
ANEXOS

ESTUDIO DE CONTINUIDAD DE SUMINISTRO 2023

DEPARTAMENTO DE ESTUDIOS ELÉCTRICOS
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ANEXO 1: ÍNDICES DE CONTINUIDAD POR PUNTO DE CONTROL

Punto de Control	FMIK					TTIK				
	2018	2019	2020	2021	2022	2018	2019	2020	2021	2022
IQUIQUE										
ANGLO AMERICAN NORTE - MANTOVERDE										
BA S/E TAP OFF ESTACIÓN DE BOMBEO 1 HMC 66KV										
CGE										
BA S/E ALTO HOSPICIO 13.8KV	1.0	0.0	0.0	5.0	5.0	0.2	0.0	0.0	9.9	5.4
BA S/E ARICA 13.8KV-BP	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0
BA S/E CENTRAL DIESEL ARICA 13.8KV	1.0	11.0	3.0	7.0	2.0	0.1	5.1	1.6	5.1	2.0
BA S/E CENTRAL TARAPACÁ 13.8KV	1.0	3.0	1.0	0.0	1.0	0.4	10.6	6.5	0.0	5.3
BA S/E CERRO DRAGÓN 13.8KV	1.0	0.0	0.0	2.0	2.0	0.2	0.0	0.0	0.4	0.8
BA S/E CHINCHORRO 13.8KV	2.9	3.0	1.0	2.0	4.0	19.3	0.4	0.5	0.6	4.9
BA S/E LAGUNAS 23KV	2.0	0.0	1.0	0.0	0.0	0.9	0.0	3.8	0.0	0.0
BA S/E PACÍFICO 13.8KV	2.0	3.0	2.0	4.0	6.0	0.6	1.9	6.5	4.7	4.8
BA S/E PALAFITOS 13.8KV BP1	1.0	0.0	1.0	4.0	4.0	0.3	0.0	0.2	3.6	3.7
BA S/E POZO ALMONTE 23KV	2.0	7.0	2.0	3.0	5.0	3.1	6.0	0.8	6.4	8.9
BA S/E PUKARA 13.8KV BP1	3.0	2.0	2.0	3.0	5.0	19.7	0.3	3.3	1.4	6.3
BA S/E QUIANI 13.8KV-BP1	9.0	4.0	3.0	4.0	3.0	24.9	1.9	7.0	27.3	2.7
BA S/E TAMARUGAL 23KV	4.0	15.0	9.0	2.0	2.0	2.1	9.9	10.5	0.4	7.3
BA S/E TAP OFF CHIZA	0.0	3.0	3.0	0.0	1.0	0.0	8.2	1.3	0.0	14.0
BA S/E TAP OFF DOLORES 24KV	8.4	17.1	4.0	6.0	5.0	16.8	17.6	6.8	10.3	12.7
BA S/E TAP OFF MAL PASO	0.0	3.0	3.0	0.0	1.0	0.0	8.2	1.3	0.0	80.0
BA S/E TAP OFF VITOR	0.0	5.0	0.0	1.0	0.0	0.0	9.3	0.0	0.4	0.0
BA S/E TAP OFF VITOR N°2 MÓVIL 23KV	0.0	5.0	1.0	3.0	6.0	0.0	11.7	0.4	9.3	27.8
BA S/E TAP OFF CUYA 13.8KV	3.0	11.0	3.0	1.0	2.0	1.4	14.0	3.3	0.4	14.9
ENORCHILE										
BA S/E TAP OFF DOLORES 24KV	0.0	2.0	2.0	0.0	0.0	0.0	0.2	0.6	0.0	0.0
HALDEMAN										

Punto de Control	FMIK					TTIK				
	2018	2019	2020	2021	2022	2018	2019	2020	2021	2022
BA S/E LA CASCADA HMC (SAGASCA) 66KV	3.0	12.0	2.0	0.0	0.0	2.4	541.1	87.2	0.0	0.0
BA S/E TAP OFF ESTACIÓN DE BOMBEO 1 HMC 66KV	0.0	4.0	1.0	0.0	0.0	0.0	529.1	86.8	0.0	0.0
BA S/E TAP OFF ESTACIÓN DE BOMBEO 2 HMC 66KV	0.0	5.0	1.0	0.0	0.0	0.0	28.5	86.8	0.0	0.0
NODO TAP OFF ESTACIÓN DE BOMBEO 1 HMC 66KV	1.0	2.0	0.0	0.0	0.0	0.4	8.0	0.0	0.0	0.0
NODO TAP OFF ESTACIÓN DE BOMBEO 2 HMC 66KV										
MINERA CERRO COLORADO										
BA S/E CERRO COLORADO 110KV	2.0	2.0	1.0	3.0	2.0	1.9	1.1	0.3	2.9	1.1
MINERA COLLAHUASI										
BA S/E COLLAHUASI 220KV-BP1	1.1	1.0	0.0	1.0	1.0	0.4	0.2	0.0	0.4	0.3
MINERA QUEBRADA BLANCA										
BA S/E QUEBRADA BLANCA 220KV	1.0	3.0	2.0	0.0	1.0	164.5	215.5	17.3	0.0	4.1
SQM										
BA S/E LAGUNAS 23KV	2.0	0.0	1.0	0.0	0.0	0.9	0.0	159.9	0.0	0.0
BA S/E SUR VIEJO 23KV	1.0	0.0	0.0	1.0	1.0	2.7	0.0	0.0	0.4	1.0
BA S/E TAP OFF NUEVA VICTORIA 220KV	4.0	0.0	1.0	2.0	2.0	18.7	0.0	6.2	0.9	15.0
TOCOPILLA										
CGE										
BA S/E CALAMA 23KV - BP1	1.0	6.0	0.0	3.0	6.0	0.9	4.7	0.0	10.2	5.8
BA S/E TOCOPILLA 5KV	0.0	1.0	0.0	7.0	4.0	0.0	1.6	0.0	5.7	0.8
CODELCO CHILE - CHUQUICAMATA										
BA S/E 10 100KV	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BA S/E 10A 100KV BP1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BA S/E A 100KV-BP1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BA S/E CHAMY 100KV	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Punto de Control	FMIK					TTIK				
	2018	2019	2020	2021	2022	2018	2019	2020	2021	2022
BA S/E CHUQUICAMATA										
220KV-BP1	0.0	0.0	0.0	1.0	1.0	0.0	0.0	0.0	10.9	1.4
BA S/E ENCUENTRO										
220KV-BP1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BA S/E K1 100KV BP1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BA S/E KM6 100KV-BP1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BA S/E SALAR 100KV - BP1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BA S/E SALAR 220KV - BP1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BA S/E SOPLADORES 100KV BP1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BA S/E TCHITACK 34.5KV BP1	0.0	0.0	0.5	0.5	0.0	0.0	0.0	1.2	1.1	0.0
BA S/E TCHITACK 34.5KV BP1	0.0	0.0	0.5	0.5	0.0	0.0	0.0	1.2	1.1	0.0
CODELCO CHILE - DIVISIÓN MINISTRO HALES										
BA S/E MMH 220KV - BP1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BA S/E MMH 23KV - BP1	0.0	0.0	0.0	0.5	1.0	0.0	0.0	0.0	0.2	1.5
BA S/E MMH 23KV - BP2	0.0	0.0	0.0	0.5	1.0	0.0	0.0	0.0	0.2	1.5
CODELCO CHILE - DIVISIÓN RADOMIRO TOMIC										
BA S/E RADOMIRO TOMIC 220KV-BP1	0.0	0.0	1.0	1.0	3.0	0.0	0.0	1.4	2.2	10.1
ENORCHILE										
BA S/E PEQ 23KV	1.0	0.0	0.0	0.0	0.0	1.2	0.0	0.0	0.0	0.0
GRACE										
BA S/E MANTOS DE LA LUNA 110KV	0.0	1.0	1.0	1.0	0.0	0.0	3.8	7.6	3.3	0.0
MINERA ANTUCOYA										
BA S/E ANTUCOYA 220KV	0.0	0.0	1.5	0.0	2.0	0.0	0.0	10.0	0.0	2.6
NODO ANTUCOYA 110KV	0.0	0.0	1.5	0.0	2.0	0.0	0.0	3.8	0.0	2.6
MINERA EL ABRA										
BA S/E EL ABRA 220KV	0.0	4.0	1.0	0.5	2.0	0.0	3.8	1.6	3.6	4.0
MINERA SPENCE										
BA S/E SPENCE 220KV	1.0	4.0	0.0	2.0	0.0	0.3	21.6	0.0	1.7	0.0
SIERRA GORDA SCM										
BA S/E SIERRA GORDA 220KV - BP1	0.0	1.0	1.0	0.0	2.0	0.0	153.3	6.2	0.0	1.7
SQM										
BA S/E EL LOA 10KV	0.0	2.0	0.0	0.5	0.0	0.0	3.7	0.0	8.1	0.0
BA S/E EL LOA 23KV	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	8.1	0.0

Punto de Control	FMIK					TTIK				
	2018	2019	2020	2021	2022	2018	2019	2020	2021	2022
BA S/E TAP OFF LA CRUZ 220KV	0.0	4.0	2.0	0.0	0.0	0.0	19.1	67.0	0.0	0.0
ANTOFAGASTA										
AGUAS ANTOFAGASTA										
BA S/E DESALANT 110KV	3.0	2.0	3.0	0.0	1.0	14.8	9.8	1.3	0.0	0.9
BA S/E TAP OFF DESALANT 110KV	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ALGORTA										
BA S/E CHACAYA 110KV - BP1	0.0	0.0	2.0	1.0	0.0	0.0	0.0	7.3	1.7	0.0
BA S/E TAP OFF E.B. ALGORTA N°1 33KV	2.0	3.0	0.0	0.0	0.0	8.4	9.9	0.0	0.0	0.0
BA S/E TAP OFF E.B. ALGORTA N°2 33KV	2.0	3.0	0.0	0.0	0.0	8.4	9.9	0.0	0.0	0.0
BA S/E TAP OFF E.C. ALGORTA 33KV	2.0	3.0	0.0	0.0	0.0	8.4	9.9	0.0	0.0	0.0
CGE										
BA S/E ANTOFAGASTA 13.8KV BP1	2.0	1.0	2.0	0.0	1.6	0.5	0.4	0.1	0.0	1.4
BA S/E ANTOFAGASTA 23KV	1.0	1.0	0.0	0.0	0.4	0.1	0.4	0.0	0.0	0.0
BA S/E CENTRO 110KV	1.0	2.2	1.0	1.0	3.0	2.0	4.4	1.7	2.3	2.6
BA S/E CENTRO 13.8KV BP1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BA S/E CENTRO 23KV	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BA S/E EL LINCE 23KV	0.0	1.0	6.0	1.0	3.0	0.0	0.6	22.3	1.9	8.3
BA S/E LA PORTADA 110KV - BP	5.0	5.0	4.0	5.0	7.0	6.0	2.6	6.3	14.3	4.6
BA S/E LA PORTADA 23KV - BP1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BA S/E MEJILLONES 23KV	4.0	0.0	1.0	2.0	0.0	11.6	0.0	1.1	14.4	0.0
BA S/E SUR 13.8KV	0.0	1.0	0.0	1.0	3.0	0.0	6.4	0.0	3.6	2.3
BA S/E TAP OFF LA NEGRA 23KV - BP1	1.0	1.0	1.0	0.0	2.0	0.1	0.4	1.0	0.0	2.5
BA S/E URIBE 110KV	0.0	2.0	0.0	2.0	6.0	0.0	3.6	0.0	3.9	17.5
BA S/E URIBE 23KV	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CODELCO CHILE - DIVISIÓN GABRIELA MISTRAL										
BA S/E GABY 220KV	0.0	0.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	3.6
COMPAÑÍA MINERA ZALDIVAR SPA										
BA S/E ZALDÍVAR 220KV	0.0	0.0	2.0	3.0	0.0	0.0	0.0	1.1	12.0	0.0
ENAEX										
BA S/E CENTRAL DIESEL ENAEX 110KV	1.0	0.0	3.0	0.0	0.0	11.1	0.0	0.5	0.0	0.0
GNL MEJILLONES										

Punto de Control	FMIK					TTIK				
	2018	2019	2020	2021	2022	2018	2019	2020	2021	2022
BA S/E GNL MEJILLONES 110KV	0.0	3.0	0.0	0.0	0.0	0.0	8.4	0.0	0.0	0.0
MINERA ATACAMA MINERALS										
BA S/E AGUAS BLANCAS 13.8KV	4.0	1.0	3.0	1.0	1.0	7.7	4.1	1.5	11.8	5.2
BA S/E EL TESORO 220KV	0.0	1.0	0.0	1.0	1.0	0.0	0.1	0.0	0.6	2.2
BA S/E ESPERANZA 220KV	0.0	0.0	0.0	3.0	2.0	0.0	0.0	0.0	0.6	1.7
BA S/E GUAYAQUES 110KV	0.0	2.0	0.0	1.0	1.0	0.0	5.7	0.0	13.8	3.4
BA S/E MUELLE 110KV	0.0	1.0	0.0	1.0	2.0	0.0	5.0	0.0	13.3	2.2
BA S/E TAP OFF LICANCABUR 110KV	0.0	2.0	0.0	1.0	1.0	0.0	5.7	0.0	13.8	3.4
BA S/E TAP OFF LLANOS 220KV	1.0	1.0	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.0
BA S/E TAP OFF SAIRECABUR 110KV	0.0	2.0	0.0	1.0	1.0	0.0	5.7	0.0	13.8	3.4
MINERA EL TESORO										
BA S/E EL TESORO 220KV	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MINERA ESCONDIDA										
BA S/E COLOSO 220KV - BP1	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BA S/E ESCONDIDA 220KV-BP1	0.0	1.0	0.0	1.0	2.0	0.0	6.4	0.0	1.4	2.8
BA S/E LAGUNA SECA 220KV	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.3	0.0
BA S/E LIXIVIACIÓN 69KV - BS	0.0	0.0	1.0	0.0	0.0	0.0	0.0	25.7	0.0	0.0
BA S/E MONTURAQUI 69KV	2.0	6.0	0.0	0.0	0.0	4.2	8.8	0.0	0.0	0.0
BA S/E OGP1 220KV - BP1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BA S/E OLAP 69KV	0.0	0.0	2.0	0.0	2.0	0.0	0.0	2.0	0.0	1.6
BA S/E PLANTA ÓXIDOS 220KV	0.0	1.0	0.0	1.0	2.0	0.0	0.2	0.0	0.8	1.6
BA S/E TAP OFF ESTACIÓN DE BOMBEO N°2 4.16KV	0.0	1.0	0.0	0.0	0.0	0.0	28.2	0.0	0.0	0.0
BA S/E TAP OFF ESTACIÓN DE BOMBEO N°3 4.16KV	0.0	1.0	0.0	1.0	0.0	0.0	26.8	0.0	6.9	0.0
BA S/E TAP OFF ESTACIÓN DE BOMBEO N°4 4.16KV	0.0	1.0	0.0	0.0	0.0	0.0	26.9	0.0	0.0	0.0
BA S/E TAP OFF 003 69KV	0.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	0.0
MINERA ESPERANZA										
BA S/E ESPERANZA 220KV	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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	2018	2019	2020	2021	2022	2018	2019	2020	2021	2022
BA S/E GUAYAQUES 110KV	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BA S/E MUELLE 110KV	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BA S/E TAP OFF LICANCABUR 110KV	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BA S/E TAP OFF SAIRECABUR 110KV	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MINERA LOMAS BAYAS										
BA S/E LOMAS BAYAS 220KV	0.0	1.0	0.0	0.0	0.0	0.0	1.3	0.0	0.0	0.0
MINERA MANTOS BLANCOS										
BA S/E MANTOS BLANCOS 220KV	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0
MINERA MERIDIAN										
BA S/E EL PEÑÓN 66KV	2.0	2.0	2.0	2.0	2.0	6.3	58.0	19.7	21.2	12.1
MINERA MICHILLA										
BA S/E EL LINCE 110KV	2.0	3.0	7.0	2.0	3.0	11.7	18.8	47.0	2.3	8.3
COMPAÑIA MINERA ZALDIVAR SPA										
BA S/E ZALDÍVAR 220KV	0.0	0.0	2.0	3.0	0.0	0.0	0.0	1.1	12.0	0.0
MOLY-COP										
BA S/E CHACAYA 220KV-BP1	0.0	0.0	2.0	1.0	0.0	0.0	0.0	7.3	1.7	0.0
MOLY-COP SING										
BA S/E CHACAYA 220KV-BP1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NORACID										
BA S/E MEJILLONES 13.8KV (NORACID)	0.0	0.0	1.0	2.0	0.0	0.0	0.0	1.2	13.4	0.0
SAESA										
BA S/E ARMAZONES 23KV	1.0	1.0	3.0	1.0	2.0	2.5	0.2	60.3	1.6	23.3
SQM										
BA S/E MINSAL 110KV	0.0	3.0	1.0	2.0	2.0	0.0	7.4	7.6	2.4	18.1
BA S/E TAP OFF EL NEGRO 110KV	1.0	1.0	0.0	2.0	1.0	0.0	0.6	0.0	22.6	7.1
XSTRATA COPPER – ALTONORTE										
BA S/E ALTO NORTE 110KV	1.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.3
COPIAPÓ										
AGROSUPER										
BA S/E AGROSUPER 220KV	1.0	3.0	0.0	0.0	0.0	2.5	31.6	0.0	0.0	0.0
ANGLO AMERICAN NORTE - MANTOVERDE										
BA S/E DIEGO DE ALMAGRO 110KV B2	0.0	0.0	1.0	0.0	2.0	0.0	0.0	20.2	0.0	1.4

Punto de Control	FMIK					TTIK				
	2018	2019	2020	2021	2022	2018	2019	2020	2021	2022
BA S/E IMPULSION 23KV BP1	0.0	0.0	0.0	3.0	1.0	0.0	0.0	0.0	3.6	22.7
CAP CMP										
BA S/E LOS COLORADOS 110KV	1.2	3.0	0.0	1.0	1.0	1.8	2.6	0.0	0.2	0.1
BA S/E MAGNETITA 110KV	1.0	0.0	0.0	0.0	0.0	6.2	0.0	0.0	0.0	0.0
BA S/E PELLETS 110KV	6.1	1.0	1.0	0.0	1.0	3.8	0.3	2.0	0.0	0.8
BA S/E TOTORALILLO 220KV	0.0	1.0	0.0	1.0	1.0	0.0	6.0	0.0	3.2	0.2
BA S/E CERRO NEGRO NORTE 220KV	0.0	1.0	2.0	2.0	1.0	0.0	6.0	7.2	1.9	0.2
CGE										
BA S/E DIEGO DE ALMAGRO 23KV	3.0	2.0	0.0	0.0	3.0	1.8	11.8	0.0	0.0	1.6
BA S/E EL SALADO 23KV	7.0	0.0	3.0	0.0	4.0	2.4	0.0	5.7	0.0	56.1
BA S/E PAPOSO 220KV SECCIÓN 1	0.0	1.0	0.0	0.0	0.5	0.0	0.2	0.0	0.0	2.4
BA S/E VALLENAR 13.2KV	1.0	1.0	6.0	3.0	3.0	19.4	6.8	22.4	4.1	12.3
BA S/E ALTO DEL CARMEN 13.8KV	2.0	1.0	4.0	1.0	2.0	25.4	6.9	17.1	0.3	8.3
BA S/E CALDERA 23KV	0.0	1.0	1.0	4.0	2.0	0.0	1.6	4.1	1.4	22.9
BA S/E CERRILLOS 23KV	0.0	0.0	0.0	4.0	3.0	0.0	0.0	0.0	11.8	5.9
BA S/E CHANARAL 13.8KV	6.0	1.0	4.0	1.0	4.0	1.7	3.9	2.0	0.5	26.6
BA S/E COPIAPO 13.8KV B1	0.0	0.4	0.4	0.4	0.5	0.0	1.5	0.4	0.1	0.3
BA S/E COPIAPO 13.8KV B2	0.0	0.1	1.6	0.6	0.5	0.0	0.3	2.4	0.2	0.3
BA S/E LOS LOROS 23KV	0.0	0.0	0.0	3.0	3.0	0.0	0.0	0.0	14.1	6.0
BA S/E PLANTAS 13.8KV	0.0	1.0	2.0	3.0	1.0	0.0	13.6	6.3	3.9	2.0
BA S/E TIERRA AMARILLA 23KV BP11	1.0	0.0	1.0	0.6	0.3	1.1	0.0	2.7	0.2	0.3
BA S/E TIERRA AMARILLA 23KV BP2	0.0	0.0	0.0	2.4	0.7	0.0	0.0	0.0	2.8	31.0
BA S/E HERNAN FUENTES 23KV	2.0	2.0	1.0	2.0	1.0	0.2	14.8	1.2	2.2	0.1
BA S/E PAPOSO 220KV SECCIÓN 2	0.0	1.0	0.0	1.0	0.5	0.0	0.2	0.0	4.8	2.4
BA S/E TALTAL (ELECDA) 13.2KV	11.0	6.6	3.0	6.0	10.0	10.8	9.7	2.8	17.3	28.3
BA TAP EL EDEN 13.2KV BP1	0.0	0.0	4.0	1.0	1.0	0.0	0.0	18.6	0.2	0.3

Punto de Control	FMIK					TTIK				
	2018	2019	2020	2021	2022	2018	2019	2020	2021	2022
BA S/E HUASCO 13.8KV B1	5.5	0.0	0.0	0.0	2.0	1.7	0.0	0.0	0.0	7.6
CODELCO CHILE – DIVISIÓN SALVADOR										
BA S/E DIEGO DE ALMAGRO 110KV B2	0.0	0.0	1.0	0.0	2.0	0.0	0.0	20.2	0.0	1.4
COMPAÑÍA MINERA GUANACO SpA										
BA S/E GUANACO 13.8 KV	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ENAMI PAIPOTE										
BA S/E FUNDICION PAIPOTE 110KV	0.2	1.0	0.0	0.0	1.0	1.8	13.6	0.0	0.0	0.9
MINERA ATACAMA KOZAN										
BA S/E ATACAMA KOZAN 110KV	0.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.7	0.0
MINERA CANDELARIA										
BA S/E MINERA LA CANDELARIA 220KV B1	1.0	0.0	0.0	1.0	0.0	0.4	0.0	0.0	0.3	0.0
BA S/E TRAVESIA 110KV B1	0.0	1.0	0.0	0.0	0.0	0.0	9.6	0.0	0.0	0.0
BA S/E PUNTA PADRONES 23KV B1	0.0	1.0	0.0	0.0	0.0	0.0	9.6	0.0	0.0	0.0
MINERA CENTENARIO										
BA S/E MINERA FRANKE 23KV	3.0	0.0	1.0	0.0	1.0	2.2	0.0	0.2	0.0	0.1
MIENRA LAS CENIZAS										
BA S/E LAS LUCES 110KV	3.0	0.3	1.0	5.0	6.0	1.4	0.1	0.3	23.2	47.9
BA S/E PLANTA OXIDO 110KV	1.0	0.6	1.0	5.0	5.0	0.6	0.2	0.3	31.6	47.1
MINERA LUMINA COPPER										
BA S/E CASERONES 220KV BARRA 1A	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	2.2
BA S/E CASERONES 220KV BARRA 1B	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	2.2
BA S/E CASERONES 220KV BARRA 1C	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	2.2
BA S/E JORQUERA 220KV	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	6.6
MINERA MANTOS DE ORO										
BA S/E LA COIPA 220KV	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MINERA MARICUNGA										
BA S/E MINERA MARICUNGA 23KV	8.0	0.0	0.0	1.0	0.0	51.0	0.0	0.0	1.0	0.0
BA S/E CARDONES 110KV SECCIÓN 2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MINERA OJOS DEL SALADO										
BA S/E MINERA LA CANDELARIA 23KV B2	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.3	0.0

Punto de Control	FMIK					TTIK				
	2018	2019	2020	2021	2022	2018	2019	2020	2021	2022
SAESA										
BA S/E PAPOSO 220KV SECCIÓN 1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BA S/E PAPOSO 220KV SECCIÓN 2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COQUIMBO										
CAP CMP										
BA S/E ALGARROBO 110KV	3.0	3.0	0.0	0.0	0.0	1.1	0.5	0.0	0.0	0.0
BA S/E ROMERAL (CMP) 110KV	7.0	5.0	8.0	0.0	3.0	2.5	2.0	9.8	0.0	3.7
CEMIN										
BA S/E DOS AMIGOS 23KV	4.0	2.0	1.0	0.0	1.0	1.2	0.5	5.8	0.0	0.7
CGE										
BA S/E GUAYACAN 13.2KV C1	0.0	2.9	1.3	0.0	1.0	0.0	3.4	1.6	0.0	2.5
BA S/E EL SAUCE 13.2KV	1.0	8.0	7.0	1.0	3.0	0.0	10.7	14.4	0.1	0.3
BA S/E INCAHUASI 23KV	6.0	2.0	3.0	1.0	4.0	3.2	0.5	7.2	4.8	15.0
BA S/E ANDACOLLO 13.8KV BP1	0.0	0.6	0.0	0.0	1.0	0.0	3.8	0.0	0.0	4.6
BA S/E COMBARBALA 13.2KV B1	0.0	2.0	5.0	3.0	0.0	0.0	0.1	3.9	0.2	0.0
BA S/E QUINQUIMO 23KV	2.0	1.0	2.0	2.0	1.0	0.6	0.5	0.5	1.6	0.1
BA S/E VICUNA 110KV	0.0	1.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0
BA S/E MARQUESA 23KV	1.0	3.0	5.0	2.0	0.0	4.9	2.7	10.3	8.3	0.0
BA S/E PUNITAQUI 13.2KV	1.0	3.0	3.0	1.0	3.0	0.2	1.1	3.9	0.9	25.9
BA S/E MONTE PATRIA 13.2KV	0.0	3.0	0.0	0.0	3.4	0.0	2.8	0.0	0.0	4.1
BA S/E EL PENON 23KV	0.0	0.7	1.0	0.0	0.0	0.0	2.5	0.3	0.0	0.0
BA S/E LAS COMPANIAS 13.2KV	1.0	0.0	1.0	0.0	2.0	3.0	0.0	5.5	0.0	1.4
BA S/E ANDACOLLO 23KV BP1	0.0	0.4	0.0	0.0	1.0	0.0	2.2	0.0	0.0	4.6
BA S/E SALAMANCA 23KV BP1	0.0	0.6	1.6	1.3	0.0	0.0	0.9	0.3	0.5	0.0
BA S/E SAN JOAQUIN (TRANSNET) 13.2KV C2	0.7	1.5	1.0	1.8	1.0	0.7	1.7	0.6	1.2	2.0
BA S/E VICUNA 23KV	4.0	4.0	2.0	0.0	0.0	8.1	1.8	2.0	0.0	0.0
BA S/E OVALLE 23KV C2	0.0	1.9	0.0	0.0	0.0	0.0	0.7	0.0	0.0	0.0

Punto de Control	FMIK					TTIK				
	2018	2019	2020	2021	2022	2018	2019	2020	2021	2022
BA S/E MONTE PATRIA 23KV	0.0	2.8	0.0	1.0	3.6	0.0	2.9	0.0	0.1	6.9
BA S/E GUAYACAN 13.2KV C2	0.0	2.6	0.7	0.0	1.0	0.0	3.0	0.8	0.0	2.5
BA S/E ILLAPEL 23KV	0.0	2.9	3.0	2.0	0.0	0.0	2.5	0.8	0.3	0.0
BA S/E SAN JOAQUIN (TRANSNET) 13.2KV C1	2.0	2.0	1.0	1.2	0.3	4.6	1.8	0.6	1.3	2.2
BA S/E OVALLE 23KV C1	0.0	2.9	2.0	0.0	1.0	0.0	1.2	0.5	0.0	0.1
BA S/E QUEREO 23KV	2.0	1.0	2.0	0.0	0.0	4.5	0.8	2.6	0.0	0.0
BA S/E EL PENON 13.2KV C1	0.0	0.3	0.0	0.0	1.0	0.0	1.9	0.0	0.0	1.4
BA S/E SAN JUAN 13.2KV	0.0	3.0	2.0	0.0	0.0	0.0	3.7	2.3	0.0	0.0
BA S/E EL ESPINO 13.2KV	0.0	0.0	5.0	0.0	0.0	0.0	0.0	25.9	0.0	0.0
BA S/E SALAMANCA 23KV BP2	0.0	0.4	1.4	0.7	0.0	0.0	0.7	0.4	0.2	0.0
BA S/E PAN DE AZUCAR 13.2KV BP1	0.0	2.0	2.0	1.0	1.0	0.0	2.0	3.3	0.1	1.4
BA S/E PAN DE AZUCAR 13.2KV BP2	0.0	0.6	0.0	0.0	0.0	0.0	0.8	0.0	0.0	0.0
MINERA ALTOS DE PUNITAQUI										
BA S/E PUNITAQUI 13.2KV BP2	0.0	1.0	3.0	1.0	2.0	0.0	0.1	3.9	0.9	2.0
MINERA LOS PELAMBRES										
BA S/E PIUQUENES BARRA CTO 1 220KV	0.0	2.0	1.0	0.0	0.0	0.0	0.7	1.4	0.0	0.0
BA S/E PIUQUENES BARRA CTO 2 220KV	0.0	1.0	1.0	0.0	0.0	0.0	0.3	0.9	0.0	0.0
BA S/E MAURO BARRA 220KV	0.0	1.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0
BA S/E LOS VILOS 220KV SECCIÓN 2	0.0	4.1	1.0	0.0	0.0	0.0	20.1	4.3	0.0	0.0
MINERA TRES VALLES										
BA S/E SALAMANCA 23KV BP1	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
MINERA ZALDIVAR LTDA.										
BA S/E MINERAL EL INDIÓ 13.2KV	4.0	1.0	1.0	1.0	0.0	15.1	2.8	4.1	1.6	0.0
TECK-CARMEN DE ANDACOLLO										
BA S/E EL PENON 110KV	0.0	0.0	1.0	0.0	1.0	0.0	0.0	0.3	0.0	1.4
BA S/E MINERA TECK CDA 220KV	0.0	0.0	0.0	3.0	1.0	0.0	0.0	0.0	59.5	0.5
VALPARAÍSO										
CGE										
BA S/E CASAS VIEJAS 13.2KV	0.0	3.0	1.0	1.0	2.0	0.0	0.8	0.4	0.3	0.2

Punto de Control	FMIK					TTIK				
	2018	2019	2020	2021	2022	2018	2019	2020	2021	2022
BA S/E CABILDO 23KV BP1	0.0	3.0	0.0	1.0	2.5	0.0	20.4	0.0	0.2	0.3
BA S/E MARGA MARGA 13.2KV BP1	0.0	1.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.0
BA S/E MARBELLA 13.2KV BP1	0.0	1.0	0.0	1.0	2.0	0.0	0.2	0.0	0.3	0.2
BA S/E MARGA MARGA 13.2KV BP2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BA S/E MARGA MARGA 13.2KV BP3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BA S/E MIRAFLORES BARRA 12KV BP2	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0
BA S/E CABILDO 23KV BP2	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.2
CHILQUINTA										
BA S/E ALGARROBO NORTE 12.5KV	1.0	4.0	0.0	0.0	3.0	0.2	1.0	0.0	0.0	0.9
BA S/E CASABLANCA 12KV B1	0.0	4.0	0.2	0.0	2.0	0.0	0.8	0.2	0.0	3.3
BA S/E CONCON BARRA 12KV N°1	3.0	0.6	0.6	0.0	0.0	2.3	0.3	0.6	0.0	0.0
BA S/E CONCON BARRA 12KV N°2	0.4	0.4	0.4	0.0	0.0	0.5	0.2	0.4	0.0	0.0
BA S/E LOS PLACERES BARRA 13.2KV N° 1	0.0	1.0	0.0	1.0	0.0	0.0	3.9	0.0	0.4	0.0
BA S/E LOS PLACERES BARRA 12KV N° 2	0.0	1.0	0.0	0.0	0.0	0.0	4.0	0.0	0.0	0.0
BA S/E MIRAFLORES BARRA 13.2KV BP1	0.0	1.5	0.3	0.0	0.0	0.0	0.2	0.1	0.0	0.0
BA S/E MIRAFLORES BARRA 12KV BP2	0.0	1.0	0.3	0.0	0.0	0.0	0.4	0.1	0.0	0.0
BA S/E PLACILLA (CHILQUINTA) 13.2KV	0.0	0.0	0.7	0.0	0.0	0.0	0.0	0.4	0.0	0.0
BA S/E PLAYA ANCHA BARRA 12KV N° 1	0.0	2.0	0.5	0.0	1.0	0.0	4.3	0.1	0.0	0.1
BA S/E PLAYA ANCHA BARRA 12KV N° 2	0.0	2.4	0.9	0.0	0.0	0.0	4.2	0.3	0.0	0.0
BA S/E QUILPUE BARRA 12KV N° 1	0.0	0.4	0.4	0.0	0.0	0.0	0.2	0.1	0.0	0.0
BA S/E QUILPUE BARRA 12KV N° 2	0.0	1.1	0.3	0.0	0.0	0.0	0.1	0.2	0.0	0.0
BA S/E QUILPUE BARRA 12KV N° 3	0.0	0.5	0.3	0.0	1.0	0.0	0.2	0.1	0.0	0.2
BA S/E QUINTAY 12KV	1.0	6.0	0.0	0.0	3.0	2.3	10.4	0.0	0.0	7.9
BA S/E QUINTERO CBP1	2.4	1.0	0.7	1.0	1.5	5.6	1.2	2.3	4.9	1.8
BA S/E QUINTERO CBP2	2.1	1.0	0.3	0.0	1.5	4.6	1.2	0.8	0.0	11.9

Punto de Control	FMIK					TTIK				
	2018	2019	2020	2021	2022	2018	2019	2020	2021	2022
BA S/E RENACA BARRA 12KV N° 1	2.0	0.2	0.8	0.0	0.0	3.1	0.1	1.1	0.0	0.0
BA S/E RENACA BARRA 12KV N° 2	0.6	0.1	1.2	0.0	0.0	1.2	0.1	1.0	0.0	0.0
BA S/E VALPARAISO BARRA 13.2KV N° 1	0.0	0.4	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0
BA S/E VALPARAISO BARRA 12KV N° 2	0.0	0.4	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0
BA S/E BOSQUEMAR 12KV SECCION 1	1.0	1.0	0.7	0.0	0.0	0.2	0.5	0.6	0.0	0.0
BA S/E MIRAFLORES 23KV BP3	0.0	0.5	0.3	0.0	0.0	0.0	0.1	0.1	0.0	0.0
BA S/E PEÑABLANCA 12KV-BP2	0.0	1.0	1.0	1.0	0.0	0.0	0.6	0.5	1.1	0.0
BA S/E CASABLANCA 12KV B2	0.0	1.0	0.8	0.0	2.0	0.0	0.1	0.6	0.0	3.3
BA S/E VALPARAISO BARRA 13.2KV N° 3	0.0	0.2	0.0	0.0	0.0	0.0	0.7	0.0	0.0	0.0
BA S/E BOSQUEMAR 12KV BP2	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.3	0.0	0.0
CODELCO CHILE – DIVISIÓN ANDINA										
BA S/E SAG 220KV B1	0.0	2.0	3.0	3.0	0.0	0.0	53.0	3.0	10.5	0.0
CODELCO CHILE – DIVISIÓN VENTANAS										
BA S/E CODELCO VENTANAS 1 HBP1	1.0	4.0	2.9	0.0	1.0	0.6	27.5	3.1	0.0	2.1
EMELCA										
BA S/E CASABLANCA 12KV B1	0.0	0.0	1.0	0.0	4.0	0.0	0.0	0.8	0.0	6.5
ENAP REFINERÍA ACONCAGUA										
BA S/E TORQUEMADA HBP1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GNL QUINTERO										
BA S/E GNL QUINTERO 110KV HA	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BA S/E GNL QUINTERO 110KV HB										
LITORAL										
BA S/E ALGARROBO NORTE 12.5KV	1.0	4.0	0.0	0.0	3.0	0.2	1.0	0.0	0.0	0.9
BA S/E CASABLANCA 12KV B1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BA S/E QUINTAY 12KV	1.0	6.0	0.0	0.0	3.0	2.3	10.4	0.0	0.0	7.9
BA S/E EL TOTORAL 12KV	1.0	4.0	0.0	0.0	3.0	0.9	0.9	0.0	0.0	0.6
BA S/E LAS BALANDRAS 12KV	1.0	4.0	1.0	0.0	3.0	0.9	0.9	0.8	0.0	0.6
BA S/E LAS PINATAS 12KV	1.0	4.0	0.0	0.0	3.0	0.9	0.9	0.0	0.0	0.6
BA S/E SAN JERONIMO 12KV	1.0	4.0	0.0	0.0	3.0	0.3	0.8	0.0	0.0	0.6

Punto de Control	FMIK					TTIK				
	2018	2019	2020	2021	2022	2018	2019	2020	2021	2022
METRO VALPARAÍSO										
BA S/E EL SOL 110KV	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ACONCAGUA										
ANGLO AMERICAN SUR - CHAGRES										
BA S/E FUNDICION CHAGRES 110KV B1	1.0	0.0	1.0	1.0	0.0	1.4	0.0	1.0	0.3	0.0
ANGLO AMERICAN SUR - EL SOLDADO										
BA S/E LA CALERA HBP1	0.0	0.0	1.0	0.0	1.0	0.0	0.0	0.5	0.0	0.0
CEMENTO MELÓN										
BA S/E CALERA CENTRO 62KV	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CHILQUINTA										
BA S/E CATEMU BARRA 12KV N° 1	4.5	5.0	4.0	1.0	3.0	7.0	19.1	0.3	0.1	0.1
BA S/E EL MELON 12KV	1.7	4.3	1.5	0.0	2.0	3.7	14.4	5.6	0.0	6.0
BA S/E JUNCAL PORTILLO 12KV	2.0	2.0	7.0	3.0	11.0	0.3	5.2	10.4	23.7	23.6
BA S/E LA CALERA BARRA CBP1	0.5	0.5	2.5	0.0	0.0	1.0	0.2	2.2	0.0	0.0
BA S/E LA CALERA BARRA CBP2	1.5	0.5	1.5	0.0	1.0	2.8	0.2	1.4	0.0	0.0
BA S/E LAS VEGAS (CHILQUINTA) CBP1	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
BA S/E PANQUEHUE BARRA 12KV	1.0	3.0	1.0	1.0	4.0	0.2	2.5	0.1	0.8	0.3
BA S/E RIO BLANCO 12KV	2.0	1.0	6.0	3.0	8.0	0.3	0.1	5.4	7.3	13.9
BA S/E SAN FELIPE BARRA 12KV N° 1	2.0	2.2	4.1	4.2	0.1	1.5	7.3	3.9	2.7	0.0
BA S/E SAN FELIPE BARRA 12KV N° 2	1.4	1.5	2.9	2.8	0.9	0.9	6.9	2.4	1.6	0.7
BA S/E SAN RAFAEL (CHILQUINTA) BARRA 12KV N° 1	0.4	2.4	1.9	2.4	1.1	0.8	5.8	1.7	1.6	3.4
BA S/E SAN RAFAEL (CHILQUINTA) BARRA 12KV N° 2	0.5	1.4	2.2	1.9	1.1	0.8	4.3	1.6	2.0	1.2
BA S/E TUNEL EL MELON 12KV	2.0	5.0	2.0	2.0	3.0	4.5	15.0	8.3	11.0	0.2
BA S/E SAN RAFAEL (CHILQUINTA) 23KV	0.5	1.9	1.6	1.7	0.8	1.1	7.0	1.5	1.3	0.1
BA S/E EL MELON 12KV SECCION 2	0.0	6.7	0.5	0.0	0.0	0.0	23.1	0.2	0.0	0.0
BA S/E SAN PEDRO (FFCC) CBP1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BA S/E SAN PEDRO (FFCC) CBP2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BA S/E SAN PEDRO (AES GENER) CBP1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Punto de Control	FMIK					TTIK				
	2018	2019	2020	2021	2022	2018	2019	2020	2021	2022
BA S/E SAN PEDRO (AES GENER) CBP2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CODELCO CHILE - DIVISIÓN ANDINA										
BA S/E LOS MAQUIS 110KV	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BA S/E SALADILLO 66KV B1	1.0	0.0	1.0	4.0	0.0	1.9	0.0	1.2	11.7	0.0
BA TAP EL LLANO 220KV	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CRISTALCHILE										
BA S/E LAS VEGAS (CHILQUINTA) HBP1	1.0	0.0	1.0	0.0	0.0	9.9	0.0	0.1	0.0	0.0
EFE										
BA S/E LOS ANDES (FFCC) 44KV	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BA S/E SAN PEDRO (FFCC) CBP2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MINERA CERRO NEGRO										
BA S/E LOS ANGELES 44KV	6.0	9.0	3.0	1.0	0.0	27.2	41.1	0.2	0.2	0.0
MINERA LOS PELAMBRES										
BA S/E QUILLOTA 220KV SECCION 1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BA S/E QUILLOTA 220KV SECCION 2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
METROPOLITANA										
ANGLO AMERICAN SUR – LOS BRONCES										
BA S/E LAS TORTOLAS 23KV	0.0	1.0	1.0	0.0	1.0	0.0	6.4	2.0	0.0	2.6
BA S/E POLPAICO 220KV SECCION 1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BA S/E POLPAICO 220KV SECCION 2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CEMENTO POLPAICO										
BA S/E PUNTA PEUCO HBP	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.1	0.0
BA S/E PRINCIPAL PLANTA POLPAICO 44 kV	0.0	1.0	0.0	0.0	0.0	0.0	1.4	0.0	0.0	0.0
CGE										
BA S/E CENTRAL QUELTHEHUES 12KV	2.0	2.0	0.0	1.0	1.0	1.2	1.8	0.0	7.2	0.2
BA S/E PIRQUE 13.2KV	0.0	5.0	0.0	3.0	1.0	0.0	5.7	0.0	4.6	0.5
BA S/E CURACAVI 12KV BP1	0.3	1.0	0.8	0.0	0.0	0.2	6.8	0.0	0.0	0.0
BA S/E CURACAVI 12KV BP2	0.7	1.0	1.2	0.0	0.0	0.3	6.8	0.1	0.0	0.0
BA S/E LA PINTANA 12.5KV BP1	1.0	0.0	1.0	0.0	0.0	0.5	0.0	0.5	0.0	0.0

Punto de Control	FMIK					TTIK				
	2018	2019	2020	2021	2022	2018	2019	2020	2021	2022
BA S/E LA PINTANA 12KV BP2	1.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0
BA S/E LA PINTANA 12KV BP3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BA S/E LAS ACACIAS 23KV BP1	1.0	1.0	1.0	0.0	0.0	1.9	3.3	0.3	0.0	0.0
BA S/E LAS ACACIAS 23KV BP2	0.0	1.0	1.0	0.0	0.0	0.0	0.1	0.3	0.0	0.0
BA S/E LAS ACACIAS 23KV BP3	0.0	1.0	1.0	0.0	0.0	0.0	0.7	0.3	0.0	0.0
BA S/E MALLOCO 12KV BP1	1.0	2.2	1.0	0.0	0.0	1.3	7.1	0.3	0.0	0.0
BA S/E MALLOCO 12KV BP2	0.0	1.0	0.0	0.0	0.0	0.0	1.3	0.0	0.0	0.0
BA S/E MALLOCO 23KV BP3	0.0	0.9	0.0	0.0	0.0	0.0	0.9	0.0	0.0	0.0
BA S/E PANAMERICANA 12KV BP1	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0
BA S/E PANAMERICANA 12KV BP2	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0
BA S/E PANAMERICANA 12KV BP4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BA S/E SAN BERNARDO 12KV BP1	0.0	0.4	3.0	0.0	0.0	0.0	0.0	1.9	0.0	0.0
BA S/E SAN BERNARDO 12KV BP2	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0
BA S/E SAN BERNARDO 12KV BP3	0.0	0.6	1.0	1.0	0.0	0.0	0.1	0.3	3.4	0.0
BA S/E SAN BERNARDO 12KV BP4	0.0	0.0	1.0	0.0	0.0	0.0	0.0	1.4	0.0	0.0
BA S/E SANTA MARTA 12KV BP1	0.0	1.0	0.4	0.0	0.0	0.0	0.1	0.1	0.0	0.0
BA S/E SANTA MARTA 12KV BP2	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BA S/E SANTA MARTA 23KV BP3	0.0	1.0	0.5	0.0	0.0	0.0	0.1	0.1	0.0	0.0
BA S/E SANTA RAQUEL 12KV BP1	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BA S/E SANTA RAQUEL 12KV BP2	0.0	0.0	0.8	0.0	0.0	0.0	0.0	0.2	0.0	0.0
BA S/E SANTA RAQUEL 12KV BP4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BA S/E SANTA ROSA SUR 12KV BP1	2.0	0.0	0.0	0.0	0.0	0.8	0.0	0.0	0.0	0.0
BA S/E SANTA ROSA SUR 12KV BP2	2.0	0.0	0.0	0.0	0.0	0.8	0.0	0.0	0.0	0.0

Punto de Control	FMIK					TTIK				
	2018	2019	2020	2021	2022	2018	2019	2020	2021	2022
BA S/E SANTA ROSA SUR 12KV BP3	1.0	0.0	1.0	0.0	0.0	0.5	0.0	3.4	0.0	0.0
BA S/E SANTA ROSA SUR 12KV BP4	2.0	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.0	0.0
BA S/E PUENTE ALTO 12KV B1	4.0	1.0	2.0	2.0	2.0	148.2	0.7	2.1	0.7	5.0
BA S/E PUENTE ALTO 12KV B2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BA S/E CENTRAL FLORIDA 1 12KV	0.0	0.8	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0
BA S/E MARISCAL 12KV	1.0	1.0	1.0	0.0	3.5	0.5	0.9	1.3	0.0	2.7
BA S/E MARISCAL 23KV	1.0	0.0	0.0	0.0	2.5	0.5	0.0	0.0	0.0	1.7
BA S/E CENTRAL MAITENES 12KV BP1	0.0	0.0	1.0	1.0	0.0	0.0	0.0	74.6	6.1	0.0
CMPM PAPELES CORDILLERA										
BA S/E PUENTE ALTO (CMPC) 110KV	1.0	1.3	0.0	0.0	0.0	2.8	2.1	0.0	0.0	0.0
CMPC TISSUE										
BA S/E PUENTE ALTO (CMPC) 110KV	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
EEPA										
BA S/E LA PINTANA 12.5KV BP1	1.0	0.0	1.0	0.0	0.0	0.5	0.0	0.5	0.0	0.0
BA S/E COSTANERA 12KV	4.0	3.0	2.0	2.0	2.0	3.3	1.9	0.6	0.4	4.1
BA S/E PUENTE ALTO 12KV B1	4.0	4.4	1.0	0.0	1.0	4.2	3.7	1.0	0.0	2.5
BA S/E PUENTE ALTO 12KV B2	0.0	4.0	1.0	0.0	1.0	0.0	3.4	1.0	0.0	2.5
EFE										
BA S/E LO ESPEJO (FFCC) 110KV	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.3	0.0
BA S/E RUNGUE (FFCC) 44KV	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELÉCTRICA TIL TIL										
BA S/E CALEU 12KV BP1	0.0	0.0	2.0	2.0	0.0	0.0	0.0	6.1	31.6	0.0
BA S/E RUNGUE 23KV BP1	0.0	0.0	2.0	1.0	0.0	0.0	0.0	1.9	0.5	0.0
ENEL DISTRIBUCIÓN										
BA S/E ALONSO DE CORDOVA 12.5KV BP1	5.0	0.0	0.0	0.0	0.0	2.7	0.0	0.0	0.0	0.0
BA S/E ALONSO DE CORDOVA 12KV BP2	3.0	0.0	0.0	0.0	0.0	2.4	0.0	0.0	0.0	0.0
BA S/E ALONSO DE CORDOVA 12KV BP3	1.0	0.0	0.0	0.0	0.0	1.5	0.0	0.0	0.0	0.0
BA S/E ALTAMIRANO 12.5KV BP1	1.0	0.7	1.0	0.0	1.5	0.4	0.2	1.2	0.0	0.6

Punto de Control	FMIK					TTIK				
	2018	2019	2020	2021	2022	2018	2019	2020	2021	2022
BA S/E ALTAMIRANO 12KV BP2	1.0	0.3	1.0	0.0	1.5	0.5	0.1	2.3	0.0	0.5
BA S/E ANDES 12KV BP1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BA S/E ANDES 12KV BP2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BA S/E APOQUINDO 12.5KV BP1	1.0	1.0	0.0	0.0	0.0	1.5	0.1	0.0	0.0	0.0
BA S/E APOQUINDO 12KV BP2	1.0	0.0	0.0	0.0	0.0	1.5	0.0	0.0	0.0	0.0
BA S/E BATUCO 23KV BP1	1.0	0.0	1.0	0.0	0.0	0.3	0.0	0.2	0.0	0.0
BA S/E BATUCO 23KV BP2	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BA S/E BATUCO 23KV BP3	1.0	0.0	0.0	0.0	0.0	1.5	0.0	0.0	0.0	0.0
BA S/E BRASIL 12.5KV BP1	1.0	1.0	0.0	0.0	1.9	0.4	2.5	0.0	0.0	0.2
BA S/E BRASIL 12KV BP2	1.0	0.0	0.0	0.0	1.1	0.5	0.0	0.0	0.0	0.1
BA S/E CALEU 12KV BP1	6.0	1.0	2.0	2.0	3.0	27.6	6.1	6.1	31.6	17.5
BA S/E CARRASCAL 12KV BP1	1.0	0.0	1.0	0.0	1.4	0.4	0.0	0.2	0.0	0.1
BA S/E CARRASCAL 12KV BP2	1.0	0.0	0.0	0.0	0.6	0.5	0.0	0.0	0.0	0.1
BA S/E CHACABUCO 12.5KV BP1	1.5	0.0	2.0	0.0	1.0	4.1	0.0	1.2	0.0	0.0
BA S/E CHACABUCO 23KV BP2	0.5	0.0	0.7	0.0	0.0	1.5	0.0	0.1	0.0	0.0
BA S/E CHACABUCO 23KV BP3	1.0	1.0	1.3	0.0	0.0	2.8	0.4	2.6	0.0	0.0
BA S/E CHACABUCO 23KV BP6	1.0	0.0	0.2	0.0	0.0	2.8	0.0	0.0	0.0	0.0
BA S/E CLUB HIPICO 12KV BP1	0.0	1.1	2.0	1.0	0.0	0.0	0.3	2.3	0.3	0.0
BA S/E CLUB HIPICO 12KV BP2	0.0	0.5	1.6	0.0	0.0	0.0	0.4	2.3	0.0	0.0
BA S/E CLUB HIPICO 12KV BP3	0.0	1.4	1.7	0.0	0.0	0.0	0.6	1.1	0.0	0.0
BA S/E CLUB HIPICO 12KV BP4	0.0	0.4	1.7	1.0	0.0	0.0	0.1	2.4	0.4	0.0
BA S/E CURACAVI 12KV BP1	1.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0
BA S/E CURACAVI 12KV BP2	1.0	1.0	2.0	0.0	0.5	0.5	6.8	0.1	0.0	5.9
BA S/E EL MANZANO (CHILECTRA) 23KV BP1	0.0	0.0	1.0	1.0	0.0	0.0	0.0	1.4	1.2	0.0
BA S/E EL MANZANO (CHILECTRA) 23KV BP2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Punto de Control	FMIK					TTIK				
	2018	2019	2020	2021	2022	2018	2019	2020	2021	2022
BA S/E EL MANZANO (CHILECTRA) 23KV BP4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BA S/E LA CISTERNA 12KV BP1	0.0	1.2	2.2	1.0	0.0	0.0	0.2	0.8	0.3	0.0
BA S/E LA CISTERNA 12KV BP2	0.0	0.5	0.4	0.0	0.0	0.0	0.0	0.1	0.0	0.0
BA S/E LA CISTERNA 12KV BP3	0.0	0.3	1.0	0.0	0.0	0.0	0.1	0.6	0.0	0.0
BA S/E LA DEHESA 12KV BP2	2.0	1.2	0.0	0.0	0.0	2.7	1.0	0.0	0.0	0.0
BA S/E LA DEHESA 12KV BA1	3.0	1.1	0.0	0.0	0.0	2.9	0.7	0.0	0.0	0.0
BA S/E LA PINTANA 12.5KV BP1	0.5	1.1	1.0	1.0	0.9	0.2	0.1	0.5	1.4	1.5
BA S/E LA PINTANA 12KV BP2	0.5	0.4	0.0	0.0	1.1	0.4	0.1	0.0	0.0	0.8
BA S/E LA REINA 12KV BP1	0.0	1.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0
BA S/E LA REINA 12KV BP2	0.0	1.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0
BA S/E LA REINA 12KV BP4										
BA S/E LAMPA 23KV BP2	1.0	0.0	1.0	1.0	0.0	0.1	0.0	0.3	2.6	0.0
BA S/E LAS ACACIAS 23KV BP1	1.0	0.1	0.7	1.0	0.0	1.9	0.6	0.2	0.3	0.0
BA S/E LAS ACACIAS 23KV BP2	0.0	2.9	0.3	0.0	0.0	0.0	3.6	0.1	0.0	0.0
BA S/E LAS ACACIAS 23KV BP3	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0
BA S/E LO AGUIRRE 12KV BP1	1.0	4.0	1.0	0.0	2.0	0.5	5.4	0.1	0.0	1.4
BA S/E LO BOZA 12.5KV BP1	1.5	0.0	1.0	0.0	0.0	7.6	0.0	4.8	0.0	0.0
BA S/E LO BOZA 12KV BP2	0.5	0.0	1.0	1.0	1.0	2.6	0.0	0.3	3.7	0.6
BA S/E LO BOZA 23KV BP3	1.0	0.0	1.0	0.0	0.0	5.1	0.0	1.2	0.0	0.0
BA S/E LO BOZA 12KV BP4	1.0	0.0	0.0	0.0	0.0	5.1	0.0	0.0	0.0	0.0
BA S/E LO PRADO 12KV BP1	2.0	1.0	1.0	0.0	2.0	3.4	6.8	0.1	0.0	13.6
BA S/E LO VALLEDOR 12KV BP1	0.9	1.0	1.0	1.0	0.0	0.8	0.2	0.3	0.6	0.0
BA S/E LO VALLEDOR 12KV BP3	0.8	0.8	0.0	0.0	0.0	0.5	0.1	0.0	0.0	0.0
BA S/E LORD COCHRANE 12KV BP1	1.0	0.0	2.0	1.0	3.0	0.2	0.0	0.4	0.3	1.0
BA S/E LOS DOMINICOS 12KV BP2	3.0	0.0	0.0	0.0	0.0	1.6	0.0	0.0	0.0	0.0

Punto de Control	FMIK					TTIK				
	2018	2019	2020	2021	2022	2018	2019	2020	2021	2022
BA S/E LOS DOMINICOS 12KV BP3	1.0	0.0	0.0	0.0	0.0	1.5	0.0	0.0	0.0	0.0
BA S/E MACUL 12.5KV BP3	0.0	1.0	2.0	0.0	0.0	0.0	0.2	0.6	0.0	0.0
BA S/E MACUL 12KV BP4	0.0	1.0	3.0	0.0	0.0	0.0	0.2	1.2	0.0	0.0
BA S/E MACUL 20.4KV BP6	0.0	0.3	2.0	1.0	0.0	0.0	0.1	0.6	0.3	0.0
BA S/E MAIPU 12KV BP1	1.0	0.0	0.3	1.0	0.0	1.0	0.0	0.1	0.6	0.0
BA S/E MAIPU 12KV BP2	0.0	0.0	0.7	0.0	0.0	0.0	0.0	0.2	0.0	0.0
BA S/E MALLOCO 12KV BP2	1.0	0.6	0.0	0.0	1.1	1.8	0.7	0.0	0.0	1.1
BA S/E MALLOCO 23KV BP3	1.0	2.4	1.0	1.0	0.9	1.4	4.6	0.2	0.3	1.1
BA S/E OCHAGAVIA 12KV BP1	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0
BA S/E OCHAGAVIA 12KV BP2	0.0	2.0	2.0	1.0	0.0	0.0	0.2	0.6	0.3	0.0
BA S/E PAJARITOS 12.5KV BP1	0.0	0.0	0.0	2.0	1.0	0.0	0.0	0.0	1.8	0.2
BA S/E PAJARITOS 12KV BP2	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.6	0.0
BA S/E PAJARITOS 23KV BP3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BA S/E PANAMERICANA 12KV BP1	0.0	0.0	0.5	1.0	0.0	0.0	0.0	0.1	0.3	0.0
BA S/E PANAMERICANA 12KV BP2	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.1	0.0	0.0
BA S/E PANAMERICANA 12KV BP4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BA S/E PUDAHUEL 12KV BP1	0.0	0.0	0.7	2.0	0.0	0.0	0.0	0.2	1.0	0.0
BA S/E PUDAHUEL 12KV BP2	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.1	0.0	0.0
BA S/E PUDAHUEL 12KV BP3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BA S/E QUILICURA 23KV BP1	1.0	0.0	1.0	0.0	0.0	7.1	0.0	3.9	0.0	0.0
BA S/E QUILICURA 12KV BP2	1.0	0.0	0.0	0.0	0.5	7.1	0.0	0.0	0.0	0.0
BA S/E QUILICURA 12KV BP3	2.0	0.0	1.0	0.0	0.0	7.2	0.0	2.9	0.0	0.0
BA S/E QUILICURA 12KV BP4	1.0	1.0	0.0	0.0	0.5	7.1	0.7	0.0	0.0	0.0
BA S/E RECOLETA 13.2KV BP1	0.5	1.4	0.6	0.0	1.0	1.4	0.1	0.2	0.0	1.8

Punto de Control	FMIK					TTIK				
	2018	2019	2020	2021	2022	2018	2019	2020	2021	2022
BA S/E RECOLETA 12KV BP2	1.0	0.4	0.0	0.0	0.0	2.8	0.1	0.0	0.0	0.0
BA S/E RECOLETA 12KV BP4	1.5	0.6	0.4	1.0	0.0	4.2	0.1	0.1	1.0	0.0
BA S/E RUNGUE 23KV BP1	4.0	2.0	2.0	1.0	0.0	11.0	3.1	1.9	0.5	0.0
BA S/E SAN BERNARDO 12KV BP1	0.0	0.8	3.0	0.0	0.0	0.0	0.1	1.7	0.0	0.0
BA S/E SAN BERNARDO 12KV BP2	0.0	3.1	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.0
BA S/E SAN BERNARDO 12KV BP3	0.0	0.6	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0
BA S/E SAN BERNARDO 12KV BP4	0.0	1.4	2.0	2.0	0.0	0.0	2.5	2.6	3.8	0.0
BA S/E SAN CRISTOBAL 12KV BP1	1.0	0.0	1.0	0.0	0.0	2.8	0.0	0.1	0.0	0.0
BA S/E SAN CRISTOBAL 12KV BP2	1.0	0.0	0.0	0.0	0.0	2.8	0.0	0.0	0.0	0.0
BA S/E SAN CRISTOBAL 13.2KV BP3	1.0	0.0	0.0	0.0	0.0	2.8	0.0	0.0	0.0	0.0
BA S/E SAN JOAQUIN (CHILECTRA) 12KV BP1	0.0	1.0	2.4	1.0	0.0	0.0	0.2	0.9	0.3	0.0
BA S/E SAN JOAQUIN (CHILECTRA) 12KV BP2	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BA S/E SAN JOAQUIN (CHILECTRA) 12KV BP3	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BA S/E SAN JOAQUIN (CHILECTRA) 12KV BP4	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
BA S/E SAN JOSE 12KV BP1	0.0	0.1	3.0	1.0	0.0	0.0	0.0	0.8	0.6	0.0
BA S/E SAN JOSE 12KV BP2	0.0	0.9	1.0	0.0	0.0	0.0	0.1	0.5	0.0	0.0
BA S/E SAN JOSE 12KV BP3	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0
BA S/E SAN JOSE 12KV BP4	0.0	1.0	1.0	0.0	0.0	0.0	60.0	0.2	0.0	0.0
BA S/E SAN PABLO 23KV BP1	3.0	0.0	0.0	1.0	1.0	2.0	0.0	0.0	0.1	1.1
BA S/E SAN PABLO 23KV BP2	1.0	0.0	1.0	0.0	2.0	0.5	0.0	0.0	0.0	0.0
BA S/E SANTA ELENA 12KV BP2	0.0	2.0	1.7	1.0	0.0	0.0	0.7	0.8	0.3	0.0
BA S/E SANTA ELENA 12KV BP3	0.0	0.0	0.8	0.0	0.0	0.0	0.0	0.1	0.0	0.0

Punto de Control	FMIK					TTIK				
	2018	2019	2020	2021	2022	2018	2019	2020	2021	2022
BA S/E SANTA ELENA 12KV BP4	1.0	0.0	0.5	1.0	0.0	0.7	0.0	0.0	0.5	0.0
BA S/E SANTA MARTA 12KV BP1	0.0	1.3	2.0	1.0	0.0	0.0	0.1	1.2	0.6	0.0
BA S/E SANTA MARTA 12KV BP2	0.0	0.6	0.0	0.0	1.0	0.0	0.2	0.0	0.0	0.5
BA S/E SANTA MARTA 23KV BP3	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BA S/E SANTA RAQUEL 12KV BP1	0.4	0.0	0.2	0.0	0.5	0.4	0.0	0.0	0.0	1.1
BA S/E SANTA RAQUEL 12KV BP2	0.2	0.0	0.0	0.0	0.7	0.1	0.0	0.0	0.0	0.5
BA S/E SANTA RAQUEL 12KV BP4	0.2	1.0	0.8	0.0	0.7	0.1	0.1	0.2	0.0	0.4
BA S/E SANTA RAQUEL 20.4KV BP5	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.2
BA S/E SANTA ROSA SUR 12KV BP1	1.0	1.5	0.0	0.0	0.3	0.4	1.5	0.0	0.0	0.7
BA S/E SANTA ROSA SUR 12KV BP2	0.3	0.5	0.0	0.0	0.6	0.1	0.1	0.0	0.0	0.6
BA S/E SANTA ROSA SUR 12KV BP3	0.2	0.0	1.0	0.0	0.3	0.4	0.0	3.4	0.0	0.6
BA S/E SANTA ROSA SUR 12KV BP4	1.2	0.0	0.0	0.0	0.5	1.3	0.0	0.0	0.0	0.4
BA S/E VITACURA 12.5KV BP1	1.0	1.0	1.0	0.0	0.0	1.5	0.1	0.3	0.0	0.0
BA S/E VITACURA 12KV BP2	1.0	0.0	0.0	0.0	0.0	1.5	0.0	0.0	0.0	0.0
BA S/E VITACURA 12KV BP3	1.0	0.0	0.0	0.0	0.0	1.5	0.0	0.0	0.0	0.0
BA S/E VITACURA 12KV BP4	1.0	0.0	0.0	0.0	0.0	1.5	0.0	0.0	0.0	0.0
BA S/E BICENTENARIO 13.2KV BP1	0.0	0.0	1.0	1.0	0.0	0.0	0.0	0.2	0.6	0.0
BA S/E POLPAICO 23KV BP1	0.0	1.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0
BA S/E CHACABUCO 23KV BP8	1.0	0.0	0.0	0.0	0.0	2.8	0.0	0.0	0.0	0.0
BA S/E SAN CRISTOBAL 12KV BP5	1.0	0.0	0.0	0.0	0.0	2.8	0.0	0.0	0.0	0.0
BA S/E LO VALLEDOR 12KV BP4										
BA S/E LA REINA 12KV BP3	0.0	1.0	0.0	0.0	1.0	0.0	1.9	0.0	0.0	1.2
BA S/E APOQUINDO 12KV BP3	1.0	0.0	1.0	0.0	0.0	1.5	0.0	0.5	0.0	0.0
BA S/E FLORIDA 12KV	0.0	1.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0
BA S/E CHICUREO 23KV BP1	1.0	1.0	1.0	0.0	1.0	0.2	0.3	0.1	0.0	0.1
BA S/E ANDES 12KV BP4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Punto de Control	FMIK					TTIK				
	2018	2019	2020	2021	2022	2018	2019	2020	2021	2022
BA TAP ENTEL 12KV	3.0	1.0	2.0	2.0	0.0	13.2	6.1	6.1	33.1	0.0
BA S/E SAN JOSE 12KV B3P	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0
BA S/E SAN PABLO 23KV BP3	1.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0
BA S/E SANTA ROSA SUR 12KV BP6	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0
BA S/E SAN BERNARDO 12KV BP4										
METRO										
BA S/E MACUL 20.4KV BP6	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.3	0.0
BA S/E OCHAGAVIA 110KV BP1	0.0	0.0	0.5	0.5	0.0	0.0	0.0	0.1	0.2	0.0
BA S/E OCHAGAVIA 110KV BP2	0.0	0.0	0.5	0.5	0.0	0.0	0.0	0.1	0.2	0.0
BA S/E SANTA RAQUEL 20.4KV BP5	0.0	0.0	1.0	0.0	2.0	0.0	0.0	0.2	0.0	2.2
BA S/E METRO BARRA A1-110KV	1.0	2.0	0.0	0.5	0.5	0.0	0.5	0.0	0.2	0.0
BA S/E METRO BARRA B1-110KV	0.0	0.0	0.0	0.5	0.5	0.0	0.0	0.0	0.2	0.0
MELIPILLA										
CGE										
BA S/E BAJO MELIPILLA 13.2KV BP1	0.0	1.0	2.0	0.0	0.5	0.0	0.4	1.4	0.0	0.1
BA S/E BOLLENAR 13.2KV	2.0	3.0	3.0	3.0	2.0	1.6	0.8	3.9	4.2	4.8
BA S/E CHOCALAN 13.2KV	0.0	0.0	5.0	2.0	3.0	0.0	0.0	3.0	0.6	0.5
BA S/E EL MAITEN 13.2KV	0.0	2.0	1.0	1.0	1.0	0.0	0.7	0.5	0.4	0.3
BA S/E EL MONTE 13.2KV	0.0	4.0	2.0	1.0	1.0	0.0	3.7	1.1	0.0	0.3
BA S/E EL PAICO 13.2KV	0.0	3.0	1.0	1.0	1.0	0.0	10.4	0.5	0.0	0.3
BA S/E LEYDA 13.2KV	0.0	0.0	2.0	1.0	0.0	0.0	0.0	4.4	0.2	0.0
BA S/E BAJO MELIPILLA 13.2KV BP2	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.1
CHILQUINTA										
BA S/E SAN ANTONIO BARRA 12KV N° 1	0.0	0.3	0.2	0.4	0.0	0.0	0.2	0.1	0.1	0.0
BA S/E SAN ANTONIO BARRA 12KV N° 2	0.0	1.6	0.3	0.6	0.8	0.0	0.4	0.1	0.1	3.4

Punto de Control	FMIK					TTIK				
	2018	2019	2020	2021	2022	2018	2019	2020	2021	2022
BA S/E SAN SEBASTIAN BARRA 12KV N° 1	0.0	2.3	1.0	1.0	1.0	0.0	1.9	0.4	0.2	0.6
BA S/E SAN ANTONIO BARRA 23KV N° 1	0.0	1.1	0.5	0.0	0.2	0.0	1.9	0.2	0.0	0.6
LITORAL										
BA S/E SAN SEBASTIAN BARRA 12KV N° 1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BA S/E SAN SEBASTIAN BARRA 12KV N° 2	0.0	1.9	1.0	2.0	1.0	0.0	4.2	0.5	2.1	0.1
RAPEL										
CGE										
BA S/E ALHUE 23KV	3.0	3.0	2.0	0.0	3.0	13.6	5.1	0.2	0.0	5.1
BA S/E ALCONES 23KV	2.0	3.0	2.0	3.6	2.8	9.6	2.2	1.8	5.7	3.3
BA S/E EL PEUMO 23KV	3.0	2.0	2.0	0.0	2.0	4.3	3.7	0.2	0.0	1.5
BA S/E LA ESPERANZA (TRANSNET) 13.2KV	2.0	1.0	3.0	2.0	0.0	11.1	0.6	1.4	3.8	0.0
BA S/E LA MANGA 13.2KV	2.2	2.4	3.0	3.0	3.0	2.5	1.1	0.6	4.9	2.9
BA S/E LAS ARANAS 13.2KV	1.0	3.0	2.0	1.0	1.0	0.6	4.1	5.1	0.8	0.7
BA S/E LAS ARANAS 23KV	2.0	2.0	1.0	0.0	1.0	4.9	3.7	0.1	0.0	0.7
BA S/E LIHUEIMO 13.2KV T1-T2	3.0	3.0	1.6	3.0	4.5	4.3	1.5	1.5	3.0	3.0
BA S/E MANDINGA 13.8KV	1.0	2.0	3.0	1.0	1.0	1.0	1.1	20.9	0.1	0.7
BA S/E MARCHIGÜE 13.2KV	4.0	3.0	1.3	1.6	3.6	17.6	1.5	1.3	2.5	2.3
BA S/E PANIAHUE 13.2KV	2.0	5.0	2.0	3.0	9.0	1.9	7.3	1.4	5.2	5.3
BA S/E QUELENTARO 13.2KV	1.0	0.0	1.0	2.0	1.0	1.9	0.0	0.2	2.7	0.1
BA S/E SANTA ROSA (TRANSNET) 23KV	2.0	1.0	2.0	0.0	3.0	2.7	3.1	0.2	0.0	5.7
BA S/E PORTEZUELO 23KV ET3	2.0	1.0	2.0	2.0	1.0	11.1	0.6	1.4	3.8	6.2
BA S/E MARCHIGÜE 23KV	2.0	3.0	1.7	0.4	2.4	11.4	1.5	1.5	1.3	1.4
BA S/E LIHUEIMO 13,2KV BP3	0.0	1.0	0.4	0.0	0.5	0.0	0.3	0.3	0.0	0.1
BA S/E ALCONES BARRA 2 23KV	0.0	1.0	0.0	0.4	2.2	0.0	0.3	0.0	1.2	2.3
RANCAGUA										
CEC										

Punto de Control	FMIK					TTIK				
	2018	2019	2020	2021	2022	2018	2019	2020	2021	2022
BA S/E QUINTA 13.2KV	0.0	1.0	1.0	2.0	2.0	0.0	1.4	1.9	1.4	0.2
CGE										
BA S/E GRANEROS 15KV T1	1.0	1.0	1.0	2.0	3.0	0.8	0.5	0.2	0.1	2.3
BA S/E HOSPITAL 15KV	2.0	1.0	4.0	0.0	3.0	3.3	0.0	1.9	0.0	1.0
BA S/E LA RONDA 15KV	1.0	0.0	0.0	0.0	1.0	3.4	0.0	0.0	0.0	0.1
BA S/E LAS CABRAS 15KV	5.0	4.0	4.0	2.0	1.0	5.2	17.0	15.7	2.9	14.8
BA S/E ALAMEDA 15KV C1	0.4	1.5	1.0	0.0	0.5	0.8	0.3	0.3	0.0	0.2
BA S/E BUIN (TRANSNET) 15KV C1	1.0	2.9	1.0	0.0	0.5	0.1	1.0	0.2	0.0	0.1
BA S/E CACHAPOAL 15KV C1	1.0	1.3	1.0	0.6	1.0	0.3	0.9	0.2	0.1	0.3
BA S/E CHIMBARONGO 15KV B1	1.0	0.0	0.0	0.0	1.4	0.1	0.0	0.0	0.0	0.1
BA S/E CHUMAQUITO 15KV	1.0	1.0	1.0	0.0	0.0	0.7	0.5	0.1	0.0	0.0
BA S/E COLCHAGUA 15KV C1	0.0	1.3	0.4	0.4	0.3	0.0	1.1	0.1	0.7	0.1
BA S/E RENGO 15KV	3.0	1.0	1.0	0.0	2.0	0.9	0.1	0.1	0.0	3.0
BA S/E SAN VICENTE DE TAGUA TAGUA 15KV C1	2.0	3.0	2.0	1.0	1.0	0.4	2.9	0.3	0.1	0.1
BA S/E TUNICHE 15KV	1.0	4.0	1.0	2.0	1.0	4.2	6.7	1.1	3.8	1.7
BA S/E LO MIRANDA 15KV C1	0.0	1.7	0.3	1.0	0.0	0.0	0.5	0.1	1.0	0.0
BA S/E LORETO 15KV	0.0	1.0	1.0	3.0	1.0	0.0	0.1	2.7	2.4	9.4
BA S/E MALLOA 15KV C1	1.0	2.0	2.0	0.0	2.0	0.1	2.1	3.4	0.0	1.7
BA S/E PELEQUEN 15KV	3.0	2.0	1.0	0.0	1.0	1.8	2.5	0.1	0.0	0.1
BA S/E EL MANZANO (TRANSNET) 15KV	5.0	5.0	3.0	4.0	3.0	5.5	24.6	9.4	7.3	6.1
BA S/E ISLA DE MAIPO 12KV C1	1.8	2.4	2.0	1.2	2.4	0.4	2.7	3.0	1.4	0.8
BA S/E QUINTA DE TILCOCO 66KV	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BA S/E GRANEROS 66KV	1.0	0.0	0.0	0.0	1.5	0.8	0.0	0.0	0.0	2.2
BA S/E HOSPITAL 66KV	0.0	1.0	1.0	0.0	1.0	0.0	0.0	0.2	0.0	0.8
BA S/E ISLA DE MAIPO 23KV C2	0.0	0.9	3.5	0.0	0.7	0.0	1.5	6.5	0.0	0.2
BA S/E ROSARIO 15KV	3.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.0	0.0

Punto de Control	FMIK					TTIK				
	2018	2019	2020	2021	2022	2018	2019	2020	2021	2022
BA S/E QUINTA DE TILCOCO 15KV	3.0	2.0	0.0	0.0	0.0	11.9	3.3	0.0	0.0	0.0
BA S/E ALAMEDA 15KV C2	0.6	0.5	1.0	0.0	0.5	1.0	0.1	0.3	0.0	0.2
BA S/E BUIN (TRANSNET) 15KV C2	2.0	6.4	1.0	2.0	0.5	0.2	1.4	0.1	2.2	0.1
BA S/E CACHAPOAL 15KV C2	1.0	2.7	0.0	0.4	1.0	0.1	1.0	0.0	0.2	0.6
BA S/E COLCHAGUA 15KV C2	0.0	1.7	0.6	0.6	0.7	0.0	1.8	0.3	1.0	0.2
BA S/E SAN FRANCISCO DE MOSTAZAL 15KV C2	2.0	0.0	2.0	0.0	4.0	0.2	0.0	0.1	0.0	2.0
BA S/E SAN VICENTE DE TAGUA TAGUA 15KV C2	1.0	0.0	1.0	0.0	1.0	0.3	0.0	0.6	0.0	0.1
BA S/E LO MIRANDA 15KV C2	0.0	1.3	0.7	2.0	0.0	0.0	0.4	0.5	1.3	0.0
BA S/E ISLA DE MAIPO 12KV C3	0.2	1.3	1.5	0.8	0.8	0.0	0.9	1.6	0.9	0.4
BA S/E NANCAGUA 13.2KV	2.0	2.0	0.0	0.0	3.0	4.1	1.2	0.0	0.0	0.6
BA S/E PLACILLA 13.2KV	2.0	1.0	1.0	2.0	3.0	2.7	0.6	1.3	7.0	1.1
BA S/E LOS LIRIOS (FFCC) 66KV	1.0	0.0	0.0	0.0	0.0	0.7	0.0	0.0	0.0	0.0
BA S/E SAUZAL 13.8KV	0.0	0.0	0.0	2.0	1.0	0.0	0.0	0.0	17.4	4.4
BA S/E CHIMBARONGO 15KV BT	1.0	1.0	1.0	1.0	0.0	0.1	1.4	1.1	0.8	0.0
BA S/E CHIMBARONGO 15KV B2	1.0	0.0	0.0	1.0	0.6	0.1	0.0	0.0	2.1	0.1
BA S/E FATIMA 15KV BP1	3.0	1.0	2.0	0.0	2.0	1.4	0.0	1.7	0.0	0.8
BA S/E SAN FERNANDO 15KV	0.0	0.0	0.0	1.0	1.0	0.0	0.0	0.0	1.9	0.2
BA S/E MACHALI 15KV	1.0	2.0	1.0	0.0	3.0	0.6	0.5	0.3	0.0	1.2
CMP TISSUE										
BA S/E PAPELERA TALAGANTE 66KV	1.5	4.5	5.0	0.0	0.0	1.0	7.4	5.4	0.0	0.0
CODELCO CHILE – DIVISIÓN EL TENIENTE										
BA S/E MINERO 110KV BP1	0.0	0.0	0.5	0.5	0.0	0.0	0.0	1.0	3.8	0.0
BA S/E MINERO 110KV BP2	0.0	0.0	0.5	0.5	0.0	0.0	0.0	1.0	3.8	0.0
BA S/E CORDILLERA 110KV HB1	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0
BA S/E EL COBRE (CODELCO) 110KV B1	0.0	0.0	1.0	0.0	0.0	0.0	0.0	2.8	0.0	0.0

Punto de Control	FMIK					TTIK				
	2018	2019	2020	2021	2022	2018	2019	2020	2021	2022
BA S/E MINERO 110KV BP1	0.0	0.0	0.5	0.5	0.0	0.0	0.0	1.0	3.8	0.0
EFE										
BA S/E CENTRAL LOS GUINDOS 6.6KV B1 (FFCC)	0.0	1.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0
BA S/E LOS LIRIOS (FFCC) 66KV	1.0	0.0	0.0	0.0	0.0	0.7	0.0	0.0	0.0	0.0
BA S/E QUINTA (FFCC) 66KV	0.0	0.0	1.0	0.0	2.0	0.0	0.0	1.8	0.0	0.2
BA S/E GRANEROS (FFCC) 66KV	1.0	0.0	0.0	0.0	1.0	0.8	0.0	0.0	0.0	0.1
BA S/E SAN FERNANDO (FFCC) 66KV B1	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.2
BA S/E HOSPITAL (FFCC) 66KV B1	1.0	1.0	1.0	0.0	3.0	0.1	0.0	0.2	0.0	1.8
BA S/E RENGO (FFCC) 66KV B1	3.0	1.0	0.0	0.0	2.0	0.9	0.1	0.0	0.0	5.8
FUNDICIÓN TALLERES										
BA TAP MAESTRANZA 66KV	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BA S/E R2 13.8KV B1	1.0	0.0	0.0	0.0	0.0	5.8	0.0	0.0	0.0	0.0
BA S/E R2 13.8KV B2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BA S/E RANCAGUA 66KV B1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BA S/E R 13.8KV B1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BA S/E R 13.8KV B2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MINERA CANDELARIA										
BA S/E CANDELARIA B1 - 220KV	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MINERA VALLE CENTRAL										
BA S/E MINERA VALLE CENTRAL 154KV	1.5	3.0	3.0	0.0	0.0	10.2	14.2	57.6	0.0	0.0
ITAHUE										
CARTULINAS CMPC										
BA S/E PROCART 220KV	0.0	4.0	3.0	3.0	4.0	0.0	9.5	7.8	6.4	9.7
CEC										
BA S/E TENO 13.2KV BP2	1.0	0.0	2.0	0.0	0.0	0.2	0.0	2.8	0.0	0.0
BA S/E CURICO 13.8KV BP1	2.0	2.0	2.1	1.0	1.0	0.9	0.5	0.4	0.8	0.1
BA S/E CURICO 13.8KV BP2	1.0	0.0	0.3	0.0	0.0	0.0	0.0	0.1	0.0	0.0
BA S/E CURICO 13.8KV BP3	1.0	0.4	0.6	0.0	0.0	0.0	0.1	0.1	0.0	0.0
CELULOSA ARAUCO										

Punto de Control	FMIK					TTIK				
	2018	2019	2020	2021	2022	2018	2019	2020	2021	2022
BA S/E CONSTITUCION 66KV	0.0	0.0	4.0	6.0	9.0	0.0	0.0	1.9	2.3	4.6
BA S/E LICANTEN 66KV	0.0	0.0	2.0	0.0	6.0	0.0	0.0	4.5	0.0	20.5
CEMENTO BIO BIO CENTRO										
BA S/E TENO 15KV	0.0	0.0	1.5	0.0	0.0	0.0	0.0	6.2	0.0	0.0
BA S/E TENO 13.2KV BP2	0.0	0.0	1.5	0.0	0.0	0.0	0.0	6.2	0.0	0.0
CGE										
BA S/E COLBUN 13.8KV	1.0	0.0	0.0	1.0	1.0	1.0	0.0	0.0	24.8	7.0
BA S/E RAUQUEN 13.2KV BP1	1.6	1.7	1.8	0.5	0.5	0.3	1.1	2.3	0.0	0.0
BA S/E MOLINA 15KV BP1	1.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.0	0.0
BA S/E LA PALMA 15KV	1.4	3.0	3.0	2.0	0.0	0.6	1.2	1.0	0.8	0.0
BA S/E SAN MIGUEL 15KV	2.0	1.0	1.0	1.0	4.0	0.7	0.7	0.6	3.7	1.0
BA S/E PANGUILEMO 15KV	1.0	0.0	1.0	1.0	3.0	0.6	0.0	0.1	0.0	1.4
BA S/E PIDUCO 15KV	1.0	1.0	1.0	2.0	1.0	0.5	0.3	0.6	1.3	0.4
BA S/E MAULE 15KV	0.0	2.0	0.0	0.0	0.0	0.0	9.3	0.0	0.0	0.0
BA S/E CHACAHUIN 15KV BP1	0.0	0.0	0.0	1.0	7.4	0.0	0.0	0.0	0.0	1.7
BA S/E TENO 13.2KV BP1	1.0	1.0	1.5	0.5	0.2	0.2	4.5	9.4	0.0	0.0
BA S/E VILLA ALEGRE 15KV BP1	2.0	4.0	0.0	1.0	14.0	0.2	0.4	0.0	0.0	1.3
BA S/E TALCA 15KV BP1	2.0	0.0	0.3	0.0	0.3	2.2	0.0	0.1	0.0	0.5
BA S/E TENO 15KV	1.0	0.0	0.0	0.0	0.3	0.2	0.0	0.0	0.0	0.0
BA S/E ANCOA 13.8KV	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BA S/E CONSTITUCION 23KV BP1	4.5	6.9	5.2	6.0	5.7	2.3	8.3	5.4	2.3	3.4
BA S/E CONSTITUCION 23KV BP2	0.0	2.1	0.8	0.0	5.3	0.0	3.0	0.3	0.0	1.4
BA S/E HUALANE 13.2KV	1.0	1.0	1.0	1.0	7.0	0.8	12.4	0.5	0.7	22.2
BA S/E PARRONAL 13.2KV	1.0	1.0	0.0	0.0	7.0	0.8	10.3	0.0	0.0	19.8
BA S/E SAN CLEMENTE 13.2KV	1.0	5.0	0.0	2.0	4.0	0.8	7.2	0.0	0.9	3.0
BA S/E SAN JAVIER 23KV	0.7	4.0	2.0	0.0	0.0	0.5	3.9	0.6	0.0	0.0
BA S/E VILLA PRAT 13.2KV	1.0	1.0	0.0	0.0	7.0	0.8	6.1	0.0	0.0	17.9

Punto de Control	FMIK					TTIK				
	2018	2019	2020	2021	2022	2018	2019	2020	2021	2022
BA S/E SAN RAFAEL 13.8KV	1.0	0.0	3.0	1.0	2.0	0.6	0.0	6.0	0.6	1.1
BA S/E TALCA 13.8KV	1.0	0.2	0.1	1.0	1.9	0.7	0.1	0.1	1.6	2.6
BA S/E RANGUILI 13.8KV BP1	1.0	1.0	0.0	0.0	4.5	0.8	12.6	0.0	0.0	13.0
BA S/E LINARES NORTE B2 13.2KV	1.0	3.0	1.0	0.0	10.0	0.0	0.6	0.7	0.0	1.8
BA S/E CURICO 13.2KV BP1	3.0	0.8	2.5	0.7	0.2	2.5	0.4	0.5	0.0	0.0
BA S/E CURICO 13.2KV BP2	2.0	0.7	0.5	1.3	0.2	0.7	0.2	0.1	1.3	0.0
BA S/E CIPRESES 13.2KV	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BA S/E LICANTEN 23KV	1.4	2.0	2.4	0.0	2.7	2.0	14.7	2.2	0.0	9.4
BA S/E LICANTEN 13.2KV	0.6	1.0	3.6	0.0	3.3	0.8	0.6	3.1	0.0	11.1
BA S/E TENO 13.2KV BP2	1.0	0.0	1.5	0.5	0.5	0.2	0.0	3.0	0.0	0.0
BA S/E RANGUILI 13.8KV BP2	0.0	0.0	0.0	0.0	2.5	0.0	0.0	0.0	0.0	7.2
BA S/E RAUQUEN 13.2KV BP2	1.4	0.7	1.2	0.5	0.5	0.2	0.5	1.0	0.0	0.0
BA S/E TALCA 15KV BP2	2.0	2.8	1.6	0.0	0.8	0.7	0.8	0.3	0.0	0.8
BA S/E CHACAHUIN 15KV BP2	2.0	2.0	0.0	1.0	7.6	1.2	1.1	0.0	0.1	1.8
BA S/E MOLINA 15KV BP2	2.0	0.0	0.0	1.0	1.0	0.7	0.0	0.0	0.3	1.7
BA S/E NIRIVILO 23KV B1	1.0	2.6	4.0	3.0	5.0	0.3	2.2	1.3	0.7	0.9
BA S/E ITAHUE 13.8KV	1.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.0	0.0
BA S/E LA PALMA 15KV BP2	0.0	1.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0
BA S/E LOS MAQUIS (TRANSNET) 15KV	0.0	0.0	2.0	0.0	1.0	0.0	0.0	0.7	0.0	1.2
CMPC MADERAS										
BA S/E CONSTITUCION 23KV BP2	0.0	0.0	4.0	0.0	0.0	0.0	0.0	1.9	0.0	0.0
EFE										
BA S/E ITAHUE (FFCC) 66KV	0.0	1.0	0.0	0.0	0.0	0.0	47.7	0.0	0.0	0.0
BA S/E VILLA ALEGRE (FFCC) 66KV	2.0	2.0	0.0	1.0	6.0	0.2	0.1	0.0	0.0	0.7
BA S/E CURICO (FFCC) 66KV B1	2.0	0.0	2.0	0.0	0.0	13.5	0.0	0.4	0.0	0.0
BA S/E PANGUILEMO (FFCC) 66KV B1	1.0	0.0	1.0	1.0	0.0	0.6	0.0	0.3	0.0	0.0
LUZ LINARES										

Punto de Control	FMIK					TTIK				
	2018	2019	2020	2021	2022	2018	2019	2020	2021	2022
BA S/E CONSTITUCION 23KV BP2	0.0	0.0	4.0	0.0	0.0	0.0	0.0	1.9	0.0	0.0
BA S/E LINARES NORTE B2 13.2KV	1.0	6.0	1.0	0.0	0.0	0.1	5.0	0.7	0.0	0.0
BA S/E PANIMAVIDA BP2 13.2KV	3.6	2.0	1.0	2.0	15.0	1.8	1.1	1.2	0.2	3.2
BA S/E YERBAS BUENAS 13.2KV	1.0	1.0	0.0	1.0	12.0	0.1	0.6	0.0	0.0	10.3
PANELES ARAUCO										
BA S/E PLANTA VINALES 66KV	0.0	0.0	0.0	1.0	2.0	0.0	0.0	0.0	1.0	3.4
BA S/E PLANTA MDP TENO 13.2KV	2.0	0.0	1.0	1.0	2.0	1.5	0.0	2.4	0.0	5.2
SAESA										
BA S/E TENO 13.2KV BP2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CHARRÚA										
CARTULINAS CMPC										
BA S/E BUCALEMU 13.2KV	0.0	1.0	0.0	0.0	0.0	0.0	2.4	0.0	0.0	0.0
BA S/E PAPELERA INFORSA 220KV	0.0	0.0	2.0	0.0	0.0	0.0	0.0	18.9	0.0	0.0
CELULOSA ARAUCO										
BA S/E NUEVA ALDEA 66KV	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.2	0.0
CGE										
BA S/E EL AVELLANO 15KV	0.0	0.0	0.0	0.7	0.1	0.0	0.0	0.0	0.4	0.0
BA S/E CHILLAN 13.2KV B1	1.0	0.0	0.0	0.0	0.3	2.2	0.0	0.0	0.0	0.1
BA S/E SANTA ELVIRA 15KV BP1	2.5	1.0	2.0	0.6	3.1	0.3	0.2	0.2	0.0	0.4
BA S/E MANSO DE VELASCO 15KV	1.0	3.0	1.5	1.0	3.0	0.2	1.8	1.4	0.4	0.3
BA S/E COCHARCAS (TRANSNET) 15KV	2.0	2.0	2.0	1.0	3.0	0.7	0.7	0.5	0.0	0.2
BA S/E EL AVELLANO 23KV	1.0	1.7	2.0	2.3	2.9	3.8	6.3	4.6	0.7	1.5
BA S/E CHILLAN 15KV	1.0	1.0	1.0	0.0	0.3	2.7	0.4	2.2	0.0	0.1
BA S/E LOS ANGELES 15KV	0.0	2.0	2.0	2.0	2.0	0.0	0.3	0.5	1.0	0.6
BA S/E MANSO DE VELASCO 23KV	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.3	0.0	0.0
BA S/E CAUQUENES 13.2KV	4.0	10.0	1.0	5.0	6.1	8.4	25.8	0.1	6.7	5.9
BA S/E HUALTE 13.2KV	7.0	4.3	4.0	1.0	9.0	5.7	6.0	12.8	0.0	9.2
BA S/E LA VEGA 23KV	6.0	6.0	1.0	4.0	12.0	12.8	18.3	0.1	5.2	8.3

Punto de Control	FMIK					TTIK				
	2018	2019	2020	2021	2022	2018	2019	2020	2021	2022
BA S/E PARRAL 13.8KV BP1	2.0	5.0	1.0	2.0	3.1	6.3	10.3	0.1	0.1	1.6
BA S/E QUIRIHUE 23KV	4.0	5.5	4.2	2.3	6.4	3.1	2.5	2.9	1.0	3.4
BA S/E QUIRIHUE 13.2KV	1.0	3.7	2.8	1.7	8.6	2.2	11.4	3.3	0.6	14.9
BA S/E RETIRO 13.2KV	2.0	6.0	3.0	2.0	11.0	1.0	4.8	2.0	2.4	6.0
BA S/E SAN CARLOS 13.2KV	3.5	5.0	2.0	3.0	8.0	6.8	6.0	0.1	0.2	2.8
BA S/E QUILMO 033KV	0.0	0.0	0.0	1.0	1.0	0.0	0.0	0.0	0.3	1.2
BA S/E TRES ESQUINAS 066KV	2.0	2.0	1.0	0.0	0.0	2.5	1.7	0.6	0.0	0.0
BA S/E SAN GREGORIO 13.2KV	0.0	0.0	1.0	2.0	7.0	0.0	0.0	1.4	0.1	4.5
BA S/E DUQUECO 23KV	0.0	0.0	1.0	2.0	0.0	0.0	0.0	0.2	0.2	0.0
BA S/E SANTA ELVIRA 15KV BP2	2.5	0.0	0.0	0.4	1.9	0.4	0.0	0.0	0.0	0.4
BA S/E PARRAL 13.8KV BP2	0.0	0.0	0.0	0.0	3.9	0.0	0.0	0.0	0.0	1.6
BA S/E CHILLAN 13.2KV B2	0.0	0.0	1.0	0.0	0.3	0.0	0.0	0.4	0.0	0.1
BA S/E CAUQUENES 15KV BP2	0.0	1.0	0.0	0.0	2.9	0.0	5.8	0.0	0.0	2.6
CMPC CELULOSA										
BA S/E CELULOSA SANTA FE 220KV	0.0	2.0	2.0	0.0	0.0	0.0	4.4	5.5	0.0	0.0
BA S/E CELULOSA LAJA 220KV	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BA S/E CELULOSA PACIFICO 220KV	3.0	3.0	2.0	0.0	1.0	7.0	2.7	4.6	0.0	2.0
CMPC MADERAS										
BA S/E EL AVELLANO 15KV	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.1	0.0	0.0
BA S/E EL AVELLANO 23KV	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.1	0.0	0.0
BA S/E CHARRUA 13.2KV	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BA S/E CELULOSA SANTA FE 220KV	0.0	1.0	2.0	0.0	0.0	0.0	0.4	5.5	0.0	0.0
COELCHA										
BA S/E CHOLGUAN (STS) 13.2KV	0.0	0.0	1.0	5.0	0.0	0.0	0.0	0.1	10.8	0.0
BA S/E LAJA 13.8KV	0.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.8	0.0
BA S/E CABRERO 13.2KV	0.0	1.5	1.0	3.0	0.0	0.0	0.8	0.2	1.7	0.0
BA S/E NEGRETE 23KV	0.0	1.0	3.0	6.0	5.0	0.0	5.1	1.1	2.3	3.9
BA S/E CENTRAL PANGUE 13.8KV	1.0	2.0	4.0	2.0	1.0	38.6	1.5	19.1	0.2	12.9

Punto de Control	FMIK					TTIK				
	2018	2019	2020	2021	2022	2018	2019	2020	2021	2022
COPELAN										
BA S/E CENTRAL MAMPIL 13.8KV B1	0.0	0.0	0.0	1.0	4.0	0.0	0.0	0.0	1.8	7.0
BA S/E LOS ANGELES 13.2KV	0.0	0.0	2.0	2.0	2.0	0.0	0.0	0.5	1.0	6.8
BA S/E EL AVELLANO 23KV	1.0	1.0	0.0	3.0	4.0	3.8	9.2	0.0	0.7	7.3
BA S/E LOS ANGELES 15KV										
BA S/E CENTRAL RUCUE 23KV	1.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0
COPELEC										
BA S/E CHILLAN 13.2KV B1	0.0	0.0	0.7	0.0	0.0	0.0	0.0	0.9	0.0	0.0
BA S/E CHILLAN 15KV	0.0	0.0	0.7	0.0	0.0	0.0	0.0	0.9	0.0	0.0
BA S/E HUALTE 13.2KV	4.0	4.0	4.0	0.0	0.0	2.3	2.0	12.8	0.0	0.0
BA S/E SAN CARLOS 13.2KV	2.0	3.0	2.0	0.0	0.0	0.2	0.8	0.1	0.0	0.0
BA S/E QUILMO 033KV	1.0	5.0	0.0	2.0	1.0	0.9	3.2	0.0	2.7	1.2
BA S/E TRES ESQUINAS 13.8KV Nº1	1.0	7.0	0.0	2.0	0.0	1.5	6.4	0.0	3.4	0.0
BA S/E COCHARCAS 13.8KV	3.0	2.0	2.0	1.0	4.0	0.8	0.7	0.3	0.0	2.0
BA S/E RECINTO 023KV	0.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.7	0.0
BA S/E SANTA ELISA 023KV	0.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.7	0.0
BA S/E CHILLAN 13.2KV B2	0.0	0.0	0.7	0.0	0.0	0.0	0.0	0.9	0.0	0.0
EFE										
BA S/E COCHARCAS (FFCC) 66KV	3.0	3.0	2.0	1.0	2.0	0.8	0.8	0.3	0.0	0.0
BA S/E NIQUEN (FFCC) 66KV	2.0	2.0	2.0	3.0	4.0	6.8	3.4	1.5	3.9	2.1
BA S/E RENAICO (FFCC) 66KV	0.0	1.0	1.0	2.0	4.0	0.0	0.0	0.4	0.6	6.1
BA S/E BULNES (FFCC) 66KV	0.0	2.0	0.0	2.0	0.0	0.0	1.8	0.0	5.2	0.0
BA S/E MONTE AGUILA (FFCC) 66KV BP1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BA S/E COLLIPULLI (FFCC) 66KV B1	0.0	2.0	2.0	3.0	1.0	0.0	0.4	11.2	1.7	0.2
BA S/E LAJA (FFCC) 66KV B1	7.0	1.0	0.0	0.0	0.0	83.7	12.0	0.0	0.0	0.0
BA S/E LONGAVI (FFCC) 66KV B1	2.0	3.0	2.0	1.0	8.0	1.0	10.4	1.1	0.0	3.7
FRONTEL										

Punto de Control	FMIK					TTIK				
	2018	2019	2020	2021	2022	2018	2019	2020	2021	2022
BA S/E ABANICO 13.8KV B1	2.0	0.0	0.0	3.0	0.0	6.7	0.0	0.0	0.6	0.0
BA S/E ANGOL 13.2KV	1.0	4.0	7.0	5.5	4.7	6.4	0.3	1.1	2.0	0.6
BA S/E COLLIPULLI 13.2KV	0.0	3.0	9.0	5.0	4.0	0.0	0.5	6.7	3.5	1.3
BA S/E LOS ANGELES 13.2KV	0.0	1.0	1.0	2.0	2.0	0.0	0.2	0.2	1.0	0.6
BA S/E ANGOL 23KV B1	1.0	4.0	6.0	2.5	2.3	6.4	0.3	0.9	1.0	0.3
BA S/E CHOLGUAN (STS) 13.2KV	1.8	4.0	1.0	5.0	0.0	2.4	7.6	0.1	10.8	0.0
BA S/E CHARRUA 13.2KV	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BA S/E LAJA 13.8KV	7.0	2.0	1.0	2.0	1.0	69.7	10.7	0.1	0.8	0.1
BA S/E NEGRETE 23KV	0.0	3.0	5.0	6.0	5.0	0.0	6.3	3.2	2.3	3.9
BA S/E CABRERO 23KV BP1	0.7	3.9	2.0	3.0	0.0	0.3	1.4	0.7	1.7	0.0
BA S/E PICOLTUE 23KV B. PRINCIPAL	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BA S/E LOS SAUCES 23KV PRINCIPAL	1.0	4.0	9.0	5.0	9.0	5.7	0.3	2.5	3.3	1.2
BA S/E DUQUECO 23KV	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0
BA S/E NAHUELBUTA 13.2KV CPR1	0.0	5.0	7.0	7.0	8.0	0.0	0.6	1.7	1.5	0.9
BA S/E CENTRAL PANGUE 13.8KV	1.0	3.0	9.0	3.0	9.0	39.0	8.5	35.5	1.6	120.8
BA S/E DEUCO 13.8KV	0.0	5.0	1.0	0.0	0.0	0.0	0.8	0.5	0.0	0.0
BA S/E SANTA BARBARA 13.8KV	1.0	1.0	6.0	1.0	1.0	0.2	1.0	12.2	0.1	2.0
LUZ PARRAL										
BA S/E PARRAL 13.8KV BP1	2.0	4.0	0.5	0.0	0.0	6.8	6.3	0.0	0.0	0.0
BA S/E LONGAVI BL2 13.2KV	1.0	7.7	4.0	2.0	12.0	0.0	4.5	3.1	1.2	5.4
BA S/E SAN GREGORIO 13.2KV	2.0	3.0	4.0	0.0	0.0	6.8	1.1	1.6	0.0	0.0
BA S/E PARRAL 13.8KV BP2	0.0	1.0	0.5	0.0	0.0	0.0	0.1	0.0	0.0	0.0
BA S/E PASO HONDO 13.2KV BP1	1.0	3.0	1.0	4.0	9.0	1.3	3.7	0.1	0.6	3.1
MASISA										
BA S/E MASISA 13.2KV	1.0	1.6	0.0	3.0	1.0	0.3	0.9	0.0	1.9	4.6
BA S/E FIBRANOVA 13.2KV	1.0	1.5	0.0	3.0	0.0	0.3	0.7	0.0	1.9	0.0
PANELES ARAUCO										

Punto de Control	FMIK					TTIK				
	2018	2019	2020	2021	2022	2018	2019	2020	2021	2022
BA S/E PLANTA CHOLGUAN 13.2KV										
BA S/E CHOLGUAN (STS) 13.2KV	1.0	0.0	1.0	5.0	0.0	0.0	0.0	0.1	10.8	0.0
CONCEPCIÓN										
ARAUCO BIOENERGÍA										
BA S/E HORCONES 66KV B1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CAP HUACHIPATO										
BA S/E SAN VICENTE 154KV SECCIÓN A	0.0	0.0	1.0	1.0	0.0	0.0	0.0	0.7	7.0	0.0
CARTULINAS CMPC										
BA S/E CORONEL 15KV B1	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0
CELULOSA ARAUCO										
BA S/E PLANTA ARAUCO 66KV	2.0	1.0	1.0	0.0	1.0	7.2	0.3	0.3	0.0	1.1
CEMENTO BÍO BÍO DEL SUR										
BA S/E CEMENTOS BIO BIO 66KV	0.0	1.0	0.0	0.0	0.0	0.0	4.3	0.0	0.0	0.0
CEMENTO POLPAICO										
BA S/E POLPAICO (CEMENTOS POLPAICO) 66KV	0.0	1.0	0.0	2.0	0.0	0.0	1.2	0.0	1.7	0.0
CGE										
BA S/E ESCUADRON (TRANSNET) 15KV	1.0	0.0	0.0	4.0	1.0	0.1	0.0	0.0	6.4	1.8
BA S/E LATORRE 15KV C1	0.0	2.4	2.0	1.0	1.0	0.0	2.2	0.8	0.7	0.0
BA S/E ANDALIEN 15KV C1	0.0	0.7	0.3	1.3	0.0	0.0	0.3	0.1	0.2	0.0
BA S/E ARENAS BLANCAS 15KV	0.0	0.0	0.0	4.0	0.0	0.0	0.0	0.0	4.0	0.0
BA S/E CHIGUAYANTE 15KV	1.7	1.8	1.1	1.5	2.5	5.4	1.7	1.6	8.0	5.2
BA S/E COLO COLO 15KV	0.0	0.0	0.0	0.0	0.7	0.0	0.0	0.0	0.0	0.5
BA S/E PUCHOCO 15KV	1.0	0.0	1.0	5.0	0.0	1.7	0.0	1.8	8.2	0.0
BA S/E TUMBES 15KV	0.0	1.0	1.0	1.0	1.0	0.0	0.3	0.2	0.7	0.0
BA S/E LIRQUEN 15KV BP1	0.0	0.0	0.0	1.7	0.4	0.0	0.0	0.0	0.6	0.5
BA S/E LOMA COLORADA 15KV	1.0	3.0	0.0	4.0	3.0	0.4	1.2	0.0	2.4	1.1
BA S/E MAHNS 15KV	2.0	1.7	1.0	1.2	1.1	0.7	1.2	1.2	1.3	2.1
BA S/E PENCO 15KV	1.0	0.0	1.0	2.0	1.0	0.1	0.0	0.1	1.2	1.3
BA S/E PERALES 15KV C1	0.0	1.4	1.7	1.2	0.5	0.0	0.3	0.7	1.2	0.0
BA S/E SAN PEDRO (TRANSNET) CBP1	1.0	2.5	1.0	3.0	2.4	0.1	2.8	1.1	2.3	0.2

Punto de Control	FMIK					TTIK				
	2018	2019	2020	2021	2022	2018	2019	2020	2021	2022
BA S/E TALCAHUANO 15KV C1	0.0	2.0	0.5	0.8	0.5	0.0	0.4	0.2	0.6	0.0
BA S/E TOME 23KV	2.0	1.0	2.0	5.0	4.0	2.4	0.1	2.0	3.2	22.1
BA S/E CORONEL 15KV B1	0.0	1.0	0.0	0.2	0.0	0.0	0.5	0.0	0.2	0.0
BA S/E EJERCITO 15KV B1	1.0	1.3	0.3	1.0	0.0	0.1	1.2	0.2	0.5	0.0
BA S/E LATORRE 15KV C2	0.0	0.6	0.0	0.0	0.0	0.0	5.5	0.0	0.0	0.0
BA S/E ANDALIEN 15KV C2	0.0	0.3	0.7	0.7	0.0	0.0	0.2	0.2	0.1	0.0
BA S/E PERALES 15KV C2	0.0	1.6	0.3	0.8	0.5	0.0	0.4	0.0	0.7	0.0
BA S/E SAN PEDRO (TRANSNET) CBP2	1.0	4.5	2.0	2.0	0.6	0.1	5.1	0.7	1.1	0.1
BA S/E TALCAHUANO 15KV C2	0.0	1.5	1.5	0.2	0.5	0.0	0.6	0.5	0.1	0.0
BA S/E CHIGUAYANTE 15KV - 2	0.9	1.1	0.9	0.5	0.5	0.9	0.5	1.7	0.8	0.2
BA S/E COLO COLO 15KV -2	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.2
BA S/E MAHNS 15KV-2	0.0	0.3	0.0	4.8	1.9	0.0	0.0	0.0	9.6	8.7
BA S/E EJERCITO 15KV B2	0.0	1.0	0.7	1.0	1.0	0.0	3.3	0.4	1.1	0.6
BA S/E CORONEL 15KV B2	0.0	1.0	1.0	3.8	0.0	0.0	0.5	0.6	2.6	0.0
BA S/E LIRQUEN 15KV BP2	0.0	0.0	1.0	1.3	0.6	0.0	0.0	2.0	0.7	0.9
BA S/E LEBU 13.2KV BP1	0.0	1.0	3.0	0.0	3.0	0.0	2.5	3.8	0.0	6.9
BA S/E MAHNS 15KV BP3	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0
EFE										
BA S/E ESCUADRON (TRANSNET) 66KV	1.0	0.0	0.0	4.0	1.0	0.1	0.0	0.0	6.4	1.8
BA S/E CHIGUAYANTE 66KV	4.0	2.0	4.0	1.0	3.0	36.3	3.2	9.5	1.9	5.6
BA S/E CONCEPCION (FFCC) 66KV	0.0	1.0	3.0	3.0	0.0	0.0	0.2	4.3	2.3	0.0
EKA CHILE										
BA S/E EKA CHILE 154KV	0.0	1.0	1.0	1.0	1.0	0.0	0.2	0.0	4.9	11.8
ENAP REFINERÍA BIO BIO										
BA S/E ERBB 66KV	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
FPC										
BA S/E ESCUADRON (TRANSNET) 66KV	0.0	0.0	0.0	4.0	1.0	0.0	0.0	0.0	6.4	1.8
BA S/E FPC 154KV BP1	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	9.0	0.0

Punto de Control	FMIK					TTIK				
	2018	2019	2020	2021	2022	2018	2019	2020	2021	2022
FRONTEL										
BA S/E LEBU 13.2KV	7.0	10.7	10.0	7.0	11.0	7.2	19.3	8.3	5.4	19.7
BA S/E CARAMPANGUE 13.2KV	6.0	6.0	3.8	3.6	3.3	6.6	4.6	6.9	1.9	5.3
BA S/E CURANILAHUE 13.2KV	5.3	6.2	4.0	2.3	3.2	2.4	8.7	7.3	3.3	5.7
BA S/E TRES PINOS 13.2KV	5.0	6.4	4.3	1.4	3.6	4.6	5.2	6.7	2.4	4.4
BA S/E CURANILAHUE 23KV	4.7	6.1	4.0	0.7	1.8	6.5	4.8	5.2	1.2	2.7
BA S/E TRES PINOS 23KV	7.5	8.2	5.7	2.6	4.4	8.9	12.7	6.8	3.4	6.2
BA S/E CORONEL 15KV B1	0.0	1.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0
BA S/E LOTA 13.2KV B1	5.0	2.0	6.0	7.0	4.0	2.0	4.2	10.2	5.7	8.4
BA S/E CANETE 23KV B.PRINCIPAL	4.0	9.0	9.0	4.0	7.0	2.3	9.7	5.4	3.0	9.0
BA S/E CARAMPANGUE 23KV	4.0	5.6	4.2	7.4	3.7	2.6	4.6	5.3	4.3	8.5
BA S/E ENACAR 13.2KV	2.6	2.0	0.0	0.0	0.0	8.8	3.8	0.0	0.0	0.0
INCHALAM										
BA S/E SAN VICENTE 13.2KV SECCIÓN A	0.0	1.0	1.0	1.0	0.0	0.0	1.2	0.7	7.0	0.0
MASISA										
BA S/E MAPAL 154KV	0.0	0.0	1.0	3.0	2.0	0.0	0.0	1.4	8.1	4.0
MOLY-COP										
BA S/E SAN VICENTE 13.2KV SECCIÓN A	0.0	1.0	0.5	0.5	0.0	0.0	1.2	0.3	3.5	0.0
BA S/E MOLYCOP 13.8KV	0.0	0.0	0.5	0.5	0.0	0.0	0.0	0.3	3.5	0.0
OXY										
BA S/E OXY 154KV	0.0	0.0	2.0	1.0	1.0	0.0	0.0	3.7	4.9	11.8
PAPELES BIO BIO										
BA S/E PAPELERA BIO BIO 66KV	0.0	4.0	4.0	4.0	1.0	0.0	5.5	3.2	2.6	2.0
PETRODOW										
BA S/E PETRODOW 154KV	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PETROQUIM										
BA S/E PETROPOWER 66KV	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	1.6	0.0
ARAUCANÍA										
CARTULINAS CMPC										

Punto de Control	FMIK					TTIK				
	2018	2019	2020	2021	2022	2018	2019	2020	2021	2022
BA S/E CHUMPULLO 66KV	1.0	0.0	3.0	0.0	0.0	0.5	0.0	1.8	0.0	0.0
CELULOSA ARAUCO										
BA S/E PLANTA VALDIVIA 220KV										
CGE										
BA S/E CHIVILCAN 15KV B1	0.6	0.0	0.5	0.7	0.0	0.4	0.0	0.1	0.0	0.0
BA S/E PUMAHUE 15KV	1.0	3.0	2.0	0.0	0.0	0.5	1.5	0.7	0.0	0.0
BA S/E PADRE LAS CASAS 15KV	1.0	1.0	2.7	1.0	0.0	0.6	0.3	0.8	0.1	0.0
BA S/E VILLARRICA 23KV	2.0	28.6	4.0	3.0	5.0	0.8	137.2	3.4	1.5	4.5
BA S/E LONCOCHE 13.2KV	1.0	2.5	3.0	2.0	0.0	0.5	14.4	2.4	0.2	0.0
BA S/E LAUTARO 15KV	1.0	3.0	1.0	2.0	2.0	0.3	2.2	0.2	0.3	7.0
BA S/E LONCOCHE 23KV	1.0	10.2	1.0	2.0	4.0	0.5	39.9	0.6	1.1	1.2
BA S/E LAS ENCINAS 15KV B1	0.5	0.0	1.1	0.9	0.0	0.3	0.0	0.2	0.0	0.0
BA S/E PUCON 23KV	2.0	28.0	8.0	7.0	11.0	3.7	83.9	16.2	10.7	25.7
BA S/E PILLANLEBUN 23KV	1.0	1.0	0.0	0.0	0.0	0.3	1.4	0.0	0.0	0.0
BA S/E PILLANLEBUN 15KV BP1	0.5	3.0	1.0	1.0	2.0	0.2	5.4	0.2	0.0	43.3
BA S/E PILLANLEBUN 15KV BP2	0.5	1.0	0.0	0.0	0.0	0.3	1.4	0.0	0.0	0.0
BA S/E PITRUFQUEN 15KV	3.7	9.7	5.0	4.0	10.0	1.3	24.7	4.2	2.0	14.6
BA S/E CHIVILCAN 15KV B2	0.4	0.0	0.5	0.3	0.0	0.6	0.0	0.1	0.5	0.0
BA S/E LAS ENCINAS 15KV B2	0.5	0.0	0.9	1.1	0.0	0.2	0.0	0.2	0.1	0.0
BA S/E PADRE LAS CASAS 66kv BP1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BA S/E PADRE LAS CASAS 66kv BP2	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CODINER										
BA S/E LAUTARO 13.2KV	1.0	3.0	2.0	2.0	2.0	0.3	2.2	5.8	0.4	7.0
BA S/E TRAIGUEN 13.2KV	2.0	2.0	7.0	6.0	2.0	47.0	13.0	18.1	25.7	8.1
BA S/E VICTORIA 13.2KV	0.0	0.0	0.8	0.0	2.0	0.0	0.0	0.4	0.0	2.1
BA S/E PITRUFQUEN 13.2KV	3.0	9.8	6.0	6.0	12.0	1.1	25.0	27.9	5.8	25.4
BA S/E LONCOCHE 13.2KV	2.0	9.0	3.0	0.0	0.0	6.8	39.1	26.1	0.0	0.0

Punto de Control	FMIK					TTIK				
	2018	2019	2020	2021	2022	2018	2019	2020	2021	2022
BA S/E TEMUCO 13.2KV	2.0	4.0	0.0	0.0	0.0	1.3	7.0	0.0	0.0	0.0
BA S/E PITRUFQUEN 23KV	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BA S/E TEMUCO 23KV	2.0	5.6	0.0	0.0	0.0	1.3	11.6	0.0	0.0	0.0
BA S/E GORBEA 13,2KV	5.0	11.0	5.0	6.0	7.0	73.1	85.6	28.2	6.4	11.8
COOPREL										
BA S/E CENTRAL PILMAIQUEN 13.2KV	6.8	0.0	2.0	1.8	0.0	6.1	0.0	9.2	5.9	0.0
BA S/E LA UNION 13.8KV	1.0	0.0	2.0	2.0	0.0	0.7	0.0	1.3	0.8	0.0
CRELL										
BA S/E CENTRAL PILMAIQUEN 13.2KV	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BA S/E MELIPULLI 23KV	1.0	0.5	3.0	1.0	1.0	0.7	0.2	1.4	1.0	0.1
BA S/E PUERTO VARAS 13.8KV	1.0	3.0	2.0	1.0	1.0	0.8	3.6	1.7	1.2	0.1
EFE										
BA S/E LAUTARO (FFCC) 66KV	0.0	2.0	0.0	0.0	0.0	0.0	0.7	0.0	0.0	0.0
BA S/E METRENCO (FFCC) 66KV	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BA S/E VICTORIA (FFCC) 66KV	1.0	1.0	1.0	4.0	2.0	1.4	1.0	0.9	6.8	1.5
FRONTEL										
BA S/E CURACAUTIN 13.2KV	5.6	14.5	7.0	21.0	8.0	16.5	26.8	10.5	9.8	6.6
BA S/E LAUTARO 13.2KV	3.0	3.5	0.5	0.0	1.0	0.4	2.9	0.1	0.0	3.5
BA S/E TRAIGUEN 13.2KV	1.7	2.3	6.7	6.0	2.0	18.9	14.9	11.5	20.2	8.1
BA S/E VICTORIA 13.2KV	0.0	0.0	1.0	0.0	2.0	0.0	0.0	0.5	0.0	2.1
BA S/E PULLINQUE 13.2KV	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BA S/E IMPERIAL 23KV	7.6	2.6	4.0	10.0	9.0	12.7	3.4	4.5	10.5	8.7
BA S/E LICANCO 23KV	5.0	2.6	4.0	5.0	6.0	8.6	2.7	4.5	4.9	9.2
BA S/E LAUTARO 23KV	3.0	3.0	0.5	1.0	1.0	0.4	2.2	0.1	0.3	3.5
BA S/E PITRUFQUEN 23KV	3.8	10.3	6.4	6.0	11.0	1.6	14.8	4.6	5.1	18.2
BA S/E PILLANLEBUN 23KV	1.0	3.9	1.0	0.0	0.0	0.3	7.9	0.2	0.0	0.0
BA S/E GORBEA 13,2KV	4.0	12.1	5.0	6.0	9.0	0.9	58.2	4.2	6.4	12.0
BA S/E CUNCO 23KV	0.0	3.0	2.6	0.0	0.0	0.0	6.3	3.0	0.0	0.0

Punto de Control	FMIK					TTIK				
	2018	2019	2020	2021	2022	2018	2019	2020	2021	2022
LUZ OSORNO										
BA S/E CENTRAL PILMAIQUEN 13.2KV	5.5	0.0	1.0	1.0	0.0	4.6	0.0	0.3	1.0	0.0
BA S/E AIHUAPI 13.8KV	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BA S/E AIHUAPI 23KV	2.0	2.0	3.0	2.0	1.0	0.9	0.8	1.4	0.7	0.4
BA S/E LA UNION 13.8KV	1.0	0.0	2.2	1.0	0.0	0.7	0.0	1.3	0.6	0.0
BA S/E LOS NEGROS 23KV	2.0	3.0	4.0	2.0	1.0	0.8	1.0	1.4	0.8	0.4
BA S/E OSORNO 13.8KV	3.5	1.4	2.0	1.0	1.0	2.2	0.5	1.1	0.8	0.1
BA S/E PURRANQUE 13.8KV	1.4	0.0	2.0	3.0	1.0	1.5	0.0	1.1	2.4	0.1
BA S/E LOS TAMBORES PR 23KV	1.0	0.0	0.0	1.0	0.0	0.7	0.0	0.0	0.1	0.0
BA S/E PICHIL BPR1 23KV	3.0	0.0	2.0	4.0	1.0	3.4	0.0	1.1	1.3	0.6
SAESA										
BA S/E CENTRAL PILMAIQUEN 13.2KV	5.9	0.0	0.0	1.0	0.0	4.3	0.0	0.0	1.0	0.0
BA S/E LONCOCHE 13.2KV	1.5	9.0	4.0	0.0	0.0	5.9	11.3	26.8	0.0	0.0
BA S/E PULLINQUE 13.2KV	2.0	3.0	2.0	2.0	4.0	1.2	0.2	0.2	1.6	0.7
BA S/E LONCOCHE 23KV	1.5	0.0	2.0	0.0	0.0	5.9	0.0	25.5	0.0	0.0
BA S/E AIHUAPI 23KV	2.2	2.1	3.0	2.0	1.0	0.8	1.6	1.6	0.7	0.4
BA S/E CORRAL 13.2KV	6.5	12.0	9.0	4.0	10.0	16.6	52.7	21.8	5.6	15.7
BA S/E FRUTILLAR 13.2KV	1.1	2.2	2.3	3.0	0.1	0.8	4.3	1.7	0.9	0.0
BA S/E FRUTILLAR 23kv	0.6	1.4	1.7	1.0	0.9	0.9	2.5	1.4	0.2	0.0
BA S/E LA UNION 13.8KV	0.1	0.3	1.9	1.0	0.0	0.1	0.2	0.8	0.6	0.0
BA S/E LA UNION 23KV-1	1.0	1.1	3.1	2.0	0.0	0.7	0.6	1.6	0.3	0.0
BA S/E LA UNION 23KV-2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BA S/E LOS LAGOS 13.2KV	2.0	2.0	2.0	3.0	0.0	6.6	0.2	1.3	15.4	0.0
BA S/E MELIPULLI 23KV	1.0	2.0	4.0	1.0	1.0	0.7	3.0	1.8	1.0	0.1
BA S/E OSORNO 23KV	1.1	2.3	2.8	3.0	0.3	0.7	0.8	1.5	1.2	0.0
BA S/E PANGUIPULLI 23KV	4.0	8.0	10.0	6.0	4.0	2.0	4.5	27.8	2.5	1.5
BA S/E PICARTE 23KV B1	3.5	3.0	0.8	0.9	0.5	1.6	2.8	0.5	0.3	0.2

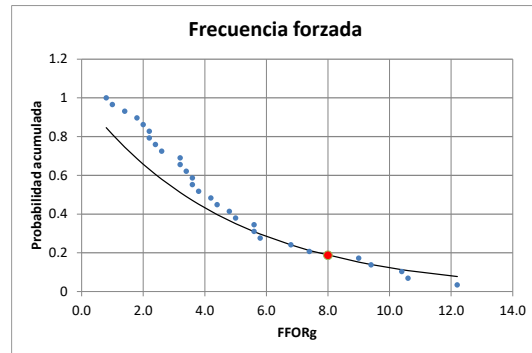
Punto de Control	FMIK					TTIK				
	2018	2019	2020	2021	2022	2018	2019	2020	2021	2022
BA S/E PICARTE 23KV B2	2.9	1.0	1.2	0.1	0.5	1.3	0.3	0.8	0.1	0.2
BA S/E PICHIRROPULLI 13.8KV	0.3	2.0	1.3	0.0	0.0	0.8	0.9	0.4	0.0	0.0
BA S/E PICHIRROPULLI 23KV	1.7	2.0	3.7	1.0	0.0	2.2	0.8	3.2	0.6	0.0
BA S/E PUERTO VARAS 13.8KV	1.1	2.9	1.6	0.0	0.0	0.8	4.7	0.4	0.0	0.0
BA S/E PUERTO VARAS 23KV	1.8	1.9	3.4	1.0	1.0	1.3	1.4	2.0	1.2	0.1
BA S/E PURRANQUE 13.8KV	1.3	0.0	0.8	2.3	0.7	1.8	0.0	0.4	2.0	0.1
BA S/E MARIQUINA 23KV	2.0	0.0	2.0	1.0	0.0	1.7	0.0	0.5	0.4	0.0
BA S/E PUERTO MONTT 220KV 2 (MELIPULLI)	2.0	1.0	1.0	0.0	0.0	1.1	0.6	0.9	0.0	0.0
BA S/E VALDIVIA 23KV	0.9	1.0	1.8	0.9	0.0	0.3	0.3	1.4	0.3	0.0
BA S/E VALDIVIA 13.2KV	0.1	1.0	2.2	0.1	0.0	0.0	0.3	1.9	0.1	0.0
BA S/E BARRO BLANCO 23KV B1	2.0	0.0	2.0	3.0	0.0	1.8	0.0	1.3	1.0	0.0
BA S/E LOS TAMBORES PR 23KV	2.0	0.0	6.0	2.0	2.0	1.8	0.0	3.7	0.8	0.4
BA S/E PICHIL BPR1 23KV	3.1	0.0	2.0	4.0	1.0	2.8	0.0	1.1	1.3	0.6
BA S/E PURRANQUE 23KV	1.3	0.0	1.2	0.7	0.3	1.4	0.0	0.7	0.7	0.0
BA S/E OSORNO 23KV 3	1.8	0.6	0.0	0.0	0.3	1.2	0.2	0.0	0.0	0.0
BA S/E RIO NEGRO 24 KV BP1	0.0	1.0	1.0	0.0	0.0	0.0	2.5	0.8	0.0	0.0
BA S/E OSORNO 23KV BP2	0.0	0.0	0.2	0.0	0.3	0.0	0.0	0.2	0.0	0.0
SOCOPEA										
BA S/E LOS LAGOS 13.2KV	1.0	0.0	2.0	2.0	0.0	0.6	0.0	1.3	13.6	0.0
BA S/E PAILLACO 13.8KV	2.0	2.0	2.0	1.0	0.0	5.4	0.8	1.5	0.2	0.0
CHILOÉ										
SAESA										
BA S/E ANCUD 23KV	6.0	3.0	2.0	5.0	2.0	13.7	0.6	1.4	3.8	0.2
BA S/E CALBUCO 23KV	3.0	0.0	7.0	1.0	1.0	2.1	0.0	7.5	1.2	0.1
BA S/E CASTRO 23KV	1.0	5.0	3.0	3.0	3.0	0.8	1.4	1.6	2.9	0.3
BA S/E CHONCHI 23KV	1.0	7.0	3.0	5.0	3.0	0.8	8.2	1.6	3.6	0.3
BA S/E COLACO 23KV B2	3.0	0.0	4.0	2.0	0.0	2.1	0.0	2.1	7.9	0.0

Punto de Control	FMIK					TTIK				
	2018	2019	2020	2021	2022	2018	2019	2020	2021	2022
BA S/E DEGAN 23KV B2	1.0	3.0	3.0	3.0	2.0	0.7	0.6	1.6	2.8	0.2
BA S/E EL EMPALME 23KV BP1	3.0	0.0	2.0	1.0	1.0	2.1	0.0	1.5	1.1	0.1
BA S/E PID PID 23KV	1.9	6.7	4.0	3.0	2.0	1.4	1.6	1.8	2.9	0.2
BA S/E QUELLON 23KV BP1	3.5	6.0	4.0	5.0	3.0	2.6	1.9	2.0	3.6	0.3
BA S/E DALCAHUE 23KV BP1	1.7	6.0	3.0	3.0	1.0	1.2	1.5	1.7	2.8	0.0
BA S/E QUELLON 23KV BP2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BA S/E ALTO BONITO 23KV	2.0	0.0	2.0	1.0	1.0	1.0	0.0	1.1	0.9	0.1

ANEXO 2: ANÁLISIS ESTADÍSTICO DE ÍNDICES DE INDISPONIBILIDAD GENERACIÓN

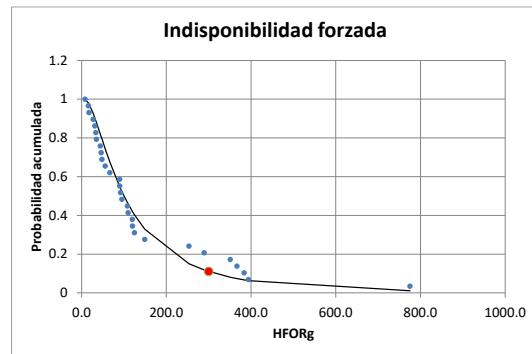
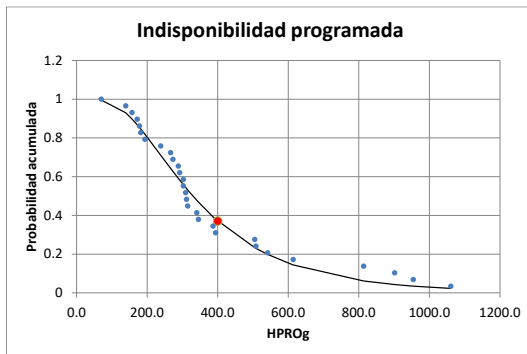
Hidráulica Embalse

INDISPONIBILIDAD DE GENERACIÓN: EMBALSE			
	Período ene18-dic22		
Duración periodo: A (años)	5		
Unidades técnicas: N (#)	29		
MODELO ESTOCÁSTICO	HPRog	HFORg	FFORg
(1/5) media 5 años	391.5	149.7	4.8
(1/5) desvío 5 años	250.0	166.3	---
Coefficiente de variación: cv	0.6386	1.1112	---
1+cv*cv	1.4079	2.2348	---
sigma	0.5849	0.8967	---
mu	5.7990	4.6064	---
X25%	490	183	6.6
X20%	540	213	7.7
X15%	605	254	9.1
X10%	698	316	11.0
X5%	864	438	14.3
CUMPLIMIENTO NTSyCS	HPRog	HFORg	FFORg
Límite NTSyCS	400	300	8
Pr(X>Límite NTSyCS)	37.1%	11.1%	18.7%



a)

b)



c)

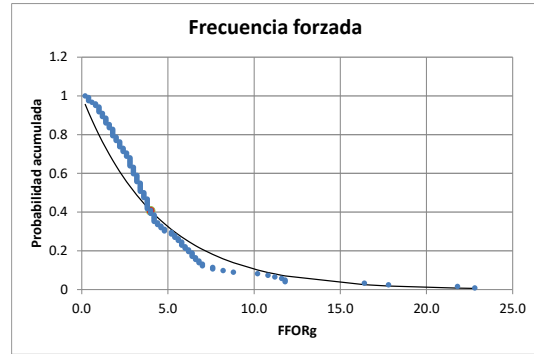
d)

Figura 1: Resultado de índices de indisponibilidad de generación Hidráulica de Embalse; a) Tabla de índices de indisponibilidad, b) Frecuencia Indisponibilidad forzada, c) Indisponibilidad programada, d) Indisponibilidad forzada.

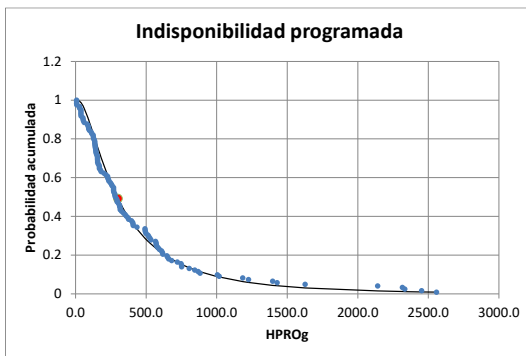
Hidráulica Pasada

INDISPONIBILIDAD DE GENERACIÓN: PASADA			
		Periodo ene18-dic22	
Duración periodo: A (años)		5	
Unidades técnicas: N (#)		122	
MODELO ESTOCÁSTICO			
(1/5) media 5 años	HPRGg	HFORg	FFORg
(1/5) desvío 5 años	445.9	388.9	4.4
Coefficiente de variación: cv	1.1353	2.4471	---
1+cv*cv	2.2889	6.9883	---
sigma	0.9100	1.3944	---
mu	5.6860	4.9913	---
X25%	544	377	6.2
X50%	634	476	7.2
X75%	757	624	8.4
X10%	946	878	10.2
X5%	1317	1458	13.3
CUMPLIMIENTO NTSyCS			
Limite NTSyCS	HPRGg	HFORg	FFORg
Pr(X>Limite NTSyCS)	49.2%	78.1%	40.7%

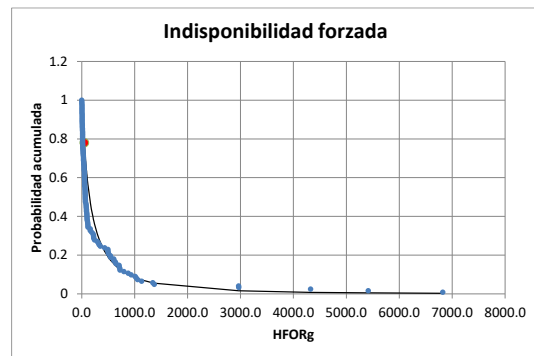
a)



b)



c)

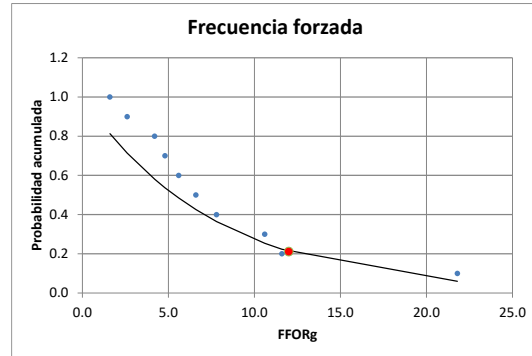


d)

Figura 2: Resultado de índices de indisponibilidad de generación Hidráulica de Pasada; a) Tabla de índices de indisponibilidad, b) Frecuencia Indisponibilidad forzada, c) Indisponibilidad programada, d) Indisponibilidad forzada.

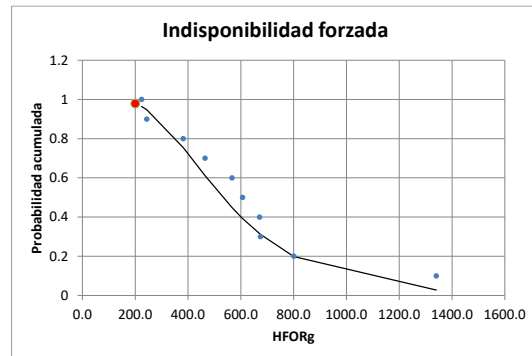
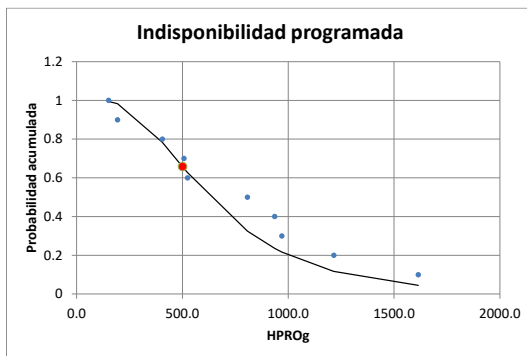
Térmica Ciclo Combinado

INDISPONIBILIDAD DE GENERACIÓN: CC			
Período ene18-dic22			
Duración período: A (años)	5		
Unidades técnicas: N (#)	10		
MODELO ESTOCASTICO	HPRGg	HFORg	FFORg
(1/5) media 5 años	732.2	597.6	7.7
(1/5) desvío 5 años	440.9	305.6	---
Coefficiente de variación: cv	0.6022	0.5114	---
1+cv*cv	1.3626	1.2615	---
sigma	0.5562	0.4820	---
mu	6.4413	6.2768	---
X25%	913	736	10.7
X20%	1002	798	12.4
X15%	1116	877	14.6
X10%	1279	987	17.8
X5%	1566	1176	23.1
CUMPLIMIENTO NTSyCS	HPRGg	HFORg	FFORg
Limite NTSyCS	500	200	12
Pr(X>Limite NTSyCS)	65.8%	97.9%	21.1%



a)

b)



c)

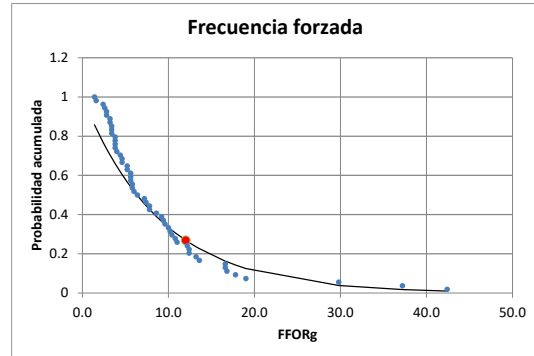
d)

Figura 3: Resultado de índices de indisponibilidad de generación Térmica de Ciclo Combinado; a) Tabla de índices de indisponibilidad, b) Frecuencia Indisponibilidad forzada, c) Indisponibilidad programada, d) Indisponibilidad forzada.

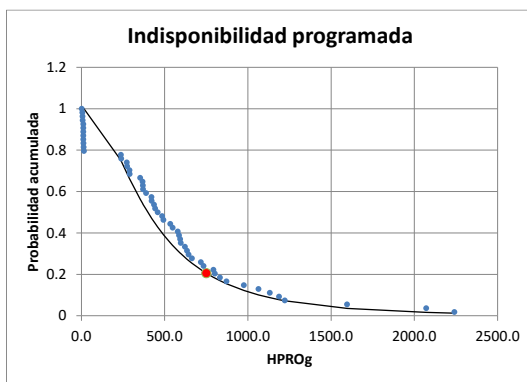
Térmica Vapor

INDISPONIBILIDAD DE GENERACIÓN: VAPOR			
Período ene-18-dic22			
Duración período: A (años)	5		
Unidades técnicas: N (#)	54		
MODELO ESTOCÁSTICO	HPRGg	HFORg	FFORg
(1/5) media 5 años	536.3	898.2	9.1
(1/5) desvío 5 años	481.6	955.7	---
Coefficiente de variación: cv	0.8979	1.0640	---
1+cv*cv	1.8062	2.1321	---
sigma	0.7689	0.8701	---
mu	5.9891	6.4219	---
X25%	670	1106	12.7
X20%	762	1279	14.7
X15%	885	1516	17.3
X10%	1069	1876	21.0
X5%	1414	2574	27.4
CUMPLIMIENTO NTSyCS	HPRGg	HFORg	FFORg
Limite NTSyCS	750	200	12
Pr(X>Limite NTSyCS)	20.6%	90.2%	26.9%

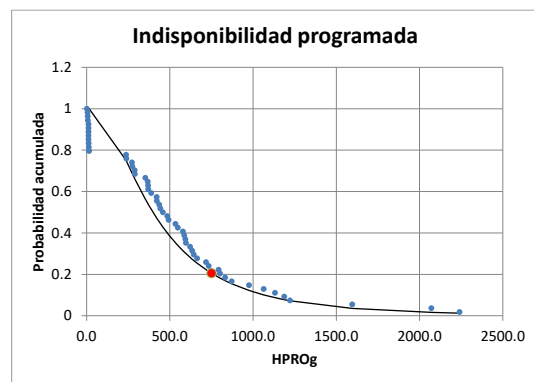
a)



b)



c)



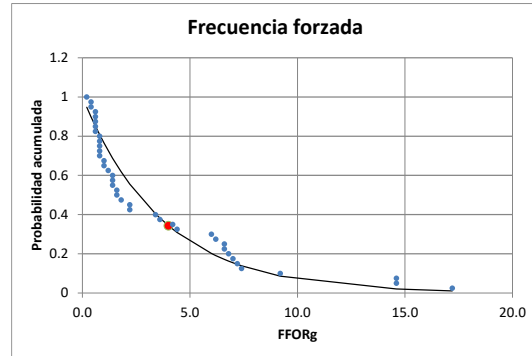
d)

Figura 4: Resultado de índices de indisponibilidad de generación Turbina Vapor; a) Tabla de índices de indisponibilidad, b) Frecuencia Indisponibilidad forzada, c) Indisponibilidad programada, d) Indisponibilidad forzada.

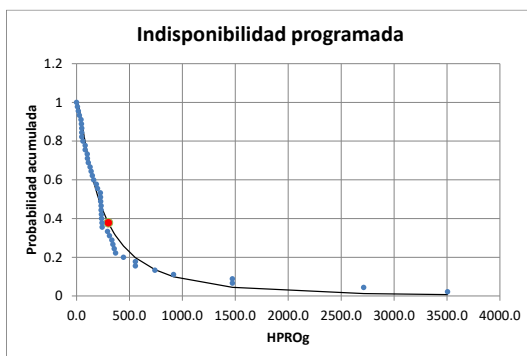
Turbina de Gas

INDISPONIBILIDAD DE GENERACIÓN: TG			
		Período ene-18-dic22	
Duración período: A (años)		5	
Unidades técnicas: N (#)		45	
MODELO ESTOCASTICO	HPRGg	HFORg	FFORg
(1/5) media 5 años	405.8	417.1	3.7
(1/5) desvío 5 años	669.2	777.6	---
Coefficiente de variación: cv	1.6489	1.8641	---
1+cv*cv	3.7187	4.4750	---
sigma	1.1460	1.2241	---
mu	5.3493	5.2841	---
X25%	456	450	5.2
X50%	552	552	6.0
X75%	690	701	7.1
X90%	914	947	8.6
X95%	1386	1477	11.2
CUMPLIMIENTO NTSyCS	HPRGg	HFORg	FFORg
Limite NTSyCS	300	50	4
Pr(X>Limite NTSyCS)	37.9%	86.9%	34.4%

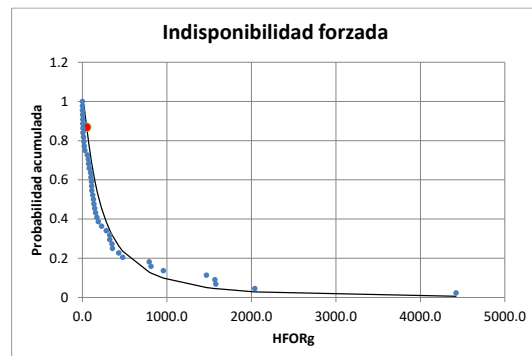
a)



b)



c)



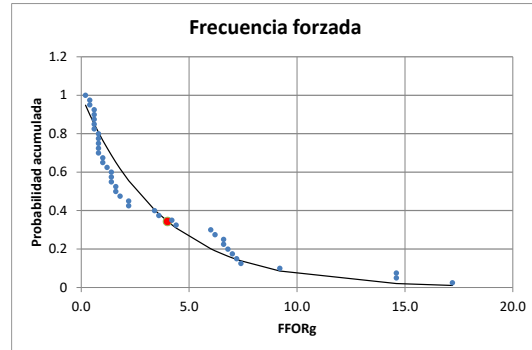
d)

Figura 5: Resultado de índices de indisponibilidad de generación Turbina a Gas; a) Tabla de índices de indisponibilidad, b) Frecuencia Indisponibilidad forzada, c) Indisponibilidad programada, d) Indisponibilidad forzada.

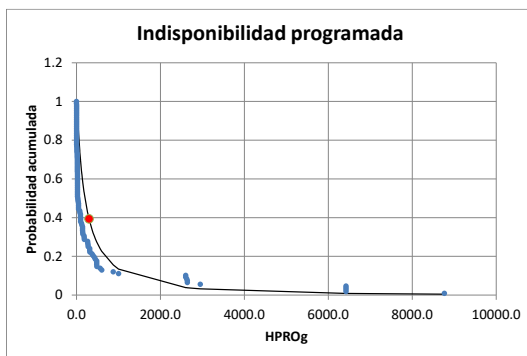
Motores Diésel

INDISPONIBILIDAD DE GENERACIÓN: DIÉSEL			
	Período ene18-dic22		
Duración período: A (años)	5		
Unidades técnicas: N (#)	121		
MODELO ESTOCASTICO	HPRGg	HFORg	FFORg
(1/5) media 5 años	577.0	1078.7	3.1
(1/5) desvío 5 años	1533.5	2060.0	---
Coefficiente de variación: cv	2.6577	1.9098	---
1+cv*cv	8.0634	4.6474	---
sigma	1.4448	1.2395	---
mu	5.3142	6.2153	---
X25%	538	1154	4.2
X20%	685	1420	4.9
X15%	908	1808	5.8
X10%	1294	2450	7.0
X5%	2188	3843	9.2
CUMPLIMIENTO NTSyCS	HPRGg	HFORg	FFORg
Límite NTSyCS	300	100	8
Pr(X>Límite NTSyCS)	39.4%	90.3%	7.3%

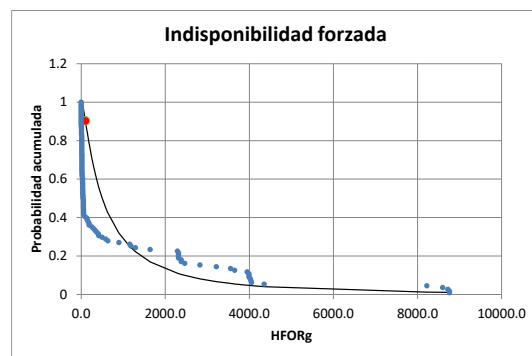
a)



b)



c)



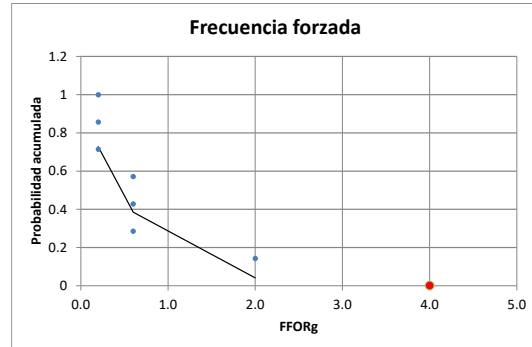
d)

Figura 6: Resultado de índices de indisponibilidad de generación de Motores Diésel; a) Tabla de índices de indisponibilidad, b) Frecuencia Indisponibilidad forzada, c) Indisponibilidad programada, d) Indisponibilidad forzada.

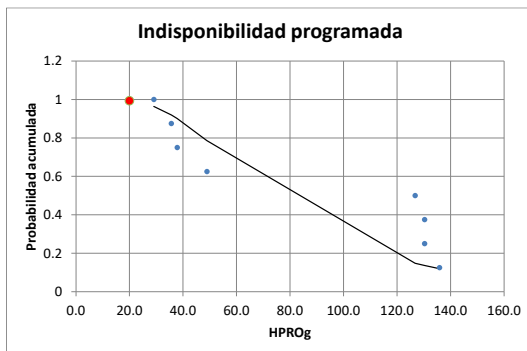
Parques de Motores Diésel

INDISPONIBILIDAD DE GENERACIÓN: PARQUES MOTORES DIÉSEL			
Período ene18-dic22			
Duración período: A (años)	5		
Unidades técnicas: N (#)	8		
MODELO ESTOCÁSTICO	HPRGg	HFORg	FFORg
(1/5) media 5 años	84.4	113.2	0.6
(1/5) desvío 5 años	46.8	125.7	---
Coefficiente de variación: cv	0.5547	1.1102	---
1+cv*cv	1.3077	2.2326	---
sigma	0.5179	0.8962	---
mu	4.3009	4.3275	---
X25%	105	139	0.9
X20%	114	161	1.0
X15%	126	192	1.2
X10%	143	239	1.4
X5%	173	331	1.9
CUMPLIMIENTO NTSyCS	HPRGg	HFORg	FFORg
Límite NTSyCS	20	10	4
Pr(X>Límite NTSyCS)	99.4%	98.8%	0.2%

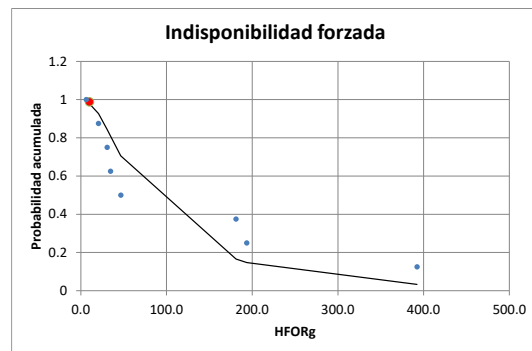
a)



b)



c)

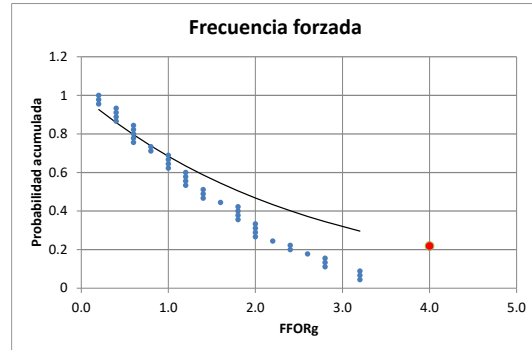


d)

Figura 7: Resultado de índices de indisponibilidad de generación Parque de Motores Diésel; a) Tabla de índices de indisponibilidad, b) Frecuencia Indisponibilidad forzada, c) Indisponibilidad programada, d) Indisponibilidad forzada.

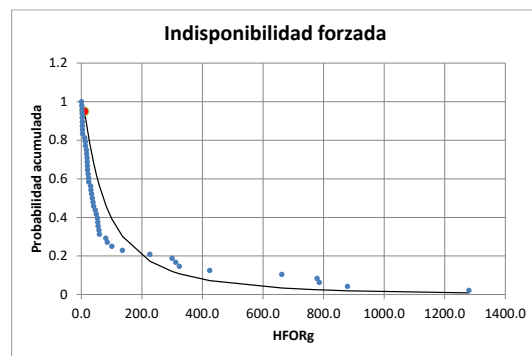
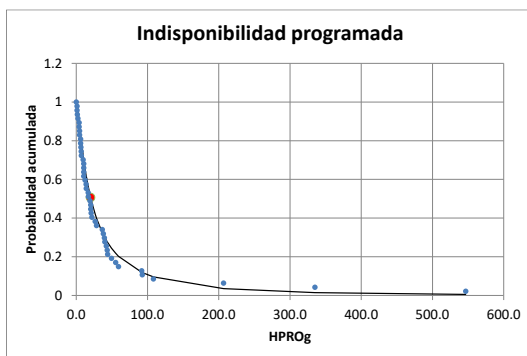
Parques Eólicos y Fotovoltaicos

INDISPONIBILIDAD DE GENERACIÓN: P. EÓLICOS Y FOTOVOLTAICOS			
Periodo ene18-dic22			
Duración periodo: A (años)	5		
Unidades técnicas: N (#)	52		
MODELO ESTOCÁSTICO	HPRog	HFORg	FFORg
(1/5) media 5 años	46.1	150.4	2.6
(1/5) desvío 5 años	93.2	273.3	---
Coefficiente de variación: cv	2.0230	1.8181	---
1+cv*cv	5.0924	4.3054	---
sigma	1.2758	1.2083	---
mu	3.0168	4.2830	---
X25%	48	164	3.6
X20%	60	200	4.2
X15%	77	253	5.0
X10%	105	341	6.1
X5%	157	529	7.9
CUMPLIMIENTO NTSyCS	HPRog	HFORg	FFORg
Limite NTSyCS	20	10	6
Pr(X>Limite NTSyCS)	50.7%	94.9%	21.9%



a)

b)



c)

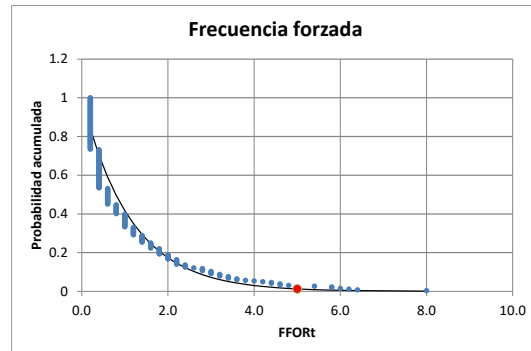
d)

Figura 8: Resultado de índices de indisponibilidad de generación Parques Eólicos y Fotovoltaicos; a) Tabla de índices de indisponibilidad, b) Frecuencia Indisponibilidad forzada, c) Indisponibilidad programada, d) Indisponibilidad forzada.

ANEXO 3: ANÁLISIS ESTADÍSTICO DE ÍNDICES DE INDISPONIBILIDAD TRANSMISIÓN

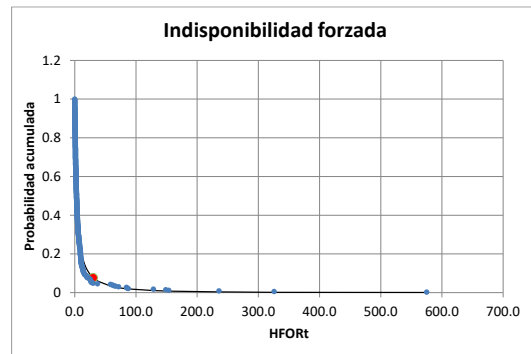
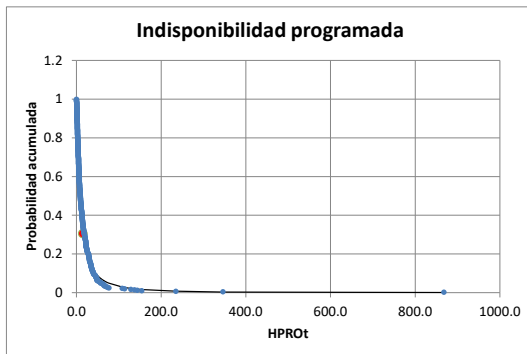
Línea mayor o igual que 44 kV y menor que 100 kV

INDISPONIBILIDAD DE LÍNEAS: 44 kV ≤ Tensión < 100 kV			
Período ene18-dic22			
Duración periodo: A (años)	5		
Unidades técnicas: N (#)	530		
MODELO ESTOCASTICO			
(1/5) media 5 años	HPR0T	HFORt	FFORt
(1/5) desvio 5 años	20.0	11.2	1.1
Coefficiente de variación: cv	51.1	42.0	---
1+cv*cv	2.5555	3.7703	---
sigma	7.5307	15.2152	---
mu	1.4209	1.6499	---
X25%	1.9857	1.0504	---
X20%	19	9	1.6
X15%	24	11	1.8
X10%	32	16	2.2
X5%	45	24	2.6
X5%	75	43	3.4
CUMPLIMIENTO NTSyCS			
Límite NTSyCS	HPR0T	HFORt	FFORt
Pr(X>Límite NTSyCS)	15	30	5
	30.6%	7.7%	1.3%



a)

b)



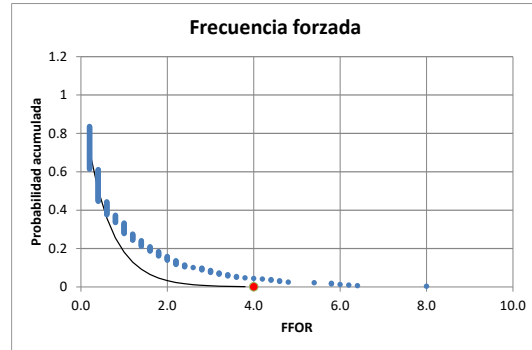
c)

d)

Figura 9: Resultado de índices de indisponibilidad de transmisión Líneas mayor o igual que 44kV y menor a 100 kV; a) Tabla de índices de indisponibilidad, b) Indisponibilidad programada, c) Frecuencia forzada, d) Indisponibilidad forzada.

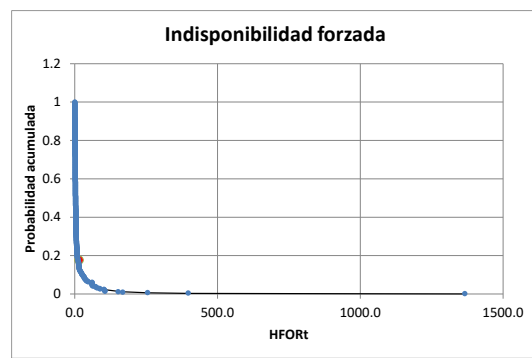
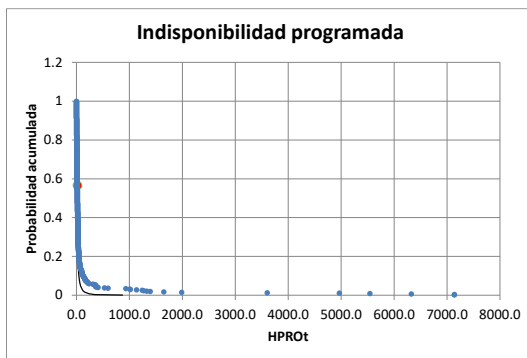
Línea mayor o igual que 100 kV y menor que 220 kV

INDISPONIBILIDAD DE LÍNEAS: 100 kV ≤ Tensión < 220 kV			
Período ene18-dic22			
Duración período: A (años)	5		
Unidades técnicas: N (#)	588		
MODELO ESTOCASTICO	HPRDT	HFORT	FFORT
(1/5) media 5 años	137.3	14.4	0.6
(1/5) desvío 5 años	686.0	73.5	---
Coefficiente de variación: cv	4.9967	5.0959	---
1+cv*cv	25.9675	26.9678	---
sigma	1.8047	1.8151	---
mu	3.2937	1.0212	---
X25%	91	9	0.8
X20%	123	13	0.9
X15%	175	18	1.1
X10%	272	28	1.3
X5%	524	55	1.8
CUMPLIMIENTO NTSyCS	HPRDT	HFORT	FFORT
Límite NTSyCS	20	15	4
Pr(X>Límite NTSyCS)	56.6%	17.6%	0.1%



a)

b)



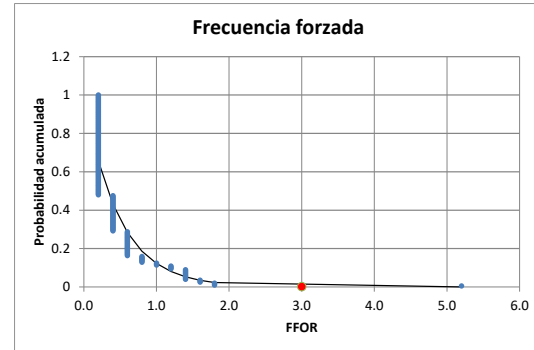
c)

d)

Figura 10: Resultado de índices de indisponibilidad de transmisión Líneas mayor o igual que 100 kV y menor a 220 kV; a) Tabla de índices de indisponibilidad, b) Indisponibilidad programada, c) Frecuencia forzada, d) Indisponibilidad forzada.

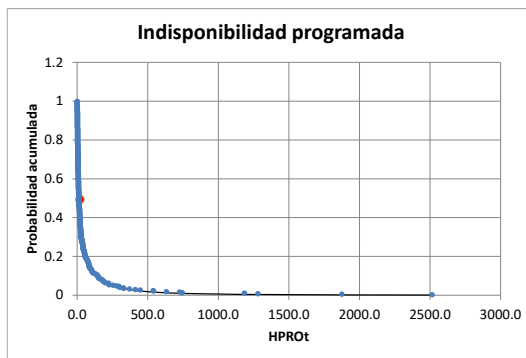
Línea mayor o igual que 220 kV y menor que 500 kV

INDISPONIBILIDAD DE LÍNEAS: 220 kV ≤ Tensión < 500 kV			
	Período ene18-dic22		
Duración período: A (años)	5		
Unidades técnicas: N (#)	445		
MODELO ESTOCÁSTICO	HPROt	HFORT	FFORT
(1/5) media 5 años	64.8	21.3	0.5
(1/5) desvío 5 años	205.0	111.0	---
Coefficiente de variación: cv	3.1642	5.2093	---
1+cv*cv	11.0124	28.1366	---
sigma	1.5489	1.8268	---
mu	2.9718	1.3902	---
X25%	56	14	0.7
X20%	72	19	0.8
X15%	97	27	0.9
X10%	142	42	1.1
X5%	250	81	1.4
CUMPLIMIENTO NTSyCS	HPROt	HFORT	FFORT
Límite NTSyCS	20	10	3
Pr(X>Límite NTSyCS)	49.4%	30.9%	0.2%

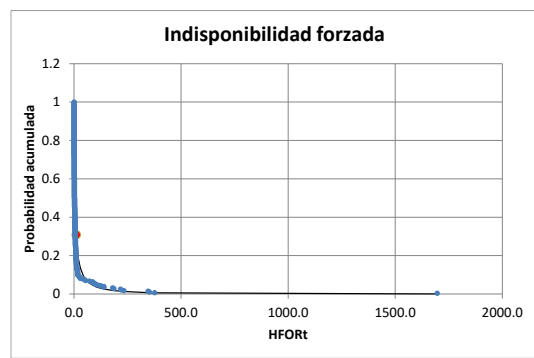


a)

b)



c)

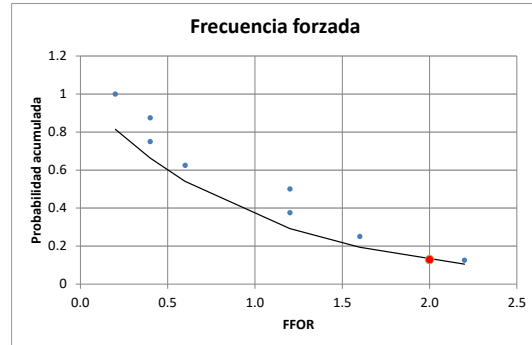


d)

Figura 11: Resultado de índices de indisponibilidad de transmisión Líneas mayor o igual que 220 kV y menor a 500 kV; a) Tabla de índices de indisponibilidad, b) Frecuencia Indisponibilidad forzada, c) Indisponibilidad programada, d) Indisponibilidad forzada.

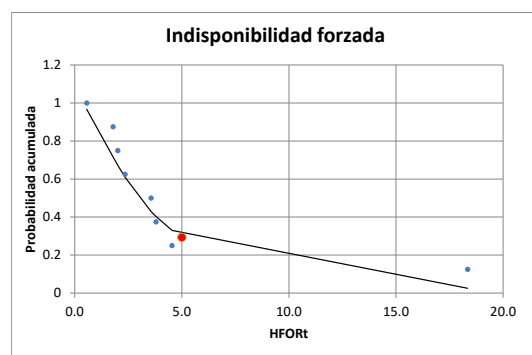
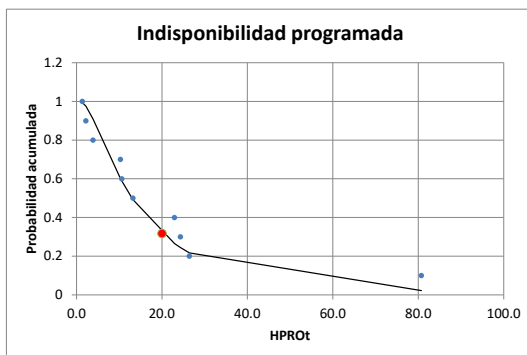
Línea mayor o igual que 500 kV

INDISPONIBILIDAD DE LÍNEAS: Tensión \geq 500 kV			
Período ene18-dic22			
Duración periodo: A (años)	5		
Unidades técnicas: N (#)	10		
MODELO ESTOCÁSTICO	HPRot	HFORt	FFORt
(1/5) media 5 años	19.6	4.6	1.0
(1/5) desvío 5 años	22.2	5.3	---
Coefficiente de variación: cv	1.1307	1.1519	---
1+cv*cv	2.2785	2.3269	---
sigma	0.9075	0.9190	---
mu	2.5634	1.1081	---
X25%	24	6	1.4
X20%	28	7	1.6
X15%	33	8	1.8
X10%	42	10	2.2
X5%	58	14	2.9
CUMPLIMIENTO NTSyCS	HPRot	HFORt	FFORt
Límite NTSyCS	20	5	2
Pr(X>Límite NTSyCS)	31.7%	29.3%	12.9%



a)

b)



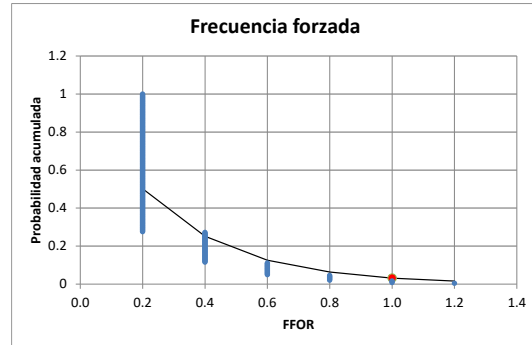
c)

d)

Figura 12: Resultado de índices de indisponibilidad de transmisión Líneas mayor o igual que 500 kV a) Tabla de índices de indisponibilidad, b) Frecuencia Indisponibilidad forzada, c) Indisponibilidad programada, d) Indisponibilidad forzada.

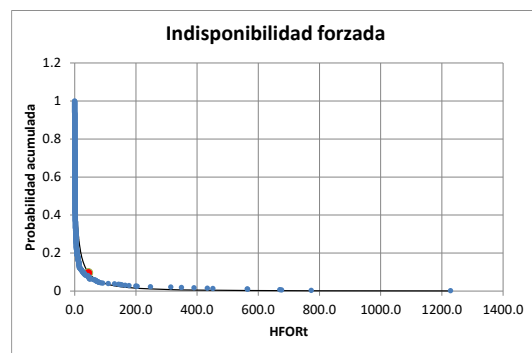
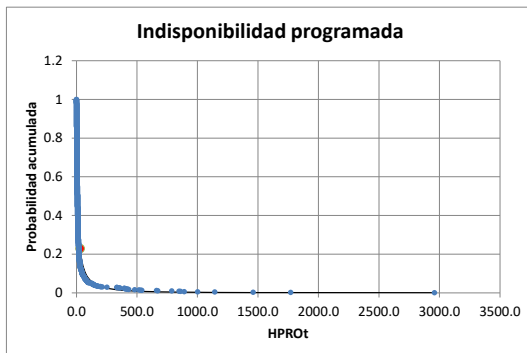
Transformadores

INDISPONIBILIDAD DE TRANSFORMADORES			
Período ene18-dic22			
Duración período: A (años)	5		
Unidades técnicas: N (#)	977		
MODELO ESTOCÁSTICO	HPROt	HFORT	FFORT
(1/5) media 5 años	36.7	21.1	0.3
(1/5) desvío 5 años	157.0	93.3	---
Coefficiente de variación: cv	4.2737	4.4117	---
1+cv*cv	19.2643	20.4629	---
sigma	1.7200	1.7374	---
mu	2.1244	1.5420	---
X25%	27	15	0.4
X20%	36	20	0.5
X15%	50	28	0.5
X10%	76	43	0.7
X5%	142	81	0.9
CUMPLIMIENTO NTSyCS	HPROt	HFORT	FFORT
Límite NTSyCS	30	45	1
Pr(X>Límite NTSyCS)	22.9%	9.6%	3.2%



a)

b)



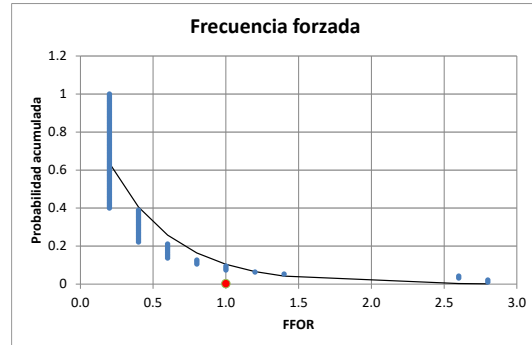
c)

d)

Figura 13: Resultado de índices de indisponibilidad de transmisión Transformadores; a) Tabla de índices de indisponibilidad, b) Frecuencia Indisponibilidad forzada, c) Indisponibilidad programada, d) Indisponibilidad forzada.

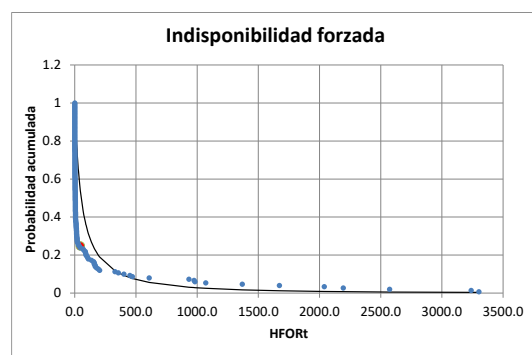
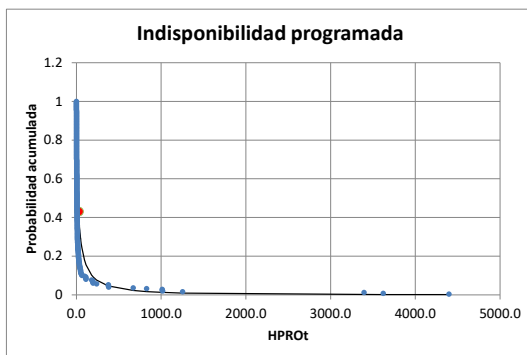
Equipos de Serie y Compensación

INDISPONIBILIDAD DE EQUIPOS DE COMPENSACIÓN			
Periodo ene18-dic22			
Duración periodo: A (años)	5		
Unidades técnicas: N (#)	283		
MODELO ESTOCÁSTICO	HPROt	HFORt	FFORt
(1/5) media 5 años	91.4	171.7	0.4
(1/5) desvío 5 años	442.8	531.6	---
Coefficiente de variación: cv	4.8451	3.0966	---
1+cv*cv	24.4748	10.5892	---
sigma	1.7882	1.5362	---
mu	2.9163	3.9656	---
X25%	62	149	0.6
X20%	83	192	0.7
X15%	118	259	0.8
X10%	183	378	1.0
X5%	350	660	1.3
CUMPLIMIENTO NTSyCS	HPROt	HFORt	FFORt
Limite NTSyCS	30	45	1
Pr(X>Limite NTSyCS)	43.1%	24.8%	0.2%



a)

b)



c)

d)

Figura 14: Resultado de índices de indisponibilidad de transmisión Equipos de Compensación; a) Tabla de índices de indisponibilidad, b) Frecuencia Indisponibilidad forzada, c) Indisponibilidad programada, d) Indisponibilidad forzada.