

NEPSI

Northeast Power Systems, Inc.

Partial Mining Experience List

“Large Harmonic Filters & Capacitor Banks for Copper Concentrate and Electrowinning Plants”

armorVAR
CAPACITOR BANK

armorVAR
HARMONIC FILTER BANK

actiVAR
FAST VAR SWITCHING

Partial Mining Experience List

Year	Enduser	Project Name	Country	KV	MVARs	# of	# of	Description
2017	FirstQuantum	Cobre Panama	Panama	34.5	225	5	5	Multi-Tuned Harmonic Filter Bank
2006	CanadianNatural	Canadian Natural Resources Ltd	Canada	34.5	90	4	4	Automatic Capacitor & Harmonic Filter Bank
2011	CopperMountain	Copper Mountain	Canada	24.94	56	4	4	Multi-Tuned Harmonic Filter Bank, DCS Controlled
2017	Southern Peru	Toquepala Mine	Peru	34.5	50	4	4	Multi-Tuned Harmonic Filter Bank
2011	FreePortMcMoRa	Climax Mining	U.S.A	13.8	38	5	5	Automatic Multi-Tuned Harmonic Filter Bank
2006	Angloamerican	Los Bronces	Chile	15	36	fixed		Automatic Capacitor Bank
2007	Unknown	FL Smidth	U.S.A	13.8	36	6	6	Automatic Harmonic Filter Bank
2009	Teck	Carmen de Andacollo	Chile	13.8	34	4	4	Multi-Tuned Automatic Harmonic Filter Bank
2012	Centerragold	Mount Milligan	Canada	25	30	5	5	Automatic Multi-Tuned High-Pass Harmonic Filter Bank
2013	Grupo Mexico	Cananea	Mexico	34.5	26	5	5	Automatic Multi-Tuned Harmonic Filter Bank
2010	Southern Peru	Tia Maria Mining	Peru	23	24	5	5	Automatic Harmonic Filter Bank
2012	Centerragold	Mount Milligan	Canada	25	24	6	6	Automatic Multi-Tuned Harmonic Filter Bank
2014	Imperialmetals	Red Chris Mining	Canada	24.9	23	5	5	Multi-Tuned Automatic Harmonic Filter Bank
2013	CanadianNatural	Canadian Natural Resources Ltd	Canada	34.5	23	3	3	Automatic Capacitor Bank
2013	FreePortMcMoRa	Morenci	U.S.A	13.8	22	3	3	C-High Pass Harmonic Filter, DCS Controlled
2014	Teck	Highland Valley	Canada	13.8	20	4	4	Automatic Harmonic Filter Bank
2012	Codelco	Codelco Radomiro Tomic	Chile	22.9	19	4	4	Multi-Tuned Automatic Harmonic Filter Bank
2012	Potashcorp	Rocanville Potash	Canada	13.8	16	4	4	Multi-Tuned Automatic Harmonic Filter Bank
2008	Goldfields	Cerro Corona	Peru	12.47	15	fixed		Capacitor Bank
2014	Codelco	Codelco Teniente Mining	Chile	33	14	3	3	Automatic Harmonic Filter Bank
2013	Codelco	Codelco Teniente Mining	Chile	34.5	14	3	3	Automatic Harmonic Filter Bank
2015	Minera Media	Minera Media Luna	Chile	13.8	10	3	3	Automatic Capacitor Bank
2005	Bhpbilliton	Escondida North	Chile	13.8	10	3	3	Single-Tuned Automatic Harmonic Filter
2015	FreePortMcMoRa	Morenci	U.S.A	13.8	9	2	2	Automatic Capacitor Bank
2011	Yamana Gold	M3 - Mercedes	Mexico	13.8	7	3	3	Automatic Capacitor Bank
2013	Minera Boleo	Boleo Mining	Mexico	13.8	7	3	3	Automatic Harmonic Filter Bank
2005	BHPbilliton	Escondida North	Chile	13.8	7	2	2	Single-Tuned Automatic Harmonic Filter

Over 100 units installed in the top 10 Mining Companies in Americas

(Chile, U.S.A, Canada, Mexico & Peru)

Working with the top 10 tier N1 Engineering and Mining companies and in Latam



LARGE GMDs- CONCENTRATION PROCESS

FREEPORT-McMoRAN
COPPER & GOLD



Climax, - Freeport-McMoRan, U.S.A
19 MVAR, 13.8 kV, 125 kV BIL -Stage Harmonic Filter System

LARGE GMDs- CONCENTRATION PROCESS



Red Chris, - Imperial Metals, Canada
23 MVAR, 24.9 kV, 150 kV BIL -Stage Harmonic Filter System

LARGE GMDs- CONCENTRATION PROCESS

Teck



Carmen De Andacollo Hipogeno, - Teck, Chile
33 MVAR, 13.8 kV, 125 kV BIL -Stage Harmonic Filter System

LARGE GMDs- CONCENTRATION PROCESS



Mount Milligan, - Centerra Gold, Canada
39 MVAR, 25 kV, 150 kV BIL -6 Stage Harmonic Filter System

LARGE GMDs- CONCENTRATION PROCESS



Copper Mountain, - Cumt. Corp, Canada
14 MVAR, 25 kV, 125 kV BIL -Stage Harmonic Filter System

LARGE RECTIFIER – ELECTROWINNING PROCESS



Molycorp Inc., - Rare Earth Mine, California, U.S.A
12.58 MVAR, 12 kV, 110 kV BIL -Stage Harmonic Filter System

LARGE RECTIFIER – ELECTROWINNING PROCESS

Freeport-McMoRan
COPPER & GOLD



Morenci, - Freeport-McMoRan, U.S.A
11MVAR, 13.8 kV, 95 kV BIL -Stage Harmonic Filter System

I LARGE RECTIFIER – ELECTROWINNING PROCESS



Buenavista del Cobre Copper, - Grupo Mexico-Cananea, Mexico
25 MVAR, 34.5kV, 150kV BIL 5-Stage Harmonic Filter System

LARGE RECTIFIER – ELECTROWINNING PROCESS



Inco, - Vale, Canada
11,7 MVAR, 13.8 kV, 95 kV BIL -Stage Harmonic Filter System

LARGE RECTIFIER – ELECTROWINNING PROCESS

Teck



Highland Valley, - Teck, Canada
20 MVAR, 13.8 kV, 95 kV BIL 4-Stage Harmonic Filter System

Electrical Substation– EW+Concentration PROCESS



Escondida North, - Bhpbilliton, Chile
9 MVAR+6MVAR, 13.8kV, 150 kV BIL 4-Stage Harmonic Filter System

Electrical Substation- EW+Concentration PROCESS



Los Bronces, - Angloamerican, Chile
36 MVAR, 13.8 kV, 125 kV BIL 2-Stage Capacitor Banks

Electrical Substation– OIL SANDS



Canadian Natural Resources, Ltd., Ft. McMurray, AB, Canada
210 MVAR, 34.5 kV, 150/200 kV BIL Notch Filter Banks