



Power Systems division, Business Unit Power Generation, September 2010

Harnessing the power of water

Recent Projects (start-up \geq 2005)

Project Name (Capacity)	Project Country / Location	Employer	Scope of Works	Start-Up
PSW Linth-Limmern, (4 x 250 MW)	Switzerland	Kraftwerke Linth-Limmern AG (KLL)	Complete electrical balance of plant (EBoP) package: Plant control/SCADA system; electrical equipment, including power and auxiliary transformers, medium-voltage switchgears and instrumentation, 380 kV GIS (gasinsulated switchgear) substation	2015/16
PSPP Ingula (4 x 333 MW)	South Africa	ESKOM	Station service and auxiliary power supply systems: service and auxiliary transformers, dry type distribution transformers, and medium and low-voltage switchgears	2014
Büyükdüz HPP (2 x 35 MW)	Turkey	Ayen Energy A.S.	Electrical balance of plant (EBoP) package, including LV-, MV- and HV-equipment, plant control/SCADA system, electrical protection devices and complete cabling	2013
Machu Picchu Phase II, (1 x 100 MW)	Peru	EGEMSA	Addition of one 100 MW Francis Turbine and Generator set, Mechanical BoP, Control and Electrical BoP, including GCB, Excitation, IPB, Protection, Step-up Transformers, MV and LV Systems, DC Systems and Cables.	2013
PSW Vianden, (add. 1 x 200 MW)	Luxembourg	SEO	Unit control board and extension/upgrade of System 800xA for Power Generation based SCADA system	2013
Adam Creek & Little Long HPP (2 x 62.5 MW)	Canada	OPGI	Dry Type Transformers. Power Cables, FO Cables, Gate and Gain Heat Controls, Heaters, Compressors and Bubbler Systems for gates. Sluice Gate Control in five Electrical Houses, mounted on individual platforms installed on spillway piers.	2011
Bonyic HPP, (3 x 10 MW)	Panama	Hidroecológica del Teribe	Three 10MW Francis Turbine and Generator sets, Electrical Balance of Plant including DCS, Protection, Communications, Step-up Transformers, 115 kV Substation, MV Switchgear.	2011
Champagne HPP (3 x 15 MW)	Italy	Water Gen Power	Complete refurbishment for Green Cetrificate. Nr. 3 Automation Control System. Entire Electrical Balance of Plant of the HPPs.	2011
G.M. Shrum HPP 8 x 270 + 2 x 300 MW	Canada	BC Hydro	Turnkey solution for complete station service system (MV and LV), including all auxiliary systems, battery systems and cabling.	2011
Huheho PS HPP (4 x 300 MW)	China	Inner Mongolia Electricity Corp.	Computer supervisory & control system	2011
Mayo B HPP, (2 x 5 MW)	Canada	Yukon Energy Corporation	Two 5 MW Francis Turbine and Generator sets, including Auxiliary Systems, Governor and Excitation Systems	2011

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Porce III HPP, (4 x 220 MW)	Colombia	EEPPM	Control and Electrical Balance of Plant, including Local Control Panels and Instruments, GCB, Excitation, I.P.B., Vibration Monitoring, Air Gap Monitoring and Partial Discharge Systems.	2011
Rodund II, (1 x 295 MW)	Austria	Vorarlberger Illwerke AG	Generator bus duct (IPB), System 800xA for Power Generation plant control system [repair after lightning strike]	2011
Song Pan 2 HPP	Vietnam	Song Da Corp.	Computer Supervisory & Control System, Protection System and 110kV Circuit Breaks	2011
Torrent HPP (2 x 11 MW)	Italy	CVA	DCS system for New Plant	2011
Airole & Bevera HPPs (2 x 7 + 2 x 4 MW)	Italy	TirrenoPower	Complete refurbishment for Green Cetrificate. Nr. 2 Automation Control System. Entire Electrical Balance of Plant of the HPPs. Consortium Agreement with the Turbine's Manufacturer.	2010
Ämmäkoski (3 MW)	Finland	KaVo	MV, LV, DC systems, MicroSCADA, Remote control, Automation, Governors, Protection systems, Excitation, Installation	2010
Albano HPP (1 x 15 MW)	Italy	Edison	Speed Governor System	2010
Bocac HPP (2 x 50 MW)	Bosnia Erzegovina	Elnos	Speed Governor System	2010
Dong Nai 4 HPP (2 x 170 MW)	Vietnam	EVN	Computer supervisory & control system, Protection system*	2010
Eidsfoss kraftverk (3 x 2 MVA)	Norway	Vang Energiverk	Control and protection, remote control, switchgear, AC/DC-supply, erection and commissioning	2010
FengWeiHe HPP (2 x 20 MW)	Yunnan Province, China	Fengweihe Co. Ltd	Computer Supervisory & Control System	2010
Haapakoski (0,6 MVA)	Finland	Koskienergia	PMG	2010
Island Falls HPP, (4x10 MW)	Canada	Abitibi Consolidated Hydro	Complete Controls through HMI via link to existing controller. Complete Remote Control from Oshawa Dispatch Centre.	2010
Kemano HPP, (8 x 120 MW)	Canada	Rio Tinto Alcan	Existing ABB Equipment Plant Upgrade, including Controls System, Excitation System, AVR and Power Line Carrier.	2010
Kenora HPP, (10 x 0.5 MW)	Canada	Abitibi Consolidated Hydro	Complete Controls, Protection and governor retrofit, electronic governor, hydraulic systems. Station breakers. Complete Remote Control from Oshawa Dispatch Centre.	2010

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Koivukoski (4 MW)	Finland	KaVo	MV, LV, DC systems, MicroSCADA, Remote control, Automation, Governors, Protection systems, Excitation, Installation	2010
Longjiang HPP (3 x 80 MW)	Yunnan Province, China	Longjiang Hydro Power Co. Ltd.	Computer Supervisory & Control System	2010
Narni HPP, (2 x 30 MW)	Italy	E.On	Delivery of plant control/SCADA system, protections, excitation system, synchronization devices and other electrical equipment	2010
Norman HPP, (5 x 2 MW)	Canada	Abitibi Consolidated Hydro	Complete Controls, Protection and governor retrofit, electronic governor, hydraulic systems, air compressor and station breakers. Complete Remote Control from Oshawa Dispatch Centre.	2010
Pyhännäkoski (6 MW)	Finland	Kainuun Energia	MV, LV, DC systems, MicroSCADA, Remote control, Automation, Governors, Protection systems, Excitation, Installation	2010
Qingyuan PSPP (4 x 300 MW)	Guangdong Province, China	China Southern Grid Corp.	GCBs, Phase Reversal Dis-connectors, Breaking Switches, Diesel Generator.	2010
Song Tranh 2 HPP (2 x 80 MW)	Vietnam	EVN	Computer Supervisory & Control System	2010
Sturgeon Falls HPP, (2 x 3 MW)	Canada	Abitibi Consolidated Hydro	Complete Controls through HMI via link to existing controller. Complete Remote Control from Oshawa Dispatch Centre.	2010
Svartisen HPP (1x350 & 1x250 MW)	Norway	Statkraft Energi AS	Control and protection, remote control, AC/DC-supply, erection and commissioning for the new 250MW unit; new control system for the existing 350MW unit	2010
Taum Sauk HPP, (2 x 250 MW)	USA	Ameren U E	Pumped Storage Plant. Retrofit of Controls, Instrumentation, Governor, Protection and Electrical Balance of Plant, including 4kV Switchgear, AC/DC Distribution Boards, 480 V Main Switchgear and MCC's, Battery Chargers and Inverters.	2010
Trångfors HPP (1 x 73 MW)	Sweden	E.ON Vattenkraft Sverige AB	MV, DC systems, Remote control, Automation, Governors, Protection systems, Excitation systems, Installation, Commissioning	2010
Adamselv HPP (2 x 27 MW)	Norway	Statkraft Energi AS	Control and protection, remote control, switchgear, AC/DC-supply, erection and commissioning. Some mechanical work at generator and turbine	2009
An Khe HPP (2 x 80 MW)	Vietnam	EVN	Computer supervisory & control system, Protection system*	2009
Aschach HPP (4 x 71.8 MW)	Austria	Verbund AHP	Electrical system	2009

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Bålforsen HPP (2 x 44 MW)	Sweden	E.ON Vattenkraft Sverige AB	Control, Governors, Remote Control, Installation, Commissioning	2009
Ban Ve HPP (2 x 16 MW)	Vietnam	EVN	Computer supervisory & control system, Protection system*	2009
Binga (4 x 37 MVA)	Philippines	SN Aboitiz Power-Venguet, Inc.	Complete Electrical Balance of Plant, automation and protection	2009
Bugoye HPP (2 x 6.5 MW)	Uganda	Tronder Power Limited	Complete Electrical Balance of Plant, automation and protection	2009
Buon Tua Srah HPP (2 x 43 MW)	Vietnam	EVN	Computer supervisory & control system, Protection system*	2009
Canetra HPP (1 x 7 MW)	Italy	Endesa	Control and protection System	2009
Dong Nai 3 HPP (2 x 90 MW)	Vietnam	EVN	Computer supervisory & control system, Protection system*	2009
Flåsjö HPP (1 x 20 MW)	Sweden	E.ON Vattenkraft Sverige AB	MV, DC systems, Remote control, Automation, Governors, Protection systems, Excitation systems, Installation, Commissioning	2009
Fort Frances HPP, (8 x 1.2 MW)	Canada	Abitibi Consolidated Hydro	Complete Controls, Protection and governor retrofit, electronic governor, hydraulic systems. Station breakers. Complete Remote Control from Oshawa Dispatch Centre.	2009
Gausbu kraftverk (7.2 MW)	Norway	Skafså kraftverk	Control, remote control erection and commissioning	2009
Grundfors HPP (2 x 45 MW)	Sweden	Vattenfall Vattenkraft AB	Operator Stations, Installation, Commissioning	2009
Iroquois Falls HPP, (12 x 2 MW)	Canada	Abitibi Consolidated Hydro	Complete Controls of: Sluice Gate, Station Breakers, transformer tap changer. HMI control of units via link to existing controller. Complete Remote Control from Oshawa Dispatch Centre.	2009
Järkvissle HPP (2 x 40 MW)	Sweden	Vattenfall Vattenkraft AB	Control, Governors, Remote Control, Installation, Commissioning	2009
Kvarnfallet HPP (1 x 19 MW)	Sweden	E.ON Vattenkraft Sverige AB	MV, DC systems, Remote control, Automation, Governors, Protection systems, Excitation systems, Installation, Commissioning	2009
Lakshola kraftverk (31MW)	Norway	Elkem Energy AS	Control	2009

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Mosbakka kraftverk (5 MW)	Norway	Mosbakka Kraft AS	Control and protection, remote control, switchgear, AC/DC-supply, erection and commissioning	2009
Nam Theun II HPP, (4 x 270 + 2 x 50MW)	Laos	Électricité de France (EDF)	SCADA, Protection, Excitation, Telecommunications, Main unit Transformers, Substations.	2009
Peschiera HPP (1 x 7 MW)	Italy	Endesa	Control and protection System	2009
Sallilankoski (2 MW)	Finland	Sallilan Energia	Control, Protection, Excitation	2009
Srepok3 HPP (2 x 110 MW)	Vietnam	EVN	Computer supervisory & control system, Protection system*	2009
Stifone HPP (1 x 7 MW)	Italy	Endesa	Control and protection System	2009
Svabo kraftverk (4MVA)	Norway	Mo Ind park	Control, remote control erection and commissioning	2009
Svartisen HPP (1 x 350 & 1 x 250 MW)	Norway	Statkraft Energi AS	Control and protection, remote control, AC/DC-supply, erection and commissioning for the new 250MW Unit. New control system for the existing 350MW Unit	2009
Triponzo HPP (1 x 7 MW)	Italy	Endesa	Control and protection System	2009
Twin Falls HPP, (5 x 4 MW)	Canada	Abitibi Consolidated Hydro	Complete Controls, Protection and governor retrofit, electronic governor, hydraulic systems, air compressors and station breakers. Complete Remote Control from Oshawa Dispatch Centre.	2009
Wallsee-Mitterk. HPP (6 x 35 MW)	Austria	Verbund AHP	Electrical System	2009
Ybbs-Persenbeug HPP (6 x 39.4 MW)	Austria	Verbund AHP	Electrical System	2009
Atatürk HPP (8 x 300 + 1 x 6 MW)	Turkey	EÜAS	Control & Protection, turbine governors, electrical systems	2008/2009
Karakaya HPP (6 x 300 MW)	Turkey	EÜAS	Control & Protection, turbine governors, electrical systems	2008/2009
Calm Lake HPP, (2 x 4 MW)	Canada	Abitibi Consolidated Hydro	Complete Controls, Protection and governor retrofit, electronic governor, hydraulic systems. Station breakers. Complete Remote Control from Oshawa Dispatch Centre.	2008

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Campellio HPP (3 x 2 MW)	Italy	Enel Frame Agreement	Control system	2008
Crevola Toce HPP (1 x 32 MW)	Italy	Enel Frame Agreement	Control system	2008
Cua Dat HPP (2 x 49.5 MW)	Vietnam	Cua Dat Hydro Power, JSC	Computer supervisory & control system	2008
Degnone HPP (1 x 2 MW)	Italy	Enel Frame Agreement	Control system	2008
Fadalto HPP (1 x 210 MW)	Italy	Enel Frame Agreement	Control system	2008
Feldsee HPP (1 x 70 MW)	Austria	Kelag	SFC, Switchgear	2008
Granö HPP (2 x 5.4 MW)	Sweden	E.ON Vattenkraft Sverige AB	MV, DC systems, Remote control, Automation, Governors, Protection systems, Excitation systems, Installation, Commissioning	2008
GuiGang HPP (4 x 30 MW Bulb)	China	Guigang Navigation Project Branch Bureau	Computer supervisory & control system updating for Advant OCS	2008
Hirvikoski HPP (1 x 9 MW)	Finland	Vattenfall Oy	Control	2008
Jufudu HPP (3 x 90 MW)	China	Yunnan Datang Lixianjian Hydro Development Corp.	Computer supervisory & control system	2008
Kjosfoss HPP (2 x 2 MW)	Norway	Jernbaneverket Bane Energi	Rehabilitation of two turbines, one new 1-phase 16 2/3 Hz generator, one new 3-phase 50 Hz generator, 1-phase and 3-phase switchgear, 1-phase and 3-phase transformers. Control and protection, AC- and DC-supply, erection and commissioning	2008
Kops 2 HPP (3 x 150 MVA)	Austria	VIW	Control, HV Systems	2008
La Penna HPP (1 x 25 MW)	Italy	Enel Frame Agreement	Control system	2008
Leirfossene HPP (1 x 30 & 1 x 16.5 MW)	Norway	TEV Kraft AS	Control and protection, remote control, switchgear, AC- and DC-supply, erection and commissioning	2008
Maalismaa HPP (2 x 22 MW)	Finland	PVO-Vesivoima Oy	MV, LV, DC systems, MicroSCADA, Remote control, Automation, Governors, Protection systems, Excitation systems Unitrol , Installation	2008

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Pian della Rocca HPP (3 x 8 MW)	Italy	Enel Frame Agreement	Control system	2008
Preci HPP (2 x 6 MW)	Italy	Endesa	Nr. 2 Speed Regulation Systems, Nr. 2 Protection and Synchronisation Systems, Nr. 2 Excitation Systems, Nr. 1 Automatic Common Control System and Auxiliary Devices, Scada, Complete Sub-Station 150KV. Entire Electrical Balance of Plant	2008
Presenzano HPP (1 x 250 MW)	Italy	Enel Frame Agreement	Control system	2008
Rosone HPP (4 x 50 MW)	Italy	Iride Energia	Nr. 4 Speed Regulation Systems, Nr. 4 Protection and Synchronisation Systems, Nr. 4 Excitation Systems, Nr. 1 Automatic Common Control System and Auxiliary Devices, Scada, Complete Sub-Station 220KV. Entire Electrical Balance of Plants	2008
Salto de Aguacate HPP (2 x 29 MW)	Dominican Republic	Empresa de Generación Hidroeléctrica Dominicana, EGEHID	Upgrade control system with new PLC, synchronization, installation and commissioning	2008
Salto de Jiuguey HPP (2 x 55 MW)	Dominican Republic	Empresa de Generación Hidroeléctrica Dominicana, EGEHID	Upgrade control system with new PLC, synchronization, installation and commissioning	2008
San Fiorano HPP (4 x 150 MW)	Italy	Enel Frame Agreement	Control system	2008
Santu Miali HPP (1 x 34 MW)	Italy	Ente Flumendosa	Control system & Speed Governor	2008
Sigillo HPP (1 x 6 MW)	Italy	Endesa	Control system	2008
Skree kraftverk (7.2 MW)	Norway	Skafså kraftverk	Control, remote control erection and commissioning	2008
Song Ba Ha HPP (2 x 110 MW)	Vietnam	EVN	Computer supervisory & control system, Protection system*	2008
Taloro HPP (3 x 80 MW)	Italy	Enel Frame Agreement	Control system	2008
Verampio HPP (2 x 25 MW)	Italy	Enel Frame Agreement	Control system	2008
Vietas HPP (2 x 160 MW)	Sweden	Vattenfall Vattenkraft AB	Vattenfall Vattenkraft AB	2008

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Albi & Magisano HPP (2 x 40 MW)	Italy	Endesa	Nr. 1 Speed Regulation Systems, Nr. 1 Protection and Synchronisation Systems, Nr. 1 Excitation Systems, Nr. 1 Automatic Common Control System and Auxiliary Devices, Scada. Revamping of the Electro-Hydraulic Devices. Line Protection for the Sub-Station 220KV. Consortium Agreement with the Turbine's Manufacturer.	2007
Arthurwerk HPP (1 x 6 MW)	Austria	EAG	Control+Electrical System	2007
Avestaforsen HPP (1 x 24 MW)	Sweden	Fortum Generation AB	MV, LV, DC systems, Remote control, Automation, Governors, Protection systems, Excitation systems, Installation, Commissioning	2007
Bodum HPP (1 x 12 MW)	Sweden	E.ON Vattenkraft Sverige AB	MV, LV, DC systems, Remote control, PGIM, Automation, Governors, Protection systems, Excitation systems, Installation, Commissioning	2007
Bumbuna Falls HPP (2 x 17 MW)	Italy	Salini Costruttori	Control system	2007
Cotilia HPP (2 x 30 MW)	Italy	Alstom Power	Control system	2007
Creva HPP (3 x 11 MW)	Italy	Enel Frame Agreement	Control System	2007
Dale II HPP (1 x 30 MW)	Norway	BKK	Generator, transformer, control, protection, electrical balance of plant	2007
Dietro La Torre HPP (2 x 1 MW)	Italy	Enel Frame Agreement	Control System	2007
Domnarvet HPP (2 x 11 MW)	Sweden	Fortum Generation AB	Operator Stations	2007
Dossi HPP (6 x 10 MW)	Italy	Enel Frame Agreement	Control system	2007
Funna HPP (1 x 22 MW)	Norway	Nord-Trøndelag Elektrisitettsverk FKF	132 kV switchgear, control and protection, remote control communication, switchgear, AC- and DC-supply, erection and commissioning	2007
Gerlos II HPP (1 x 125 MW)	Austria	Verbund AHP	Electrical system	2007
Inga 2.3 HPP (1 x 250 MW)	Italy	Franco Tosi Meccanica	Nr. 1 Speed Regulation Systems, Nr. 1 Protection and Synchronisation Systems, Nr. 1 Excitation Systems, Nr. 1 Automatic Common Control System and Auxiliary Devices, Scada.	2007
Kaldåga HPP (1 x 17 MW)	Norway	Helgelandskraft AS	Control and protection, remote control communication, switchgear, AC- and DC-supply, electrical and mechanical erection and commissioning	2007

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Klåsarö HPP (2 x 2.3 MW)	Finland	Helsingin Energia Oy	Automation, Governors, Protection systems, Excitation systems Unitrol, Installation	2007
La Remolina HPP (1 x 200 MW)	Spain	Enel Viesgo	Control system	2007
Le Piane HPP (2 x 5 MW)	Italy	Enel Frame Agreement	Control System	2007
Ludrigno HPP (5 x 10 MW)	Italy	Enel Frame Agreement	Control system	2007
Magisano (1 x 40 MW)	Italy	Endesa	Control system and Speed Regulation	2007
ManWan Extension HPP(1 x 300 MW)	China	Huaneng Lancangjiang Hydro Development Corp.	Governor electrical system	2007
Matfors HPP (1 x 21MW)	Sweden	E.ON Vattenkraft Sverige AB	MV, LV, DC systems, Remote control, PGIM, Automation, Governors, Protection systems, Excitation systems, Installation, Commissioning	2007
Movileni HPP (4 x 7 MW)	Romania	S.H. Bistrita	Control, Electrical systems	2007
Narni HPP (2 x 30 MW)	Italy	Endesa	Nr. 2 Step-Up Transformers. Nr. 1 Automation Control System. E-Bop of the HPP. Consortium Agreement with the Turbine's Manufacturer.	2007
Niardo HPP (2 x 1 MW)	Italy	Enel Frame Agreement	Control system	2007
Omkarshwar HPP (8 x 65 MW)	India	Narmada Hydro Develop- ment Corporation Ltd.	Protection, electrical balance of plant	2007
Orichella (2 x 80 MW)	Italy	Endesa	Upgrade of Control System and Speed Regulation	2007
Pengfors HPP (3 x 19 MW)	Sweden	E.ON Vattenkraft Sverige AB	Control, Remote Control, Governors, Installation, Commissioning	2007
Pontey I&II HPP (4x0.5 MW)	Italy	Energia Plassier	Complete Turn-Key of Nr. 4 Groups Turbine-Generator. Nr. 2 Automatic Control Systems	2007
Savuto PS (3 x 2 MW)	Italy	Endesa	Nr. 3 Motor-Pump with Soft Starter (one of them with speed-regulation). Nr.1 Automatic Control System. Consortium Agreement with the Penstock Supplier.	2007
Svelgen 2 HPP (2 x 13.5 MW)	Norway	Statkraft Energi AS	Control and protection, remote control, switchgear, AC- and DC-supply, electrical and mechanical erection and commissioning	2007

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Thac Ba HPP (3 x 40 MW)	Vietnam	EVN	Control & protection & measurement for the 3 units, bay & BB control and protection, plant control, cables and networks	2007
Timpagrande HPP (2 x 80 MW)	Italy	Endesa	Nr. 2 Speed Regulation Systems, Nr. 2 Protection and Synchronisation Systems, Nr. 2 Excitation Systems, Nr. 1 Automatic Common Control System and Auxiliary Devices, Scada. Revamping of the Electro-Hydraulic Devices. Consortium Agreement with the Turbine's Manufacturer	2007
Tryland HPP (1 x 5.8 MW)	Norway	Agder Energi Produksjon AS	Turbine, generator, transformer, control and protection, remote control, switchgear, AC- and DC-supply, erection and commissioning	2007
Various HPP (217 Units)	Spain	Various	Excitation systems	2003/2007
Various HPP (13 Units)	Spain	Unelco	Protection systems	2003/2007
Various HPP (8 Units)	Spain	Alstom	Protection systems	2003/2007
Various HPP (27 Units)	Spain	Endesa	Protection systems	2003/2007
Villa di Chiavenna HPP (2 x 6 MW)	Italy	Maira Energia	Nr. 2 Step-Up Transformers. Nr. 2 Generators. Nr. 1 Automation Control System. E-Bop of the HPP	2007
Yixing PSP (4 x 250 MW)	China	Jiangsu Pumped Storage Power Co. Ltd.	Control and protection, complete electrical balance of plant, SFC	2007
Bláfelli Vik HPP (1 x 230 MW)	Norway	Sunnhordland Kraftlag AS	Control, protection, 66 & 300kV switchgear, electrical balance of plant	2006
Cimena HPP (2 x 22 MW)	Italy	Enel Frame Agreement	Control System	2006
Copel HPP (x MW)	Brazil	COPEL	DCS HMI for generation control center + communication links	2006
Dale II HPP (1 x 31.5 MW)	Norway	BKK Produksjon AS	Generator, Transformer, Control, Protection, Electrical Balance of Plant, erection and commissioning	2006
Ermenek HPP (2 x 160 MVA)	Turkey	Alstom Power	HV Systems	2006
Framruste HPP (1 x 85 MW)	Norway	Opplandskraft	Control, protection, electrical balance of plant	2006

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Gamp HPP (2 x 5 MW)	Austria	Salzburg AG	Control+Electrical System	2006
Harrsele HPP (3 x 75 MW)	Sweden	Holmens Kraft AB	Operator Stations	2006
Hirvikoski HPP (1 x 9 MW)	Finland	Vattenfall Oy	MV, DC Systems	2006
Kaltimo HPP (2 x 18 MW)	Finland	UPM-Kymmene Oyj	HV switchyard, Main transformer 40MVA, generators, MV, LV, DC systems, MicroSCADA, Remote control, Automation, Governors,	2006
Katzling HPP (2 x 2.5 MW)	Austria	Pöls AG	Control System + Electrical System	(2005)/2006
Khan Khar HPP (2 x 34 & 1 x 4 MW)	Pakistan	WAPDA	Control	2006
Kierikki HPP (2 x 22 MW)	Finland	PVO-Vesivoima Oy	MV, LV, DC systems, MicroSCADA, Remote control, Automation, Governors, Protection systems, Excitation systems Unitrol F, Installation	2006
Kvinesdal HPP (1 x 1.3 MW)	Norway	Agder Energi Produksjon AS	Turbine, Generator, Transformer, Control, Protection, Electrical Balance of Plant, erection and commissioning	2006
Nazzano HPP (3 x 6 MW)	Italy	Enel Frame Agreement	Control System	2006
Osbu HPP (1 x 25 MW)	Norway	Statkraft	Control and protection, complete electrical balance of plan	2006
Paisco HPP (1 x 10 MW)	Italy	Enel Frame Agreement	Control System	2006
Pallanzeno HPP (3 x 10 MW)	Italy	Enel Frame Agreement	Control system	2006
Plankenau HPP (2 x 3.85 MW)	Austria	EAG	Control+Electrical System Turbinenregler	2006
Ponte Felice HPP (3 x 5 MW)	Italy	Enel Frame Agreement	Control System	2006
Ponte Sargano HPP (2 x 5 MW)	Italy	Endesa	Control System, AVR, Protection, Speed Governor, Electrical Balance of Plant	2006
Rio General HPP (2 x 23 MW)	Costa Rica	Hidroenergía del General/ SARET	Control, protection, transformers, 220 kV switchgear, electrical balance of plant	2006

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Rødne HPP (1 x 9 MW)	Norway	Haugaland Kraft AS	Generator, control, protection, electrical balance of plant	2006
Røyrvatn HPP (2 x 2.6 MW)	Norway	Sørfold Kraftlag A/L	Control, Protection, 22 kV switchgear and commissioning	2006
Smokovo HPP (2 x 5 MW)	Greece	PPC	Control System, Excitation	2006
Wiesthal HPP (2 x 5 MW)	Austria	Salzburg AG	Control	2006
Acquoria HPP (1 x 15 MW)	Italy	Enel Frame Agreement	Control System	2005
Baoshan Houqiao HPP (3 x 18 MW)	China	Yunnan Baoshan Binglang RHDP Co., Ltd	Control	2005
Calicano HPP (2 x 306 MW)	Italy	ENEL Produzione	Control, protection	2005
Calice HPP (2 x 11 MW)	Italy	Enel Frame Agreement	Control System	2005
Chievo HPP (2 x 39 MW)	Italy	ENEL Produzione	Control, protection	2005
Clyde and Roxburgh (4 x 100 + 8 x 40 MW)	New Zealand	Contact Energy	Control and governor retrofit	2005
Conception HPP (2 x 5 MW)	Panama	Isthmus Hydro	Control, protection, electrical BoP, turbine governor	2005
Davos HPP (2 * 0.7 MW)	Switzerland	Elektrizitätswerk Davos AG (EWD)	Control, replacement of hydraulic system with servomotors and digital governor	2005
Edolo HPP (4 x 150 MW)	Italy	ENEL Produzione	Nr. 4 Automatic Control Systems. Protection. Scada. Reversible Turbine	2005
El Bote (42 MW)	Nicaragua	ATDER	Automation, LV	2005
Farfa I HPP (1 x 15 MW)	Italy	Enel Frame Agreement	Control System	2005
Flums HPP (8 MW)	Switzerland	Spoerry & Co. AG	Control (new HIS on existing process control), water management	2005

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Gallicano HPP (2 x 30 MW)	Italy	ENEL Power	Control	2005
Gordon HPP (2 x 160 MW)	Australia	Hydro Tasmania	Complete governor incl. electronic governor & hydraulic systems	2005
Grabs HPP (2 MW)	Switzerland	EW Grabs	Control, water management	2005
Guri HPP (20 x 500 MW)	Venezuela	EDELCA	Control, Protection, Communication upgrade	2005
Hongye HPP (3 x 30 MW)	China	Sichuan Zagunao Hydro- power Development Co., Ltd	Control	2005
Houqiao HPP (3 x 16 MW)	China	Yunnan Baoshan Binlang- jiang Hydro Developm. Corp.	Control	2005
Langstrommen HPP (2 x 32 MW)	Sweden	Fortum	Control, protection, electrical balance of plant	2005
Leoben HPP (2 x 5 MW)	Austria	Verbund AHP	Electrical system	2005
Malgomaj/Volgsjofors HPP (3 x 10 MW)	Sweden	Statkraft	Control & protection & measurement for the 3 units, plant control, cables and networks	2005
Matese HPP (1 x 15 MW)	Italy	Enel Frame Agreement	Control System	2005
Montelungo HPP (2 x 22 MW)	Italy	ENEL Produzione	Control, protection	2005
Montemaggiore HPP (2 x 30 MW)	Italy	Franco Tosi	Control, turbine governor	2005
Mühlbach HPP (1 x 2 MW)	Austria	EAG	Control+Electrical System Turbinenregler	2005
Nembia HPP (2 x 7 MW)	Italy	Enel Frame Agreement	Control System	2005
Obermatt HPP (2 x 12, 2 x 4 MW)	Switzerland	EW Obermatt ewl Kraftwerke AG	Control, water management system, load distribution, 1st step	2005
Øyberget HPP (1 x 10 / 29 / 69 MW)	Norway	Vannkraft Øst AS	Control, Protection, Electrical Balance of Plant, erection and commissioning	2005

Project Name (Capacity)	Project Country / Location	Employer	Scope of Works	Start-Up
Pedesina HPP (1 x 15 MW)	Italy	ENEL	Control system	2005
Pequenos Libombos HPP (1 x 2.1 MW)	Mozambique	ARA-Sul	Control, Protection, Electrical balance of Plant, Rehabilitation of Mechanical Balance of Plant.	2005
Permantokoski HPP (1 x 16 MW)	Finland	Kemijoki Oy	Excitation	2005
Pescara HPP (2 x 13 MVA)	Italy	ENEL Power	Control	2005
Roseires HPP (6 x 35 MW)	Sudan	NEC	Electrical and mechanical components (e.g. excitation; additional order on previous contract)	2005
Rott HPP (2 x 2.5 MW)	Austria	Salzburg AG	Control System	(2004)/2005
Rovesca HPP (1 x 40 MVA)	Italy	Franco Tosi	Control, turbine governor	2005
S. Cipriano HPP (2 x 8 MW)	Italy	Enel Frame Agreement	Control System	2005
S. Pancrazio HPP (1 x 34 MW)	Italy	Enel Frame Agreement	Control System	2005
Salarno HPP (3 x 3 MW)	Italy	Enel Frame Agreement	Control System	2005
Sardegna HPP (1 x 15 MW)	Italy	Enel Frame Agreement	Control System	2005
Schächental HPP (1 x 3 MW)	Switzerland	EW Altdorf	Control	2005
Schwarzach HPP (3 x 35 MVA)	Austria	Verbund AHP	Transformers	2005
Spannberg 1 HPP (2 x 0.63 MW)	Austria	EAG	Control+Electrical System, Turbinenregler	2005
Stalon HPP (1 x 132 MW)	Sweden	Vattenfall	Control for the unit	2005
Suviana HPP (1 x 15 MW)	Italy	Enel Frame Agreement	Control System	2005

Project Name (Capacity)	Project Country / Location	Employer	Scope of Works	Start-Up
Svartisen HPP (1 x 230 MW)	Norway	Statkraft Energi	Control	2005
Talamona HPP (1 x 15 MW)	Italy	Enel Frame Agreement	Control System & Speed Governor	2005
Trebinje HPP (3 x 66.7MW)	Bosnia Herzego- wina	HET	Control, protection, electrical and mechanical BoP	2005
Tussa HPP (2 x 30 MW)	Norway	Tussa Energi	Control	2005
Utanen HPP (3 x 18 MW)	Finland	Fortum Power and Heat	Control and electrical balance of plant	2005
Vaccarizzo HPP (1 x 7 MW)	Italy	Enel Frame Agreement	Control System	2005
Val Giuf HPP (1.5 MW)	Switzerland	Energia Alpina	Control, plant and water catchment monitoring	2005
Vena Martello HPP (2 x 10 MW)	Italy	Enel Frame Agreement	Control System	2005
Volgsjöfors HPP (2 x 10 MW)	Sweden	Sydskraft Vattenkraft AB	Control, Remote control, Governors, Protection systems, Excitation systems, DC systems, Installation, Commissioning	2005
Volturno HPP (4 x 6 MW)	Italy	Enel Frame Agreement	Control System	2005
Wiestal HPP (2 x 14 MW)	Austria	Salzburg AG	Control System	2005
Yamula HPP (2 x 50 MW)	Turkey	Ayen Energy Turkey	Control and protection system, excitation & synchronization equipment	2005
Zogno HPP (4 x 1.25 MW)	Italy	ENEL	Control system	2005

(Besides these projects ABB's Power Systems division is active and has references in other renewables, such as solar, wind and WTE projects as well as in thermal PPs (coal, gas, CC, ...) and in the field of water treatment and pumping stations. In addition to above projects, a large number of ABB's products, such as HV, MV and LV equipment, excitation systems and SFCs, electrical protection devices has been and is being sold as "pure" product supplies to hydro generation OEMs and EPC. Please visit us at www.abb.com.)