			IGINEERING INC.							
No	No Runners		signs - projects com				Throat	PowerMay	PowerMey	
Projects 49	bulk 108	Site name	Site Owner	Turbine Manufacturer	Turbine Type	Scope	Throat Dia [m]	before [kW]	efter [kW]	Notes
1	1	Longdong	Provincial Water Authority (China)	GETAI Shenyang Hydropower Co (China)	Francis	New runner design	2.22	57800	58800	Special design of a numer implementing in between to answer smooth harlone operation
			Provincial Water Authority					56000	56000	Awaye TOMAN IN THE STATE OF
2	1	Laojangdi	(China)	GETAI Shenyang Hydropower Co (China)	Francis	New runner design	3.15			Eliminatus of periods blade bestrages presenting ownid bubble performance
3	1	OK Tedi	OK Menga (Papua New Guinea)	Kiser Hydro LLC (USA) (USA)	Francis	New runner design	1.30	27500	28900	Power increase, elementum of encium or cardiology
4	1	Wouxijiang	Provincial Water Authority (China)	GETAI Shenyang Hydropower Co (Chine)	Francis	New runner design	3.80	24000	28800	Tutore power increase by 19% through in it's new custom soner design
5	1	Coved	Pacific Hydro (Chile)	Norcan Hydraulic Turbine Inc. (Canada)	Francis	New runner design	1.13	10800	12600	Russer epiticenest of high head, spice Plancis unit - power increase by 12
-			Equador National Grid		Francis		1.15	10500		Partie on - poor school of
6	- 1	Cumbaya	(Equador)	GETAI Shenyang Hydropower Co (China)		New runner design			11600	Power stability and cautation recisions in
7	1	SKA_G150	AL (USA)	GGG	Francis	New runner design	1.05	7000	7350	Special paper
8	1	Waterbury	Green Mountain Power Ltd. (USA)	Norcan Hydraulic Turbine Inc. (Canada)	Francis	New runner design	1.40	5200	5800	Numer replacement to increase output to of the retubushed generator(12%)
9	1	Marshfield # 5	Green Mountain Power Ltd. (USA)	Norcan Hydraulic Turbine Inc. (Canada)	Francis	New runner design	1.40	4500	5200	Efficiency increase 3.8%, power increases contains efferentian
10	,	Smooth Book Falls			Francia	New runner design	2.60	5000	5200	cautation eteronation
			Ontario Power Generation (Canada)	Norcan Hydraulic Turbine Inc. (Canada)				5000		Numer decays optimized for wide not bear
11	12	Chudutierre North Hydro	Energy Ottawa	Norcan Hydraulic Turbine Inc. (Canada)	Double Horizontal Francis	Complete new dual- camelback units to fit existing flume	1.60		4800	Qual (Aut camellack) units designed existing Bures of the Issiato powerlo structure.
12	1	Lower Lachute	ENEL North America Inc. (USA)	Norcan Hydraulic Turbine Inc. (Canada)	Francis	New runner design	1.68	3900	4500	Power increase (19%) , efficiency increase 2%, cartistion reduction/efficients
13	1	Plichowice No. 5	Tauron Ekoenergis Sp. Z o.o. (Poland)	ZRE Gdansk SA (Poland)	Francis	Runner replacement - double discharge runner	1.00	2950	3400	Ceneral modernization of the turbine to in annual energy production and eliminates
14	8	St . Anthony Falls		Kiser Hydro LLC (USA) (USA)	Double Horizontal Francis	Replacement of numers, pressure casing	1.42	2800	3200	caused by cautation
			Xoel Energy (USA)			modification				
15	3	St Croix	Xoel Energy (USA)	Kiser Hydro LLC (USA)	Triple Francia	Replacement of numers	1.23	2780	3200	Replacement of three Planus, runners in an configuration, power increase by by appr
16	1	Munkedal	Arctic Power SA (Sweden)	ZRE Gdansk SA (Poland)	Francis	Complete new Francis turbine	1.00		3140	New hydropoun brasigment
17	4	Abenaki	Abenski Pulp and Paper (USA)	Norcan Hydraulic Turbine Inc. (Canada)	Double Horizontal	Upgrade of camelback-type unit	1.52	2200	2900	Replacement canadhask until to make generator rating (20% power increase
18	1	Siempre Viva	(USA) ESI (Nicaragua)	Norcan Hydraulic Turbine	Francis Francis	Runner replacement	0.72	1500	2900	Custom numer design to builtide habine al new powerhouse
				Inc. (Canada)			_			
19	4	Pilchowice No. 1,2,3,4	Tauron Ekoenergis Sp. Z o.o. (Poland)	ZRE Gdansk SA (Poland)	Francis	New unit replacing old one	1.00	2300	2460	Omesic modernization of the furtises to or annual energy production and eliminates caused by cautation
20	1	Santa Maria	INDE (Gusternals)	Norcan Hydraulic Turbine Inc. (Canada)	Francis	Runner replacement	0.68	2100	2230	Power increase by ETs, elementur of car existin
21	2	Moden	Oritia Water Light and Power Comission (Canada)	Norcan Hydraulic Turbine	Francis	New runner and distributors	1.37	1940	2200	Numer only replacement to increase butto (CISs) and efficiency during
22				Inc. (Canada)	Francia		1.44	2100	2200	(13%) and efficiency (resim. 3.8%)
_	1	Brule	WE Energies (USA)	Kiser Hydro LLC (USA) Norcan Hydraulic Turbine	Francis Double Horizontal	New runner design		-		Efficiency and stability improvement
25	2	Kruger	Kruger (USA)	Inc. (Canada)	Francis	New runner design	1.44	2000	2200	Power increase by 10% - only runners or
26	4	Sturgeon Falls	City of Sturgeon Falls (Canada)	Norcan Hydraulic Turbine Inc. (Canada)	Double Horizontal Francis	New cameback subine design (pressure case, destitutors, runners, draft	1.32	1600	2000	Good was to increase plant output white revocand existing generators, CSYs, trure output)
27	2	Glen Ferris #7, #8	Brookfield Power Corporation (USA)	Kiser Hydro LLC (USA) (USA)	Francis	New runner design	2.64	1800	1937	new turners.
28	6	Glen Ferris #1 -#6	Brookfield Power Corporation (USA)	Kiser Hydro LLC (USA) (USA)	Francis	New runner design	1.65	1800	1937	new success.
29	1	Copenhagen	ENEL North America Inc.	Norcan Hydraulic Turbine Inc. (Canada)	Francis	New runner design	1.28	1500	1700	Efficiency increase of 4%, contain reduction retirements
30	4	Weedon	(USA) City of Sherbrooke (Canada)	Inc. (Canada) Norcan Hydraulic Turbine Inc. (Canada)	Double Horizontal	New runners and distributors	1.44	1300	1600	Power increase by 23% - new narrans during on designed in the entiring pressu-
31	4	MrVinia	. ,		Francis Double Horizontal Francis	distributors Upgrade of camelback-type unit	1.27	1100	1500	and dail shest Replacement of the camellack type unit,
_			Ontario Power Generation (Canada)	Norcan Hydraulic Turbine Inc. (Canada) ZRE Gdanak Sp. Z o.o	Francis					pressure case and appraised generator, increase by 38%
32	4	Grodek 182	Elektrownie Wodne Sp. Z o.o. (Polend)	(Poland) ZRE Gdanak Sp. Z o.o	Double Horizontal Francis	Runners replacement	0.97	1200	1400	Tubine efficiency increased by ITS
33	- 1	Grodek 3	Elektrownie Wodne Sp. Z o.o. (Poland)	(Poland)	Francis	Replacement of double horizontal unit with single custor Erascie	1.20	1150	1350	Double horizontal Prancis replaced with number unit. The same generator units
34	4	Huntington	Central Vermont Power Corporation (USA)	Norcan Hydraulic Turbine Inc. (Canada)	Double Horizontal Francis	New runner design	1.04	1280	1350	Power stability and cautation recisionce I
35	1	St. Raphael	Algoriquin Power Ltd. (Canada)	Norcan Hydraulic Turbine Inc. (Canada)	Francis	New runner	1.65	1050	1280	Efficiency increase by ETs, cardials reductions/distribution
36	2	Pilchowice No. 6	Tauron Ekoenergis Sp. Z o.o. (Poland)	ZRE Gdansk SA (Poland)	Francis	Runner replacement	0.75	1200	1250	Ceneral modernization of the turbine to in annual energy production and eliminates
37	2	Abenequis	City of Sherbrooke (Canada)	Norcan Hydraulic Turbine	Double Horizontal	Upgrade of camelback-type unit	0.91	900	1200	Runner and distributor regimenters to in
38	1	Theresa	ENEL North America Inc.	Inc. (Canada) Norcan Hydraulic Turbine	Francis Double Horizontal	Runners replacement	0.70	875	1000	From screen in 1/2 and come of
39	1	Salto Grande	(USA) ESI (Nicaragua)	Inc. (Canada) Norcan Hydraulic Turbine Inc. (Canada)	Francis	New runner design	0.61	900	1000	Numer epiticenesis, etimostos d'usei
	4			Inc. (Canada) Norcan Hydraulic Turbine	Double Horizontal					power and efficiency increase (approx Power increase by 27% - new names.
40		Beldens	Omya (USA)	Inc. (Canada)	Francis Double Horizontal	New runners and distributors	1.00	750	950	dorduces deoped to to entire pressu- and dath sheet
41	2	Vergennes	Green Mountain Power Ltd. (USA)	Norcan Hydraulic Turbine Inc. (Canada)	Francis	New turbine in existing chamber	1.05	700	835	Efficiency increase of FS, cardido reduction/ofernation
42	2	South River	South River Village (Canada)	Norcan Hydraulic Turbine Inc. (Canada)	Double Horizontal Francis	New double-discharge turbine	0.64		800	Complete new design of double-horsontal unit
43	1	Wausau	United Kiser (USA)	Kiser Hydro LLC (USA)	Francis	New runner design	1.73	625	735	Runner replacement for the purpose of increase (18%)
44	2	Flambeau Pixley	Harris Energy Group (USA)	Kiser Hydro LLC (USA) (USA)	Double Horizontal Francis	New runner design	1.32	620	670	Numer replacement for the purpose of ele- of contration excess and power recessor
45	1	Kamienna	ENEA SA (Poland)	ZRE Gdansk SA (Poland)	Double Horizontal Francis	New runners to fit existing distributors and draft chest	1.30	475	561	Numer only replacement to increase turbs (SES) and efficiency (miles. (%)
46	1	Ponabka	ESP SA (Poland)	ZRE Gdansk Sp. Z o.o	Francis	New runner design	0.65	360	450	Power increase by 20%, efficiency incire 7%, names replacement only, spool can
47	1	Hulebo	Hulebo Kraftwerk (Sweden)	ZRE Gdansk SA (Poland)	Francis	New unit replacing old one	0.37	265	300	Replacement of the tubore unit to increase and hydrautic efficiency white management
48	2	Olcza	ZEW Roznow Sp. Z o.o.	ZRE Gdansk Sp. Z o.o	Francis		0.33		200	perators and the draft tube
48	1				Francis		0.33		135	New desiring of complete Francis, button New desiring of complete Francis, button
40)	-	Kuznice	ZEW Roznow Sp. Z o.o. (Poland)	ZRE Gdansk Sp. Z o.o (Poland)	Francis	New unit replacing old one	0.33		135	new desiring of complete Proncis Subtro
No	No Runners						Throat	PowerMax	PowerMax	
Projects 21	built 32	Site name	Site Owner	Turbine Manufacturer	Turbine Type	Scope	Dia (m)	before [kW]	after [kW]	Notes
		Ragged Rapids	Ontario Power Generation (Canada)	Norcan Hydraulic Turbine Inc. (Canada)	Kaptan	New runnert blades	2.58	4600	5000	Replacement of namer blades in existing further to increase power and lower can
- 1	2	Madawasia		Norcan Hydraulic Turbine Inc. (Canada)		New unit	3.25		4900	вировая
2	2	Madawsiska	City of Edmundston (Canada)		Kaptan					new design of complete hydroxilis flow pa
3		Gorge #18	Central Vermont Public Service Corporation (USA)	Norcan Hydraulic Turbine Inc. (Canada)	Kaptan	New runner	2.92	3500	4000	Convention of the Propeder to Kepton or increasing the mass output by 150
		Cheshuitan	Provincial Water Authority (China)	GETAI Shenyang Hydropower Co (China)	Conventional Kaplan	New ruenner blades, modified distributor	3.30	3050	3300	Power manage through new design of sur- wickel gales and stay same, modifice
- 4	2	Clark Falls			Kaplan	New current blades	2.16	3000	3200	Efficiency increase out. 2% do 6%, mass automatic regularity
5	1		Central Vermont Public Service Corporation (USA)	Norcan Hydraulic Turbine Inc. (Canada)		New runnert blades				zakreu regularji
в		Menomorie	Xcel Energy (USA)	Kiser Hydro LLC (USA)	Kaplan	New runnert blades	2.47	2750	3000	regularizers of numer blades in eathing furties to increase power and lower can expense
		Wilson's Falls	Bracebridge Generation Ltd. (Canada)	Norcan Hydraulic Turbine Inc. (Canada)	S-turbine	New surbine withing existing powerhouse	2.10		3000	Completely new Bislades 2-type tudo
- 7	-		(Canada) Kaukauna Utilities (USA)				2.80	2200	2600	Replacement of numer blades in existing furface to increase power and lower case
8	1	Kaukauna		Kiser Hydro LLC (USA)	Kaptan	New runnert blades		2200		Regionale
9	2	Lowell Thomas	City of Renfrew (Canada)	Norcan Hydraulic Turbine Inc. (Canada)	Axial Flow (SAXO)	Two new turbine units	1.40		2100	Tubore setting highestwhen compared competition
		Dabie	TAURON Ekoenergia Sp. Z o.o. (Poland)	ZRE Gdansk SA (Poland)	Kaplan	New runner blades.	3.70	1650	1800	Output and statetly improved
	2	Bracebridge	o.o. (Poland) Bracebridge Generation Ltd.	Norcan Hydraulic Turbine Inc. (Canada)	S-turbine		1.78		1800	
10		pracebridge	-			New turbine withing existing powerhouse				Completely new Oblades Stype but
10	1		ENEA Wytwarzanie SA (Poland)	ZRE Gdansk SA (Poland)	Kaplan	New runner and draft tube inlet	2.85	1700	1550	The goal of childing and numering peak e to 10.0% was authoried, increase of ASP 11%
11	1	Tryszczyn			Kaplan	New runner blades.	1.02	900	950	Goal of the relation/west was to elements caused by cardiation and increase by a service.
10 11 12	1	Tryszczyn Hardwick	City of Hardwick (USA)	Norcan Hydraulic Turbine						
10 11 12 13	1 1	Hardwick	City of Hardwick (USA)	Inc. (Canada)				411	411	
10 11 12 13	1 1 1	Hardwick Jastrowie		Inc. (Canada) ZRE Gdanak Sp. Z o.o (Poland)	Kaptan	New runnert blades	1.68	720	900	New number blades to increase halfane or 20%
10 11 12 13	1 1	Hardwick	City of Hardwick (USA)	Inc. (Canada) ZRE Gdanak Sp. Z o.o (Poland)		New runner blades Turbine upgrade	1.68	720	900 750	New number blindes to increase furtise in 20%. Upgrade of existing Autol Size Solvine by new number blades.
10 11 12 13 14	1 1 1 1 1	Hardwick Jastrowie Chudulerne Falls - Grinder Room	City of Hardwick (USA) Elektrownie Wodne Sp. Z.o.o (Poland) Energy Ottawa Ltd. (Canada)	Inc. (Canada) ZRE Gdansk Sp. Z o.o (Poland) Norcan Hydraulic Turbine Inc. (Canada)	Kaplan Axial Flow	Turbine upgrade	1.20		750	Opposite of existing Asial fine before by new numericlasies
10 11 12 13 14 15	1 1 1 1	Hardwick Jisstrowie Chudulerne Falls - Ginder Room Consistogo	City of Handwick (USA) Elektrownie Wodne Sp. Z.o.o (Poland) Energy Ottews Ltd. (Canada) Grand River Conservation Authority (Canada)	Inc. (Canada) ZRE Gdansk Sp. Z o.o (Poland) Norcan Hydraulic Turbine Inc. (Canada) Norcan Hydraulic Turbine Inc. (Canada)	Kaplan Axial Flow Axial Flow	Turbine upgrade New nuner-distributor assembly New turbine within existing	1.20	720 500	750 750	Opposite of existing Asial fine before by new numericlasies
10 11 12 13 14 15 16	1 1 1 1 1 6	Hardwick Jastrowie Chudulerne Falls - Grinder Room	City of Handwick (USA) Elektrownie Wodne Sp. Z.o.o (Poland) Energy Otsews Ltd. (Canada) Grand River Conservation Authority (Canada) H2O	Inc. (Canada) ZRE Gdansk Sp. Z o.o (Poland) Norcan Hydraulic Turbine Inc. (Canada)	Kaplan Axial Flow	Turbine upgrade	1.20		750	Opposite of existing Asial fine before by new numericlasies
10 11 12 13 14 15 16	1 1 1 1 1 6	Hardwick Jisstrowie Chudulerne Falls - Ginder Room Consistogo	City of Hardwick (USA) Elaktrourie Wodne Sp. Zo.o. (Poland) Energy Ottawa Ltd. (Cenada) Grand River Conservation Authority (Canada) H2O Eliot Falls Power Corp	Inc. (Canada) ZRE Gdanak Sp. Z o.o (Poland) Norean Hydraulic Turbine Inc. (Canada)	Kaplan Axial Flow Axial Flow	Turbine upgrade New numer-distributor assembly New turbine within extering powerhouse, power increase apprax. 30%, 5	1.20		750 750	Eligibile of existing Add See furtise by one surface file for surface States. Exhause operating range (See to 20
10 11 12 13 14 15 16 17	1 1 1 1 1 6	Hardwick Jastrowie Chuduserne Falls - Grinder Room Consistogo Kenora GS Elliot Falls	City of Hentwick (USA) Elektrownie Wodne Sp. Z.o.o (Poland) Energy Citavas Ltd. (Carada) Grand River Conservation Authority (Carada) H2O Ellor Falls Prower Corp (Carada)	Inc. (Canaida) ZRE Galank Sp. Z o o (Poland) Norean Hydraulic Turbine Inc. (Canaida)	Kaplan Axial Flow Axial Flow Axial Flow semi-Kaplan	Turbine upgrade New runner-distributor assembly New turbne with recipies power increase appray. 36%, 5 New runner and turning sames.	1.20 0.95 2.00 1.55	500 325	750 750 500 400	Spipale of existing Asial Res Indice by one scientificate. Extense operating sings (fin to 20 Extense operating sings (fin to 20 Extense) Woman Applic. TS, cold exhaust extension for the cold Machine Market Scientificate (fine Machine Market Scientificate Machine Market Scientificate Machine Market Scientificate Machine Market Scientificate Machine Market Scientificate Machine Market Scientificate Machine Market Scientificate Market Acid Scientificate Market Market Acid Scientificate Market Marke
10 11 12 13 14 15 16 17 18	1 1 1 1 1 6 1 1 2	Hardwick Jastrowie Chududem Falls - Glinder Room Conestogo Kencea GS Elliot Falls Beanery	City of Hardwick (USA) Elaktownie Wodne Sp. Zo.o. (Poland) Energy Chawa Lat. (Canada) Grand River Conservation Authority (Canada) H2O Eliot Falls Power Corp. (Canada) ENEL North America Inc. (USA)	Inc. (Canada) ZRE Galansk Sp. Z o o (Poland) Norcan Hydraulic Turbine Inc. (Canada)	Kaplan Axial Flow Axial Flow Axial Flow	Turbine upgrade New numer-distributor assembly New turbine within extering powerhouse, power increase apprax. 30%, 5	1.20 0.95 2.00 1.55	500	750 750 500 400 385	Opposite of existing Asial fine before by new numericlasies
10 11 12 13 14 15 16 17 18	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Hardwick Jastrowie Chuduserne Falls - Grinder Room Consistogo Kenora GS Elliot Falls	City of Hentwick (USA) Elektrownie Wodne Sp. Z.o.o (Poland) Energy Citavas Ltd. (Carada) Grand River Conservation Authority (Carada) H2O Ellor Falls Prower Corp (Carada)	Inc. (Canaida) ZRE Galank Sp. Z o o (Poland) Norean Hydraulic Turbine Inc. (Canaida)	Kaplan Axial Flow Axial Flow Axial Flow semi-Kaplan	Turbine upgrade New runner-distributor assembly New turbne with recipies power increase appray. 36%, 5 New runner and turning sames.	1.20 0.95 2.00 1.55	500 325	750 750 500 400	Spipale of existing Asial Res Indice by one scientificate. Extense operating sings (fin to 20 Extense operating sings (fin to 20 Extense) Woman Applic. TS, cold exhaust extension for the cold Machine Market Scientificate (fine Machine Market Scientificate Machine Market Scientificate Machine Market Scientificate Machine Market Scientificate Machine Market Scientificate Machine Market Scientificate Machine Market Scientificate Market Acid Scientificate Market Market Acid Scientificate Market Marke