE ALIVIO DE CARGA POR INESTABILIDAD DE VOLTAJE - EACIV');
so=oBUS:loc_name;
printf('Barra a analizada:%7s',so);
!----ASIGNACION DE COMANDOS Y VALORES----
!Asignar en el objeto Ldf el comando de flujo de potencia
Ldf = GetCaseCommand('ComLdf');
!Asignar en el objeto Rms el comando de simulacion dinamica
Rms = GetCaseCommand('ComSim');
!----CALCULO DE CONDICIONES INICIALES----
Ldf.Execute();
output('CALCULO PARAMETROS INICIALES');
n=oIEV:s:n;V=oIEV:s:V;IEVZ=oIEV:s:IEVZ;
output('Valor del indice n =n');
output('Valor de V =V');
output('Valor de IEVZ =IEVZ');
!----LAZO DE ESCALAMIENTO DE TIEMPO Y SIMULACION DINAMICA
while(t<tf)
{
t=t+0.008;!Intervalo de cálculo de valores RMS de 1/2 ciclo
oRMS:tstop=t;
Rms.Execute();
Vo=aflipflop(V,0,1);!Valor del voltaje 1/2 ciclo antes
V=oIEV:s:V;!Se obtiene el valor del voltaje actual
!----LAZO DE ALMACENAMIENTO DEL IEVZ
if(x=0)
{
DV=Vo-V;!Calculo de fluctuacion del voltaje
dt=t+3;!Temporizacion de retardo y bloqueo
!Se discriminan fluctuaciones menores al 1%
if(abs(DV)>0.01)
{
IEVZo=aflipflop(IEVZ,0,1);!Valor del IEVZ 1/2 ciclo antes
x=2;
}
}
!----DETERMINACION DE PENDIENTE NEGATIVA DEL IEVZ
if(t>=dt)
{
IEVZ=oIEV:s:IEVZ;
y=IEVZ-IEVZo;
!Se genera el disparo considerando el voltaje de ajuste planteado y
!la presencia de pendiente negativa del IEVZ
if(y<0.and.V<0.94)
{
AIEVZ=y;
DISPARO=1;
output('Tiempo de inicial de actuacion del EACIV =t');
!Deslastre del carga planteado
oEvent_Jipijapa:time=t+0.016;
}
x=0;
}
}
}

```


ANEXO D

Datos del Sistema Nacional Interconectado SNI.

Tabla D.1 Datos de Líneas - Sistema ecuatoriano							
Nombre	Terminal i	Terminal j	Long.	R1	X1	R0	X0
	Subestación	Subestación	km	Ohm	Ohm	Ohm	Ohm
L_DCR2MLG_1	Dos Ceritos 230	Milagro 230	42.7	2.2623	19.8491	12.1765	66.5538
L_MLN2PSC_1	Pascales 230	Molino 230	188.4	9.9832	87.5919	53.7336	293.6941
L_MLN2PSC_2	Pascales 230	Molino 230	188.4	9.9832	87.5919	53.7336	293.6941
L_MLN2ZHR_1	Zhoray 230	Molino 230	15.0	0.7947	6.9728	4.2775	23.3796
L_MLN2ZHR_2	Zhoray 230	Molino 230	15.0	0.7947	6.9728	4.2775	23.3796
L_PMS2JMD_3	- Jamondino 220	- Pomasqui 230	214.0	10.4874	104.6823	66.3987	316.7964
L_PMS2JMD_4	- Jamondino 220	- Pomasqui 230	214.0	10.4874	104.6823	66.3987	316.7964
L_PSC2DCR_1	Pascales 230	Dos Ceritos 230	10.0	0.5298	4.6485	2.8516	15.5864
L_PSC2MLG_1	- Milagro 230	- Pascales 230	52.7	2.7921	24.4977	15.0282	82.1402
L_PSC2QVD_1	Quevedo 230	Pascales 230	145.3	7.6955	67.5196	41.4202	226.3922
L_PSC2QVD_2	Quevedo 230	Pascales 230	145.3	7.6955	67.5196	41.4202	226.3922
L_QVD2SDM_1	Quevedo 230	SDomingo 230	104.0	5.5100	48.3445	29.6571	162.0983
L_QVD2SDM_2	Quevedo 230	SDomingo 230	104.0	5.5100	48.3445	29.6571	162.0983
L_RBM2MLN_1	Riobamba 230	Molino 230	157.3	8.3345	77.1857	51.9360	230.7490
L_SDM2SRS_1	SDomingo 230	SRosa 230	78.3	4.1508	38.4407	25.8657	114.9198
L_SDM2SRS_2	SDomingo 230	SRosa 230	78.3	4.1508	38.4407	25.8657	114.9198
L_SRS2PMS_1	SRosa 230	Pomasqui 230	46.0	2.2406	22.6893	14.9912	67.5965
L_SRS2PMS_2	SRosa 230	Pomasqui 230	46.0	2.2406	22.6893	14.9912	67.5965
L_SRS2TTR_1	Totoras 230	SRosa 230	110.1	5.8331	54.0202	36.3486	161.4950
L_SRS2TTR_2	SRosa 230	Totoras 230	110.1	5.8331	54.0202	36.3486	161.4950
L_TTR2MLN_1	Molino 230	Totoras 230	200.2	10.6076	98.2363	66.1004	293.6806
L_TTR2RBM_1	Riobamba 230	Totoras 230	42.9	2.2731	21.0506	14.1644	62.9316
L_ZHR2MLG_1	Zhoray 230	Milagro 230	120.7	6.3970	56.1261	34.4308	188.1899
L_ZHR2MLG_2	Zhoray 230	Milagro 230	120.7	6.3970	56.1261	34.4308	188.1899
Ipiates - Tulcan 1 138	- Panamericana 138	Tulcan 138	15.5	1.8588	7.8348	3.7238	18.9660
Jamondino - Pomasqui 1 220	Jamondino 220	Pomasqui 230	212.2	11.5215	102.9088	59.9841	263.4040
Jamondino - Pomasqui 2 220	Jamondino 220	Pomasqui 230	212.2	11.5215	102.9088	59.9841	263.4040
Jamondino Pomasqui 3 220	Jamondino 220	Pomasqui 230	212.2	11.0866	103.6323	73.2562	311.3467
Jamondino Pomasqui 4 220	Jamondino 220	Pomasqui 230	212.2	11.0866	103.6323	73.2562	311.3467
L_ABAN_CUEN_0	Cuenca 69	Abanico 69	165.5	20.6158	52.8706	50.9856	171.9330
L_BABA_SIBI_0	Babahoyo 69	Sibimbe 69	57.9	16.8501	28.6408	33.4402	97.7231
L_CUEN_LOJA_1	Loja 138	Cuenca 138	134.2	21.7199	66.5401	54.8788	219.5458
L_ECOE_MILA_0	Milagro 69	ECO 69	15.7	1.1018	21.0914	0.1868	5.6410
L_ECUD_MILA_0	Milagro 69	ECU 69	40.0	2.8072	53.7360	0.4760	14.3720
L_FRON_ZORR_2	Zorritos 230	FRONTERA	55.0	2.8556	26.7630	11.2915	62.8925
L_MACH_FRON_2	FRONTERA	Machala 230	50.0	2.5960	24.3300	10.2650	57.1750
L_MILA_BABA_1	Milagro 138	Babahoyo 138	47.3	7.6474	22.5895	19.7382	78.9158
L_MILA_SIDE_1_1	Milagro 138	S Idelfonso 138	112.7	18.2402	55.8798	46.0868	184.3727
L_MILA_SIDE_1_2	Milagro 138	S Idelfonso 138	112.7	18.2402	55.8798	46.0868	184.3727
L_MOLI_CUEN_1_1	Molino 138	Cuenca 138	67.1	10.8567	33.2601	27.4312	109.7402
L_MOLI_CUEN_1_2	Molino 138	Cuenca 138	67.1	10.8567	33.2601	27.4312	109.7402
L_PASC_MILA_138	Pascales 138	Milagro 138	52.7	3.1138	24.9096	15.5355	83.3203
L_SCAR_MILA_0	Milagro 69	S Carlos 69	15.7	1.0983	21.0242	0.1862	5.6230
L_SIDE_MACH_1_1	S Idelfonso 138	Machala 138	21.0	3.3988	10.4124	8.5876	34.3552
L_SIDE_MACH_1_2	S Idelfonso 138	Machala 138	21.0	3.3988	10.4124	8.5876	34.3552
L_SIDE_MPP_1	S Idelfonso 138	CT MPP 138	11.2	0.6618	5.2939	3.4430	17.5829
L_EQUI_POSO_1	Posoña 138	Electroquil 138	83.3	13.4742	39.8014	34.7776	139.0453
L_GUAS_ULYS	Guasmo 69	Uly II 69	4.0	0.5272	1.6196	1.2376	9.3496
L_LJUN_SELE_1	Sta. Elena 138	Las Juntas 138	59.8	9.6683	28.5592	24.9544	99.7709
L_PASC_CEDE_1	Cedeño 138	Pascales 138	1.0	0.1617	0.4776	0.4173	1.6684
L_PASC_EQUI_1	Pascales 138	Electroquil 138	38.0	6.1550	18.8563	15.5517	62.2156
L_PASC_LJUN_1	Las Juntas 138	Pascales 138	45.7	7.3932	22.6494	18.6801	74.7307
L_PASC_POLI_1_1	Pascales 138	Policentro 138	15.1	2.0377	7.3860	5.7687	24.6020
L_PASC_POLI_1_2	Pascales 138	Policentro 138	15.1	2.0377	7.3860	5.7687	24.6020
L_PASC_SALI_1_1	Pascales 138	Salitral 138	17.4	2.3481	8.5111	6.6474	28.3493

Tabla D.2.a Datos de Generadores

Nombre	Barra de conexión	Tipo Barra	Tensión de Operación				Pmax	Limite Min.Q	Limite Max.Q	Tipo de Generador	Modelo de Regulación de Compuesto	GEN ERACION CASO 1			GEN ERACION CASO 2			GEN ERACION CASO 3			GEN ERACION CASO 4		
			kV	MW	MW	MW						V (p.u.)	P (MW)	Q(Mvar)	V (p.u.)	P (MW)	Q(Mvar)	V (p.u.)	P (MW)	Q(Mvar)	V (p.u.)	P (MW)	Q(Mvar)
G_ABANICO	Abanico 4.16	PV	4.16	7.70	0.00	7.70	-1.00	1.00	Abanico		0.94	15.40	-8.03	0.94	15.40	-8.36	0.94	15.40	-7.90	0.95	15.40	-7.56	
G_ABANICO_U3	Abanico13.8	PQ	13.8	20.25	0.00	20.25	-1.00	1.00	ABANICO U3														
G_CALOPE1_2	Calope 6.9	PQ	6.9	9.57	0.00	9.57	-1.00	1.00	CALOPE		1.02	17.20	0.20	1.04	17.20	2.00	1.01	17.20	0.20	1.00	17.20	0.20	
G_CHGUANGOPOLO 1_5	CH Guangopolo 6.3	PQ	6.3	2.00	0.00	2.00	-1.00	1.00	G_C.H.GUANGOPOLO 1_5	CM CHGUANGO_1_5	1.00	6.44	1.56	1.01	6.44	1.56	1.00	6.44	1.56	1.04	6.44	1.56	
G_CHGUANGOPOLO 6	CH Guangopolo 6.3	PQ	6.3	11.52	0.00	11.52	-1.00	1.00	G_C.H.GUANGOPOLO 6	CM CHGUANGO_6	1.00	6.43	1.18	1.01	6.43	1.18	1.00	6.43	1.18	1.04	6.43	1.18	
G_CHILLOS	Chillos 2.3	PQ	2.3	1.60	0.00	1.60	-1.00	1.00	CHILLOS		1.00	1.14	0.08	1.01	1.14	0.08	0.99	1.14	0.08	1.04	1.14	0.08	
G_CHORRILLOS	Cumbaratza69	PQ	69	4.25	0.00	4.25	-1.00	1.00	CHORRILLOS														
G_CUMBAYA	Cumbaya 4.16	PV	4.16	10.08	0.00	10.08	-1.00	1.00	CUMBAYA	CM CUMBAY_1_4	1.00	37.40	12.10	1.01	37.40	12.10	0.97	37.40	8.00	1.02	37.40	8.00	
G_ECOELECTRIC	ECO 4.16	PQ	4.16	32.65	0.00	32.65	-1.00	1.00	ECOELECTRIC														
G_ECOLUZ_VIC	Ecoluz 4.16	PQ	4.16	9.00	0.00	9.00	-1.00	1.00	G ECOLUZ		1.03	4.35	0.00	1.05	4.35	0.00	1.01	4.35	0.00	1.08	4.35	0.00	
G_ECUDOS	ECU 4.16	PQ	4.16	17.44	0.00	17.44	0.00	1.00	Ecudos														
G_EMAAP_CARMEN	El Carmen 6.6	PQ	6.6	8.00	0.00	8.00	-1.00	1.00	EL CARMEN		1.12	3.71	2.42	1.13	3.71	2.42	1.12	3.71	2.42	1.13	3.71	2.42	
G_EMAAP_RECUPERADORA	Recuperadora 6.6	PQ	6.6	14.73	0.00	14.73	-1.00	1.00	RECUPERADORA		1.01	6.89	4.49	1.01	6.89	4.49	1.00	6.89	4.49	1.02	6.89	4.49	
G_EQAMBATO_AMB	Totoras 69	PQ	69	7.79	0.00	7.79	0.00	0.14	AMBATO 69	CM AMBATO_AMB	1.01	1.30	0.20	1.01	1.30	0.20	1.02	1.30	0.20				
G_EQEERSSA_LOJ	Loja 69	PQ	69	17.00	0.00	17.00	-1.00	1.00	LOJA 69	CM EERSSA_LOJ	1.00	8.10	3.10	0.00	0.00	0.00	1.01	8.10	3.10	0.00	0.00	0.00	
G_EQELECAUSTRO_CUE	Cuenca 69	PQ	69	63.00	0.00	63.00	-1.00	1.00	CUENCA 69	CM ELECAUSTRO_CUE	1.01	55.57	23.74	1.01	55.57	20.74	1.01	55.57	23.74	1.01	50.57	21.60	
G_EQELEPCO_MUL	Mulalo 69	PQ	69	9.60	0.00	9.60	-1.00	1.00	MULALO 69		1.01	2.80	1.60	1.01	2.80	1.60	1.02	2.80	1.60	1.01	2.80	0.20	
G_EQEMELNORTE_IBA	Ibarra 34.5	PQ	34.5	7.90	0.00	7.90	-1.00	1.00	IBARRA 34		1.02	7.90	1.40	1.00	7.90	1.40							
G_EQEMELNORTE_TUL	Tulcan 69	PQ	69	5.95	0.00	5.95	-1.00	1.00	TULCAN 69		1.02	3.85	0.30	1.00	3.85	0.30	1.01	3.85	0.30	1.02	3.85	0.30	
G_EQEMELORO_MAC	Machala 69_G	PQ	69	13.50	0.00	13.50	-1.00	1.00	MACHALA 69	CM EMELORO_MAC													
G_EQEMELRIOS_BAB	Babahoyo 69	PV	69	7.04	0.00	7.04	-1.00	1.00	BABAHOYO 69														
G_EQEMEPE_POS	Posorja 69	PQ	69	8.64	0.00	8.64	-1.00	1.00	Posorja69	CM POSORJA													
G_EQEMEPE_SEL	- Sta. Elena 69	PQ	69	12.28	0.00	12.28	-1.00	1.00	Sta ELENA 69	CM EMEPE_SEL	0.00	0.00	0.00	0.00	0.00	0.00							
G_EQV_ESM	Esmeraldas 69	PQ	69	3.92	0.00	3.92	-1.00	1.00	ESMERALDAS 69	CM ESMERALD_ESM	1.03	3.60	1.90				1.00	3.60	1.90	0.00	0.00	0.00	
G_EQV_MAN	Manta 69	PQ	69	31.50	0.00	31.50	-1.00	1.00	MANTA 69		0.91	2.00	0.00	0.89	2.00	0.00	0.90	2.00	0.00	0.93	2.00	0.00	
G_G1_CTESM	Esmeraldas 13.8	PV	13.8	132.50	0.00	132.50	-1.00	1.00	C. T. ESMERALDAS	CM ESMERALDG1	1.05	127.00	24.63	1.03	127.00	20.10	1.01	130.00	13.70	1.01	129.00	7.25	
G_GAS_PAS	CT Pascuales 13.8	PQ	13.8	104.50	0.00	104.50	-1.00	1.00	Gas Pascuales	CM GAS_PAS							0.98	98.00	4.04	0.98	98.00	9.73	
G_GENEROCA_1_8	G Roca 13.8	PQ	13.8	4.34	0.00	4.34	-1.00	1.00	G_HOLC 1_8		1.01	30.24	10.64	1.02	30.24	10.64	1.03	30.24	10.64	1.03	30.24	10.64	
G_GEORIO_RIO	Riobamba 69	PQ	69	18.00	0.00	18.00	-1.00	1.00	RIOBAMBA 69	CM RIOBAM_RIO	1.01	13.40	3.40				1.02	13.40	3.40				
G_GHERNANDEZ	G Hernandez 13.8	PQ	13.8	5.40	0.00	5.40	-1.00	1.00	GUALBERTO HERNANDEZ	CM GHERNA_1_4	1.02	26.00	7.00	1.03	26.00	7.00	1.02	26.00	7.00	1.06	26.00	7.00	
G_GUANGOPOLO1_6	Guangopolo 6.6	PQ	6.6	5.20	0.00	5.20	-1.00	1.00	GUANGOPOLO1_6	CM GUANGO1_6	1.03	20.40	8.00	1.04	20.40	8.00	1.02	20.40	8.00	1.05	20.40	8.00	

Tabla D.2.b Datos de Generadores - Sistema ecuatoriano																		
Nombre	H	D	ra	xl	xd	xq	Td'	Tq'	Td''	Tq''	xd'	xq'	xd''	xq''	x0	r0	x2	r2
	s	p.u.	p.u.	p.u.	p.u.	p.u.	s	s	s	s	p.u.	p.u.	p.u.	p.u.	p.u.	p.u.	p.u.	p.u.
AGOYAN U1	3.4778	0.0000	0.0002	0.1000	1.0500	0.6800	1.9333	0.0000	0.0379	0.0441	0.2900	0.3000	0.2200	0.3000	0.1000	0.0000	0.2000	0.0000
AGOYAN U2	3.4778	0.0000	0.0002	0.1000	1.0500	0.6800	1.9333	0.0000	0.0379	0.0324	0.2900	0.3000	0.2200	0.2200	0.1000	0.0000	0.2000	0.0000
AMBATO 69	1.4333	0.0000	0.0002	0.1000	1.0000	0.7500	1.7500	0.0000	0.0286	0.0133	0.3500	0.3000	0.2000	0.2000	0.1000	0.0000	0.2000	0.0000
Abanico	4.3889	0.0000	0.0000	0.1000	1.3000	0.6500	0.4100	0.0000	0.0300	0.0800	0.2300	0.6500	0.1500	0.1700	0.0500	0.0000	0.1600	0.0000
Alvaro Tinajero 1	1.9883	0.0000	0.0001	0.1000	2.3460	2.3460	0.6172	0.0678	0.0343	0.0188	0.2180	0.2180	0.1350	0.1350	0.0970	0.0000	0.2000	0.0000
Alvaro Tinajero 2	2.3529	0.0000	0.0001	0.1000	2.0900	2.0900	0.6172	0.0678	0.0343	0.0188	0.1810	0.1810	0.1240	0.1240	0.0950	0.0000	0.2000	0.0000
BABAHOYO 69	3.7500	0.0000	0.0002	0.1000	1.8000	1.7000	1.1111	0.4118	0.0250	0.0057	0.4000	0.7000	0.2000	0.2000	0.1000	0.0000	0.2000	0.0000
C. T. EMERALDAS	6.0235	0.0000	0.0002	0.1000	1.9600	1.9600	1.0880	0.0184	0.0350	0.0350	0.2310	0.2310	0.1460	0.1856	0.0690	0.0000	0.1450	0.0000
CALOPE	2.8652	0.0000	0.0001	0.1000	1.3700	0.7600	0.8200	0.0000	0.0360	0.0340	0.3300	0.3000	0.1323	0.1323	0.1000	0.0000	0.2000	0.0000
CHILLOS	4.4444	0.0000	0.0002	0.1000	1.1000	0.8000	1.5000	0.0000	0.0500	0.0100	0.3400	0.3000	0.3400	0.2000	0.1000	0.0000	0.2000	0.0000
COL_EQUV	2.3529	0.0000	0.0002	0.1000	1.9600	1.8800	1.2646	0.2606	0.0303	0.0162	0.2620	0.4900	0.1590	0.1590	0.1000	0.0000	0.2000	0.0000
CSA	5.3125	0.0000	0.0002	0.1100	1.3500	1.3500	3.0000	0.5000	0.0200	0.0200	0.2200	0.2200	0.1200	0.1200	0.0300	0.0000	0.1000	0.0000
CUENCA 69	0.7056	0.0000	0.0003	0.1000	1.1500	0.6000	0.7304	0.0000	0.1025	0.0208	0.3000	0.3000	0.2900	0.2900	0.1000	0.0000	0.2000	0.0000
CUMBAYA	1.4111	0.0000	0.0002	0.1000	1.7930	1.7570	0.3663	0.0000	0.0100	0.0036	0.2670	0.3000	0.1570	0.1570	0.1015	0.0000	0.2000	0.0000
DAULE PERIPA	4.8556	0.0000	0.0002	0.1000	0.8532	0.5697	1.6000	0.0000	0.0400	0.0430	0.2777	0.3000	0.2394	0.3087	0.1000	0.0060	0.2100	0.0000
ECOLECTRIC	5.0000	0.0000	0.0002	0.1000	1.6600	0.8500	1.0364	0.0000	0.0057	0.0011	0.2200	0.3000	0.1400	0.1600	1.3300	0.0000	2.6600	0.0000
EDC-G1	2.1882	0.0000	0.0002	0.1000	1.6370	1.4800	0.6676	0.0778	0.0200	0.0265	0.2020	0.2800	0.1500	0.1900	0.1000	0.0000	0.2000	0.0000
EDC-G2	2.1882	0.0000	0.0002	0.1000	1.6370	1.4800	0.6676	0.0778	0.0200	0.0265	0.2020	0.2800	0.1500	0.1900	0.1000	0.0000	0.2000	0.0000
EL CARMEN	1.5875	0.0000	0.0020	0.1000	1.7930	1.7570	0.3663	0.0000	0.0100	0.0038	0.2670	0.3000	0.1570	0.1570	0.1000	0.0000	0.2000	0.0000
ELECTROQUIL 1	2.3529	0.0000	0.0002	0.1000	2.3849	2.3849	13.6800	0.0678	0.4090	0.0259	0.1800	0.1800	0.1240	0.1240	0.0906	0.0000	0.1770	0.0000
ELECTROQUIL 2	2.2222	0.0000	0.0002	0.1000	2.3849	2.3849	13.6800	13.6800	0.4090	0.4090	0.1800	0.1800	0.1240	0.1240	0.0906	0.0000	0.1770	0.0000
ELECTROQUIL 3	2.3529	0.0000	0.0002	0.1000	2.3950	2.1900	0.7816	0.0678	0.0365	0.0259	0.2340	0.3300	0.1710	0.1710	0.0906	0.0000	0.1770	0.0000
ELECTROQUIL 4	2.2222	0.0000	0.0002	0.1000	2.3950	2.1900	0.7816	0.0678	0.0365	0.0259	0.2340	0.3300	0.1710	0.1710	0.0906	0.0000	0.1770	0.0000
ENERGY CORP	2.5000	0.0000	0.0018	0.1130	1.7170	1.6630	0.9175	0.3040	0.0468	0.0559	0.2030	0.3370	0.1760	0.1760	0.1000	0.0000	0.2000	0.0000
EMERALDAS 69	3.7500	0.0000	0.0002	0.1000	1.8000	1.7000	1.1111	0.0206	0.0250	0.0143	0.4000	0.7000	0.2000	0.2000	0.1000	0.0000	0.2000	0.0000
Ecuador	5.0000	0.0000	0.0002	0.1000	1.6600	0.8500	1.0364	0.0000	0.0057	0.0064	0.2200	0.3000	0.1400	0.1600	0.0550	0.0000	0.1000	0.0000
G ECOLUZ	4.4444	0.0000	0.0002	0.1000	1.5000	1.0000	1.5000	0.0000	0.0500	0.0075	0.3000	0.3000	0.2000	0.2000	0.1000	0.0000	0.2000	0.0000
GONZ CEVALLOS TG4	1.9853	0.0000	0.0002	0.1200	2.3500	2.3500	0.9183	0.0546	0.0351	0.0270	0.2320	0.2320	0.1630	0.1630	0.1000	0.0000	0.2080	0.0000
GONZ CEVALLOS TV2	7.0200	0.0000	0.0001	0.0800	1.5600	1.5600	0.6700	0.1578	0.0780	0.0287	0.2462	0.2462	0.1474	0.1474	0.0860	0.0000	0.1464	0.0000
GONZ CEVALLOS TV3	7.0200	0.0000	0.0001	0.1000	1.5600	1.5600	0.6700	0.1578	0.0780	0.0287	0.2462	0.2462	0.1474	0.1474	0.0860	0.0000	0.1464	0.0000
GUAL - HER	1.6000	0.0000	0.0020	0.1000	0.9530	0.5700	0.5730	0.1500	0.0333	0.0333	0.2760	0.4700	0.2000	0.2000	0.1000	0.0000	0.2000	0.0000
GUALBERTO HERNANDEZ	6.4250	0.0000	0.0002	0.1000	0.9530	0.9530	0.0540	0.0540	0.0130	0.0130	0.3760	0.3760	0.2300	0.2300	0.1000	0.0000	0.2300	0.0000
GUANG+CHILLOS	2.6250	0.0000	0.0020	0.1000	1.4500	0.7500	1.1724	0.0000	0.0350	0.0159	0.3400	0.3000	0.2380	0.2380	0.1000	0.0000	0.2000	0.0000
GUANGOPOLO	1.4222	0.0000	0.0002	0.1000	0.9530	0.5700	0.5730	0.1500	0.0333	0.0333	0.2760	0.4700	0.2000	0.2000	0.1000	0.0000	0.2000	0.0000
GUANGOPOLO+CHILLOS	4.4444	0.0000	0.0002	0.1000	2.0000	2.0000	1.0000	0.0000	0.0500	0.0075	0.3000	0.3000	0.2000	0.2000	0.1000	0.0000	0.2000	0.0000
GUANGOPOLO1_6	6.4250	0.0000	0.0002	0.1000	0.9530	0.9530	0.0540	0.0540	0.0130	0.0130	0.3760	0.3760	0.2300	0.2300	0.1000	0.0000	0.2300	0.0000
GUANGOPOLO_7	4.0000	0.0000	0.0002	0.1000	0.9530	0.9530	0.0540	0.0540	0.0130	0.0130	0.3760	0.3760	0.2300	0.2300	0.1000	0.0000	0.2300	0.0000
GUARANDA 69	1.5875	0.0000	0.0020	0.1000	1.1500	0.6000	0.7304	0.0000	0.0707	0.0143	0.3000	0.3000	0.2000	0.2000	0.1000	0.0000	0.2000	0.0000
G_BARCAZA	2.2222	0.0000	0.0002	0.1130	1.7170	1.6630	0.9175	0.3040	0.0468	0.0559	0.2030	0.3370	0.1760	0.1760	0.1000	0.0000	0.2000	0.0000
G.C.H.GUANGOPOLO 1_5	2.7111	0.0000	0.0002	0.1000	1.0400	0.7500	1.5000	0.0000	0.0333	0.0133	0.2600	0.3000	0.1750	0.1750	0.1800	0.0000	0.2000	0.0000
G.C.H.GUANGOPOLO 6	2.7111	0.0000	0.0002	0.1000	1.0400	0.7500	1.5000	0.0000	0.0333	0.0133	0.3000	0.3000	0.2000	0.2000	0.1800	0.0000	0.2000	0.0000
G_HOLC 1_8	5.0000	0.0000	0.0002	0.0100	1.3500	1.3500	3.0000	0.5000	0.0200	0.0200	0.2200	0.2200	0.1200	0.1200	0.0330	0.0001	0.1000	0.0000
G_Z Ficticia	7.0118	0.0000	0.0001	0.0800	1.6300	1.4160	1.0572	0.3743	0.0291	0.0133	0.2427	0.5300	0.1412	0.1412	0.1000	0.0000	0.2000	0.0000
Gas Pascuales	2.3684	0.0000	0.0002	0.1130	1.7880	1.5750	0.9857	0.2914	0.0453	0.0689	0.2350	0.3060	0.1970	0.1970	0.1000	0.0000	0.2000	0.0000
IBARRA 34	2.8889	0.0000	0.0002	0.1000	1.0000	0.7500	1.7500	0.0000	0.0286	0.0133	0.3500	0.3000	0.2000	0.2000	0.1000	0.0000	0.2000	0.0000
IPIALES 115	4.7059	0.0000	0.0002	0.1000	2.0000	2.0000	1.0000	0.0000	0.0500	0.0075	0.3000	0.3000	0.2000	0.2000	0.1000	0.0000	0.2000	0.0000
ISANCARLOS	5.0000	0.0000	0.0002	0.1000	1.6600	0.8500	1.0500	0.0000	0.0090	0.0060	0.2200	0.3000	0.1400	0.1600	0.0550	0.0000	0.1000	0.0000
KEPPEL 7.5MVA	3.1250	0.0000	0.0001	0.1000	1.7900	1.1000	4.5000	0.0940	0.0260	0.1140	0.3200	0.2800	0.2160	0.2160	0.1000	0.0000	0.2000	0.0000
KEPPEL_5MVA	3.1250	0.0000	0.0001	0.1000	1.5100	0.7600	0.7100	0.0940	0.0230	0.0940	0.2900	0.2300	0.1960	0.1960	0.1000	0.0000	0.2000	0.0000
Keppel 3.5MVA	3.1250	0.0000	0.0001	0.1000	1.9000	1.1000	3.7000	0.0940	0.0230	0.1140	0.2850	0.2220	0.1800	0.1800	0.1000	0.0000	0.2000	0.0000
LA ESPERANZA	2.6842	0.1180	0.0001	0.1000	1.5475	1.4787	0.3480	0.0000	0.0220	0.0280	0.4432	0.3000	0.2827	0.3170	0.0890	0.0000	0.2928	0.0000
LOJA 69	1.4111	0.0000	0.0001	0.1000	1.1500	0.6000	0.7304	0.0000	0.0495	0.0100	0.3000	0.3000	0.1400	0.1400	0.1000	0.0000	0.2000	0.0000
LULUNCOTO	3.1250	0.0000	0.0001	0.1000	1.9000	1.1000	3.7000	0.0940	0.0230	0.1140	0.2850	0.2220	0.1800	0.1800	0.0260	0.0000	0.2300	0.0000
MACHALA 69	1.4222	0.0000	0.0002	0.1000	0.9530	0.5700	1.1063	0.8246	0.0362	0.0213	0.2760	0.4700	0.2000	0.2000	0.1000	0.0000	0.2000	0.0000
MANTA 69	1.4222	0.0000	0.0002	0.1000	0.9530	0.5700	1.1063	0.8246	0.0362	0.0213	0.2760	0.4700	0.2000	0.2000	0.1000	0.0000	0.2000	0.0000
MEXICO	1.8750	0.0000	0.0017	0.1200	2.3800	2.2400	0.9183	0.0546	0.0351	0.0270	0.2350	0.3060	0.1650	0.1650	0.1000	0.0000	0.2000	0.0000
MILAGRO 69	3.7500	0.0000	0.000															

Tabla D.2.b Datos de Generadores - Sistema ecuatoriano																		
Nombre	H	D	ra	xl	xd	xq	Td'	Tq'	Td''	Tq''	xd'	xq'	xd''	xq''	x0	r0	x2	r2
	s	p.u.	p.u.	p.u.	p.u.	p.u.	s	s	s	s	p.u.	p.u.	p.u.	p.u.	p.u.	p.u.	p.u.	p.u.
PAUTE AB	3.6667	0.0100	0.0028	0.0100	1.0900	0.7400	2.2573	0.0000	0.0128	0.0184	0.3500	0.3000	0.0975	0.0975	0.1100	0.0000	0.1950	0.0004
PAUTE C	3.6667	0.0000	0.0023	0.1000	1.0225	0.6334	1.9066	0.0000	0.0320	0.0531	0.2805	0.3000	0.1992	0.2404	0.1500	0.0000	0.2110	0.0000
POZA HONDA	2.6842	0.0700	0.0001	0.1000	1.4349	1.3935	0.2290	0.0000	0.0090	0.0120	0.3488	0.3000	0.2548	0.2928	0.0076	0.0000	0.2738	0.0000
PUCARA U1	3.2333	0.0000	0.0002	0.1000	0.9780	0.5900	1.1149	0.0000	0.0349	0.0156	0.2750	0.3000	0.2040	0.2040	0.1000	0.0000	0.2000	0.0000
PUCARA U2	3.2333	0.0000	0.0002	0.1000	0.9780	0.5900	1.1149	0.0000	0.0349	0.0156	0.2750	0.3000	0.2040	0.2040	0.1000	0.0000	0.2000	0.0000
Posorja69	3.7500	0.0000	0.0002	0.1000	1.8000	1.7000	1.1111	0.4118	0.0250	0.0143	0.4000	0.7000	0.2000	0.2000	0.1000	0.0000	0.2000	0.0000
Power Barge I	3.4444	0.0000	0.0001	0.0700	1.3500	1.3000	0.6750	0.2615	0.0434	0.0176	0.1300	0.3400	0.1200	0.1200	0.1000	0.0000	0.2000	0.0000
RECUPERADORA	1.3368	0.0000	0.0002	0.1000	1.7930	1.7530	0.3663	0.0000	0.0038	0.0100	0.3000	0.3000	0.2000	0.2000	0.1000	0.0000	0.2000	0.0000
RIOBAMBA 69	2.7111	0.0000	0.0002	0.1000	1.0000	0.7500	1.5000	0.0000	0.0333	0.0133	0.3000	0.3000	0.2000	0.2000	0.1000	0.0000	0.2000	0.0000
SAN FRANCISCO	2.5000	0.0130	0.0001	0.1000	1.1000	0.7100	2.0000	0.0000	0.1000	0.0700	0.2800	0.3000	0.1700	0.2100	0.0900	0.0000	0.2300	0.0130
SIBIMBE	1.5000	0.0000	0.0000	0.1000	1.7500	0.8700	0.4600	0.0000	0.0300	0.1000	0.2800	0.3000	0.1900	0.2100	0.0600	0.0000	0.1800	0.0000
Sta ELENA 69	3.7500	0.0000	0.0002	0.1000	1.8000	1.7000	1.1111	0.4118	0.0250	0.0143	0.4000	0.7000	0.2000	0.2000	0.1200	0.0000	0.1900	0.0000
Sta ROSA TG1	10.0000	0.0000	0.0002	0.1100	2.2500	2.1000	0.7239	0.2667	0.0355	0.0116	0.1830	0.5600	0.1300	0.1300	0.1000	0.0000	0.2000	0.0000
Sta ROSA TG2	10.0000	0.0000	0.0002	0.1100	2.2500	2.1000	0.7239	0.2667	0.0355	0.0116	0.1830	0.5600	0.1300	0.1300	0.1000	0.0000	0.2000	0.0000
Sta ROSA TG3	10.0000	0.0000	0.0002	0.1100	2.2500	2.1000	0.7239	0.2667	0.0355	0.0116	0.1830	0.5600	0.1300	0.1300	0.1000	0.0000	0.2000	0.0000
TG1 Anibal Santos	1.6824	0.0000	0.0002	0.1000	1.9700	1.9700	4.7500	4.7500	0.0400	0.0400	0.2800	0.2800	0.1500	0.1500	0.0700	0.0000	0.2000	0.0000
TG2 Anibal Santos	1.6824	0.0000	0.0002	0.1000	1.9700	1.9700	4.7500	4.7500	0.0400	0.0400	0.2800	0.2800	0.1500	0.1500	0.0700	0.0000	0.2000	0.0000
TG3 Anibal Santos	8.9059	0.0000	0.0001	0.0900	1.9700	1.9700	4.7500	4.7500	0.0400	0.0400	0.2800	0.2800	0.1500	0.1500	0.0700	0.0000	0.2000	0.0000
TG5 Anibal Santos	8.8706	0.0000	0.0001	0.0900	1.8000	1.8000	0.7239	0.2667	0.0301	0.0098	0.1800	0.1800	0.1100	0.1100	0.0660	0.0000	0.2000	0.0000
TG6 Anibal Santos	8.6941	0.0000	0.0002	0.1000	1.8670	1.7600	5.1150	0.4150	0.0230	0.0050	0.2560	0.4530	0.1740	0.1700	0.0940	0.0090	0.1640	0.0160
TULCAN 69	3.0588	0.0000	0.0002	0.1000	1.0000	0.7500	1.7500	0.0000	0.0286	0.0133	0.3500	0.3000	0.2000	0.2000	0.1000	0.0000	0.2000	0.0000
ULYSSEAS	3.3885	0.0000	0.0000	0.1000	2.0200	2.0200	0.6299	0.2000	0.0133	0.0180	0.5200	0.3000	0.3100	0.2404	0.0213	0.0000	0.3430	0.0000
ULYSSEASI	4.0000	0.0000	0.0000	0.1000	1.2700	0.0900	0.4170	0.1090	0.0150	0.0100	0.1400	0.0700	0.1000	0.1000	0.0013	0.0760	0.2000	0.0000
V-TRINITARIA	1.5176	0.0000	0.0001	0.1000	1.9400	1.9800	0.6757	0.0184	0.0134	0.0339	0.1870	0.3500	0.1140	0.1140	0.1000	0.0000	0.2000	0.0000
VPVG-EME	3.8750	0.0000	0.0001	0.1000	1.3500	1.3000	0.6750	0.2615	0.0434	0.0176	0.1300	0.3400	0.1200	0.1200	0.1000	0.0000	0.2000	0.0000
Vapor Anibal Santos	3.6471	0.0000	0.0001	0.0700	1.3500	1.3500	7.0100	7.0100	0.0470	0.0470	0.2400	0.2400	0.1300	0.1300	0.0460	0.0000	0.2000	0.0000

Diagrama de bloques del Modelo de Regulador Compuesto de los generadores del SNI ecuatoriano – excepto Central San Francisco

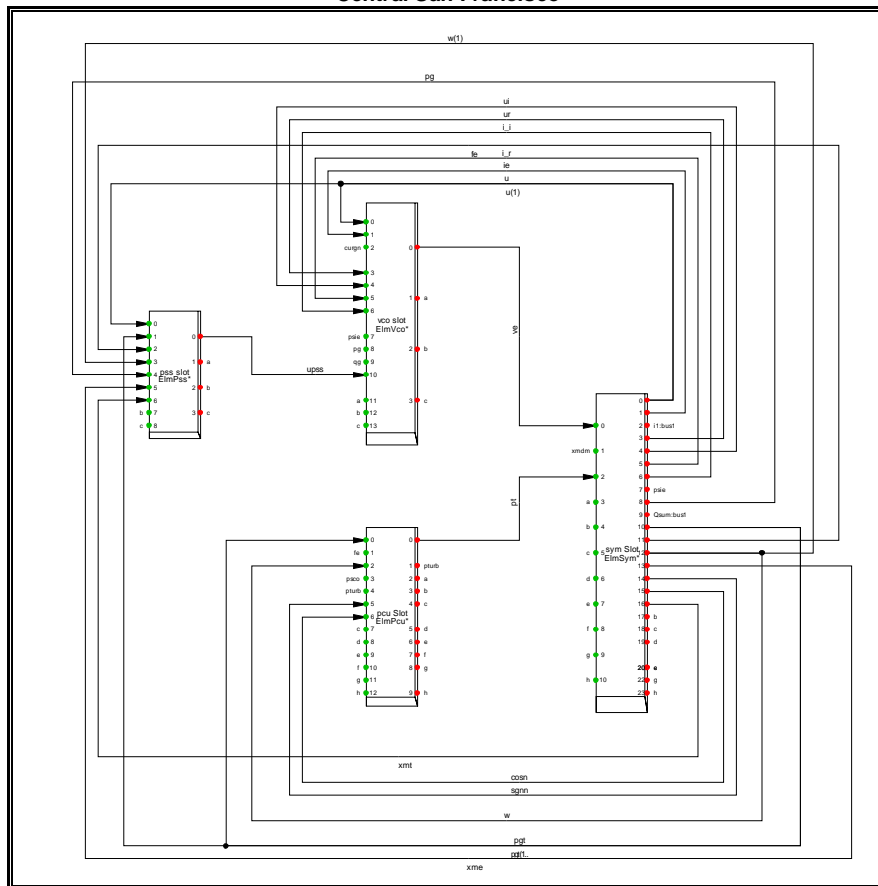
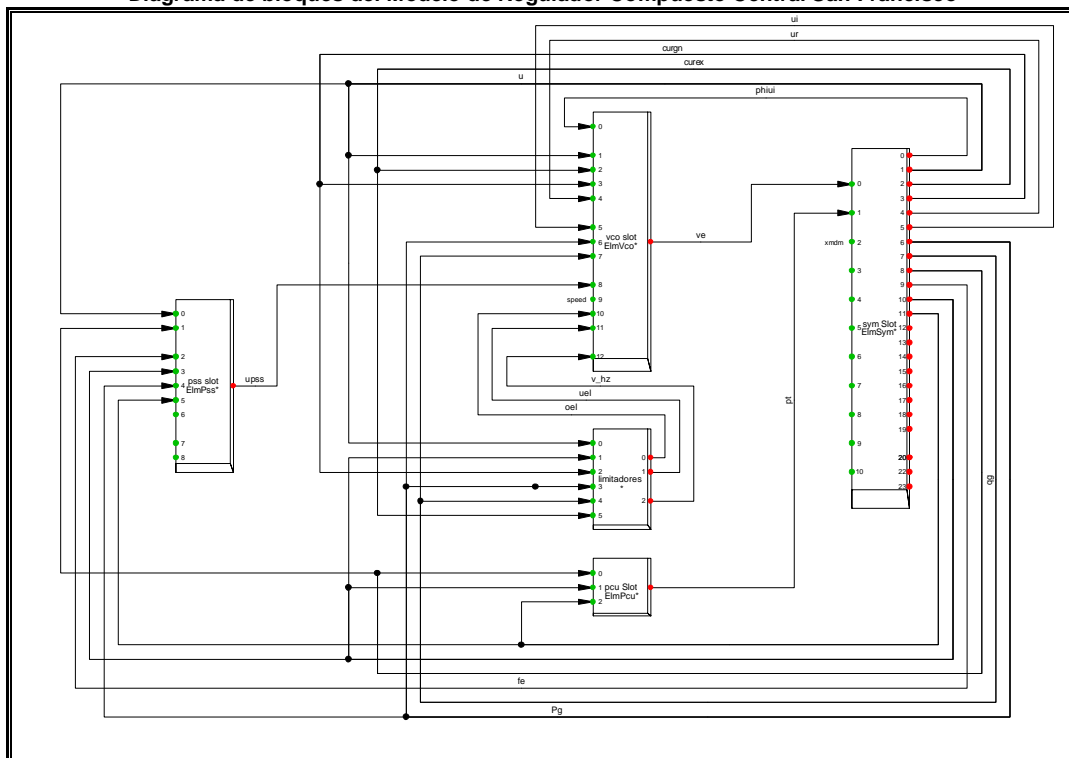
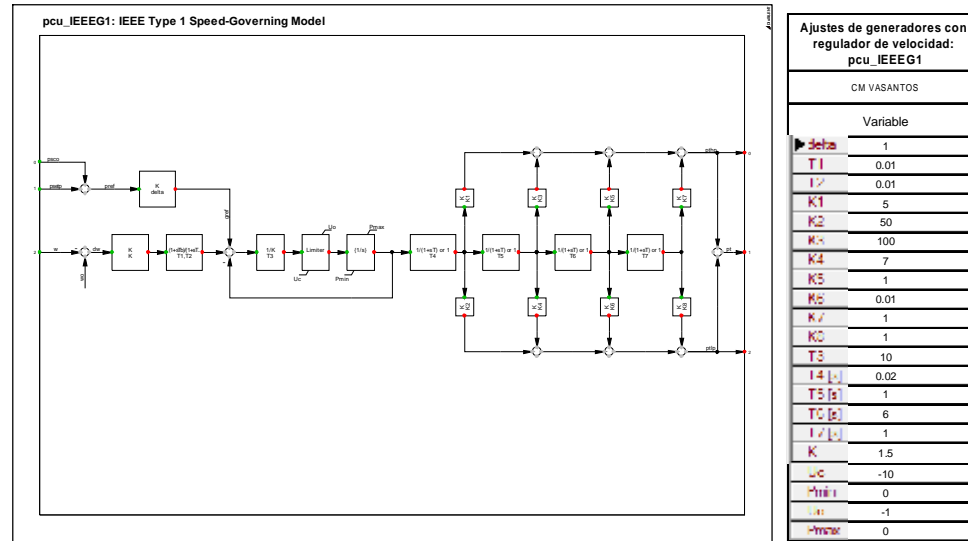


Diagrama de bloques del Modelo de Regulador Compuesto Central San Francisco



Detalle de los Modelos de Regulacion Compuesto - Sistema ecuatoriano					
Nombre Generador	Modelo de Regulacion Compuesto				
	Nombre	Regulador de Velocidad	Regulador de Voltaje	Estabilizador del Sistema de Potencia	Limitadores
G_U1_AGO	CM AGOYAN_G1	pcu_Agoyan	vco_Agoyan	pss_Agoyan	
G_U2_AGO	CM AGOYAN_G2	pcu_Agoyan	vco_Agoyan	pss_Agoyan	
G_EQAMBATO_AMB	CM AMBATO_AMB		vco_SEXS		
G_GYQ_AT1	CM ATINAJERO_G1	pcu_GAST	vco_IEEET2		
G_GYQ_AT2	CM ATINAJERO_G2	pcu_GAST	vco_IEEET2		
G_CHGUANGOPOLO 1_5	CM CHGUANGO_1_5	pcu_IEEEG3	vco_SEXS		
G_CHGUANGOPOLO 6	CM CHGUANGO_6	pcu_IEEEG3	vco_SEXS		
G_CUMBAYA	CM CUMBAY_1_4	pcu_IEEEG3	vco_SEXS		
G_U1_DPER	CM D.PERI_G1	pcu_Hidronacion	vco_Hidronacion_EXST1		
G_U2_DPER	CM D.PERI_G2	pcu_Hidronacion	vco_Hidronacion_EXST1		
G_U3_DPER	CM D.PERI_G3	pcu_Hidronacion	vco_Hidronacion_EXST1		
G_EQEERSSA_LOJ	CM EERSSA_LOJ	pcu_GAST	vco_SEXS		
G_EQELECAUSTRO_CUE	CM ELECAUSTRO_CUE	pcu_IEEEG3	vco_SEXS		
G_EQEMELORO_MAC	CM EMELORO_MAC	pcu_GAST	vco_SEXS		
G_EQEMEPE_SEL	CM EMEPE_SEL	pcu_GAST	vco_SEXS		
G_U1_EQUIL	CM EQUIL_G1	pcu_GAST	vco_IEEET2		
G_U2_EQUIL	CM EQUIL_G2	pcu_GAST	vco_IEEET2		
G_U3_EQUIL	CM EQUIL_G3	pcu_GAST	vco_IEEET2		
G_U4_EQUIL	CM EQUIL_G4	pcu_GAST	vco_IEEET2		
G_EQV_ESM	CM ESERALD_ESM	pcu_GAST	vco_SEXS		
G_G1_CTESM	CM ESERALDG1	pcu_IEEEG1_Termoesmeraldas	vco_EXST1_Termoesmeraldas		
G_GAS_PAS	CM GAS_PAS	pcu_GAST	vco_EXAC1		
G_GHERNANDEZ	CM GHERNA_1_4	pcu_GAST	vco_SEXS		
G_GUANGOPOLO1_6	CM GUANGO1_6	pcu_GAST	vco_SEXS		
G_TV2_GZEV	CM GZEVALLOS_TV2	pcu_IEEEG1_GZevallos_TV2	vco_EXST1_GZevallos_TV2		
G_TV3_GZEV	CM GZEVALLOS_TV3	pcu_IEEEG1_GZevallos_TV3	vco_EXST1_GZevallos_TV3		
G_UA_MPP	CM MACPOWER_UA	pcu_GAST	vco_EXAC1		
G_UB_MPP	CM MACPOWER_UB	pcu_GAST	vco_EXAC1		
G_NAYON_VIC	CM NAYON_1_3	pcu_IEEEG3	vco_SEXS		
G_U10_PAUTE	CM PAUTE_C_G10	pcu_Paute_C	vco_Paute_C	pss_Paute_C	
G_U6_PAUTE	CM PAUTE_C_G6	pcu_Paute_C	vco_Paute_C	pss_Paute_C	
G_U7_PAUTE	CM PAUTE_C_G7	pcu_Paute_C	vco_Paute_C	pss_Paute_C	
G_U8_PAUTE	CM PAUTE_C_G8	pcu_Paute_C	vco_Paute_C	pss_Paute_C	
G_U9_PAUTE	CM PAUTE_C_G9	pcu_Paute_C	vco_Paute_C	pss_Paute_C	
G_EQEMEPE_POS	CM POSORJA	pcu_GAST	vco_SEXS		
G_U1_PUC	CM PUCARA_1	pcu_IEEEG3	vco_EXST1		
G_U2_PUC	CM PUCARA_2	pcu_IEEEG3	vco_EXST1		
G_GEORIO_RIO	CM RIOBAM_RIO	pcu_IEEEG3	vco_SEXS		
G_SAN_FCO_1	CM S.FCO_1	pcu_SanFco	vco_SanFrancisco	pss_SanFrancisco	Limitador
G_SAN_FCO_2	CM S.FCO_2	pcu_SanFco	vco_SanFrancisco	pss_SanFrancisco	Limitador
G_TG1_ROS	CM S.ROSA_1	pcu_GAST	vco_EXAC1		
G_TG2_ROS	CM S.ROSA_2	pcu_GAST	vco_EXAC1		
G_TG3_ROS	CM S.ROSA_3	pcu_GAST	vco_EXAC1		
G_SIBIMBE	CM SIBIMBE	pcu_IEEEG3	vco_SEXS		
G_U1_TRI	CM TRINITA_G1	pcu_IEEEG1_Trinitaria	vco_Trinitaria		
G_U1_PAU	CM U1_PAU	pcu_Paute_AB	vco_Paute_AB	pss_Paute_AB	
G_U2_PAU	CM U2_PAU	pcu_Paute_AB	vco_Paute_AB	pss_Paute_AB	
G_U3_PAU	CM U3_PAU	pcu_Paute_AB	vco_Paute_AB	pss_Paute_AB	
G_U4_PAU	CM U4_PAU	pcu_Paute_AB	vco_Paute_AB	pss_Paute_AB	
G_U5_PAU	CM U5_PAU	pcu_Paute_AB	vco_Paute_AB	pss_Paute_AB	
G_GYQ_VAS	CM VASANTOS	pcu_IEEEG1	vco_EXST1		
G_VICTORIA_TRI	CM VICTORIA_II	pcu_GAST	vco_SEXS		
G_GYQ_TG1	CM_TG1_GASAN	pcu_GAST	vco_EXAC1		
G_GYQ_TG2_AS	CM_TG2_GASAN	pcu_GAST	vco_EXAC1		
G_GYQ_TG3_AS	CM_TG3_GASAN	pcu_GAST	vco_EXAC1		
G_GYQ_TG5_AS	CM_TG5_GASAN	pcu_GAST	vco_EXAC1		
G_GYQ_TG6_AS	CM_TG6_GASAN	pcu_GAST	vco_EXAC1		

- pcu_IEEEG1

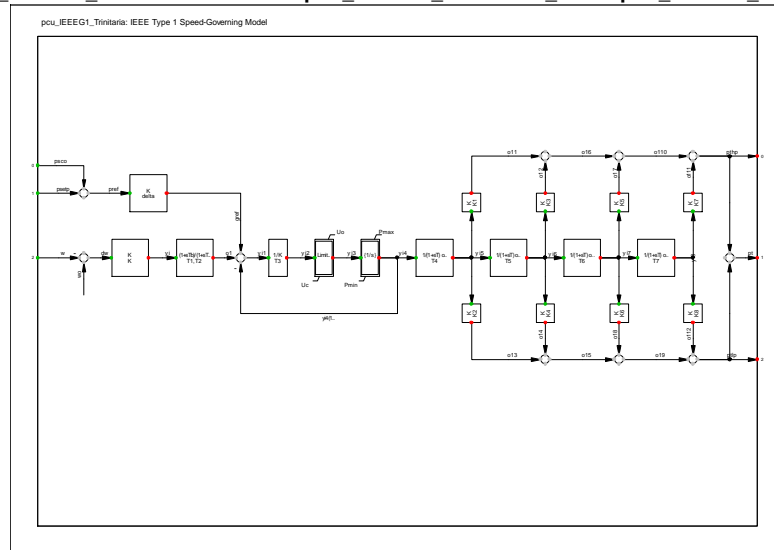


Ajustes de generadores con regulador de velocidad: pcu_IEEEG1

CM VASANTOS

Variable	
delta	1
T1	0.01
T2	0.01
K1	5
K2	50
K3	100
K4	7
K5	1
K6	0.01
K7	1
K8	1
T3	10
T4	0.02
T5	1
T6	6
T7	1
K	1.5
Uc	-10
Pmin	0
Pmax	-1
Uo	0

- pcu_IEEEG1_Termoesmeraldas = pcu_IEEEG1_GZevallos_TV2 = pcu_IEEEG1_GZevallos_TV3 = pcu_IEEEG1_Trinitaria

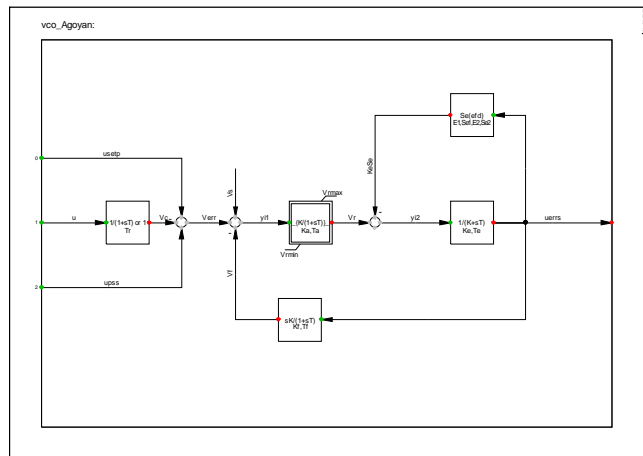


Ajustes de generadores con regulador de velocidad: pcu_IEEEG1_Termoesmeraldas = pcu_IEEEG1_GZevallos_TV2 = pcu_IEEEG1_GZevallos_TV3 = pcu_IEEEG1_Trinitaria

Variable	Modelo de Regulacion Compuesto			
	CM ESERALDG1	CM GZEVALLOS_TV2	CM GZEVALLOS_TV3	CM TRINITA_G1
K	14.27	14.27	14.27	20
T1	0.3	0.3	0.3	0
T2	0	0	0	0
T3	0.18	0.18	0.18	0.1
K1	0	0	0	0.4
K2	1	1	1	0
T5	0	0	0	0
K3	0	0	0	0
K4	0	0	0	0
T6	0	0	0	0
K5	0	0	0	0
K6	0	0	0	0.6
T4	0.4	0.4	0.4	0.25
T7	0	0	0	7
K7	0	0	0	0
K8	0	0	0	0
delta	1	1	1	1
Uc	-0.1	-0.1	-0.1	-0.1
Pmin	0	0	0	0
Uo	0.1	0.1	0.1	0.1
Pmax	1	1	1	1

REGULADORES DE VOLTAJE – vco

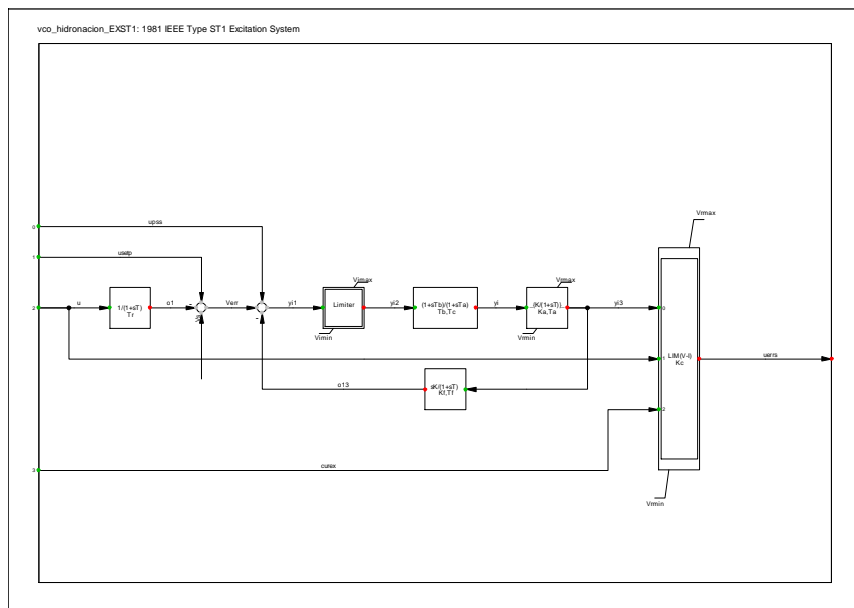
- vco_Agoyan



Ajustes de generadores con regulador de voltaje: vco_Agoyan

Variable	Modelo de Regulacion Compuesto	
	CM AGOYAN_G1	CM AGOYAN_G2
Tr Measurement Delay [s]	0	0
Kc Controller Gain [p.u.]	187.8	187.8
Tc Controller Time Constant [s]	0.01	0.01
Kf Stabilization Path Gain [p.u.]	0.017	0.017
Tf Stabilization Path Time Constant [s]	0.5	0.5
Ka Excitor Constant [p.u.]	1	1
Te Excitor Time Constant [s]	0.44	0.44
S1 Saturation Factor 1 [p.u.]	4.5	4.5
S2 Saturation Factor 2 [p.u.]	1.5	1.5
S3 Saturation Factor 3 [p.u.]	6	6
S4 Saturation Factor 4 [p.u.]	2.46	2.46
Vmin Controller Output Minimum [p.u.]	-3	-3
Vmax Controller Output Maximum [p.u.]	3.6	3.6

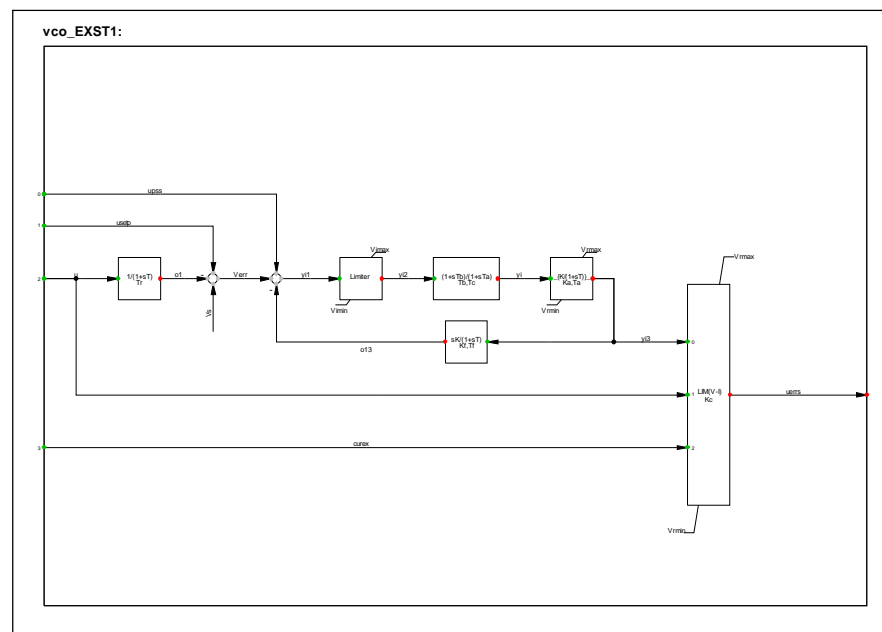
- vco_Hidronacion_EXST1



Ajustes de generadores con regulador de voltaje: vco_Hidronacion_EXST1

Variable	Modelo de Regulacion Compuesto		
	CM D.PERI_G1	CM D.PERI_G2	CM D.PERI_G3
Tr Measurement Delay [s]	0	0	0
Tb Filter Delay Time [s]	20.13	20.13	20.13
Tc Filter Derivative Time Constant [s]	2.013	2.013	2.013
Ka Controller Gain [p.u.]	500	500	500
Ta Controller Time Constant [s]	0.001	0.001	0.001
Kc Excitor Current Compensation Factor [p.u.]	1.5	1.5	1.5
Kf Stabilization Path Gain [p.u.]	0	0	0
Tf Stabilization Path Delay Time [s]	0.0001	0.0001	0.0001
Vmin Controller Minimum Input [p.u.]	-3	-3	-3
Vmin Controller Minimum Output [p.u.]	-2.627	-2.627	-2.627
Vmax Controller Maximum Input [p.u.]	3	3	3
Vmax Controller Maximum Output [p.u.]	3.284	3.284	3.284

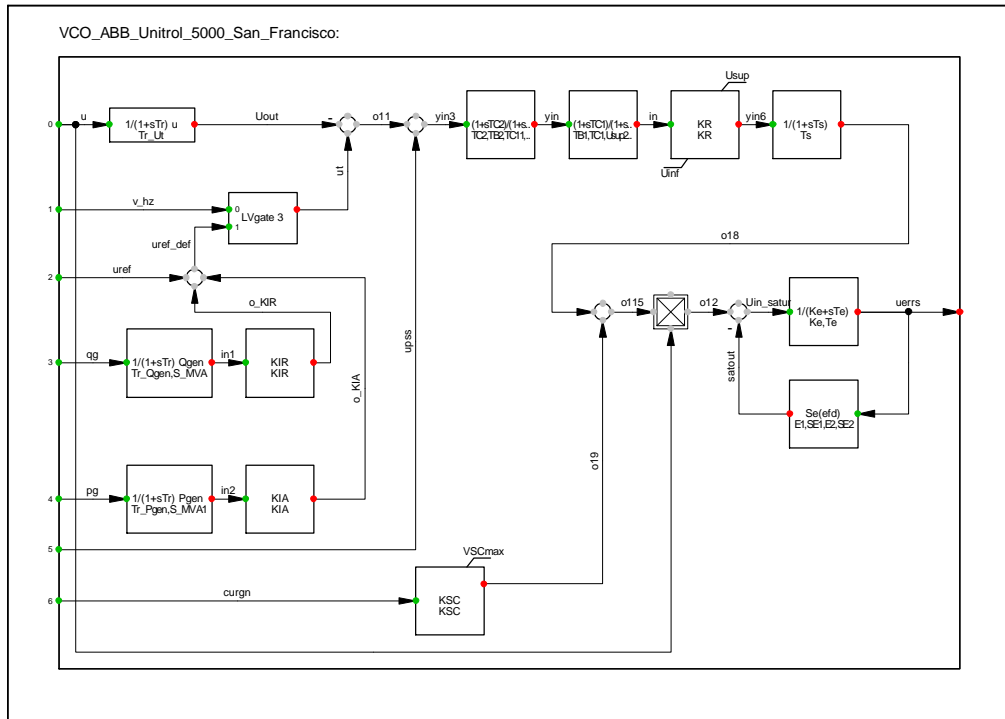
- vco_EXST1_Termoesmeraldas = vco_EXST1_GZevallos_TV2 = vco_EXST1_GZevallos_TV3 = vco_EXST1



Ajustes de generadores con regulador de voltaje: vco_EXST1_Termoesmeraldas = vco_EXST1_GZevallos_TV2 = vco_EXST1_GZevallos_TV3 = vco_EXST1

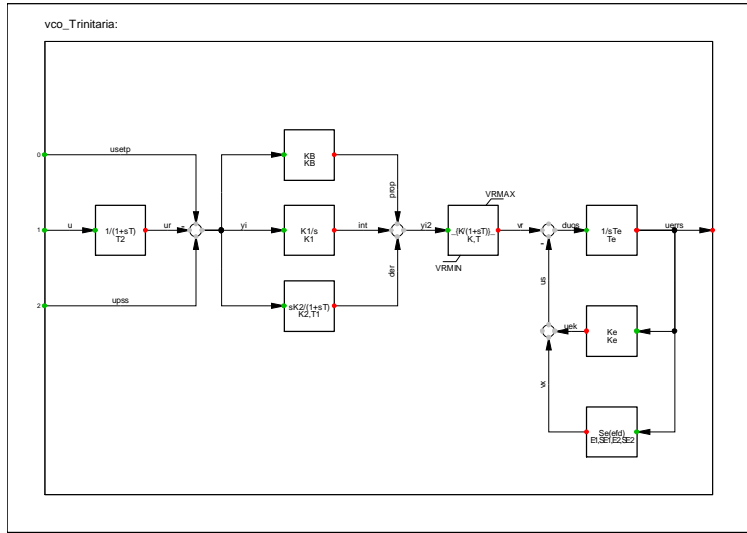
Variable	Modelo de Regulacion Compuesto					
	CM ESERALD1	CM GZEVALLOS_TV2	CM GZEVALLOS_TV3	CM PUCARA_1	CM PUCARA_2	CM VASANTOS
Tr Measurement Delay [s]	0.03	0.03	0.03	0.03	0.03	0.03
Tb Filter Delay Time [s]	0.4	0.4	0.4	0.4	0.4	0.4
Tc Filter Derivative Time Constant [s]	0.04	0.04	0.04	0.04	0.04	0.04
Ka Controller Gain [p.u.]	100	100	100	100	100	100
Ta Controller Time Constant [s]	0.03	0.03	0.03	0.03	0.03	0.03
Kc Excitor Current Compensation Factor [p.u.]	1	0	0	0	0	1
Kf Stabilization Path Gain [p.u.]	0	0.045	0.045	0.045	0.045	0
Tf Stabilization Path Delay Time [s]	0.1	0.1	0.1	0.73	0.73	0.1
Vmin Controller Minimum Input [p.u.]	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2
Vmin Controller Minimum Output [p.u.]	0	0	0	-3.85	-3.85	0
Vmax Controller Maximum Input [p.u.]	0.2	0.2	0.2	0.2	0.2	0.2
Vmax Controller Maximum Output [p.u.]	3.6	3.6	3.6	3.85	3.85	3.6

- vco_SanFrancisco



Ajustes de generadores con regulador de voltaje: vco_SanFrancisco		
Variable	Modelo de Regulacion Compuesto	
	CM S.FCO_1	CM S.FCO_2
Ke	0.8	0.8
Te	0.5	0.5
KIA	0	0
KIR	0	0
Ts	0.004	0.004
KR	70	70
KSC	0	0
TC2	0.1	0.1
TB2	0.02	0.02
TC11	1	1
TB11	10	10
Usup1	5	5
Uinf1	-4.25	-4.25
KR1	70	70
TB1	10	10
TC1	1	1
Usup2	5	5
Uinf2	-4.25	-4.25
KR2	70	70
E1	3.18	3.18
SE1	1.45	1.45
E2	4.25	4.25
SE2	1.56	1.56
Tr_Pgen	0.02	0.02
S_MVA1	127.5	127.5
Tr_Qgen	0.02	0.02
S_MVA	127.5	127.5
Tr_Ut	0.02	0.02
Uinf	-4.25	-4.25
Usup	5	5
VSCmax	0	0

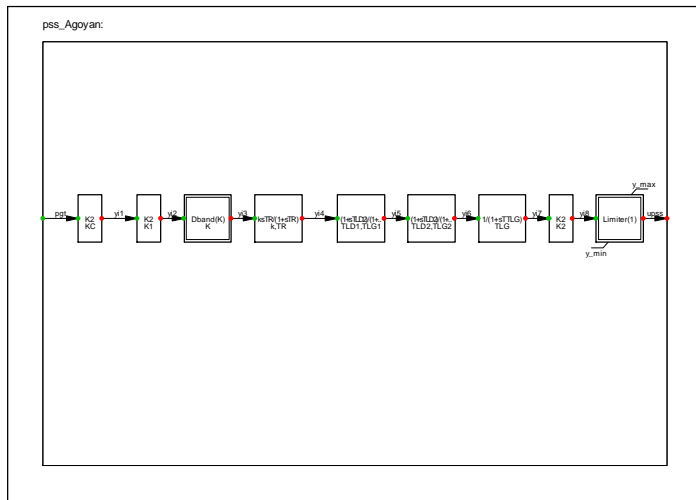
- vco_Trinitaria



Ajustes de generadores con regulador de voltaje: vco_Trinitaria		
Variable	Modelo de Regulacion Compuesto	
	CM TRINITA_G1	
T2	Measurement Time const [s]	0.015
KB	Proportional Gain [p.u.]	70
K1	Integral Gain [p.u.]	6.25
K2	Derivative Gain [p.u.]	0.38
T1	Time Const. Derivative Action [s]	0.05
K	Controller Gain [p.u.]	4
T	Controller Time Constant [s]	0.021
Te	Exciter Time Constant [s]	0.02
Ke	Exciter Constant [p.u.]	1
E1	Saturation Factor 1 [p.u.]	1
SE1	Saturation Factor 2 [p.u.]	0
E2	Saturation Factor 3 [p.u.]	1.1
SE2	Saturation Factor 4 [p.u.]	0
VRMIN	Controller Minimum Output [p.u.]	-3
VRMAX		4.9

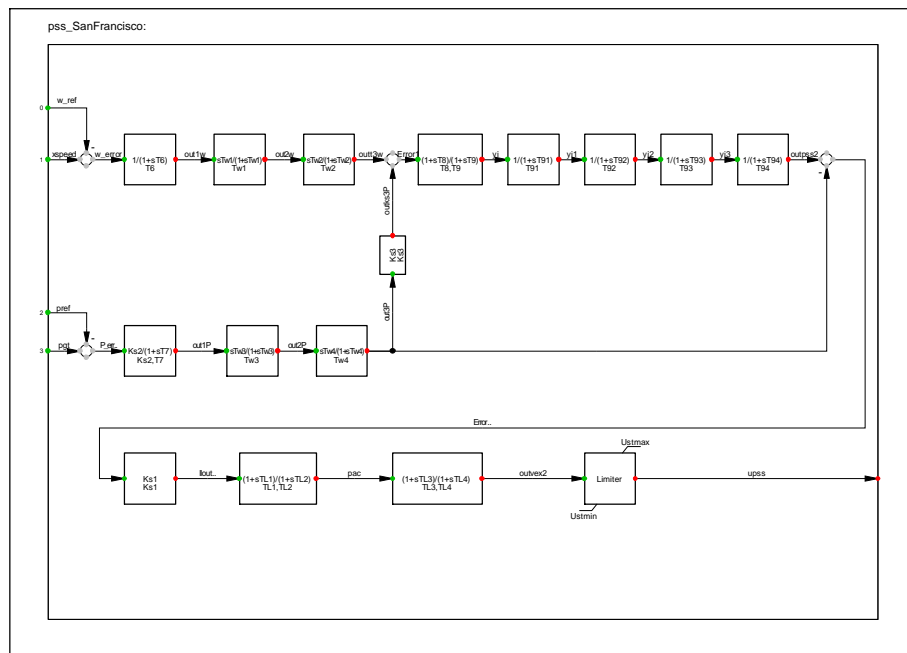
ESTABILIZADORES DE SISTEMAS DE POTENCIA – pss

- pss_Agoyan



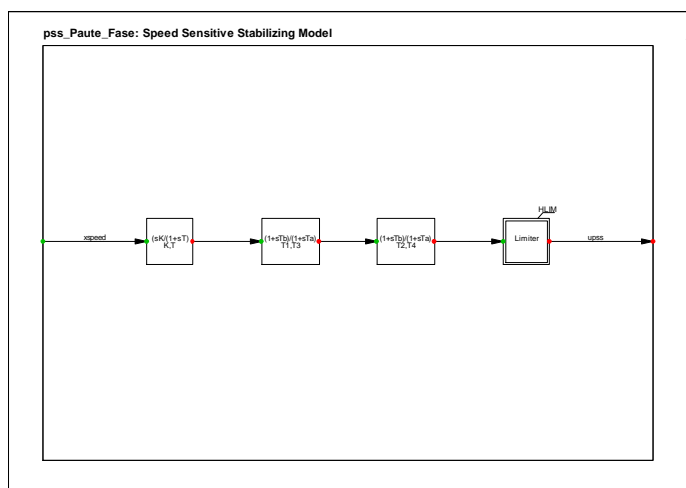
Ajustes de generadores con Estabilizador del Sistema de Potencia: pss_Agoyan		
Variable	Modelo de Regulacion Compuesto	
	CM AGOYAN_G1	CM AGOYAN_G2
KC	Gan. Amplificador [pu]	0.02
K1	Gan. Amplificador [pu]	250
K		5
k	Valor Ficticio [adim]	1
TR	Reset [s]	10
TLD1	Adelanto de Fase [s]	1
TLG1	Atraso de Fase [s]	0.1
TLD2	Adelanto de Fase [s]	1
TLG2	Atraso de Fase [s]	0.1
TLG		0.5
K2	Gan. Amplificador [pu]	400
y_min		-5
y_max		5

- pss_SanFrancisco



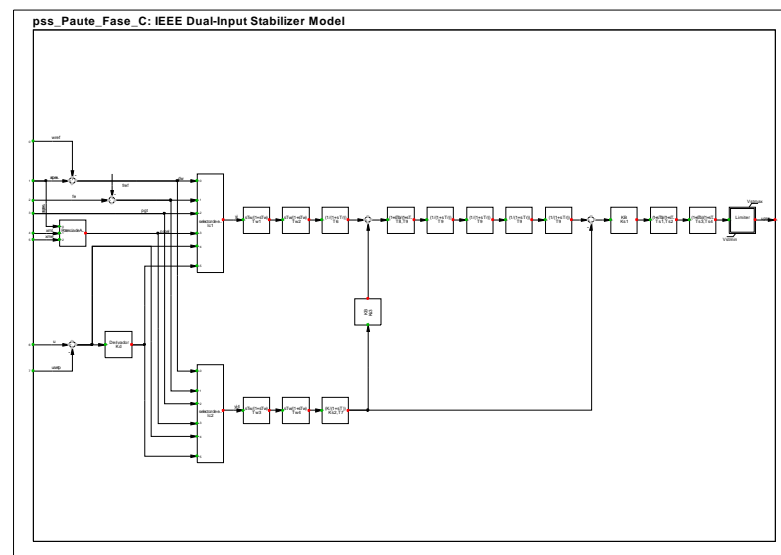
Ajustes de generadores con Estabilizador del Sistema de Potencia: pss_SanFrancisco		
Variable	Modelo de Regulacion Compuesto	
	CM S.FCO_1	CM S.FCO_2
T8 Constante tiempo ramp tracking[0,45] [seg]	0	0
T9 Constante tiempo ramp tracking[0,45] [seg]	0.1	0.1
Tw1 1ra. Constante de tiempo wash-out[0.003,45] [seg]	2	2
Tw2 2a. Constante de tiempo wash-out[0.003,45] [seg]	2	2
Tw3 3a Constante de tiempo wash-out[0.003,45] [seg]	2	2
Tw4 4a Constante de tiempo wash-out[0.003,45] [seg]	2	2
Ks3 Factor de adaptación[0,128] [p.u]	1	1
Ks1 Ganancia proporcional del PSS[0,1280] [p.u]	0.1	0.1
TL1 1a. Constante de tiempo adelanto[0.003,45] [seg]	0.15	0.15
TL2 1a. Constante de tiempo atraso[0.003,45] [seg]	0.03	0.03
TL3 2a. Constante de tiempo adelanto[0.003,45] [seg]	0.15	0.15
TL4 2a. Constante de tiempo atraso[0.003,45] [seg]	0.02	0.02
T6 Constante de tiempo de transducción [seg]	0.01	0.01
Ks2 Factor de adaptación dp/dw[0,640] [seg]	0	0
T7 Constante de tiempo integral dp[0.003,45] [seg]	0	0
T91 Replica de T9[0,2.5]Tip1.0 [seg]	1	1
T92 Replica de T9[0,2.5]Tip1.0 [s]	1	1
T93 Replica de T9[0,2.5]Tip1.0 [s]	0	0
T94 Replica de T9[0,2.5]Tip1.0 [s]	0	0
Ustmin Límite Mín.señal de salida[-1,0] [p.u]	0	0
Ustmax Límite Máx.señal de salida[0,1] [p.u]	0	0

- pss_Paute_AB



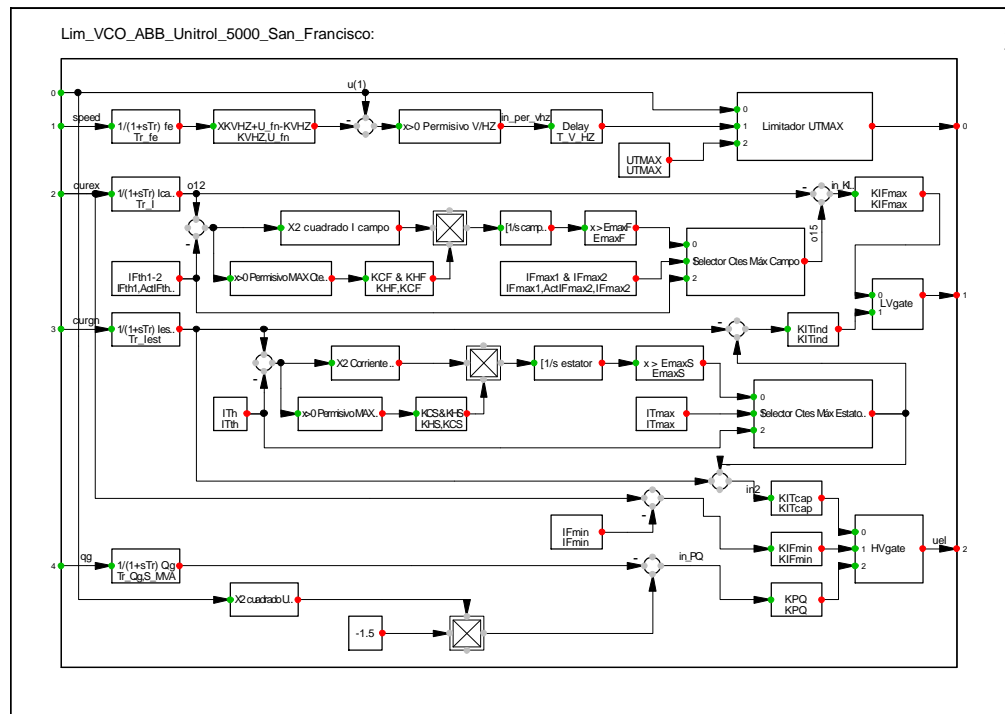
Ajustes de generadores con Estabilizador del Sistema de Potencia: pss_Paute_AB					
Variable	Modelo de Regulacion Compuesto				
	CM U1_PAU	CM U2_PAU	CM U3_PAU	CM U4_PAU	CM U5_PAU
K	3.6	3.6	3.6	3.6	3.6
T	3.6	3.6	3.6	3.6	3.6
T2	0.4	0.4	0.4	0.4	0.4
T4	0.1	0.1	0.1	0.1	0.1
T1	0	0	0	0	0
T3	0.013	0.013	0.013	0.013	0.013
HLIM	0.05	0.05	0.05	0.05	0.05

- pss_Paute_C



Ajustes de generadores con Estabilizador del Sistema de Potencia: pss_Paute_C					
Variable	Modelo de Regulacion Compuesto				
	CM PAUTE_C_G10	CM PAUTE_C_G6	CM PAUTE_C_G7	CM PAUTE_C_G8	CM PAUTE_C_G9
ic1 1th Input Selector [-6]	2	2	2	2	2
ic2 2th Input Selector [-6]	3	3	3	3	3
Tw1 1th Washout 1th Time Constant [s]	6.8	6.8	6.8	6.8	6.8
Tw2 1th Washout 2th Time Constant [s]	0	0	0	0	0
Ts 1th Signal Transducer Time Constant [s]	0.04	0.04	0.04	0.04	0.04
Tw3 2th Washout 1th Time Constant [s]	3	3	3	3	3
Tw4 2th Washout 2th Time Constant [s]	0	0	0	0	0
K2 2th Signal Transducer Factor [p.u.]	0.5526	0.5526	0.5526	0.5526	0.5526
T7 2th Signal Transducer Time Constant [s]	0.04	0.04	0.04	0.04	0.04
K3 Washouts Coupling Factor [p.u.]	0	0	0	0	0
T8 Ramp Tracking Filter Delay Time Constant [s]	0	0	0	0	0
T9 Ramp Tracking Filter Delay Time Constant [s]	1	1	1	1	1
K1 PSS Gain [p.u.]	1.9	1.9	1.9	1.9	1.9
Ts1 1th Lead-Lag Derivative Time Constant [s]	0	0	0	0	0
Ts2 1th Lead-Lag Delay Time Constant [s]	0.01	0.01	0.01	0.01	0.01
Ts3 2th Lead-Lag Derivative Time Constant [s]	0	0	0	0	0
Ts4 2th Lead-Lag Delay Time Constant [s]	0.01	0.01	0.01	0.01	0.01
K4 Derivative Factor [p.u.]	0.01	0.01	0.01	0.01	0.01
Vsmin Controller Minimum Output [p.u.]	-0.05	-0.05	-0.05	-0.05	-0.05
Vsmax Controller Maximum Output [p.u.]	0.05	0.05	0.05	0.05	0.05

LIMITADOR CENTRAL SAN FRANCISCO



Ajustes de limitador de generadores de Central San Francisco		
Variable	Modelo de Regulacion Compuesto	
	CM S.FCO_1	CM S.FCO_2
T_V_HZ Retraso TpoIntenc Fnc V/HZ[0.2]Tip0.05 [s]	0.05	0.05
IFmax1 Ajuste1MáxCteCpoTecho[0.1,3.27]Tip1.6 [pu]	2	2
ActIFmax2 ActAjs2MxCteCpoTecho[1/0]Tip0 [Adim]	0	0
IFmax2 Ajuste2MáxCteCpoTecho[0.1,2]Tip1.6 [pu]	2	2
IFmin AjusteLimMínimaCorCampo[0.0,5]Tip0 [pu]	0	0
IFh1 Ajuste1 MáxCorContinuaCampo[0.1,2]Tip1.05 [pu]	1.82	1.82
ActIFh2 ActivarAjuste2MáxCorContinCpo[1/0]Tip0 [Adim]	0	0
IFh2 Ajuste2 MáxCorContinuaCampo[0.1,2]Tip1.05 [pu]	2	2
ITmax AjusteTechoCorEstator[3.28,3.28]Tip3.28 [pu]	3.28	3.28
ITh AjusteMáxCorContinuaEstator[0.1,2]Tip1.05 [pu]	1.05	1.05
KHF CteCalentadelCampo[0.1,1000]Tip:200 [pu]	200	200
KCF CteEnfriadelCampo[-100,-0.1]Tip:-KHF/10 [pu]	-20	-20
KHS CteCalentaDevanEstator[0.1,1000]Tip:200 [pu]	200	200
KCS CteEnfriaDevanEstator[-100,-0.1]Tip:-KHS/10 [pu]	-20	-20
KIFmin FctReduccGanLimCorMinCpo[0.2]Tip0.5 [pu/pu]	0.5	0.5
KPQ FactorReduccGanancLimP/Q[0,2]Tip0.5 [pu/pu]	0.5	0.5
KITcap FctReduccGanLimCapCorEstat[0,2]Tip0 [pu/pu]	0	0
KIFmax FctReduccGanancMáxcampo[0,2]Tip0.5 [pu]	0.5	0.5
KITind FctReduccGanLimIndCorEstat[0,2]Tip0 [pu/pu]	0	0
Tr_Qg TpoRetarTransPotReaGen[0.01,0.03]Tip0.02 [s]	0.02	0.02
S_MVA Capac Nominal UnidadTipSfco127.5 [MVA]	127.5	127.5
Tr_fe TpoRetrasoTransduc Ut[0.01,0.03]Tip0.02 [s]	0.02	0.02
Tr_l TpoRetrasoTransducampo[0.01,0.03]Tip0.02 [s]	0.02	0.02
Tr_lest TpoRetarTransdlestator[0.01,0.03]Tip0.02 [s]	0.02	0.02
UTMAX VoltajeMáximoMáquina[0,2]Tip1.15 [pu]	1.15	1.15
EmaxF MáxiEnergíaTérmicaCampo[100,100]Tip100 [pu]	100	100
EmaxS MáxiEnergíaTérmicaEstat[100,100]Tip100 [pu]	100	100
KVHZ Pend limitador V/HZ[0,2]Tip1.15 [pu]	1.15	1.15
U_fn Frec Voltaje Maq[0,2]Tip1.15 [pu]	1.15	1.15

Tabla D.3 Datos de Cargas - Sistema ecuatoriano										
Nombre	Tipo	Terminal	CARGA CASO 1		CARGA CASO 2		CARGA CASO 3		CARGA CASO 4	
		Subestación	P(MW)	Q(Mvar)	P(MW)	Q(Mvar)	P(MW)	Q(Mvar)	P(MW)	Q(Mvar)
C_ESPEJ_QUITO	Carga General	E Espejo 23	21.99	4.94	21.10	4.74	21.99	4.94	16.21	3.64
C_AMBAT_AMBAT	Carga General	Ambato 69	18.74	3.30	14.98	2.64	18.74	3.30	13.81	2.43
C_AMBAT_PUYO	Carga General	Puyo69	8.02	5.00	7.70	4.80	8.02	5.00	5.91	1.97
C_AMBAT_TENA	Carga General	Tena69	5.01	1.60	4.81	1.54	5.01	1.60	3.69	1.18
C_AMBAT_TOTOR	Carga General	Totoras 69	43.98	6.80	42.20	6.53	43.98	6.80	32.41	5.01
C_AZOGU_AZOGU	Carga General	Cuenca 69	10.52	2.37	10.09	2.27	10.52	2.37	7.75	1.75
C_C.SUR_CUEN	Carga General	Cuenca 69	126.43	35.10	112.32	31.18	126.43	35.10	88.17	24.48
C_CALDE_QUITO	Carga General	Pomasqui 23	26.71	6.67	25.63	6.40	26.71	6.67	19.68	4.92
C_CAROL_S/E12_QUITO	Carga General	Carolina 46	23.69	6.11	22.73	5.86	23.69	6.11	17.46	4.50
C_CEDEG_EQUI	Carga General	Electroquil 69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C_CEDEG_PASC	Carga General	Cedege 138	11.22	1.10	10.77	1.06	11.22	1.10	8.27	0.81
C_CEIBO_GUAY	Carga General	Ceibos 69	44.89	11.84	43.07	11.36	44.89	11.84	33.08	8.73
C_CHAMB_GUAY	Carga General	Chambers 69	38.15	10.07	36.61	9.66	38.15	10.07	28.11	7.42
C_CRM_SEVE	Carga General	Severino 138	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C_CSA_IBARR	Carga General	CSA 4.6	5.00	1.46	4.80	1.40	0.00	0.00	0.00	0.00
C_EERS_LOJA	Carga General	Loja 69	39.60	8.60	34.00	7.38	39.60	8.60	24.18	5.25
C_ELEPC_AMBAT	Carga General	Ambato 69	11.82	2.60	11.34	2.49	11.82	2.60	8.71	1.92
C_ELEPC_MULAL	Carga General	Mulalo 69	35.50	11.04	34.06	10.60	35.50	11.04	24.16	7.52
C_EMAAP	Carga General	El Carmen 138	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C_EMELC_PASC	Carga General	Pascuales 69	106.30	22.60	102.00	21.69	106.30	22.60	104.34	22.18
C_EMELC_PCAN+PRAD	Carga General	Trinitaria 69	79.51	21.58	75.18	20.41	57.51	15.61	42.38	11.50
C_EMELC_POLI	Carga General	Policentro 69	117.63	25.10	112.87	24.09	100.63	21.47	74.16	15.82
C_EMELEC_GUAS	Carga General	Guasmo 69	11.38	1.63	10.92	1.56	11.38	1.63	8.39	1.20
C_EMELEC_PORTU	Carga General	Portuaria 69	38.11	6.06	36.57	5.81	38.11	6.06	28.09	4.47
C_EMELESA_ESMER	Carga General	Esmeraldas 69	63.72	20.40	61.14	19.58	63.72	20.40	46.96	15.03
C_EMELG_DCE	Carga General	Dos Cerritos 69	69.93	26.80	75.10	28.78	69.93	26.80	51.53	19.75
C_EMELG_MILA	Carga General	Milagro 69	11.44	3.38	12.14	3.59	9.79	2.90	5.48	1.62
C_EMELG_PASC	Carga General	Pascuales 69	44.48	16.90	42.68	16.22	44.48	16.90	25.78	9.79
C_EMELG_QUEVE	Carga General	Quevedo 69	54.61	17.30	54.40	17.23	54.61	17.30	40.24	12.75
C_EMELN_TULCA	Carga General	Tulcan 69	18.89	3.40	18.13	3.26	18.89	3.40	10.92	1.97
C_EMELO_MACH_1	Carga General	Machala 69_D1	28.00	9.75	26.87	9.36	28.00	9.75	20.63	7.19
C_EMELO_MACH_2	Carga General	Machala 69_D2	59.00	18.53	56.61	17.78	59.00	18.53	43.48	13.66
C_EMELR_BABA	Carga General	Babahoyo 69	45.23	13.00	43.40	12.47	45.23	13.00	33.33	9.58
C_EMELSAD_SDOMI	Carga General	SDomingo 69	61.92	15.50	59.42	14.87	61.92	15.50	43.63	10.92
C_EMEPE_POSO	Carga General	Posorja 69	17.83	4.60	17.11	4.41	17.83	4.60	13.14	3.39
C_EMEPE_SELE	Carga General	Sta. Elena 69	48.89	15.50	46.91	14.87	40.89	12.96	31.03	9.84
C_EPICL_QUITO	Carga General	Epiclachima 46	36.81	4.57	35.32	4.39	36.81	4.57	27.13	3.37
C_ESC_ORL	Carga General	Orellana69	18.60	8.30	17.85	7.96	18.60	8.30	19.11	8.53
C_GARAY_GUAY	Carga General	Garay 69	27.43	7.24	26.32	6.95	27.43	7.24	20.21	5.34
C_HOLCI_GUAY	Carga General	Holcim 4.16	32.26	12.10	30.96	11.61	32.26	12.10	23.77	8.92
C_IBARR 34.5_IBARR	Carga General	Ibarra 34.5	12.12	3.80	11.63	3.65	12.12	3.80	5.93	1.86
C_IBARR 69_IBARR	Carga General	Ibarra 69	26.65	3.30	20.57	2.55	26.65	3.30	16.64	2.06
C_IBARR_2_IBARR	Carga General	Ibarra_2 69	14.93	3.70	14.33	3.55	14.93	3.70	11.00	2.73
C_IÑAQU_S/E13_QUITO	Carga General	Iñaquito 46	24.54	4.26	23.55	4.09	24.54	4.26	18.08	3.14
C_MANAB_CHONE	Carga General	Chone 69	51.50	15.20	48.22	14.23	50.50	14.91	37.22	10.99
C_MANAB_MANTA	Carga General	Manta 69	66.43	19.90	61.62	18.45	61.44	18.40	53.58	16.05
C_MILAG_MILAG	Carga General	Milagro 69	92.44	20.94	91.67	20.76	90.09	20.40	50.44	11.42
C_NORTE_GUAY	Carga General	Norte 69	44.89	11.84	43.07	11.36	44.89	11.84	33.08	8.73
C_OLIMP_QUITO	Carga General	Norte 46	5.95	2.53	5.71	2.43	5.95	2.53	4.38	1.86
C_PERGU_10N_10V_QUITO	Carga General	P Guerrero 46	26.99	5.31	25.90	5.10	26.99	5.31	19.89	3.91
C_PORTT_GUAY	Carga General	Portt 69	50.62	13.36	48.57	12.82	50.62	13.36	37.30	9.85

Tabla D.3 Datos de Cargas - Sistema ecuatoriano										
Nombre	Tipo	Terminal	CARGA CASO 1		CARGA CASO 2		CARGA CASO 3		CARGA CASO 4	
		Subestación	P(MW)	Q(Mvar)	P(MW)	Q(Mvar)	P(MW)	Q(Mvar)	P(MW)	Q(Mvar)
C_PROSP_GUAY	Carga General	Prosperina 69	64.84	17.11	62.22	16.42	64.84	17.11	47.78	12.61
C_QUINC_QUITO	Carga General	Nayon 46	25.58	2.90	24.55	2.78	25.58	2.90	18.85	2.14
C_RIOBA_RIOBA	Carga General	Riobamba 69	60.46	11.30	37.02	6.92	60.46	11.30	19.56	3.66
C_S/E 3_QUITO	Carga General	SE3 46	21.99	4.20	21.10	4.03	21.99	4.20	16.21	3.10
C_S/E 7_QUITO	Carga General	SE7 46	11.89	2.41	11.41	2.31	11.89	2.41	8.76	1.78
C_S/E 9_QUITO	Carga General	SE9 46	5.38	1.23	5.16	1.18	5.38	1.23	3.96	0.91
C_S/E16_QUITO	Carga General	SE16 46	29.16	5.93	27.98	5.69	29.16	5.93	21.49	4.37
C_S/E18_QUITO	Carga General	Pomasqui 138	51.34	10.00	49.26	9.60	51.34	10.00	37.83	7.37
C_S/E19_QUITO	Carga General	SE19 46	71.26	15.80	68.38	15.16	71.26	15.80	52.51	11.64
C_SALEG_QUITO	Carga General	S Alegre 46	8.31	1.23	7.97	1.18	8.31	1.23	6.12	0.91
C_SANGO_QUITO	Carga General	Sangolqui 46	19.54	4.14	18.75	3.97	19.54	4.14	14.40	3.05
C_SRAFA_QUITO	Carga General	S Rafael 46	28.22	4.26	27.08	4.09	28.22	4.26	20.80	3.14
C_SROSA_QUITO	Carga General	S Rosa EEQ 46	30.01	5.68	28.80	5.45	30.01	5.68	22.12	4.19
C_SSAA_MPP	Carga SSAA	CT MPP 138	2.50	0.00	2.40	0.00	2.50	0.00	1.84	0.00
C_SSAA_PAU	Carga SSAA	Molino 138	1.00	0.30	0.96	0.29	1.00	0.30	0.74	0.22
C_SUR_GUAY	Carga General	Sur 69	44.89	9.55	43.07	9.16	44.89	9.55	33.08	7.04
C_SUR_QUITO	Carga General	Sur 46	36.34	7.48	34.87	7.18	36.34	7.48	26.78	5.51
C_TUMBA_QUITO	Carga General	Ecoluz 4.16	34.26	7.93	32.87	7.61	34.26	7.93	25.25	5.84
JIPIJAPA	Carga General	EMELMANABI_69	22.49	6.60	17.88	5.25	21.19	6.22	15.19	4.46
PORTOVIEJO 1	Carga General	EMELMANABI_69	40.08	12.00	39.75	11.91	42.37	12.44	37.37	10.97
TOTAL			2489.84	627.04	2354.46	595.97	2428.84	610.69	1763.56	443.81

Detalle de modelos de carga - Sistema ecuatoriano											
Nombre	Porcentaje de carga Estática	Porcentaje de carga Dinámica	Constante de Tiempo de la Carga Dinámica	Dependencia de Frecuencia de P	Dependencia de Tensión de P	Dependencia de la Frecuencia Transitoria	Dependencia de la Tensión Transitorio	Dependencia de Frecuencia de Q	Dependencia de Tensión de Q	Dependencia de la Frecuencia Transitoria	Dependencia de la Tensión Transitorio
	%	%	s			s	s			s	s
Carga General	0	100	0.1	1	1.4	0	0	-0.9	1.6	0	0
Carga SSAA	30	70	0.1	1	1.6	0	0	1	1.8	0	0

Tabla D.4.a Datos de Transformadores de tres devanados - Sistema ecuatoriano																
Nombre	Tipo	Lado HV	Lado MV	Lado LV	TAPS CASO 1			TAPS CASO 2			TAPS CASO 3			TAPS CASO 4		
					Lado HV	Lado MV	Lado LV	Lado HV	Lado MV	Lado LV	Lado HV	Lado MV	Lado LV	Lado HV	Lado MV	Lado LV
T_AA1_ESM	AA1 ESMERALDAS	Esmeraldas 138	Esmeraldas 69	Esmeraldas 13.8_AA1	3	17	0	3	17	0	3	18	0	3	18	0
T_AA1_POR	AA1 PORTOVIEJO	Portoviejo 138	Potoviejo 69	Portoviejo 13.8_AA1	1	21	0	1	19	0	1	18	0	1	18	0
T_AA2_POR	AA1 PORTOVIEJO	Portoviejo 138	Potoviejo 69	Portoviejo 13.8_AA2	1	21	0	1	19	0	1	18	0	1	18	0
T_AT1_AMB	AT1 AMBATO	Ambato 138	Ambato 69	Ambato 13.8_AT1	3	0	0	3	0	0	3	0	0	3	0	0
T_AT1_MOL	AT MOLINO	Molino 230	Molino 138	Molino 13.8_AT1	3	0	0	3	0	0	3	0	0	3	0	0
T_AT2_MOL	AT MOLINO	Molino 230	Molino 138	Molino 13.8_AT2	3	0	0	3	0	0	3	0	0	3	0	0
T_ATK_DCE	ATK DOS CERRITOS	Dos Cerritos 230	Dos Cerritos 69	Dos Cerritos 13.8_ATK	12	0	0	12	0	0	12	0	0	12	0	0
T_ATK_MIL	ATK MILAGRO	Milagro 230	Milagro 69	Milagro 13.8_ATK	2	0	0	2	0	0	2	0	0	2	0	0
T_ATQ_BAB	ATQ BABAHYOYO	Babahoyo 138	Babahoyo 69	Babahoyo 13.8_ATQ	1	18	0	1	18	0	1	21	0	1	19	0
T_ATQ_CHO	ATQ CHONE	Chone 138	Chone 69	Chone 13.8_ATQ	2	20	0	2	20	0	2	20	0	2	20	0
T_ATQ_CUE	ATQ CUENCA	Cuenca 138	Cuenca 69	Cuenca 13.8_ATQ	2	0	0	2	0	0	2	0	0	2	0	0
T_ATQ_IBA	ATQ IBARRA	Ibarra BP	Ibarra 69	Ibarra 13.8_ATQ	2	19	0	2	17	0	2	19	0	2	17	0
T_ATQ_LOJ	ATQ LOJA	Loja 138	Loja 69	Loja 13.8_ATQ	3	1	0	3	1	0	3	2	0	3	7	0
T_ATQ_MAC	ATQ MACHALA	Machala 138	Machala 69_B1	Machala 13.8_ATQ	3	0	0	3	0	0	3	0	0	3	0	0
T_ATQ_MUL	ATQ MULALO	Mulalo 138	Mulalo 69	Mulalo 13.8_ATQ	2	15	0	2	15	0	2	17	0	2	15	0
T_ATQ_ORE	ATQ ORELLANA	Orellana138	Orellana69	Orellana13.8	3	16	0	3	16	0	3	16	0	3	10	0
T_ATQ_POL	ATQ POLICENTRO	Policentro 138	Policentro 69	Policentro 13.8_ATQ	2	22	0	2	22	0	2	17	0	2	14	0
T_ATQ_POS	ATQ POSORJA	Posorja 138	Posorja 69	Posorja 13.8_ATQ	2	3	0	2	3	0	2	-1	0	2	-1	0
T_ATQ_SAL	ATQ SALITRAL	Salitral 138	Salitral A	Salitral 13.8_ATQ	2	0	0	2	0	0	2	0	0	2	0	0
T_ATQ_SELE	ATQ Sta ELENA	Sta. Elena 138	Sta. Elena 69	Sta. Elena 13.8_ATQ	1	1	0	1	0	0	1	-2	0	1	-2	0
T_ATQ_TOT	ATQ TOTORAS	Totoras 138	Totoras 69	Totoras 13.8_ATQ	3	0	0	3	0	0	3	0	0	3	0	0
T_ATQ_TRI	ATQ TRINITARIA	Trinitaria 138	Trinitaria 69	Trinitaria 13.8_ATQ	3	18	0	3	18	0	3	18	0	3	18	0
T_ATQ_TUL	ATQ TULCAN	Tulcan 138	Tulcan 69	Tulcan 13.8_ATQ	2	1	0	2	1	0	2	1	0	2	-1	0
T_ATR_DOM	ATR Sto DOMINGO	SDomingo 138	SDomingo 69	SDomingo 13.8_ATR	3	0	0	3	0	0	3	0	0	3	0	0
T_ATR_IBA	ATR IBARRA	Ibarra BT	Ibarra_2 69	Ibarra 13.8_ATR	3	21	0	3	19	0	3	21	0	3	15	0
T_ATR_MAC	ATR MACHALA	Machala 138	Machala 69_B2	Machala 13.8_ATR	3	0	0	3	0	0	3	0	0	3	0	0
T_ATR_PAS	ATR PASCUALES	Pascuales 138	Pascuales 69	Pascuales 13.8_ATR	2	0	0	2	0	0	2	-4	0	2	-4	0
T_ATR_QVD	ATR QUEVEDO	Quevedo 138	Quevedo 69	Quevedo 13.8_ATR	3	-3	1	3	-1	1	3	-6	1	3	-6	1
T_ATR_SAL	ATR SALITRAL	Salitral 138	Salitral B	Salitral 13.8_ATR	2	17	0	2	17	0	2	17	0	2	17	0
T_ATT_PAS	ATT PASCUALES	Pascuales 230	Pascuales 138	Pascuales 13.8_ATT	1	0	0	1	0	0	1	0	0	1	0	0
T_ATT_QVD	ATT QUEVEDO	Quevedo 230	Quevedo 138	Quevedo 13.8_ATT	1	0	0	1	0	0	1	0	0	1	0	0
T_ATT_ROS	ATT SANTA ROSA	SRosa 230	SRosa 138	SRosa 13.8_ATT	2	17	0	2	17	0	2	17	0	2	17	0
T_ATT_TOT	ATT TOTORAS	Totoras 230	Totoras 138	Totoras 13.8_ATT	2	0	0	2	0	0	2	0	0	2	0	0
T_ATT_TRIN	ATT TRINITARIA	Trinitaria 230	Trinitaria 138	Trinitaria 13.8_ATT	2	0	0	2	0	0	2	0	0	2	0	0
T_ATU_DOM	ATU SANTO DOMINGO	SDomingo 230	SDomingo 138	SDomingo 13.8_ATU	2	0	0	2	0	0	2	0	0	2	0	0
T_ATU_PAS	ATU PASCUALES	Pascuales 230	Pascuales 138	Pascuales 13.8_ATU	1	0	0	1	0	0	1	0	0	1	0	0
T_ATU_POM	ATU POMASQUI	Pomasqui 230	Pomasqui 138	Pomasqui 13.8	2	0	0	2	0	0	2	0	0	2	0	0
T_ATU_ROS	ATU SANTA ROSA	SRosa 230	SRosa 138	SRosa 13.8_ATU	2	0	0	2	0	0	2	0	0	2	0	0
T_MOVIL_PUYO	MOVIL	Puyo138	Puyo69	Puyo13.8	3	0	0	3	0	0	3	0	0	3	0	0
T_SE19	T_S/E19	SE19 138	SE19 46	SE19 23	3	14	0	3	14	0	3	14	0	3	14	0
T_SEAL_1	T_SELVA ALEGRE_1	S Alegre 138 B1	S Alegre 46	S Alegre_1 13.8	3	19	0	3	19	0	3	19	0	3	19	0
T_SEAL_2	T_SELVA ALEGRE_2	S Alegre 138 B1	S Alegre 46	S Alegre_2 13.8	3	0	0	3	0	0	3	0	0	3	0	0
T_T1_IBA	T1 IBARRA	Ibarra BT	Ibarra 34.5	Ibarra 13.8_T1	2	3	0	2	3	0	2	1	0	2	-1	0
T_T1_VIC	T1 VICENTINA	Vicentina 138	Vicentina 46 T1	Vicentina 13.8 T1	3	0	0	3	0	0	3	0	0	3	0	0
T_T2_VIC	T2 VICENTINA	Vicentina 138	Vicentina 46 T2	Vicentina 13.8 T2	2	16	0	2	18	0	2	20	0	2	20	0
T_TRK_MAC	TRK MACHALA	Machala 230	Machala 69_B2	Machala 13.8_TRK	3	15	0	3	15	0	3	15	0	3	15	0
T_TRK_RIO	TRK RIOBAMBA	Riobamba 230	Riobamba 69	Riobamba 13.8_TRK	3	2	0	3	2	0	3	2	0	3	0	0
T_TRN_ROS	TRN Sta ROSA	SRosa 138	S Rosa EEQ 46	S Rosa 13.8_TRN	2	3	0	2	3	0	2	3	0	2	3	0
T_TRP_ROS	TRP Sta ROSA	SRosa 138	S Rosa EEQ 46	S Rosa 13.8_TRP	3	20	0	3	20	0	3	20	0	3	20	0
T_TRO_TEN	TRO TENA	Tena138	Tena69	Tena13.8	0	2	0	0	2	0	0	0	0	0	5	0

Tabla D.4.b Datos de Tipo de Transformadores de tres devanados - Sistema ecuatoriano

Nombre	Pot.Nom. HV (MVA)	Pot.Nom. MV (MVA)	Pot.Nom. LV (MVA)	Volt.Nom. HV (kV)	Volt.Nom. MV (kV)	Volt.Nom. LV (kV)	Grupo vectorial	Impedancia de cortocircuito			Perdidas en el cobre			TAP HV			TAP MV				
								HV-MV (%)	MV-LV (%)	LV-HV (%)	HV-MV (kW)	MV-LV (kW)	LV-HV (kW)	Incremento voltaje (%)	Tap nominal	Tap minimo	Tap maximo	Incremento voltaje (%)	Tap nominal	Tap minimo	Tap maximo
AA1 ESMERALDAS	75	75	25	138	69	13.8	YN0yn0d1	9.38	23.67	12.64	64.65	54.51	33.25	2.5	3	1	5	0.6341	17	1	33
AA1 PORTOVIEJO	75	75	25	138	69	13.8	YN0yn0d1	9.37	23.67	12.64	64.50	54.51	33.25	2.5	3	1	5	0.6341	17	1	33
ANC_TR_211	180	180	60	220	110	44.6	YN0yn0d0	9.31	9.15	13.06	0.00	0.00	0.00	1.25	0	-12	8	0.0000	0	0	0
ANC_TR_212	180	180	60	214.5	110	46.6	YN0yn0d0	9.19	8.99	12.83	0.00	0.00	0.00	1.25	0	-12	8	0.0000	0	0	0
APR_TR_141	40	30	30	110	44	13.8	YN0yn0d0	12.82	3.32	11.57	0.00	0.00	0.00	1.25	0	-12	8	0.0000	0	0	0
AT MOLINO	375	375	100	230	138	13.8	YN0yn0d1	7.28	10.11	12.91	57.20	2.12	2.13	2.5	3	1	5	0.0000	0	0	0
AT1 AMBATO	44	44	14	138	69	13.8	YN0yn0d1	7.01	5.17	7.71	97.91	6.36	7.10	2.5	3	1	5	0.0000	0	0	0
ATK DOS CERRITOS	167	167	45	230	69	13.8	YN0yn0d1	9.76	2.18	6.03	176.13	29.14	19.88	0.625	17	1	33	0.0000	0	0	0
ATK MILAGRO	167	167	45	230	69	13.8	YN0yn0d1	7.47	1.84	4.38	127.60	2.18	2.26	2.5	3	1	5	0.0000	0	0	0
ATQ BABAHOYO	66	66	22	138	69	13.8	YN0yn0d1	6.20	7.46	9.81	64.13	23.33	23.01	2.5	3	1	5	0.6250	17	1	33
ATQ CHONE	60	60	20	138	69	13.8	YN0yn0d1	8.11	6.11	9.97	148.70	64.93	64.11	2.5	3	1	5	0.6413	17	1	33
ATQ CUENCA	100	100	27	138	69	13.8	YN0yn0d1	6.90	6.82	9.27	76.80	24.20	15.20	2.5	3	1	5	0.0000	0	0	0
ATQ IBARRA	33	33	10	138	69	13.8	YN0yn0d1	6.74	8.20	10.50	44.45	1.35	1.27	2.5	2	1	3	0.6250	17	1	33
ATQ LOJA	66	66	22	138	69	13.8	YN0yn0d1	7.34	4.87	7.65	169.03	61.33	53.79	2.5	3	1	5	0.6250	0	-16	16
ATQ MACHALA	100	100	33	138	69	13.8	YN0yn0d1	7.21	5.24	8.49	77.58	26.39	25.93	2.5	3	1	5	0.6250	0	-16	16
ATQ MULALO	66	66	22	138	69	13.8	YN0yn0d1	6.14	7.46	9.74	63.19	23.64	23.40	2.5	3	1	5	0.6250	17	1	33
ATQ ORELLANA	30	30	20	138	69	13.8	YN0yn0d1	12.83	24.17	31.42	116.90	44.85	57.45	2.5	3	1	5	0.6231	0	-16	16
ATQ POLICENTRO	150	150	50	138	69	13.8	YN0yn0d1	13.19	31.89	16.80	0.00	0.00	0.00	2.5	3	1	5	0.6250	17	1	33
ATQ POSORJA	33	33	11	138	69	13.8	YN0yn0d1	7.49	5.26	8.64	94.63	37.90	29.27	2.5	3	1	5	0.6250	1	-16	16
ATQ SALITRAL	150	150	30	138	69	13.8	YN0yn0d1	8.46	4.75	7.01	99.29	39.84	41.74	2.5	3	1	5	0.0000	0	0	0
ATQ Sta ELENA	66	66	20	138	69	13.8	YN0yn0d1	7.23	4.87	7.68	153.52	4.69	4.64	2.5	3	1	5	0.6250	1	-16	16
ATQ TOTORAS	100	100	33	138	69	13.8	YN0yn0d1	8.43	7.71	11.72	25.93	1.05	1.06	2.5	3	1	5	0.0000	0	0	0
ATQ TRINITARIA	150	150	50	138	69	13.8	YN0yn0d1	7.82	17.85	9.89	105.57	54.62	39.52	2.5	3	1	5	0.6250	17	1	33
ATQ TULCAN	33	33	11	138	69	13.8	YN0yn0d1	7.44	4.81	7.86	94.46	33.63	29.16	2.5	3	1	5	0.6250	1	-16	16
ATR IBARRA	66.66	66.66	12	138	69	13.8	YN0yn0d1	11.79	4.85	7.77	91.20	20.49	18.59	2.5	3	1	5	0.6230	17	1	33
ATR MACHALA	100	100	10	138	69	13.8	YN0yn0d1	7.23	4.81	7.78	77.58	26.39	25.93	2.5	3	1	5	0.6250	0	-16	16
ATR PASCUALES	224	224	44.8	138	69	13.8	YN0yn0d1	7.84	4.17	6.27	62.96	0.85	0.76	2.5	3	1	5	0.6250	0	-16	16
ATR QUEVEDO	168	168	56	138	69	13.8	YN0yn0d1	8.57	6.48	10.10	197.04	94.73	91.82	2.5	3	1	5	0.6250	0	-16	16
ATR SALITRAL	150	150	30	138	69	13.8	YN0yn0d1	8.15	4.02	6.51	99.29	39.84	41.74	2.5	3	1	5	0.6250	17	1	33
ATR Sto DOMINGO	100	100	27	138	69	13.8	YN0yn0d1	6.92	6.80	9.29	75.60	1.11	1.92	2.5	3	1	5	0.0000	0	0	0
ATT PASCUALES	375	375	100	230	138	13.8	YN0yn0d1	7.16	8.92	11.37	123.77	62.57	62.09	2.5	3	1	5	0.0000	0	0	0
ATT QUEVEDO	167	167	45	230	138	13.8	YN0yn0d1	7.36	4.67	7.20	110.00	61.20	75.30	2.5	3	1	5	0.0000	0	0	0
ATT SANTA ROSA	375	375	125.1	230	138	13.8	YN0yn0d1	7.15	12.85	16.30	145.52	299.27	296.01	2.5	3	1	5	0.6250	17	1	33
ATT TOTORAS	100	100	33	230	138	13.8	YN0yn0d1	8.66	9.34	13.35	26.00	1.05	1.05	2.5	3	1	5	0.0000	0	0	0
ATT TRINITARIA	225	225	75	230	138	13.8	YN0yn0d1	11.83	10.35	15.52	211.95	178.93	163.43	2.5	3	1	5	0.0000	0	0	0
ATU PASCUALES	375	375	100	230	138	13.8	YN0yn0d1	7.30	10.03	12.79	201.20	122.60	120.10	2.5	3	1	5	0.0000	0	0	0
ATU POMASQUI	300	300	30	230	138	13.8	YN0yn0d1	11.82	6.06	7.75	161.50	0.83	0.80	2.5	3	1	5	0.0000	0	0	0
ATU SANTA ROSA	375	375	100	230	138	13.8	YN0yn0d1	7.35	10.13	12.93	201.20	118.30	116.60	2.5	3	1	5	0.0000	0	0	0
ATU SANTO DOMINGO	167	167	45	230	138	13.8	YN0yn0d1	7.26	4.64	6.96	109.50	60.70	56.80	2.5	3	1	5	0.0000	0	0	0

Las impedancias de cortocircuito se encuentran referidas a las mínimas potencias nominales de cada devanado en cada grupo.

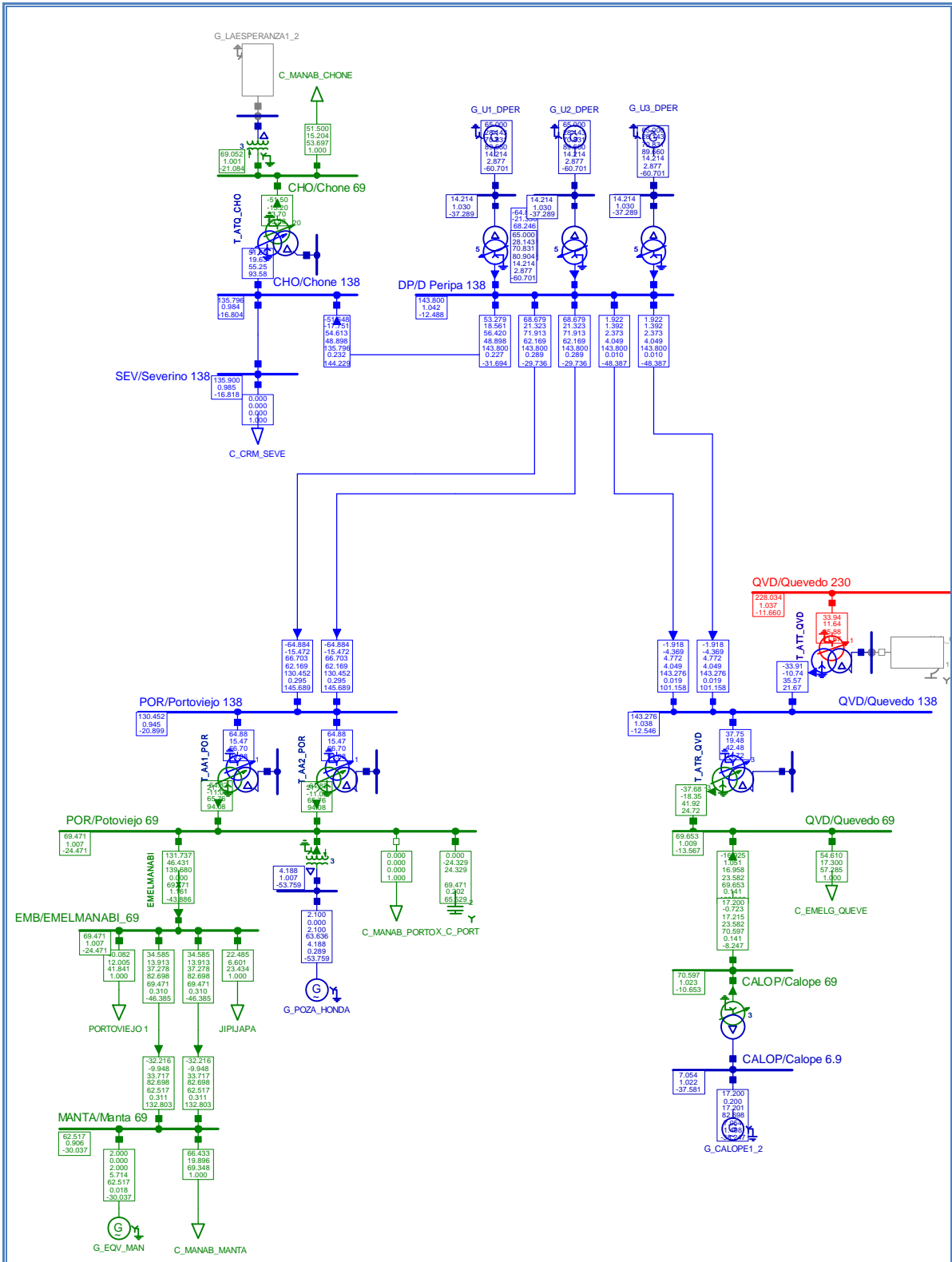
Tabla D.5.a Datos de Transformadores de dos devanados - Sistema ecuatoriano					
Nombre	Tipo	Lado HV	Lado MV	Lado LV	TAP: CASO 1, 2, 3, 4
T_BARCAZA_TRI	T_BARCAZA	Trinitaria 138	Victoria	CT VII 13.8	3
T_Calope	T_Calope	Calope 69	Calope	Calope 6.9	3
T_EESPE	T EUG ESPEJO	E Espejo 138	Eugenio Espejo	E Espejo 23	-3
T_G1_CTESM	T C ESMERALDAS	Esmeraldas 138	Esmeraldas	Esmeraldas 13.8	2
T_GROCA	T_GROCA	G Roca 69	G Roca	G Roca 13.8	3
T_GYQ_AT1	T AT1 Alvaro Tinajero	A Tinajero 69_1	Alvaro Tinajero	CT AT 13.8_U1	0
T_GYQ_AT2	T AT2 Alvaro Tinajero	A Tinajero 69_2	Alvaro Tinajero	CT AT 13.8_U2	0
T_GYQ_TG1	T TG1-2 Anibal Santos	Vas_TG1	Anibal Santos	AS 13.8_TG1	3
T_GYQ_TG2	T TG1-2 Anibal Santos	CTGA Santos 69	Anibal Santos	AS 13.8_TG2	3
T_GYQ_TG3	T TG3 Anibal Santos	CTGA Santos 69	Anibal Santos	AS 13.8_TG3	4
T_GYQ_TG5	T TG5-6 Anibal Santos	CTGA Santos 69	Anibal Santos	AS 13.8_TG5	2
T_GYQ_TG6	T TG5-6 Anibal Santos	CTGA Santos 69	Anibal Santos	AS 13.8_TG6	3
T_GYQ_VAS	T VASAN	Vas_TG1	Anibal Santos	VAS 13.8	4
T_HOLCIM	T_HOLCIM	Holcim 69	Holcim	Holcim 4.16	3
T_KEPPEL_G1	T KEPPEL_37.5	Esclusas 230	Esclusas	Keppel 13.8_G1	2
T_KEPPEL_G4	T KEPPEL_63.5	Esclusas 230	Esclusas	Keppel 13.8_G4	2
T_KEPPEL_G5	T KEPPEL_63.5	Esclusas 230	Esclusas	Keppel 13.8_G5	2
T_LA ESPERANZA	T LA ESPERANZA	Chone 69	La Esperanza	Esperanza 4.16	3
T_POMAQ	T POMQ	Pomasqui 138	PomasquiEq	Pomasqui 23	-4
T_POZA HONDA	T POZA HONDA	Potoviejo 69	POZAHONDA	Pozahonda 4.16	3
T_SAN FRANCISCO_1	T San francisco	SFCO 230	San Francisco	SFCO 13.8_U1	4
T_SAN FRANCISCO_2	T San francisco	SFCO 230	San Francisco	SFCO 13.8_U2	4
T_TG1_SROSA	T C SANTA ROSA	SRosa 138	CT Santa Rosa 13.8	S Rosa 13.8_TG1	3
T_TG2_SROSA	T C SANTA ROSA	SRosa 138	CT Santa Rosa 13.8	S Rosa 13.8_TG2	3
T_TG3_SROSA	T C SANTA ROSA	SRosa 138	CT Santa Rosa 13.8	S Rosa 13.8_TG3	3
T_TG4_GZEV	T TG4 G. ZEVALLOS	Salitral A	Gonzalo Zevallos	G Zevallos 13.8_TG4	5
T_TIC_EQUIL	T TIC ELECTROQUIL	Electroquil 138		P_HoTicEqI6	0
T_TV2_GZEV	T U G. ZEVALLOS2	Salitral B	Gonzalo Zevallos	G Zevallos 13.8_TV2	4
T_TV3_GZEV	T U G. ZEVALLOS3	Salitral A	Gonzalo Zevallos	G Zevallos 13.8_TV3	4
T_U1-2_CHILL	T CHILLOS	S Rafael 46	CH Chillos	Chillos 2.3	3
T_U1-2_ECOLU	T ECOLUZ	Ecoluz 46	CH Ecoluz	Ecoluz 4.16	1
T_U1-2_NAYON	T U NAYON	Nayon 46	CH Nayon	Nayon 6.9	3
T_U1-2_PASOC	T PASOCHOA	Pasochoa 46	Pasochoa	Pasochoa 4.16	4
T_U1-2_SIBIM	T_SIBIMBE	Sibimbe 69	Sibimbe	Sibimbe 6.9	3
T_U1-3_LULUN	T LULUNCOTO	Sur 46	Luluncoto	Luluncoto 6.3	1
T_U1-4_CUMBA	T U CUMBAYA	Cumbaya 46	CH Cumbaya	Cumbaya 4.16	5
T_U1-5_ABANI_1	T_Abanico_1	Abanico 69	Abanico	Abanico 4.16	3
T_U1-5_ABANI_2	T_Abanico_2	Abanico 69	Abanico	Abanico 4.16	3
T_U1-6_GHERN	T GUALBERTO HERNANDEZ	Guangopolo 46	CT G Hernandez	G Hernandez 13.8	3
T_U1-6_GUANG	T C GUANGOPOLO	Guangopolo 138	CT Guangopolo	Guangopolo 6.6	3
T_U1-6_HGUAN	T H GUANGOPOLO	CH Guangopolo 46	CH Guangopolo	CH Guangopolo 6.3	4
T_U1O_PAUTE	PAUTE T FASE C	Molino 230	Molino	CH Paute 13.8_U10	2
T_U1_AGOYAN	T U Agoyan	Agoyan 138	Agoyan	Agoyan 13.8_U1	3
T_U1_CARME	T EMAAP_CARMEN	El Carmen 138	CH El Carmen	El Carmen 6.6	11
T_U1_CSA	T U CSA	CSA 34.5	Cemento Selva Alegre	CSA 4.6	3
T_U1_DPER	T DAULE PERIPA	D Peripa 138	Daule Peripa	D Peripa 13.8_U1	5
T_U1_EQUIL	T U1 ELECTROQUIL	Electroquil 69	Electroquil	Equil 13.8_U1	5
T_U1_MPP	MACHALA POWER T	CT MPP 138	CT MPP	CT MPP 13.8_UA	4
T_U1_PAS	T GAS PASCUALES	Pascuales 69	Pascuales	CT Pascuales 13.8	4
T_U1_PAUTE	PAUTE T FASE AB	Molino 138	Molino	CH Paute 13.8_U1	3
T_U1_PUCARA	T U PUCARA	Pucara 138	Pucara	Pucara 13.8_U1	5
T_U1_RECUP	T_EMAAP_RECUPERADORA	Papallacta 138	Recuperadora	Recuperadora 6.6	17
T_U1_TRI	T C TRINITARIA	Trinitaria 138	Trinitaria	CT Trinitaria 13.8	3
T_U2_AGOYAN	T U Agoyan	Agoyan 138	Agoyan	Agoyan 13.8_U2	3
T_U2_DPER	T DAULE PERIPA	D Peripa 138	Daule Peripa	D Peripa 13.8_U2	5
T_U2_EQUIL	T U2 ELECTROQUIL	Electroquil 69	Electroquil	Equil 13.8_U2	5
T_U2_MPP	MACHALA POWER T	CT MPP 138	CT MPP	CT MPP 13.8_UB	4
T_U2_PAUTE	PAUTE T FASE AB	Molino 138	Molino	CH Paute 13.8_U2	3
T_U2_PUCARA	T U PUCARA	Pucara 138	Pucara	Pucara 13.8_U2	5
T_U3_DPER	T DAULE PERIPA	D Peripa 138	Daule Peripa	D Peripa 13.8_U3	5
T_U3_EQUIL	T U3-4 ELECTROQUIL	Electroquil 138	Electroquil	Equil 13.8_U3	5
T_U3_PAUTE	PAUTE T FASE AB	Molino 138	Molino	CH Paute 13.8_U3	3
T_U4_EQUIL	T U3-4 ELECTROQUIL	Electroquil 138	Electroquil	Equil 13.8_U4	5
T_U4_PAUTE	PAUTE T FASE AB	Molino 138	Molino	CH Paute 13.8_U4	3
T_U5_PAUTE	PAUTE T FASE AB	Molino 138	Molino	CH Paute 13.8_U5	3
T_U6_PAUTE	PAUTE T FASE C	Molino 230	Molino	CH Paute 13.8_U6	2
T_U7_PAUTE	PAUTE T FASE C	Molino 230	Molino	CH Paute 13.8_U7	2
T_U8_PAUTE	PAUTE T FASE C	Molino 230	Molino	CH Paute 13.8_U8	2
T_U9_PAUTE	PAUTE T FASE C	Molino 230	Molino	CH Paute 13.8_U9	2

Tabla D.5.b Datos de Tipo de Transformadores de tres devanados - Sistema ecuatoriano							
Nombre	Pot.Nom.	Frecuencia Nominal	Vnom .HV	Vnom.LV	Zcc	Perdidas en el cobre (kW)	Grupo vectorial
	MVA	Hz	kV	kV	%		
T AT1 Alvaro Tinajero	33.33	60	68.8	13.8	7.00	75.00	YNd1
T AT2 Alvaro Tinajero	26.88	60	68.8	13.2	7.00	75.00	YNd0
T C ESMERALDAS	160	60	147.5	13.8	11.23	352.19	YNd11
T C GUANGOPOLO	20	60	138	6.6	10.49	276.71	YNd1
T C SANTA ROSA	28	60	138	13.8	13.11	67.19	YNd11
T C TRINITARIA	160	60	144	13.8	7.00	205.68	YNd1
T CHILLOS	12.5	60	46	2.3	3.00	118.00	Dd0
T DAULE PERIPA	85	60	138	13.8	12.25	264.05	YNd1
T ECOLUZ	33	60	46	4.16	15.57	204.99	YNd1
T EMAAP_CARMEN	12.5	60	138	6.6	88.32	27.72	YNd11
T EUG ESPEJO	33	60	138	23	10.09	33.24	Dyn1
T GAS PASCUALES	114	60	69	13.8	11.66	265.79	YNzn0
T GUALBERTO HERNANDEZ	46.5	60	46	13.8	9.30	176.05	YNd1
T H GUANGOPOLO	15	60	46	6.3	9.95	40.00	YNd1
T KEPPEL_37.5	37.5	60	220	13.8	14.70	100.00	YNd1
T KEPPEL_63.5	63.5	60	230	13.7	12.00	30.00	YNd1
T LA ESPERANZA	10	60	69	4.16	3.00	0.00	YNd1
T LULUNCOTO	11.25	60	46	6.3	12.40	62.27	YNd1
T PASOCHOA	12.5	60	46	4.16	8.13	43.00	YNd1
T POMQ	33	60	138	23	16.64	158.99	Dyn1
T POZA HONDA	5	60	69	4.16	3.00	0.00	YNd1
T San francisco	127.5	60	230	13.8	12.49	80.00	YNd1
T TG1-2 Anibal Santos	27.5	60	68.8	13.8	6.90	72.20	YNd1
T TG3 Anibal Santos	27.5	60	68.8	13.8	7.50	71.10	YNd1
T TG4 G. ZEVALLOS	34	60	68.8	13.8	9.10	84.00	YNd5
T TG5-6 Anibal Santos	26.667	60	68.8	13.2	7.04	70.85	YNd1
T TIC ELECTROQUIL	112	60	138.4	72.6	13.53	158.07	YNyn1
T U Agoyan	85	60	138	13.8	12.01	211.61	YNd11
T U CSA	13.8	60	34.5	4.6	5.83	211.61	YNd1
T U CUMBAYA	12.5	60	46	4.16	10.13	30.00	YNd1
T U G. ZEVALLOS2	86	60	69	13.2	12.00	448.00	YNd5
T U G. ZEVALLOS3	86	60	69	13.2	11.79	448.00	YNd5
T U NAYON	16.5	60	46	6.9	5.83	50.34	YNd1
T U PUCARA	40	60	141.5	13.8	10.17	81.34	YNd11
T U1 ELECTROQUIL	64	60	67	13.8	14.52	448.00	YNd11
T U2 ELECTROQUIL	84	60	67.8	13.8	8.06	448.00	YNd11
T U3-4 ELECTROQUIL	56	60	138	13.8	18.11	163.27	YNd1
T VASAN	25	60	68.8	13.2	7.30	61.15	YNd1
T_Abanico_1	18	60	69	4.16	10.50	17.00	YNd11
T_Abanico_2	27	60	69	4.16	11.00	18.00	YNd11
T_BARCAZA	150	60	138	13.8	15.38	523.20	YNd1
T_Calope	20.8	60	69	6.9	6.78	0.00	YNd1
T_EMAAP_RECUPERADORA	18	60	138	6.6	54.83	64.50	YNd11
T_GROCA	33.33	60	69	13.8	11.06	162.63	YNd0
T_HOLCIM	35	60	69	4.16	11.06	162.63	YNd0
T_SIBIMBE	18	60	69	6.9	13.00	147.00	YNd11
PAUTE T FASE AB	114	60	138	13.8	11.40	278.79	YNd1
PAUTE T FASE C	134	60	230	13.8	14.98	348.06	YNd11

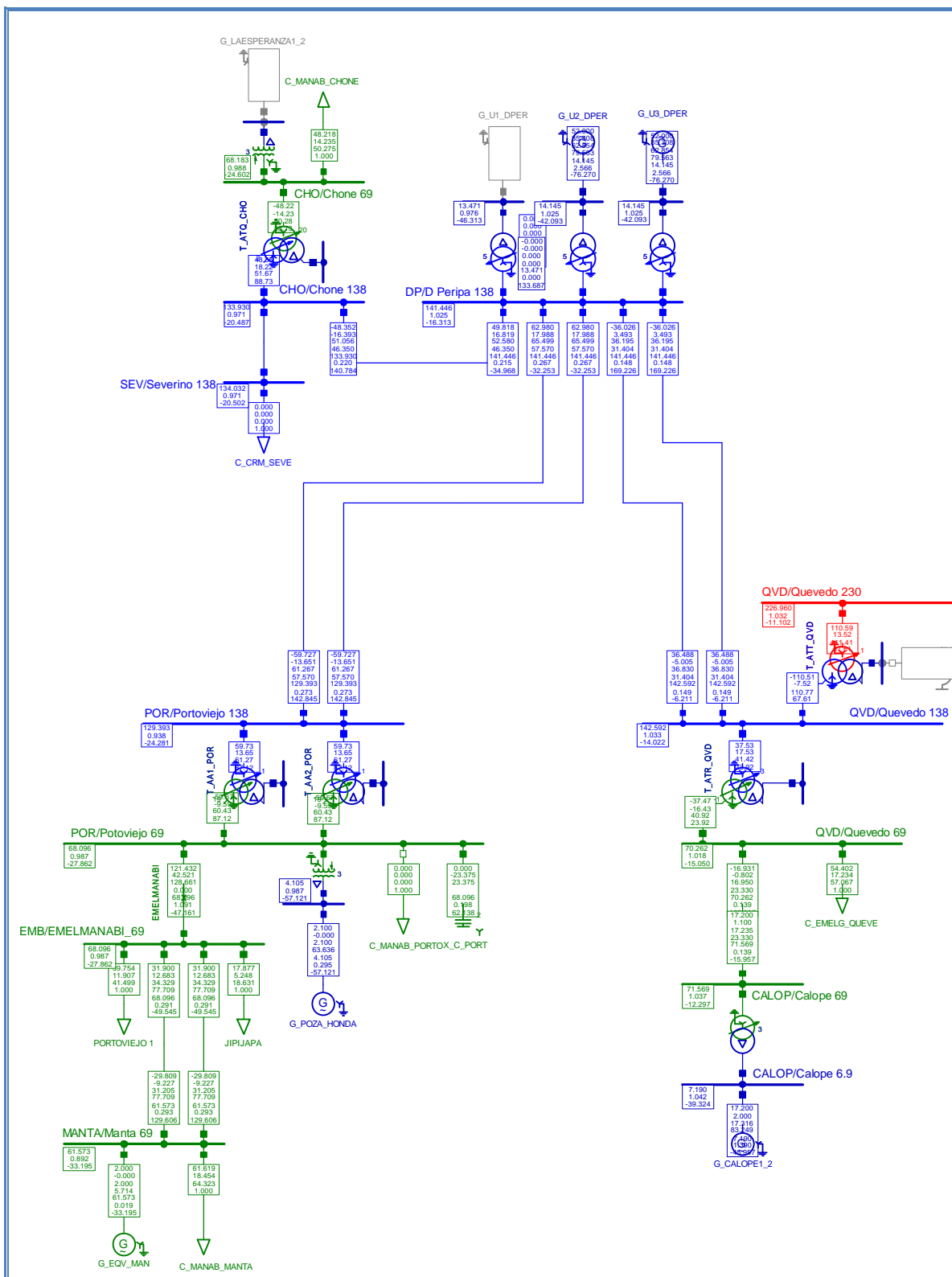
Flujos de carga

CASO BASE 1

ALTA HIDROLOGIA - Demanda máxima de la zona y del sistema



CASO BASE 2
ALTA HIDROLOGIA - Mínimo voltaje de la zona (Salida de unidades de Hidronación)



CASO BASE 3
BAJA HIDROLOGIA - Demanda máxima de la zona y del sistema

