



ABB Power Systems / Power Generation - October 2014

Harnessing the power of water with ABB

References - contract completion ≥ 2011

ABB has been developing technologies and providing solutions for the hydropower industry for more than 125 years. The list of Recent Projects – finished and on-going ones – demonstrates the wide range of ABB's products and services delivered to the hydropower industry, with contract scope ranging from single products/systems to water-to-wire solutions.

Besides these projects ABB's Power Systems division is active and has references in other renewables, such as solar, wind and waste-to-energy projects as well as in thermal power plants 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 directly from ABB factories to hydro generation OEMs and EPCs.

[Please visit us at www.abb.com/powergeneration.](http://www.abb.com/powergeneration)

Abbreviations (if indicated):

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| Plant type | - PS = pumped-storage, ROR = run-on-river, STO = storage (incl. diversion) |
| Project type | - NEW = greenfield projects, REF = refurbishment (or brownfield) projects |

Project name Capacity	Proj. Type	Project country	Owner / Enduser	Contract scope @ additional information	Year of contract compl.
Kafue Gorge 6 x 200 MW	REF	Zambia	Zesco	Unit control; Plant control/scada; Electrical (mech.) protection; Turbine governor	2017
Kegums - 1 4 x 16 MW	REF	Latvia	Latvenenergo AS	Excitation; LVAC switchgear; LVDC switchgear/UPS; Unit control; Plant control/scada; Electrical (mech.) protection; Turbine governor	2017
Nant de Drance (PS) 6 x 150 MW	NEW	Switzerland	Nant de Drance SA	Power transformer @ The project will be implemented in several independent lots, 1st lot step-up transformers.	2017
Nedre Rössåga (new unit) 1 x 250 MW	REF	Norway	Statkraft AS	MV switchgear; Power transformer; Auxiliary transformer; LVAC switchgear; LVDC switchgear/UPS; Unit control; Plant control/scada; Electrical (mech.) protection @ Replacement for 2nd three old units	2017
Pasarel 2 x 14 MW	REF	Bulgaria	EdF Nouvelle Bulgaria	Excitation; Generator circuit breaker; LVAC switchgear; LVDC switchgear/UPS; Unit control; Plant control/scada; Electrical (mech.) protection; Turbine governor	2017
Plavinas 2 x 105 MW	REF	Latvia	Latvenenergo AS	LVAC switchgear; LVDC switchgear/UPS; Unit control; Plant control/scada; Turbine governor	2017
Ferrera (PS) 3 x 63 MW	REF	Switzerland	Kraftwerke Hinterrhein AG	Generator busbar/cable; Generator circuit breaker; MV switchgear; Auxiliary transformer; LVAC switchgear; LVDC switchgear/UPS; Electrical (mech.) protection	2016
Kokalyane 2 x 11,2 MW	REF	Bulgaria	EdF Nouvelle Bulgaria	Excitation; Generator circuit breaker; LVAC switchgear; LVDC switchgear/UPS; Unit control; Plant control/scada; Electrical (mech.) protection; Turbine governor	2016
Limmern (Linthal 2015) (PS) 4 x 250 MW	NEW	Switzerland	Kraftwerke Linth-Limmern AG (KLL)	Generator busbar/cable; Generator circuit breaker; MV switchgear; Power transformer; HV switchgear GIS; Auxiliary transformer; LVAC switchgear; LVDC switchgear/UPS; Unit control; Plant control/scada; Electrical (mech.) protection @ Axpo: Overall project will be in the range of 2.1 bn CHF.	2016
Sellrain-Silz 2 x 250 MW	REF	Austria	Tiroler Wasserkraft AG	Generator service; Excitation; Unit control; Plant control/scada; Electrical (mech.) protection; Turbine governor	2016
Askara 148 MW	REF	Norway	SFE Produksjon AS	LVAC switchgear; LVDC switchgear/UPS; Unit control; Plant control/scada; Electrical (mech.) protection @ Units: 1 x 98 + 1 x 48 MW, Fit for remote control	2015

Project name Capacity	Proj. Type	Project country	Owner / Enduser	Contract scope @ additional information	Year of contract compl.
Aswan High Dam 12 x 175 MW	REF	Egypt	HPGC	Excitation; Unit control; Plant control/scada; Electrical (mech.) protection; Turbine governor @ Upgrade of selected systems, common contract for all three Aswan complex plants (incl. also Aswan LD).	2015
Aswan Low Dam 540 MW	REF	Egypt	HPGC	Excitation; Unit control; Plant control/scada; Electrical (mech.) protection; Turbine governor @ Upgrade of selected systems, common contract for all three Aswan complex plants (incl. also Aswan HD).	2015
Ayame 1 2 x 11 MW	REF	Cote D'Ivoire	C.I.E.	Plant control/scada	2015
Ayame 2 2 x 16 MW	REF	Cote D'Ivoire	C.I.E	Plant control/scada	2015
Baerenwerk 3 x 5 MW	REF	Austria	Salzburg AG	Excitation; Auxiliary transformer; LVAC switchgear; LVDC switchgear/UPS; Unit control; Plant control/scada; Electrical (mech.) protection; Turbine governor	2015
Bagistas I 144,5 MW	NEW	Turkey	ICTAS Energy	Generator busbar/cable; Generator circuit breaker; MV switchgear; Power transformer; HV switchgear AIS; Auxiliary transformer; LVAC switchgear; LVDC switchgear/UPS; Unit control; Plant control/scada; Electrical (mech.) protection @ Units: 3 x 46 + 1 6.5 MW, consortium partner: DEC (P.R.China)	2015
Coco Codo Sinclair 8 x 187 MW	NEW	Ecuador	Celec EP	HV switchgear AIS; LVDC switchgear/UPS; Unit control; Plant control/scada; Electrical (mech.) protection @ 500kV SY deliveries include protection & outgoing equipment (surge arresters, disconnectors, VTs and insulators), scope includes CCTV.	2015
Gojak 3 x 18 MW	REF	Croatia	HEP-Proizvodnja	Plant control/scada	2015
Huoi Quang 2 x 250 MW	NEW	Viet Nam	EVN	Electrical (mech.) protection @ Unit & switchyard protection	2015
Jenpeg G.S. (PS) 6 x 35 MW	REF	Canada	Manitoba Hydro	Excitation; Generator circuit breaker; Unit control; Plant control/scada; Electrical (mech.) protection; Turbine governor @ Includes also: cables, annunciation system, synchronization and other electrical systems.	2015

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Kalajärvi 1 x 2,2 MW	REF	Finland	Seinäjoen Energia Oy	Excitation; MV switchgear; LVAC switchgear; LVDC switchgear/UPS; Unit control; Plant control/scada; Electrical (mech.) protection; Turbine governor	2015
Kegums - 2 3 x 75,3 MW	REF	Latvia	Latvenenergo AS	Unit control; Plant control/scada	2015
Lai Chou 3 x 400 MW	NEW	Viet Nam	EVN	Electrical (mech.) protection @ Unit & switchyard protection	2015
Melk 9 x 22,3 MW	REF	Austria	Verbund AHP	Auxiliary transformer; LVAC switchgear; LVDC switchgear/UPS; Unit control; Plant control/scada @ Scope related to weirs.	2015
Quart 2 x 15 MW	REF	Italy	C.V.A	Unit control; Plant control/scada; Electrical (mech.) protection	2015
Schwarzach 4 x 30 MW	REF	Austria	Verbund AHP	Auxiliary transformer; LVAC switchgear; LVDC switchgear/UPS; Unit control; Plant control/scada	2015
Song Bung 2 x 50 MW	NEW	Viet Nam	EVN	Unit control; Plant control/scada; Electrical (mech.) protection @ Unit & switchyard protection	2015
Sopladora 3 x 162 MW	NEW	Ecuador	Celec EP	Unit control; Plant control/scada	2015
St. Veit 2 x 8,8 MW	REF	Austria	Verbund AHP	Unit control; Plant control/scada	2015
Trebinje (PCS)	REF	Bosnia-Herzegovina	Elektroprivreda	Plant control/scada @ PCS = Plant Control/Scada	2015
Wallnerau-Salzach 3 x 1,9 MW	REF	Austria	Verbund AHP	Unit control; Plant control/scada	2015
Wallnerau-Unterwasser 2 x 7,2 MW	REF	Austria	Verbund AHP	Unit control; Plant control/scada	2015
Yamanli II Stage 1 61 MW	NEW	Turkey	Enerji SA	Generator busbar/cable; Generator circuit breaker; MV switchgear; Power transformer; HV switchgear AIS; Auxiliary transformer; LVAC switchgear; LVDC switchgear/UPS; Unit control; Plant control/scada; Electrical (mech.) protection @ Units: 2 x 24 + 1 x 13 MW, consortium partner: Yunhe Hydro (P.R.China)	2015

Project name Capacity	Proj. Type	Project country	Owner / Enduser	Contract scope @ additional information	Year of contract compl.
Yamanli II Stage 2 2 x 12 MW	NEW	Turkey	Enerji SA	Generator busbar/cable; Generator circuit breaker; MV switchgear; Power transformer; Auxiliary transformer; LVAC switchgear; LVDC switchgear/UPS; Unit control; Plant control/scada; Electrical (mech.) protection @ Consortium partner: Yunhe Hydro (P.R.China)	2015
Äetsä 2 x 8 MW	REF	Finland	UPM-Kymmene Oy	Excitation; Unit control; Plant control/scada; Electrical (mech.) protection; Turbine governor	2014
Arson 5 x 2 MW	REF	Italy	Enel Green Power	MV switchgear; LVAC switchgear; LVDC switchgear/UPS; Unit control; Plant control/scada; Electrical (mech.) protection	2014
Atatürk & Karakaya (AW) 4390 MW	REF	Turkey	EÜAS	Excitation; Unit control @ AW = additional works: replacement of S/S BCUs in Atatürk HPP and excitation systems in Karakaya HPP.	2014
Avesta Storfors 1 x 24 MW	REF	Sweden	Fortum	Excitation; Generator circuit breaker; MV switchgear; LVAC switchgear; LVDC switchgear/UPS; Unit control; Plant control/scada; Electrical (mech.) protection; Turbine governor	2014
Baerenburg 4 x 55 MW	REF	Switzerland	Kraftwerke Hinterrhein AG	Generator busbar/cable; Generator circuit breaker; MV switchgear; HV switchgear AIS; Auxiliary transformer; LVAC switchgear; LVDC switchgear/UPS; Electrical (mech.) protection	2014
Balsa Inferior 3 x 15 MW	NEW	Costa Rica	CNFL	MV switchgear; Power transformer; HV switchgear AIS; Auxiliary transformer; LVAC switchgear; LVDC switchgear/UPS; Unit control; Plant control/scada; Electrical (mech.) protection	2014
Bang Lang 3 x 24 MW	REF	Thailand	EGAT	Unit control; Plant control/scada	2014
Blanda 3 x 50 MW	REF	Iceland	Landsvirkjun	Unit control; Plant control/scada; Turbine governor	2014
Chulabhorn 2 x 20 MW	REF	Thailand	EGAT	Unit control; Plant control/scada	2014
Coscile 2 x 1 MW	REF	Italy	Enel Green Power	MV switchgear; LVAC switchgear; LVDC switchgear/UPS; Unit control; Plant control/scada; Electrical (mech.) protection	2014
Dark Drinh 2 x 60 MW	NEW	Viet Nam	EVN	Unit control; Plant control/scada	2014

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Des Joachims 8 x 55 MW	REF	Canada	OPGI	MV switchgear; Auxiliary transformer; LVAC switchgear @ Includes also automatic transfer scheme.	2014
Dongxiguan 4 x 50 MW	REF	China	Sichuan Huaneng Jialingjiang Hydro-Power Co. Ltd	Unit control; Plant control/scada	2014
Ghirlo 1 x 2 MW	NEW	Italy	Enel Produzione	MV switchgear; LVAC switchgear; LVDC switchgear/UPS; Unit control; Plant control/scada; Electrical (mech.) protection	2014
Grada kraftstation 2 x 12 MW	REF	Sweden	Fortum Generation AB	Excitation; Generator busbar/cable; MV switchgear; Auxiliary transformer; LVAC switchgear; LVDC switchgear/UPS; Unit control; Plant control/scada; Electrical (mech.) protection; Turbine governor @ Fit for remote control.	2014
Haibowan 4 x 22,5 MW	NEW	China	Inner Mongolia Datang Haibowan Hydro-Power Co. Ltd.	Unit control; Plant control/scada	2014
Ingula (PS) 4 x 333 MW	NEW	South Africa	ESKOM	MV switchgear; Auxiliary transformer; LVAC switchgear; LVDC switchgear/UPS @ Covers all station service and auxiliary power supply systems.	2014
Kainji 8 x 120 MW	REF	Nigeria	PHCN	Unit control; Plant control/scada; Electrical (mech.) protection @ For three units.	2014
Khimti 5 x 15 MW	REF	Nepal	Himal Power Ltd.	Unit control; Plant control/scada @ New HMI.	2014
Ledinge 1 x 10 MW	REF	Sweden	E.on Vattenkraft	Excitation; Generator circuit breaker; MV switchgear; LVAC switchgear; LVDC switchgear/UPS; Unit control; Plant control/scada; Electrical (mech.) protection; Turbine governor @ Includes also 72.5 kV HVCBs.	2014
Letsi 2 x 51 MW	REF	Sweden	Vattenfall	Generator circuit breaker	2014
Mayrhofen 6 x 57,5 MW	REF	Austria	Verbund Hydropower AG	MV switchgear	2014

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Nedre Rössåga 3 x 50 MW	REF	Norway	Statkraft AS	Generator busbar/cable; MV switchgear; Power transformer; Auxiliary transformer; LVAC switchgear; LVDC switchgear/UPS; Unit control; Plant control/scada; Electrical (mech.) protection @ Complete refurbishment of electrical balance of plant and automation system for 1st three old units.	2014
Opponitz 3 x 4,2 MW	REF	Austria	Wien Energie GmbH	LVAC switchgear; LVDC switchgear/UPS; Unit control @ refers to electrical components and control for weir and weir turbine only	2014
Presenzano PCS (PS) 4 x 250 MW	REF	Italy	Enel Green Power	Plant control/scada @ PCS = Plant Control / Scada.	2014
Reisseck II (PS) 2 x 215 MW	NEW	Austria	Verbund AHP	Generator busbar/cable; Generator circuit breaker	2014
Riddes 5 x 50 MW	REF	Switzerland	Kraftwerke Mauvoisin AG	Generator service @ Covering: life-time calculation, new stator, new brushless exciter (UNICITER), new pole winding, general overhaul; targeting at higher efficiency.	2014
Rosshag (PS) 4 x 57,5 MW	REF	Austria	Verbund VHP	Generator; Generator service @ Covering: motor/generator overhaul with new stator winding and renewal of rotor poles.	2014
Rüchlig 4 x 2,8 MW	REF	Switzerland	Axpo AG	MV switchgear; Power transformer; Auxiliary transformer; LVAC switchgear; LVDC switchgear/UPS; Unit control; Plant control/scada; Electrical (mech.) protection	2014
S. Caterina 1 x 1 MW	NEW	Italy	Enel Produzione	MV switchgear; LVAC switchgear; LVDC switchgear/UPS; Unit control; Plant control/scada; Electrical (mech.) protection	2014
S. Pietro d'Orzio 2 x 3 MW	REF	Italy	Enel Green Power	MV switchgear; LVAC switchgear; LVDC switchgear/UPS; Unit control; Plant control/scada; Electrical (mech.) protection	2014
Seitevare kraftstation 1 x 225 MW	REF	Sweden	Vattenfall AB	Excitation; Unit control; Plant control/scada; Electrical (mech.) protection; Turbine governor @ Fit for remote control.	2014
Simplício (EBoP) 3 x 100 MW	NEW	Brazil	FURNAS	MV switchgear; LVAC switchgear; LVDC switchgear/UPS	2014
Skedvi kraftstation 2 x 25 MW	REF	Sweden	Fortum Generation AB	Excitation; MV switchgear; Auxiliary transformer; LVAC switchgear; LVDC switchgear/UPS; Unit control; Plant control/scada; Electrical (mech.) protection; Turbine governor @ Fit for remote control.	2014
Skjeggedal 2 x 2,6 MW	REF	Norway	Statkraft	MV switchgear; LVAC switchgear; LVDC switchgear/UPS; Unit control; Plant control/scada; Electrical (mech.) protection	2014

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Skjomen kraftstasjon 3 x 120 MW	REF	Norway	Statkraft AS	LVAC switchgear; LVDC switchgear/UPS; Unit control; Plant control/scada; Electrical (mech.) protection @ Fir for remote control.	2014
Sogamoso 3 x 279 MW	REF	Colombia	ISAGEN S.A. E.S.P.	Unit control; Plant control/scada; Electrical (mech.) protection	2014
Soverzene 1 x 5 MW	NEW	Italy	Enel Green Power	MV switchgear; LVAC switchgear; LVDC switchgear/UPS; Unit control; Plant control/scada; Electrical (mech.) protection	2014
Urstein 2 x 11 MW	REF	Austria	Salzburg AG	LVAC switchgear; Unit control; Plant control/scada; Turbine governor @ includes also: synchronization and mechanical protection	2014
Alpignano 2 x 1 MW	REF	Italy	Enel GreenPower	Unit control; Plant control/scada; Electrical (mech.) protection	2013
Anta 2 x 14 MW	NEW	Brazil	FURNAS	MV switchgear; LVAC switchgear; LVDC switchgear/UPS	2013
Baba 2 x 23,4 MW	NEW	Ecuador	Hidroliteral	LVAC switchgear; LVDC switchgear/UPS	2013
Ban Chat 2 x 110 MW	NEW	Viet Nam	EVN	Unit control; Plant control/scada	2013
Bardi 3 x 2 MW	REF	Italy	Enel GreenPower	Unit control; Plant control/scada; Electrical (mech.) protection	2013
Binga 4 x 33 MW	REF	Philippines	SN Aboitiz	MV switchgear; Power transformer; Auxiliary transformer; LVAC switchgear; LVDC switchgear/UPS; Unit control; Plant control/scada; Electrical (mech.) protection	2013
Bullerforsen 2 x 24 MW	REF	Sweden	Fortum	Excitation; Unit control; Plant control/scada	2013
Cheves 2 x 86 MW	NEW	Peru	Empresa de Generacion de Cheves S.A.	Generator; Excitation; Generator busbar/cable; Generator circuit breaker; MV switchgear; Power transformer; HV switchgear GIS; Auxiliary transformer; LVAC switchgear; LVDC switchgear/UPS; Unit control; Plant control/scada; Electrical (mech.) protection; Turbine governor; Turbine; Mech. aux. systems (air/water/oil) @ Executed in consortium for water-to-wire contract	2013

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Domnarvet 2 x 11 MW	REF	Sweden	Fortum Generation AB	Excitation; Unit control; Plant control/scada @ Operator Stations	2013
Flix 4 x 10,63 MW	REF	Spain	Endesa	Excitation	2013
Forsanvatn 2 x 5 MW	REF	Norway	Nord-Salten Kraft AS	MV switchgear; LVAC switchgear; LVDC switchgear/UPS; Unit control; Plant control/scada; Electrical (mech.) protection @ Complete refurbishment of EBoP and automation system, includes also 66 kV substation, fit for remote control.	2013
Forshuvud 4 x 8 MW	REF	Sweden	Fortum	Excitation; Unit control; Plant control/scada	2013
Gabriel & Galán (PS) 1 x 120 MW	REF	Spain	Iberdrola	Excitation; Converter (starter/varspeed) @ Turnkey project with SFC delivery and modification of the excitation system.	2013
Gressoney 2 x 15 MW	REF	Italy	CVA	Unit control; Plant control/scada	2013
Grundfors 2 x 45 MW	REF	Sweden	Vattenfall Vattenkraft AB	Unit control; Plant control/scada	2013
Guodian Jilintai TSS	NEW	China	Guodian Jilintai Hydropower Generation Ltd.	Training simulation system (TSS) for hydroelectric power plants.	2013
GVWD Capilano 1 x 1,7 MW	NEW	Canada	Greater Vancouver Regional District	Generator busbar/cable; MV switchgear; Power transformer; Auxiliary transformer; LVAC switchgear; Unit control; Plant control/scada; Electrical (mech.) protection; Turbine governor @ Executed as partner in an EPC contract.	2013
Hällby 1 x 84 MW	REF	Sweden	E.on	Generator busbar/cable; Unit control; Plant control/scada; Electrical (mech.) protection; Turbine governor	2013
Hiirikosken vesivoimalaitos 2 x 0,3 MW	REF	Finland	Hiirikosken Voima Oy	Excitation; LVAC switchgear; LVDC switchgear/UPS; Unit control; Plant control/scada; Electrical (mech.) protection; Turbine governor	2013
Hinterthal-Muota 1 x 8,5 MW	REF	Switzerland	EW des Bezirks Schwyz	Generator service @ (stator and pole refurbishment)	2013
Hoting kraftverk 1 x 13 MW	REF	Sweden	Statkraft Sverige AB	Excitation; Generator circuit breaker; MV switchgear; LVAC switchgear; LVDC switchgear/UPS; Unit control; Plant control/scada; Electrical (mech.) protection; Turbine governor	2013

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Imatran vesivoimalaitos 7 x 25 MW	REF	Finland	Fortum Oy	MV switchgear	2013
Inga II.3	REF	Congo	SNEL	Excitation; Unit control; Electrical (mech.) protection @ For unit #3	2013
Isolata Spluga 2 x 40 MW	REF	Italy	Edipower	Unit control; Plant control/scada; Turbine governor @ Includes also overhaul of governor hydraulic system.	2013
Itatinga 4 x 15 MW	REF	Brazil	Companhia Docas do Estado de São Paulo	Excitation; Generator circuit breaker; MV switchgear; HV switchgear AIS; Auxiliary transformer; LVAC switchgear; LVDC switchgear/UPS; Unit control; Plant control/scada; Electrical (mech.) protection; Turbine governor @ Includes also synchronization.	2013
Kariba South Bank 6 x 120 MW	REF	Zimbabwe	ZESA	Unit control; Plant control/scada @ Includes also new video-wall system.	2013
Kleinarl 2 x 0,92 MW	NEW	Austria	Energie AG	Auxiliary transformer; LVAC switchgear; LVDC switchgear/UPS; Unit control; Plant control/scada	2013
Klingerforsen 1 x 6 MW	REF	Sweden	Statkraft	Unit control	2013
Kops 1 3 x 85 MW	REF	Austria	Vorarlberger Illwerke AG	LVAC switchgear; LVDC switchgear/UPS	2013
Kvarnsveden 2 x 32 MW	REF	Sweden	Fortum	Excitation; Unit control; Plant control/scada	2013
Larreynaga 1 x 10 MW		Guatemala	Proinelca Power	Unit control; Plant control/scada	2013
Lehen 2 x 7 MW	NEW	Austria	Salzburg AG	Auxiliary transformer; LVAC switchgear; LVDC switchgear/UPS; Unit control; Plant control/scada	2013
Machu Picchu Phase II 2 x 100 MW	NEW	Peru	EGEMSA	Generator busbar/cable; Generator circuit breaker; MV switchgear; Power transformer; Auxiliary transformer; LVAC switchgear; LVDC switchgear/UPS; Unit control; Plant control/scada; Electrical (mech.) protection @ Addition of one 100 MW Francis turbine and generator set.	2013
Mel 1 x 52 MW	REF	Norway	SFE Produksjon AS	LVAC switchgear; LVDC switchgear/UPS; Unit control; Plant control/scada; Electrical (mech.) protection	2013

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Mujica 1 x 4 MW	NEW	Mexico	Comision Nacional del Agua	Generator; Excitation; Generator busbar/cable; MV switchgear; Power transformer; HV switchgear AIS; Auxiliary transformer; LVAC switchgear; LVDC switchgear/UPS; Unit control; Plant control/scada; Electrical (mech.) protection; Turbine governor; Turbine; Mech. aux. systems (air/water/oil) @ Executed in consortium with Yunhe (P.R.China) for water-to-wire contract.	2013
Norränge 2 x 25 MW	REF	Sweden	Fortum	Plant control/scada	2013
Pahkakoski 2 x 17 MW	REF	Finland	PVO- Vesivoima Oy	Excitation; MV switchgear; Auxiliary transformer; LVAC switchgear; LVDC switchgear/UPS; Unit control; Plant control/scada; Electrical (mech.) protection; Turbine governor @ Fit for remote control.	2013
Palmiet (PS) 2 x 200 MW	REF	South Africa	ESKOM	Excitation; MV switchgear; Auxiliary transformer; LVAC switchgear; LVDC switchgear/UPS; Electrical (mech.) protection @ Includes also cables and interfacing with existing plant control system.	2013
Palomino (PS) 2 x 47 MW	REF	Dominican Republic	Empresa de Generación Hidroeléctrica Dominicana, EGEHID	Excitation; Generator busbar/cable; Generator circuit breaker; MV switchgear; Power transformer; HV switchgear AIS; Auxiliary transformer; LVAC switchgear; LVDC switchgear/UPS; Electrical (mech.) protection; Crane/Lift/Elevator @ Includes also telecommunication system.	2013
S. Pellegrino 1 x 16 MW	REF	Italy	Enel GreenPower	Unit control; Plant control/scada; Electrical (mech.) protection	2013
Stalden 2 x 92,5 MW	REF	Switzerland	Kraftwerke Mattmark AG	Generator service @ Includes: life-time calculation, new stator, new shafts, new brushless exciter (UNICITER), new pole winding, general overhaul and increase in efficiency.	2013
Stennäs 1 x 7 MW	REF	Sweden	Statkraft	Unit control	2013
Stornorrforssen 5 x 120 MW	REF	Sweden	Vattenfall	Unit control; Plant control/scada	2013
Tåsjö 1 x 13 MW	REF	Sweden	Statkraft	Excitation; Generator circuit breaker; MV switchgear; LVAC switchgear; LVDC switchgear/UPS; Unit control; Plant control/scada; Electrical (mech.) protection; Turbine governor	2013

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Tekapo A 1 x 25 MW	REF	New Zealand	Genesis Energy	Turbine governor	2013
Tianhuangping (PS) 6 x 300 MW	REF	China	Tianhuangping PSP Generation Co. Ltd	Unit control; Plant control/scada	2013
Tinfos 2 x 27 MW	REF	Norway	Tinfos AS	Unit control; Plant control/scada @ New HMI	2013
Traponzo 1 x 1 MW	REF	Italy	Enel GreenPower	Unit control; Plant control/scada; Electrical (mech.) protection	2013
Turkwel 2 x 57,5 MW	REF	Kenya	KenGen	Excitation; Turbine governor	2013
Various HPPs	REF	Italy	Enel Green Power	Plant control/scada @ Delivery of load programmer	2013
Vianden (PS) 1 x 200 MW	NEW	Luxembourg	SEO	Unit control; Plant control/scada @ Control for new unit control, extension/upgrade of existing control/SCADA system.	2013
Voikka 2 x 12 MW	REF	Finland	UPM-Kymmene Oyj	Excitation; MV switchgear; Auxiliary transformer; LVAC switchgear; LVDC switchgear/UPS; Unit control; Plant control/scada; Electrical (mech.) protection; Turbine governor @ Fit for remote control.	2013
Wendefurth (PS) 2 x 40 MW	REF	Germany	Vattenfall Europe	LVAC switchgear; Unit control	2013
Yilihe Cascade Hydro Project (Plant 1) 4 x 60 MW	NEW	China	Guodian Nanjing Automation System Co. Ltd.	Unit control; Plant control/scada @ (2 dispatch control centers)	2013
Yilihe Cascade Hydro Project (Plant 2) 80 MW	NEW	China	Guodian Nanjing Automation System Co. Ltd.	Unit control; Plant control/scada @ Units: 2 x 30 + 2 x 10 MW	2013
Yilihe Cascade Hydro Project (Plant 3) 80 MW	NEW	China	Guodian Nanjing Automation System Co. Ltd.	Unit control; Plant control/scada @ Units: 2 x 30 + 2 x 10 MW	2013
A-Hai 5 x 400 MW	NEW	China	Yunnan Jinshajiang Hydro Development Ltd.	Unit control; Plant control/scada @ Includes also training simulation system (TSS).	2012
Alfta kraftstation 2 x 16 MW	REF	Sweden	Fortum Generation AB	Excitation; Unit control; Plant control/scada @ New HMI	2012

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Anjalankoski 1 x 20 MW		Finland	Kemijoki Oy	Excitation; Electrical (mech.) protection	2012
Büyükdüz 2 x 35 MW	NEW	Turkey	Ayen Energy A.S.	Generator busbar/cable; Generator circuit breaker; MV switchgear; Power transformer; HV switchgear AIS; Auxiliary transformer; LVAC switchgear; LVDC switchgear/UPS; Unit control; Plant control/scada; Electrical (mech.) protection	2012
Byrte kraftverk 1 x 23 MW	REF	Norway	Statkraft Energi AS	Generator busbar/cable; MV switchgear; LVAC switchgear; LVDC switchgear/UPS; Unit control; Plant control/scada; Electrical (mech.) protection	2012
Castelviero 2 x 2,6 MW	REF	Italy	Enel Greenpower	Unit control; Plant control/scada	2012
Charmey 3 x 1,5 MW	REF	Switzerland	Gruyère Energie Ltd	Unit control	2012
Corra Linn 2 x 24,5 MW	REF	Canada	FortisBC Generation	Excitation; Generator circuit breaker; Power transformer @ Unit 2 life extension program.	2012
Degerforsen 2 x 32 MW	REF	Sweden	E.on	Excitation; Generator circuit breaker; MV switchgear; Auxiliary transformer; LVAC switchgear; LVDC switchgear/UPS; Unit control; Plant control/scada; Electrical (mech.) protection; Turbine governor	2012
Endesa Contrato de Mantenimiento Base DCS ABB (several HPPs)		Chile	Endesa	Service contract @ Includes: remote preventive, evaluative and corrective maintenance, 24/360 hotline service, specialist sites availability and administration.	2012
Endesa Proyecto CEN-CEZ phase II (several HPPs)		Chile	Endesa	Plant control/scada @ Comprises: Tele-command of several HPPs from Santiago (national exploration center), supply of HW and SW of communication interfaces for data transfers and configuration of operation displays.	2012
Fionnay 6 x 48 MW	REF	Switzerland	Grande Dixence SA	Generator service @ Re-insulation of rotor poles of generator n°5.	2012
França 2 x 16 MW		Brazil	Votorantim Energia	MV switchgear; Auxiliary transformer; LVAC switchgear; LVDC switchgear/UPS; Unit control; Plant control/scada; Electrical (mech.) protection @ Includes also: voltage and speed regulator.	2012
GIBE III 10 x 180 MW	NEW	Ethiopia	EEPCo	Unit control; Plant control/scada	2012

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Glomfjord kraftverk 1 x 20 MW	REF	Norway	Statkraft Energi AS	Unit control; Plant control/scada @ Fit for remote control.	2012
Göschenen 4 x 40 MW	REF	Switzerland	Kraftwerke Göschenen Ltd	Generator service @ Includes: overhaul of vertical generator N°4 with full disassembly and reassembly and commissioning.	2012
Grimsel 2 (PS) 4 x 87 MW	REF	Switzerland	Kraftwerke Oberhasli AG	Converter (starter/variable speed) @ Comprises installation of an 80 MVA full static frequency converter for variable speed operation.	2012
Herva kraftverk 1 x 33 MW	REF	Norway	Norsk Hydro Produksjon AS	Plant control/scada @ New HMI	2012
Hölleforsen 2 x 50 MW	REF	Sweden	Vattenfall	Unit control; Plant control/scada	2012
Holsbru kraftverk 55 MW	REF	Norway	Norsk Hydro AS	HV switchgear GIS; Plant control/scada @ Units: 1 x 33 + 1 x 20 MW; upgrade for grid connection.	2012
Hua Na 2 x 90 MW	NEW	Viet Nam	EVN	Unit control; Plant control/scada; Electrical (mech.) protection	2012
Inga I 6 x 60 MW	REF	Congo	SNEL	Auxiliary transformer; LVAC switchgear	2012
Inga II 8 x 180 MW	REF	Congo	SNEL	Auxiliary transformer; LVAC switchgear	2012
Kühltai (PS) 2 x 145 MW	REF	Austria	TIWAG	Excitation	2012
Kyröskoski 1 x 12 MW	NEW	Finland	Vakka-Suomen Voima Oy	MV switchgear; Auxiliary transformer; LVAC switchgear; LVDC switchgear/UPS; Unit control; Plant control/scada; Turbine governor	2012
La Muela 3 x 200 MW	NEW	Spain	Iberdrola	Excitation	2012
Laforsen kraftstation 57 MW	REF	Sweden	Fortum Generation AB	Excitation	2012
Laja 2 x 17,7 MW	NEW	Chile	UREC	Unit control; Plant control/scada; Electrical (mech.) protection	2012
Las Palmas 3 x 20 MW		Spain	UECG	Excitation; Electrical (mech.) protection	2012
Lottefors kraftstation 5 x 3 MW	REF	Sweden	Fortum Generation AB	Plant control/scada; Turbine governor @ New HMI system.	2012

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Mael kraftverk 1 x 45 MW	REF	Norway	Norsk Hydro Produksjon AS	Auxiliary transformer; LVAC switchgear; LVDC switchgear/UPS; Unit control; Plant control/scada; Electrical (mech.) protection	2012
Möllpumpwerk (PS) 2 x 13,4 MW	REF	Austria	Verbund AHP	Auxiliary transformer; LVAC switchgear; LVDC switchgear/UPS; Unit control; Plant control/scada	2012
Moralets 1 x 70 MW	NEW	Spain	Endesa	Excitation	2012
Mörsil kraftstation 40 MW	REF	Sweden	Fortum Generation AB	Excitation	2012
Murum 4 x 236 MW	NEW	Malaysia	TGDC	Excitation; LVDC switchgear/UPS; Unit control; Plant control/scada; Electrical (mech.) protection @ Includes also 220 kV SY protection.	2012
Myllykoski 1 x 29 MW		Finland	Pato Oy	MV switchgear; LVAC switchgear; LVDC switchgear/UPS; Unit control; Plant control/scada; Electrical (mech.) protection	2012
Nus 1 x 7 MW	REF	Italy	CVA	Unit control; Plant control/scada; Electrical (mech.) protection	2012
Obermatt 2 x 11,8 MW	REF	Switzerland	EWL Kraftwerke AG	Unit control @ Includes for units 3 and 4: new unit control system, integration of existing generator systems (EXC, SYN, PROT) and turbine controller, water level measurement system in the existing plant control system, communication system.	2012
Oksava 1 x 3 MW	REF	Finland	Vattenfall Sähköntuotanto Oy	Excitation; MV switchgear; Unit control; Plant control/scada; Electrical (mech.) protection; Turbine governor @ Fit for remote control.	2012
Pengfors 3 x 17,5 MW	REF	Sweden	E.ON Vattenkraft Sverige AB	Unit control; Plant control/scada @ Fit for remote control.	2012
Pieve di Cadore 4 x 60 MW	REF	Italy	Enel	MV switchgear; LVAC switchgear	2012
Porjus 2 x 240 MW	REF	Sweden	Vattenfall	Plant control/scada @ New HMI	2012
Rucatayo 53 MW		Chile	Transat S.A. (Energomasheexport)	Unit control; Plant control/scada	2012

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Services for ICCP and SCADA	REF	Peru	Duke Energy Egenor	Plant control/scada @ Scope: upgrade of 800xA license in Cañon del Pato HPP, implementation of multisystem integration in Cañon del pato HPP, Carhuaquero HPP and Lima Control Center, implementation of an ICCP system for transmission of data in real time to COES (National Operator Grid) in the following sites: Cañon del Pato HPP, Carhuaquero HPP, Piura DPP, Chiclayo DPP, Chimbote DPP, Las Flores GPP, Huallanca substation, Chimbote 1 substation and Lima control center.	2012
Several SHPs 32 MW	REF	Romania	Wienstrom	MV switchgear; Power transformer; Auxiliary transformer; LVAC switchgear; LVDC switchgear/UPS; Unit control; Plant control/scada; Electrical (mech.) protection; Turbine governor	2012
Sils 4 x 61,2 MW	REF	Switzerland	Kraftwerke Hinterrhein AG	MV switchgear; HV switchgear AIS; Auxiliary transformer; LVAC switchgear; LVDC switchgear/UPS; Unit control; Plant control/scada; Electrical (mech.) protection	2012
Siplo (PS)		Norway	Statkraft AS	MV switchgear; Unit control @ For pump/gen unit.	2012
Svarthålsforsens kraftstation 80 MW	REF	Sweden	Fortum Generation AB	Excitation; MV switchgear	2012
Teglia 30,5 MW	REF	Italy	Edison	Turbine governor @ Units: Teglia I = 2 x 12 MW, Teglia II = 1 x 6.5 MW	2012
Ternoves 1 MW	NEW	Albania	Wienstrom	Power transformer; HV switchgear AIS; Auxiliary transformer; LVAC switchgear; LVDC switchgear/UPS; Unit control; Plant control/scada; Electrical (mech.) protection	2012
Villarino 6 x 20 MW		Spain	Iberdrola	Excitation; Electrical (mech.) protection	2012
Akkats kraftverk 2 x 40 MW	REF	Sweden	Vattenfall AB	Generator circuit breaker; MV switchgear	2011
Älglund kraftverk 1 x 6,5 MW	REF	Sweden	Skellefteå Kraft Elnät AB	Unit control; Plant control/scada @ New HMI	2011

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Bonyic 3 x 10 MW	NEW	Panama	Hidroecológica del Teribe	Generator; Excitation; Generator busbar/cable; MV switchgear; Power transformer; HV switchgear AIS; Auxiliary transformer; LVAC switchgear; LVDC switchgear/UPS; Unit control; Plant control/scada; Electrical (mech.) protection; Turbine governor; Turbine; Mech. aux. systems (air/water/oil)	2011
Champagne 3 x 15 MW	REF	Italy	Water Gen Power	Generator busbar/cable; MV switchgear; Power transformer; Auxiliary transformer; LVAC switchgear; LVDC switchgear/UPS; Unit control; Plant control/scada; Electrical (mech.) protection @ Complete refurbishment for Green Certificate.	2011
Engeweiher (PS) 1 x 5 MW	REF	Switzerland	Städtische Werke Schaffhausen	Generator service @ Scope: Optimization of pole connectors of 1 motor/generator	2011
Feldsee II (PS) 1 x 70 MW	NEW	Austria	Kelag	Auxiliary transformer; LVAC switchgear; LVDC switchgear/UPS; Unit control; Plant control/scada; Electrical (mech.) protection	2011
Fjone kraftverk 1 x 50 MW	REF	Norway	Skagerak Energi	Plant control/scada @ New HMI	2011
G.M. Shrum 2870 MW	REF	Canada	BC Hydro	MV switchgear; Auxiliary transformer; LVAC switchgear; LVDC switchgear/UPS @ Units: 10 x 260...300 MW.	2011
Huheho (PS) 4 x 300 MW	NEW	China	Inner Mongolia Electricity Corp.	Unit control; Plant control/scada	2011
Jaguas 2 x 96 MW		Colombia	ISAGEN S.A. E.S.P.	Generator circuit breaker; Electrical (mech.) protection @ GCB ratings: 13.8 kV, 5000 A, 50 KA.	2011
Jaldhaka 4 x 9 MW	REF	India	WBPDC	MV switchgear; Power transformer; HV switchgear AIS; Auxiliary transformer; LVAC switchgear; LVDC switchgear/UPS	2011
Juktan kraftverk 1 x 26 MW	REF	Sweden	Vattenfall AB	Unit control; Plant control/scada	2011
Kaggefoss kraftstasjon 4 x 22 MW	REF	Norway	EB Kraftproduksjon AS	Unit control; Plant control/scada @ Upgrade	2011
Kinso (2) 1 x 0,7 MW	REF	Norway	Indre Hardanger kraftlag	Unit control @ New PLC.	2011
Koralpe (PS) 1 x 40 MW		Austria	Kelag	Auxiliary transformer; LVAC switchgear; LVDC switchgear/UPS; Unit control; Plant control/scada	2011

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Laforsen kraftstation 57 MW	REF	Sweden	Fortum Generation AB	Plant control/scada @ New HMI system.	2011
Langhag kraftstation 2 x 25 MW	REF	Sweden	Fortum Generation AB	Unit control; Plant control/scada	2011
Lesotho 3 x 16 MW		Lesotho	Lesotho Highlands Development Association (LDHA)	Unit control; Plant control/scada @ Upgrade of existing system.	2011
Limberg II (PS) 2 x 240 MW	NEW	Austria	Verbund AHP	Auxiliary transformer; LVAC switchgear; LVDC switchgear/UPS; Unit control; Plant control/scada	2011
Little Long 2 x 102 MW	REF	Canada	OPGI	Auxiliary transformer; Mech. aux. systems (air/water/oil) @ Includes: power & FO cables; gate and gain heat controls; heaters, compressors and bubbler systems for gates; sluice gate control in 5 electrical houses, mounted on individual platforms installed on spillway piers.	2011
Loforsen kraftverk 1 x 5,4 MW	REF	Sweden	Västerbergslagens Kraft AB	Plant control/scada @ New HMI system.	2011
Maalismaa 2 x 22 MW	REF	Finland	PVO-Vesivoima Oy	Excitation; MV switchgear; Auxiliary transformer; LVAC switchgear; LVDC switchgear/UPS; Unit control; Plant control/scada; Electrical (mech.) protection; Turbine governor @ Fit for remote control.	2011
Mayo B 2 x 5 MW	REF	Canada	Yukon Energy Corporation	Generator; Excitation; Turbine governor; Turbine; Mech. aux. systems (air/water/oil)	2011
Mockfjärd kraftstation 2 x 22 MW	REF	Sweden	Fortum Generation AB	Unit control; Plant control/scada	2011
Oflek 2 x 1,2 MW	NEW	Austria	Energie AG	Auxiliary transformer; LVAC switchgear; LVDC switchgear/UPS; Unit control; Plant control/scada; Turbine governor	2011
Porce III 4 x 220 MW	NEW	Colombia	EEPPM	Excitation; Generator busbar/cable; Generator circuit breaker; Unit control; vibration, air gap and partial discharge monitoring	2011
Porsi 3 x 92 MW	NEW	Sweden	Vattenfall	Plant control/scada @ New HMI	2011
Poschiavino 2 x 5 MW	REF	Italy	Enel Produzione	Unit control; Plant control/scada; Electrical (mech.) protection	2011

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Ranganadi 3 x 150 MW	REF	India	NEEPCO	Auxiliary transformer; LVAC switchgear; Unit control; Plant control/scada	2011
Rekvatn kraftstasjon 1 x 2,5 MW	REF	Norway	Nord-Salten Kraft AS	MV switchgear; Auxiliary transformer; LVAC switchgear; LVDC switchgear/UPS; Unit control; Plant control/scada; Electrical (mech.) protection @ Fit for remote control.	2011
Rodund II 1 x 295 MW	REF	Austria	Vorarlberger Illwerke AG	Generator circuit breaker; Unit control @ For repaired unit.	2011
Rusfors kraftverk 1 x 184 MW	REF	Sweden	Vattenfall AB	Plant control/scada @ New HMI system.	2011
Salto do Rio Verde 2 x 59 MW		Brazil	Triunfo Construtora	Unit control; Plant control/scada; Electrical (mech.) protection; Communication system	2011
Salto do Rio Verdinho 2 x 48 MW		Brazil	Triunfo Construtora	Unit control; Plant control/scada; Electrical (mech.) protection	2011
Simplício (SY Extension) 3 x 100 MW	NEW	Brazil	FURNAS	Power transformer; HV switchgear AIS @ 2 additional 138 kV bays	2011
Sollefteå kraftstation 3 x 62 MW	REF	Sweden	E.on	Excitation; Unit control; Plant control/scada @ Includes also Diesel genset.	2011
Song Pan 2	NEW	Viet Nam	Song Da Corp.	Unit control; Plant control/scada; Electrical (mech.) protection; 110kV circuit breakers	2011
Sparone 1 x 2 MW	REF	Italy	Enel GreenPower	Unit control; Plant control/scada; Electrical (mech.) protection	2011
Tehri	REF	India	Tehri Hydro Development Corp.	Auxiliary transformer; LVAC switchgear; Unit control; Plant control/scada	2011
Torrent 2 x 11 MW	NEW	Italy	CVA	Unit control; Plant control/scada	2011
Traun Pucking 2 x 22,9 MW	REF	Austria	Energie AG	Unit control; Plant control/scada; Turbine governor	2011
Ulefoss kraftverk 1 x 6 MW	REF	Norway	Cappelen holding	LVAC switchgear; LVDC switchgear/UPS; Unit control; Plant control/scada; Electrical (mech.) protection @ Fir for remote control.	2011
Ustekveikja 36,5 MW	REF	Norway	Ustekveikja kraftverk	Unit control @ Units: 1 x 33 + 1 x 3.5 MW, fit for remote control.	2011

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Volzskaya	REF	Russian Federation	OA O RusHydro	Design of 220 kV substation control and automation system	2011