

HYDROGENERATORS

Item	Supplied to	Power station	Pcs	Capacity (kVA)	Voltage (V)	Freq (Hz)	Rated speed	Runaway speed	mD2 (m2)	Turbine type	Year of manufacture	Type of construction	Upgrading from	Remarks
1	SERBIA	BAJINA BAŠTA	2	315000	11000	50	428,6	650,00	6000,00	FRANCIS	1980	VERT.,S Type	(kVA)	Motor generator Stator only
2	SERBIA	DERDAP I	3	190000	15750	50	71,5	180,00	83000,00	KAPLAN	1970-71	VERT.,S-U Type		
3	NIGERIA	SHIRORO	4	176500	16000	50	150,0	300,00	18000,00	FRANCIS	1983-84	VERT.,S-U Type		
4	ZAMBIA	KARIBA	4	167000	18000	50	136,4	235,00	27000,00	FRANCIS	1974-75	VERT.,U Type		
5	CROATIA	ZAKUČAC	4	160000	16000	50	333,3	590,00	4000,00	FRANCIS	2012/*	VERT.,S Type	120000 - 150000	
6	CROATIA	VELEBIT	2	155000	15750	50	600,0	910,00	1044,00	FRANCIS	1984	VERT.,R,S Type		Motor generator
7	CROATIA	ZAKUČAC II	2	150000	16000	50	333,3	575,00	4150,00	FRANCIS	1978	VERT.,S Type		
8	CROATIA	DUBROVNIK	1	140000	14400	50	300,0	506,00	-	FRANCIS	*	VERT.,S Type	120000-140000	New stator and new poles
9	IRAQ	HADITHA	6	128000	15750	50	100,0	305,00	22000,00	KAPLAN	1986-87	VERT.,S Type		
10	MONTENEGRO	MRATINJE	3	120000	15750	50	250,0	455,00	6000,00	FRANCIS	1974	VERT.,S Type		
11	CROATIA	ZAKUČAC I	2	120000	16000	50	300,0	558,00	4000,00	FRANCIS	1960-61	VERT.,S Type		
12	BIH	VIŠEGRAD	3	115000	15750	50	136,4	376,00	16248,00	KAPLAN	1989	VERT.,S-U Type		
13	SERBIA	BAJINA BAŠTA	4	100000	15650	50	136,4	265,00	16000,00	FRANCIS	1965-68	VERT.,U Type		
14	BIH	RAMA	2	100000	15650	50	375,0	660,00	1560,00	FRANCIS	2012-14	VERT.,S Type	90000	New stator and reinsulated rotor poles
15	GREECE	MESSOCHORA	2	90000	15750	50	333,3	605,00	2182,00	FRANCIS	1999	VERT.,S-U Type		
16	BIH	RAMA	2	90000	15650	50	375,0	660,00	1560,00	FRANCIS	1967	VERT.,S Type		
17	SLOVENIA	ZLATOLIČJE	2	85000	10000	50	125,0	345,00	13500,00	KAPLAN	2008-2009	VERT.,U Type	74000	(Srednja Drava)
18	GREECE	STRATOS	2	84000	15750	50	107,0	215,00	15000,00	FRANCIS	1988-89	VERT.,U Type		
19	CROATIA	ORLOVAC	3	83000	10500	50	500,0	835,00	630,00	FRANCIS	1972-73	VERT.,S Type		
20	FINLAND	SEITAKORVA	1	80000	13500	50	115,4	345,00	11800,00	KAPLAN	*	VERT.,S Type	60000	New stator
21	CROATIA	SENJ	3	80000	10500	50	600,0	1050,00	400,00	FRANCIS	1965	VERT.,S Type		
22	BIH	SALAKOVAC	3	75000	13800	50	150,0	455,00	7700,00	FRANCIS	1981	VERT.,U Type		
23	SLOVENIA	SREDNJA DRAVA I	2	74000	10500	50	125,0	320,00	10500,00	KAPLAN	1968	VERT.,U Type		
24	SLOVENIA	SREDNJA DRAVA II	2	74000	10500	50	125,0	320,00	11600,00	KAPLAN	1977-78	VERT.,U Type		
25	NEW ZEALAND	OHAU	4	73300	13200	50	166,6	345,00	5500,00	FRANCIS	1975-77	VERT.,S-U Type		
26	COLOMBIA	PLAYAS	3	71900	13800	60	360,0	670,00	1200,00	FRANCIS	1986	VERT.,S Type		
27	FINLAND	PETAJASKOSKI	1	70000	12250	50	100,0	297,00	16200,00	KAPLAN	2006	VERT.,S Type	60000	New stator
28	BIH	TREBINJE II	1	70000	14400	50	214,0	405,00	3400,00	FRANCIS	1972	VERT.,S Type		
29	TURKEY	ASLANCIK	2	66660	13800	50	333,0	654,00	1600,00	FRANCIS	2012	VERT.,S Type		
30	BIH	BOČAC "A"	2	65000	10500	50	150,0	322,00	7080,00	KAPLAN	1981	VERT.,U Type		
31	MONTENEGRO	PERUČICA	2	65000	10500	50	428,0	790,00	800,00	2 PELTON	1977	HORIZ. Type		
32	BIH	GRABOVICA	2	64000	10500	50	150,0	390,00	5200,00	KAPLAN	1981	VERT.,U Type		
33	TANZANIA	KIDATU	2	60000	10500	50	375,0	660,00	1150,00	FRANCIS	1974	VERT.,S Type		
34	TANZANIA	KIDATU II	2	60000	10500	50	375,0	660,00	1150,00	FRANCIS	1980	VERT.,S Type		
35	FINLAND	PYHÄKOSKI	2	58000	10500	50	150,0	385,00	245,00	KAPLAN	2011/13	VERT.,S Type	40000	New stator
36	SERBIA	BISTRICA	1	54000	10500	50	600,0	1070,00	380,00	FRANCIS	1959	VERT.,S Type		
37	COSTA RICA	CARIBLANCO	2	51730	13800	60	720,0	1225,00	300,00	FRANCIS	2006	VERT.,S Type		
38	SWEDEN	BERGEFORSSEN	2	50000	9600	50	115,4	295,00	8400,00	KAPLAN	*	VERT.,S-U Type	45000	New stator and reinsulated rotor poles
39	SLOVENIA	DOBBLAR II	1	50000	10500	50	214,3	550,00	2600,00	KAPLAN	2001	VERT.,S Type		
40	SERBIA	SRBOBRAN	1	50000	10500	50	1000,0	1250,00	-	-	1968	HORIZ.		Compensator
41	CROATIA	VARAŽDIN	2	50000	10500	50	125,0	305,00	7000,00	KAPLAN	1974	VERT.,U Type		
42	INDIA	KOYNA	2	48000	11000	50	187,5	460,00	3062,00	DERIAZ	*	REVERSIBLE		Motor - generator
43	FINLAND	IMATRA	1	45000	10500	50	150,0	375,00	3000,00	KAPLAN	2005	VERT.,S Type	34000	New stator and rotor poles
44	FINLAND	MELO	2	45000	10500	50	136,4	300,00	3800,00	KAPLAN	*	VERT.,U Type	40000	
45	SERBIA	PIROT	2	44500	10500	50	500,0	930,00	520,00	FRANCIS	1988	VERT.,S Type		
46	INDIA	KODOYAR II	1	44444	11000	50	500,0	915,00	390,00	FRANCIS	1968	VERT.,S Type		
47	CROATIA	ČAKOVEC	2	42000	6300	50,0	125,00	360,00	1150	-	1981	BULB TYPE		Cooperation, Alsthom
48	CROATIA	DUBRAVA	2	42000	6300	50,0	125,00	360,00	1150	-	1991	BULB TYPE		
49	MACEDONIA	VRUTOK-MAVROVO	4	42000	12000	50	500,0	900,00	375,00	PELTON	1956-71	VERT.,S-U Type		
50	INDIA	PERIYAR	1	41200	11000	50	750,0	1300,00	152,00	FRANCIS	1964	VERT.,S Type		
51	INDIA	SHOLAYAR-MADRAS I	2	41200	11000	50	750,0	1300,00	152,00	FRANCIS	1965-66	VERT.,S Type		
52	ARGENTINA	CABRA CORRAL	3	40000	13200	50	250,0	475,00	1680,00	FRANCIS	1976	VERT.,S Type		
53	MONTENEGRO	PERUČICA	5	40000	10500	50	375,0	675,00	675,00	2 PELTON	1958-61	HORIZ.		
54	SERBIA	UVAC	1	40000	10500	50	300,0	600,00	1300,00	FRANCIS	1978	VERT.,S Type		
55	PHILIPPINES	BINGA	4	37000	13800	60	327,3	580,00	548,00	FRANCIS	2010/2012	VERT.,S Type	27800	New stator and poles and upgrading
56	KENYA	KAMBURU	3	37000	11000	50	273,0	540,00	1000,00	FRANCIS	1973-75	VERT.,S-U Type		

Item	Supplied to	Power station	Pes	Capacity (kVA)	Voltage (V)	Freq (Hz)	Rated speed	Runaway speed	mD2 (tm2)	Turbine type	Year of manufacture	Type of construction	Upgrading from	Remarks
57	BIH	MOSTARSKO BLATO	2	35300	10500	50	500,0	900,00	275,00	FRANCIS	2009	VERT., S Type		
58	NORWAY	DALE II	1	35000	12000	50	750,0	1368,00	80,00	FRANCIS	2006	VERT., S Type		
59	CROATIA	VINODOL	3	35000	10500	50	500,0	925,00	247,00	PELTON	2002-2003	HORIZ.	-	
60	FINLAND	IMATRA	2	34000	10500	50	125,0	250,00	3472,00	FRANCIS	2014/*	VERT., S Type	24000	new stators, new shafts, reinsulation of poles
61	FINLAND	PAMILO	1	34000	10500	50	187,5	350,00	1400,00	FRANCIS	2013	VERT., S Type	32000	new stator, reinsulation of poles
62	CROATIA	PERUČA	2	34000	10500	50	187,5	365,00	2400,00	FRANCIS	2004-2005	VERT.,U Type	26000	
63	TURKEY	MENZELET	4	33000	13800	50	333,3	665,00	640,00	FRANCIS	1988-89	VERT.,S-U Type		
64	SWEDEN	SVARTHALSFORSEN	2	33000	12800	50	107,0	330,00	5672,00	KAPLAN	*	VERT, S-U Type	29000	new stator, reinsulation of poles
65	USA	LOWER BAKER 4	1	32000	13800	60	300,0	300,00	557,00	FRANCIS	2012	VERT.,S-Type		
66	MACEDONIA	TIKVESH	2	31800	10500	50	300,0	540,00	800,00	FRANCIS	2003	VERT.	26000	new stator and rotor poles
67	SLOVENIA	HE OŽBALT	3	30000	10500	50	125,0	350,00	4100,00	KAPLAN	2002-2004	VERT.,U Type		
68	SLOVENIA	HE VUHRED	3	30000	10500	50	125,0	350,00	4100,00	KAPLAN	2001-2003	VERT.,U Type		
69	BIH	JABLANICA	6	30000	6300	50	300,0	594,00	650,00	FRANCIS	1954-57	VERT.,S Type		
70	BIH	MOSTAR	3	30000	10500	50	150,0	420,00	2100,00	KAPLAN	1987	VERT.,U Type		
71	SERBIA	ZVORNIK	4	30000	11000	50	150,0	340,00	4800,00	KAPLAN	1953-56	VERT.,S-U Type		
72	COSTA RICA	TORO 3	2	29700	13800	60	600,0	900,00	205,00	FRANCIS	2011	VERT., S Type		
73	IRAQ	HEMREN DAM	2	27800	11000	50	166,7	450,00	4125,00	KAPLAN	1981	VERT.,U Type		
74	INDIA	SHOLAYAR II	1	27778	11000	50	428,0	800,00	320,00	FRANCIS	1969	VERT.,S Type		
75	SERBIA	ĐERDAP II	4	27750	6300	50	62,5	147,00	4500,00	-	1986	BULB TYPE		Cooperation Electrosila
76	SWEDEN	BATFORS	2	27000	11000	50	125,0	300,00	4025,00	FRANCIS	2005-06	VERT.	-	Stator core and winding
77	MACEDONIA	GLOBOČICA	2	26000	10500	50	375,0	695,00	400,00	FRANCIS	1963	VERT.,S Type		
78	CROATIA	PERUČA	2	26000	10500	50	187,5	405,00	2400,00	FRANCIS	1959-60	VERT.,U Type		
79	MACEDONIA	ŠPILJE	3	26000	10500	50	300,0	540,00	800,00	FRANCIS	1968	VERT.,S Type		
80	MACEDONIA	TIKVEŠ	2	26000	10500	50	300,0	540,00	800,00	FRANCIS	1967-68	VERT.,S Type		
81	MACEDONIA	TIKVEŠ II	2	26000	10500	50	300,0	540,00	800,00	FRANCIS	1980	VERT.,S Type		
82	SLOVENIA	FALA 9-10	2	25000	10500	50	100,0	300,00	3800,00	KAPLAN	1989	VERT.,U Type		
83	CROATIA	LEŠČE	2	25000	10500	50	187,5	360,00	1300,00	FRANCIS	2009	VERT.,S-Type		
84	SLOVENIA	MAVČIČE	2	25000	10500	50	150,0	375,00	2300,00	KAPLAN	1986	VERT.,S-U Type		
85	MOROCCO	MECHRA KLILA	1	25000	10500	50	187,5	390,00	2400,00	KAPLAN	1966	VERT.,U Type		
86	CROATIA	SKLOPE	1	25000	10500	50	250,0	560,00	850,00	FRANCIS	1969	VERT.,S Type		
87	FINLAND	UTANEN HPP	1	25000	10500	50	125,0	325,00	2600,00	KAPLAN	2005	VERT.,S-U Type		
88	CROATIA	DALE	2	24000	10500	50	166,6	440,00	2000,00	KAPLAN	1988	VERT.,S Type		
89	SLOVENIA	FALA	1	24000	10500	50	125,0	315,00	3800,00	KAPLAN	1963	VERT.,U Type		
90	FINLAND	HAAPAKOSKI	2	24000	10500	50	150,0	450,00	1470,00	KAPLAN	2008	VERT, S-U Type	17500	New stator and overhaul
91	ICELAND	LAGARFOSS	1	24000	10500	50	136,4	315,00	1755,00	KAPLAN	2006	VERT.,S-Type		
92	FINLAND	MAALISMA	2	24000	10500	50	166,7	457,00	1050,00	KAPLAN	2009/2010	VERT, S-U Type	20000	New stator and overhaul
93	SLOVENIA	MARIBORSKI OTOK	3	24000	10000	50	125,0	315,00	3800,00	KAPLAN	1947-60	VERT.,U Type		
94	FINLAND	PAHKAKOSKI	2	24000	10500	50	166,7	490,00	1310,00	KAPLAN	2011/2012	VERT, S-U Type	21000	New stator and overhaul
95	SLOVENIA	VUZENICA	2	24000	10000	50	125,0	315,00	3800,00	KAPLAN	1951-54	VERT.,U-Type		
96	SLOVENIA	PLAVE II	1	23000	10500	50	166,7	490,00	2900,00	KAPLAN	2000	VERT,U Type		
97	CROATIA	RIJEKA	2	23000	10500	50	600,0	1060,00	150,00	FRANCIS	1967	VERT.,S Type		
98	SLOVENIA	OŽBALT	3	22000	10500	50	125,0	335,00	3000,00	KAPLAN	1959-61	VERT.,U Type		
99	INDIA	SHOLAYAR-KERALA	3	22000	11000	50	750,0	1360,00	95,00	FRANCIS	1965-66	VERT.,S Type		
100	SLOVENIA	VUHRED	3	22000	10500	50	125,0	335,00	3000,00	KAPLAN	1955-57	VERT.,U Type		
101	SLOVENIA	VUZENICA-III	1	22000	10500	50	125,0	335,00	3000,00	KAPLAN	1957	VERT.,U Type		
102	SLOVENIA	BREŽIČE	3	21500	10500	50	107,1	320,00	2800,00	KAPLAN	*	VERT.,U Type		
103	CROATIA	GOJAK	3	20000	10500	50	428,0	775,00	355,00	FRANCIS	1957-58	VERT.,S Type		
104	SERBIA	POTPEČ	3	20000	8800	50	187,5	365,00	1300,00	KAPLAN	1966-69	VERT.,S-U Type		
105	SWEDEN	BORGFORSEN	1	19000	6600	50	150,0	420,00	-	KAPLAN	2014	VERT., S Type	17000	New stator, reinsulation of poles and upgrading
106	INDIA	YAMUNA II	3	19000	11000	50	150,0	305,00	2200,00	FRANCIS	1964-66	VERT.,U Type		
107	BIH	PEČ MLINI	2	18000	10500	50	600,0	1080,00	90,00	FRANCIS	2003	VERT.,S Type		
108	INDIA	BHAVANI KATTALAI I	2	16666	6600	50	71,4	214,00	2900,00	-	2003	BULB TYPE		
109	INDIA	BHAVANI KATTALAI II	2	16666	6600	50	71,4	214,00	2900,00	-	2009	BULB TYPE		
110	INDIA	BHAVANI KATTALAI III	2	16666	6600	50	71,4	214,00	2900,00	-	2010	BULB TYPE		
111	NEW GUINEA	RAMU	3	16666	11000	50	750,0	1300,00	68,00	FRANCIS	1975	VERT.,S Type		
112	SLOVENIA	BLANCA	3	16500	6300	50	100,0	295,00	2800,00	KAPLAN	2008-2009	VERT., U Type		
113	SLOVENIA	DOBLAR I	3	16000	10500	50	300,0	574,00	320,00	FRANCIS	2010/2013	VERT.,S Type	-	
114	SERBIA	VRLA I-"A"	2	16000	6000	50	600,0	1120,00	120,00	PELTON	1954-55	VERT.,S Type		
115	SERBIA	VRLA III	1	16000	6000	50	600,0	1120,00	120,00	PELTON	1957	VERT.,S Type		
116	RUANDA	RUZIZI II	1	15000	6600	50	187,5	400,00	800,00	FRANCIS	2000	VERT.,S-U Type		
117	ALBANIA	SHKOPETI	2	15000	6300	50	300,0	760,00	80,00	-	2004	VERT	12500	new stator and rotor poles

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118	SLOVENIA	BOŠTANJ	3	14500	6300	50	107,0	380,00	690,00	-	2005	BULB TYPE		
119	CANADA	RAPIDES DES COEURS	6	14500	13800	60	225,0	538,00	294,00	SAXO	2008			
120	SLOVENIA	VRHOVO	3	14300	6300	50	107,0	412,00	667,00	-	1991-92	BULB TYPE		
121	CANADA	MAGPIE	3	14000	13800	60	225,0	523,00	294,00	SAXO	2007	VERT., S-U Type		
122	SERBIA	URLA II	1	14000	6000	50	500,0	965,00	180,00	FRANCIS	1953	VERT.,S Type		
123	SERBIA	URLA IV	1	14000	6000	50	500,0	965,00	180,00	FRANCIS	1957	VERT.,S Type		
124	MOROCCO	EL BORJ	2	13000	10000	50	600,0	1225,00	25,20	FRANCIS	2008	HORIZ		
125	SLOVENIA	SOLKAN	3	13000	6300	50	214,3	525,00	850,00	KAPLAN	1984	VERT.,U Type		
126	BIH	JAJCE II	3	12500	6000	50	250,0	500,00	400,00	FRANCIS	1953-56	VERT.,S Type		
127	SERBIA	KOKIN BROD	2	12500	6300	50	375,0	745,00	170,00	FRANCIS	1961	VERT.,S Type		
128	NEW ZEALAND	RUAHIMI	2	12500	11000	50	500,0	945,00	92,00	FRANCIS	1981	VERT.,S Type		
129	INDIA	YAMUNA I	3	12500	11000	50	187,5	460,00	950,00	KAPLAN	1963-66	VERT.,U Type		
130	SLOVENIA	MEDVODE	2	12000	6300	50	214,0	498,60	620,00	KAPLAN	1952-54	VERT.,S Type		
131	SWEDEN	GRADA	1	11500	11000	50	115,4	340,00	1860,00	KAPLAN	2012	VERT.,S Type	-	New stator
132	SLOVENIA	MOSTE	1	11000	6300	50	750,0	1200,00	28,00	FRANCIS	1978	VERT.,R.,S Type		
133	MOROCCO	TANAFNIT	2	11000	10000	50	500,0	1045,00	34,40	FRANCIS	2008	HORIZ		
134	INDIA	JALDHAKA	2	10600	11000	50	600,0	1100,00	65,00	FRANCIS	1963	VERT.,S Type		
135	DOMIN. REPUBLIC	JIMENO A	1	10500	12500	60	720,0	1080,00	29,00	FRANCIS	2002	VERT.,S Type		
136	FINLAND	LIEKSANKOSKI	1	10500	10500	50	150,0	445,00	930,00	KAPLAN	2012	VERT., U Type	9500	Stator only
137	FINLAND	PANKAKOSKI	1	10500	10500	50	150,0	445,00	930,00	KAPLAN	2013	VERT., U Type	9500	Stator only
138	NORWAY	TORSNES	1	10400	6600	50	600,0	1080,00	-	PELTON	2013	6SBV6 1120M1-10		
139	NORWAY	STEINSVIK	1	10380	6600	50	1000,0	1860,00	-	PELTON	2006	6SBV6 1000M-6		
140	COSTA RICA	BIRRI	2	10000	4160	60	600,0	1080,00	120,00	PELTON	1989	HORIZ		
141	SWEDEN	ELDFORSEN	1	10000	6600	50	125,0	293,00	94,83	KAPLAN	2009	VERT.,S-U Type		
142	MACEDONIA	VRBEN	1	9500	6300	50	750,0	1350,00	26,00	FRANCIS	2003	HORIZ	8000	
143	AUSTRIA	WEINZÖDL	2	9500	5300	50	150,0	462,00	220,00	-	2014/*	BULB TYPE	-	
144	COLOMBIA	DOLORES	1	9000	6600	60	600,0	1180,00	64,00	FRANCIS	1996	HORIZ		
145	NEW ZEALAND	MANGAPAPA	2	9000	11000	50	750,0	1250,00	30,00	FRANCIS	1971	VERT.,S Type		
146	SLOVENIA	MOSTE	1	9000	6300	50	500,0	1050,00	82,00	FRANCIS	2009	VERT.,S Type	7500	
147	SLOVENIA	MOSTE	1	9000	6300	50	500,0	1050,00	82,00	FRANCIS	2003	VERT.,S Type	7500	
148	BURKINA FASO	BAGRE	2	9000	6600	50	272,7	720,00	250,00	FRANCIS	1991	VERT.,S-U Type		
149	GUINEA	DONKEA	2	8500	6300	50	500,0	950,00	80,00	FRANCIS	1969	VERT.,S Type		
150	INDIA	KARIKKAYAM	2	8340	11000	50	176,5	476,00	520,00	KAPLAN	1999	VERT.,S-U Type		
151	CROATIA	MANOJLOVAC I	3	8000	6300	50	500,0	1010,00	50,00	FRANCIS	1954-55	HORIZ		
152	MACEDONIA	RAVEN	3	8000	6300	50	500,0	935,00	70,00	FRANCIS	1959-70	VERT.,S Type		
153	MACEDONIA	VRBEN	2	8000	6300	50	750,0	1350,00	26,00	FRANCIS	1959	HORIZ		
154	FINLAND	MYLLYKOSKI	1	7900	10500	50	94,0	280,00	1100,00	KAPLAN	2012	VERT., S Type	5700	New stator and rotor poles
155	NORWAY	KLOSTERFOSS	2	7800	6000	50	100,0	255,00	400,00	-	*	BULB TYPE	5670	Existing upstream cover and access shaft
156	MACEDONIA	KALIMANCI	2	7500	6300	50	500,0	905,00	80,00	FRANCIS	1970	VERT.,S Type		
157	ITALY	MOSSO IN PASSIRIA	2	7500	6300	50	750,0	1350,00	-	PELTON	2006	6SBV6 900M2-8		
158	ICELAND	MJOLKA-II	2	7125	6300	50	750,0	1420,00	36,00	PELTON	1975	HORIZ		
159	NORWAY	REKVATN	1	7100	6600	50	750,0	1200,00	-	FRANCIS	2011	6SBV6 900M2-8		
160	INDONESIA	AMPELGADING	2	6540	6600	50	1000,0	1710,00	-	FRANCIS	2009	6SBO6 800S2-6		
161	TURKEY	QILDIR	3	6400	10600	50	750,0	1350,00	18,50	FRANCIS	1973	VERT.,S Type		
162	NORWAY	KVAESANI	1	6325	6600	50	1000,0	1830,00	-	PELTON	2010	6SBV6 800S2-6		
163	GUINEA	GRANDES CHUTES	2	6300	3200	50	750,0	1300,00	21,40	PELTON	1963	HORIZ		
164	IRAN	DOROODZAN DAM	2	6200	4160	50	300,0	655,00	110,00	FRANCIS	1986	VERT.,S-U Type		
165	SWEDEN	IGGESUND	1	6200	6600	50	333,3	834,00	37,00		2009	6SBV6 1250-18		
166	BIH	DUB	2	5800	6300	50	600,0	1100,00	-	FRANCIS	*	6SBO6 900M2-10		
167	PAKISTAN	GUJRUNWALLA	3	5750	3300	50	107,0	276,00	890,00	KAPLAN	1957	VERT.,U Type		
168	CAMBODIA	KIROROM	2	5600	6300	50	600,0	1100,00	14,50	PELTON	1966	HORIZ		
169	SERBIA	MEDUVRŠJE-II	1	5600	6300	50	300,0	852,00	110,00	KAPLAN	1956	VERT.,S Type		
170	SERBIA	OVCAR BANJA	1	5600	6300	50	300,0	852,00	110,00	KAPLAN	1956	VERT.,S Type		
171	C. AFR. REP.	BOALI 2	2	5500	5500	50	600,0	1150,00	33,40	KAPLAN	2013	VERT.,S Type	-	New stators
172	C. AFR. REP.	BOALI 2	2	5500	5500	50	600,0	1150,00	33,40	KAPLAN	1974	VERT.,S Type		
173	PAKISTAN	CHICHOKI MALLIAN	3	5500	3300	50	107,0	290,00	960,00	KAPLAN	1956	VERT.,U Type		
174	NORWAY	RASDALEN	1	5490	6600	50	750,0	1150,00	-	PELTON	2009	6SBV6 900-8		
175	COLOMBIA	PAJARITO	1	5400	6600	60	720,0	1140,00	32,00	FRANCIS	1996	HORIZ		
176	CROATIA	KRALJEVAC	1	5300	10500	50	1000,0	1700,00	13,00	PELTON	1989	HORIZ		
177	IRAN	SHAHID RAJAE	3	5200	6300	50	750,0	1380,00	5,60	FRANCIS	2007	6SBV6 900-8		
178	KOSOVO	KOZNIER	2	5050	6300	50	500,0	915,00	19,00	PELTON	2005	HORIZ		

Item	Supplied to	Power station	Pes	Capacity (kVA)	Voltage (V)	Freq (Hz)	Rated speed	Runaway speed	mD2 (tm2)	Turbine type	Year of manufacture	Type of construction	Upgrading from	Remarks
179	CROATIA	FUŽINE	1	5000	6300	50	375,0	695,00	86,00	FRANCIS	1956	VERT.,R.,S Type		
180	MONTENEGRO	LIVEROVIĆI	2	5000	6300	50	500,0	900,00	80,00	FRANCIS	1955	HORIZ		
181	USA	VERNON	4	5000	13800	60	144,0	345,00	140,00	KAPLAN	2007	VERT.,S Type		
182	SLOVENIA	ZADLAŠČICA	2	5000	6300	50	750,0	1350,00	15,00	PELTON	1989	HORIZ		
183	NORWAY	LANGDALSELVA	1	4900	6600	50	600,0	1135,00	-	PELTON	2012	6SBV6 900S2-10		
184	ETHIOPIA	TISS ABBAY	2	4800	6000	50	375,0	745,00	48,00	FRANCIS	1962	VERT.,S Type		
185	ETHIOPIA	TISS ABBAY-II	1	4800	6000	50	375,0	745,00	48,00	FRANCIS	1983	VERT.,S Type		
186	NORWAY	VANNDOLA	1	4750	6600	50	1000,0	1860,00	-	PELTON	2007	6SBV6 710M2-6		
187	CANADA	JONQUIERE	1	4500	4160	60	276,9	700,00	46,00	KAPLAN-S	1996	HORIZ		
188	BIH	USTIPRAČA	2	4400	6300	50	500,0	900,00	-	FRANCIS	*	HORIZ		
189	NORWAY	REINAGA	1	4350	6600	50	1000,0	1870,00	-	PELTON	2014	6SBV6 800S1-6		
190	NORWAY	BRUVOLLELVA	1	4335	6600	50	750,0	1500,00	-	FRANCIS	2009	6SBV6 710M2-8		
191	NORWAY	TVEITASKAR	1	4312	6600	50	750,0	1400,00	-	PELTON	2009	6SBV6 800S1-8		
192	SLOVENIA	AJBA PLAVE	1	4300	3150	50	187,5	420,00	75,00	-	1974	HORIZ		
193	BIH	NOVAKOVIĆI 1	1	4200	6300	50	750,0	1265,00	-	FRANCIS	2011	6SBO6 710M2-8		
194	BULGARIA	BANITE	1	4000	6300	50	750,0	1480,00	-	FRANCIS	2009	6SBV6 710M2-8		
195	SERBIA	RAŠKA	2	4000	6300	50	1000,0	1800,00	7,20	PELTON	1952	VERT.,S-U Type		
196	ICELAND	BJOLFSVIRKJUN	2	3900	6600	50	750,0	1350,00	-	FRANCIS	2007	6SBO6 710M2-8		
197	ICELAND	FIARDARA 2	2	3900	6600	50	750,0	1350,00	-	FRANCIS	2007	HORIZ		
198	CROATIA	GOLUBIĆ	2	3850	6000	50	500,0	925,00	30,00	FRANCIS	1981	HORIZ		
199	NEPAL	TRISHULLI	3	3750	6600	50	500,0	925,00	41,00	FRANCIS	1963	HORIZ		
200	IRAN	MAHABAD	2	3700	6300	50	375,0	755,00	57,00	FRANCIS	1969	VERT.,S Type		
201	AUSTRIA	BREITENBACH	1	3500	10500	50	200,0	460,00	42,00	KAPLAN	2005	VERT., S-U Type		
202	NEW ZEALAND	DEEP STREAM	2	3500	690	50	1000,0	1930,00	-	FRANCIS	2007	6SBO1 630M2-6		
203	SLOVENIA	DUBRAVA	1	3500	10500	50	750,0	1300,00	-	PELTON	2007	6SBO0 710M3-8B		
204	TURKEY	GENERAL	2	3500	6300	50	1000,0	2000,00	-	FRANCIS	2012	6SBO6 710M1-6		
205	NORWAY	STUBLIELVA	1	3300	6600	50	750,0	1520,00	-	PELTON	2014	6SBO6 710M2-8		
206	MONTENEGRO	GLAVA ZETE	2	3200	6300	50	375,0	1020,00	48,00	KAPLAN	1952-53	VERT.,S Type		
207	BIH	LUKAČ	1	3200	6300	50	600,0	1160,00	-	FRANCIS	2007	6SBO6 710M2-10		
208	SERBIA	MEĐURŠJE	1	3200	6300	50	375,0	1020,00	48,00	KAPLAN	1953	VERT.,		
209	SERBIA	OVČAR BANJA	1	3200	6300	50	375,0	1020,00	48,00	KAPLAN	1952	VERT.,S Type		
210	BIH	UNA	4	3170	6300	50	300,0	750,00	25,00	KAPLAN	2000	VERT.,S Type		
211	NORWAY	KALDSANI	1	3120	6600	50	750,0	1320,00	-	PELTON	2014	6SBO6 710M2-8		
212	NORWAY	VASSVIKELVA	1	3100	6600	50	1000,0	1750,00	-	PELTON	2014	6SBO6 710S2-6		
213	BIH	MAJDAN	1	3000	6300	50	1000,0	1300,00	1,03	PELTON	2004	6SBO6 630 M2-6		
214	ITALY	CASTIGLIONE	2	2800	6300	50	750,0	1275,00	0,40	FRANCIS	2005	6SBO6 710M1-8		
215	GUINEA	BANIEYA	2	2780	3150	50	375,0	1100,00	50,00	KAPLAN	1988	VERT.,S Type		
216	MACEDONIA	GLAŽNJA	1	2500	6300	50	1000,0	1740,00	1,70	PELTON	1986	HORIZ		
217	ITALY	MONTALTO DORA	1	2500	6300	50	300,0	709,00	14,00		2004	VERT		
218	ITALY	MONTALTO DORA 2	1	2500	6300	50	300,0	709,00	-	KAPLAN	2006	6SBO6 1000M-20		
219	SLOVENIA	LOMŠČICA	1	2400	3150	50	1000,0	1700,00	3,50	FRANCIS	1989	HORIZ		
220	ITALY	BESSE 2	1	2300	6000	50	500,0	1075,00	-	FRANCIS	2007	6SBV6 710M2-12		
221	SLOVENIA	MELJE	1	2250	400	50	250,0	585,00	-		2007	6SBO1 1250M1-24		
222	ICELAND	BJOLFSVIRKJUN	2	2200	6600	50	500,0	900,00	-	FRANCIS	2007	6SBO6 710M1-12		
223	MACEDONIA	DOŠNICA	3	2200	6300	50	600,0	1140,00	8,00	PELTON	1952	HORIZ		
224	BIH	MESIĆI	2	2200	3150	50	600,0	1320,00	8,00	FRANCIS	1949-50	VERT.,		
225	SLOVENIA	SAVICA	2	2200	6300	50	600,0	1140,00	8,00	PELTON	1949-50	HORIZ		
226	ITALY	SEDA	1	2200	6300	50	500,0	800,00	0,61	PELTON	2004	6SBO6 710 M2-12		
227	BIH	SLAPOVI NA UNI	4	2200	3150	50	300,0	780,00	25,00	KAPLAN	1950-53	VERT.,S Type		
228	SERBIA	SOKOLOVICA	2	2200	3150	50	300,0	780,00	25,00	KAPLAN	1950-55	VERT.,S Type		
229	SYRIA	YARMOUK	2	2200	6300	50	1500,0	2700,00	1,50	PELTON	1952	HORIZ		
230	CROATIA	ZAVRELJE	1	2200	6300	50	600,0	1140,00	4,00	PELTON	1952	HORIZ		
231	ICELAND	FIARDARA 1	2	2200	6600	50	500,0	900,00	-	FRANCIS	2007	HORIZ		
232	BIH	NOVAKOVIĆI 2	1	2150	6300	50	1000,0	1670,00	-	FRANCIS	2011	6SBO6 630M1-6		
233	NORWAY	BORDALSBEKKEN	1	2050	690	50	750,0	1322,00	-	PELTON	2012	6SBO1 630S2-8		
234	NORWAY	HOMMSANI	1	2020	690	50	750,0	1350,00	-	PELTON	2013	6SBO1 630S2-8		
235	ROMANIA	SAFRA	1	2000	6300	50	1000,0	1998,00	-	PELTON	2013	6SBV6 630M1-6		
236	SLOVAKI	ZELIEZOVCE	2	1990	690	50	230,8	655,00	-	KAPLAN	*	6SBO1 1250S1-26		
237	FINLAND	KISSAKOSKI	1	1890	690	50	187,5	550,00	-	KAPLAN	2012	BULB TYPE		
238	SWEDEN	BANGBRO	1	1800	690	50	600,0	1200,00	1,50	FRANCIS	2005	6SBO1 630M1-10		
239	SLOVENIA	MEŽICA	2	1800	3300	50	1000,0	1630,00	2,93	PELTON	1965	HORIZ		

Item	Supplied to	Power station	Pes	Capacity (kVA)	Voltage (V)	Freq (Hz)	Rated speed	Runaway speed	mD2 (tm2)	Turbine type	Year of manufacture	Type of construction	Upgrading from	Remarks
240	BIH	MUJADA	1	1800	400	50	750,0	1300,00	-	PELTON	2005	6SBO1 560L-8		
241	BIH	MUJAKOVIĆI	1	1800	400	50	750,0	1300,00	0,50	PELTON	2004	6SBO1 560L-8		
242	CROATIA	OZALJ	2	1800	6300	50	300,0	780,00	25,00	KAPLAN	1951	VERT.,S Type		
243	MACEDONIA	PESOČANI	2	1800	6300	50	600,0	1140,00	6,80	PELTON	1951	HORIZ		
244	BIH	POLJANICA 1	2	1800	400	50	750,0	1300,00	-	PELTON	2005	6SBO1 560L-8		
245	MACEDONIA	SAPUNČICA	2	1800	6300	50	1000,0	1850,00	2,80	PELTON	1951-52	HORIZ		
246	SLOVENIA	SAVA	2	1800	6300	50	600,0	1600,00	-	KAPLAN	2008	6SBV6 630M2-10		
247	BIH	TREŠANICA	1	1750	400	50	600,0	1080,00	-	KAPLAN	2007	6SBO1 630M1-10		
248	ITALY	SILEA	2	1700	6000	50	107,1	270,00	-	KAPLAN	2007	6SBO6 1250-56		
249	ROMANIA	GOZNA	2	1600	6300	50	750,0	1405,00	-	FRANCIS	2013	6SBV6 630S2-8		
250	SLOVENIA	MEŽICA	1	1600	3300	50	750,0	1315,00	3,00	FRANCIS	1998	HORIZ		
251	CROATIA	PRANČEVIĆI	1	1600	6300	50	428,6	943,00	-	FRANCIS	*	6SBO6 710M1-14		
252	NORWAY	TYTTEBERELVA	1	1600	690	50	428,6	790,00	-	PELTON	2013	6SBO1 710S2-14		
253	CROATIA	LEPENICA	1	1560	6300	50	600,0	1560,00	5,80	KAPLAN	1988	VERT.,R,S Type		
254	BIH	BOTUN	1	1500	400	50	1000,0	1700,00	0,36	PELTON	2004	6SBO1 560M2-6		
255	BIH	JEZERNICA	1	1500	400	50	1000,0	1700,00	0,36	PELTON	2004	6SBO1 560M1-6		
256	NORWAY	KVINESDAL	1	1500	660	50	1000,0	2000,00	-	PELTON	2006	6SBO1 560S1-6		
257	BIH	VITEZ	1	1500	6300	50	300,0	700,00	-	KAPLAN	2006	6SBO6 800M2-20		
258	CROATIA	ZAKUČAC	2	1500	400	50	750,0	1350,00	0,97		2003	HORIZ		
259	SWEDEN	ADOLFSFORS	1	1500	690	50	250,0	580,00	0,45	FRANCIS	2005	6SBO1 900M-24		
260	SWITZERLAND	RUCHLIG	1	1425	6300	50	750,0	2548,00	-	KAPLAN	2014	SB 1127-8		
261	CROATIA	DUBRAVA-"B"	1	1400	400	50	428,0	1350,00	8,00	KAPLAN	1989	HORIZ		
262	SLOVENIA	JAVORNIK	1	1400	5250	50	750,0	1450,00	0,85	PELTON	1986	HORIZ		
263	CROATIA	LEŠČE	1	1320	400	50	750,0	1365,00	-		2009	6SBO1 630M-8		
264	ITALY	BESSE 1	1	1300	6000	50	600,0	1200,00	-	FRANCIS	2007	6SBV6 630S2-10		
265	CROATIA	ČAKOVEC	1	1300	400	50	432,0	1200,00	2,00		1981	BULB TYPE		
266	SWITZERLAND	ETTISBUEHL	1	1240	400	50	230,8	696,00	-	KAPLAN	2010	6SBO1 900S-26		
267	SLOVENIA	FUŽINE-VEVČE	1	1200	6300	50	1000,0	3000,00	0,80	FRANCIS	1986	VERT.,S Type		
268	MONTENEGRO	LIPKOVO	1	1200	400	50	750,0	1680,00	1,20	PELTON	1962	HORIZ		
269	MONTENEGRO	SLAP ZETE	2	1200	3150	50	250,0	400,00	29,00	KAPLAN	1951	VERT.,S Type		
270	MACEDONIA	TURJIA-STRUMICA	2	1170	400	50	1000,0	2100,00	0,45	PELTON	1986	HORIZ		
271	TURKEY	DINC 1	1	1150	400	50	750,0	1350,00	-	PELTON	2011	6SBO1 560S1-8		
272	BIH	DO	2	1100	400	50	500,0	1000,00	-	KAPLAN	*	VERT.		
273	ITALY	CRESPI 3	1	1100	400	50	375,0	975,00	-	KAPLAN	2007	6SBO1 630M2-16		
274	ITALY	CRESPI 5	1	1100	400	50	375,0	825,00	-	KAPLAN	2007	6SBO1 630M1-16		
275	TURKEY	DINC 2	1	1100	400	50	428,6	775,00	-	PELTON	2011	6SBO1 630M1-14		
276	SLOVENIA	KNEŠKE RAVNE	1	1100	400	0	600,0	1100,00	0,98	PELTON	1992	HORIZ		
277	TOGO	KPIMÉ	2	1000	5000	50	750,0	1350,00	1,10	PELTON	1962	HORIZ		
278	CROATIA	ORLOVAC-"B"	1	1000	400	50	1000,0	1800,00	1,65	PELTON	1972	HORIZ		
279	MONTENEGRO	PERUČICA-"B"	2	1000	400	50	1000,0	1800,00	0,85	PELTON	1957-64	HORIZ		
280	CROATIA	SPLIT-"B"	2	1000	400	50	750,0	1350,00	4,00	FRANCIS	1961	HORIZ		
281	CROATIA	ZELENI VIR	1	1000	5000	50	750,0	1350,00	1,10	FRANCIS	1961	HORIZ		
282	SERBIA	BISTRICA-"B"	1	950	400	50	1000,0	1800,00	0,80	PELTON	1959	HORIZ		
283	SERBIA	DIKANČE	1	950	400	50	1000,0	1800,00	0,80	PELTON	1975	HORIZ		
284	SERBIA	DIKANČE	1	950	400	50	1000,0	1800,00	0,80	PELTON	1957	HORIZ		AS GEN.
285	ITALY	BRUGNETO 2	1	900	400	50	757,0	1400,00	-	FRANCIS	2006	6AGO1 500S3-8		
286	MACEDONIA	ZRNOVCI	2	900	3150	50	600,0	1080,00	2,00	PELTON	1949	HORIZ		
287	BIH	PODKOZICA	1	863	400	50	1000,0	1550,00	-	PELTON	2005	6SBO1 450M2-6		
288	BIH	POLANICA 2	2	850	400	50	1000,0	1800,00	-	FRANCIS	2005	6SBO1 450-6		
289	ITALY	CRESPI 1	1	800	400	50	300,0	760,00	-	KAPLAN	2007	6SBO1 630M1-20		
290	SLOVENIA	KOREN	2	800	400	50	750,0	1350,00	-	PELTON	1992	HORIZ		
291	CROATIA	SENJ-"B"	1	800	400	50	1500,0	2700,00	0,37	PELTON	1965	HORIZ		
292	ITALY	VAL MAIRA	2	800	400	50	1000,0	1800,00	-	FRANCIS	2004	6SBO1 500M-6		
293	SWEDEN	ARJEPLOG	1	800	690	50	150,0	424,00	-	KAPLAN	2013	BULB TYPE		
294	AUSTRIA	OFFNER LAVANT	1	750	400	50	375,0	938,00	-	KAPLAN	*	6SBO1 560M2-16		
295	BIH	JABLANICA-"B"	2	750	400	50	750,0	1350,00	1,30	FRANCIS	1952-58	HORIZ		
296	MACEDONIA	LUKAR	1	750	400	50	750,0	1275,00	-		2000			
297	BIH	RAMA-"B"	1	750	400	50	750,0	1570,00	1,30	PELTON	1968	HORIZ		
298	AUSTRIA	SCHALLDORF	2	750	690	50	200,0	530,00	-	KAPLAN	2012	6SBO1 800S1-30		
299	SERBIA	SOKOLJA	1	750	3150	50	750,0	1350,00	1,30	FRANCIS	1950	HORIZ		
300	SERBIA	VRLA L-"B"	1	750	400	50	750,0	1350,00	1,30	PELTON	1952	HORIZ		

