



CURRICULUM VITAE

Anders Åsberg

Date of Birth 1963 **Nationality** Swedish
Name of Firm a-kvadrat konsult AB
Profession Senior Electrical Engineer, M.Sc./ One man company owner.

Key Qualifications

Mr. Åsberg key qualifications are in the fields of electrical power system and power station engineering and commissioning.

In particular commissioning of large synchronous and asynchronous machines in different applications, commissioning of substations and setting calculations of relay protections for generators/motors, transformers, busbars and lines on all voltage levels.

Conducting and development of training courses in the field of electrical power engineering and in particular for relay protections.

Languages:	Swedish, English, Norwegian, Spanish, German
Offshore:	Certified for working offshore on the Norwegian side of the NorthSea, valid until 2020-08. Medical for offshore valid until 2019-09.
Electrical Safety Courses/HLR:	ESA 14 course valid until 2021-04-12 SSG-Entre course valid until 2022-07-10 ELSA for ABB valid until 2020-01-23 HLR course in 2020-02-04 BAS-U course in 2020-02-06/07
ID06:	ID06 2.0 valid until 2024-02-05

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Date:	Latest Training Courses and Education:
2020-03	Training course for ABB switchsync unit PWC600 at ABB in Ludvika, Sweden.
2019-12	Introduction course to Siemens Siprotec5 and DIGSI 5 in Nurnberg, Germany.
2019-06	Introduction course to Omicron CMC356 in Nyköping, Sweden
2018-09	Neutralpoints and groundfault in highimpedance grounded networks at STF in Stockholm, Sweden.
2016-03	Introduction course to local area network at STF in Stockholm, Sweden
2016-02	IEC 61850 training course at ABB Automation Products in Västerås, Sweden.
2014-11	TCP/IP General and introduction to IP at STF in Stockholm, Sweden.
2014-01	Turbogeneratorm, function, design and maintenance at STF in Stockholm, Sweden.
2013-05	WP, SJA and ARIS training course for being able to go offshore on Statoil installations in the Northsea.
2013-05	Synchrotacht5 commissioning training course at ABB Power electronics and MV drives in Turgi, Switzerland.
2013-03	Unitrol 1020 commissioning training course at ABB Power electronics and MV drives in Turgi, Switzerland.
2013-01	Participated in the ABB Relays 500club meeting I Copenhagen.
1992-96	Diploma of Master of Science in Electrical Engineering at Chalmers University of Technology in Göteborg, Sweden. The diploma has main focus on electrical power engineering, electrical drives and controls. It also includes a variety of courses concerning mechanical engineering and acoustic engineering like thermodynamics, turbo machinery, gas turbine technology, acoustic measurement technique and signal processing.
1988-90	University Certificate in Electrical Power System Engineering at the University College of Eskilstuna/Västerås in Sweden.

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1978-82	Electrical power engineering at High school
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Date:	Employment record:
2003-11 -	a-kvadrat konsult AB, Senior Electrical Engineer
2002-11 – 2003-11	a-kvadrat konsult/Anders Åsberg in Kungshamn, Sweden a one man company, Senior Electrical Engineer
2002-04 – 2002-11	SWECO Energuide AB in Göteborg, Sweden, Senior Electrical Engineer
2001 – 2002	GVA-Consultants in Göteborg, Sweden, Discipline Lead engineer Electrical & Instrument
1997 – 2001	ABB Network Partner/ ABB Automation Products in Västerås, Sweden, Commissioning engineer and Application specialist for relay protections. Development and performance of training courses.
1990 during the summer	Nordia Shipping in Stockholm, Sweden electrical-machinist onboard MT Argo Artemis a 144000dwt crude oil tanker in ocean traffic.
1989 during the summer	ABB Power Systems in Ludvika, Sweden, Participation in commissioning of a HVDC plant in Sandy pond USA.
1986-1987	Sotenäs community electrical utility company in Sweden, Ordinary linesman on a 0.4kV – 10kV grid.
1986	Gorthon Lines in Helsingborg, Sweden, 1 st electrician onboard MV Ingrid Gorthon a 14000dwt cargo vessel in ocean traffic.
1983-1986	ASEA Distribution in Västerås, Sweden. Engineering of transformer stations 10-130kV including switchgear layouts, engineering of switchgear and switchgear apparatuses. Control system engineering including auxiliary DC-power system and relay protective schemes. Procurement, construction and installation document development.

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Date:	Experience Record, showing Positions held, Tasks, Location of Assignments etc during 2020 (a-kvadrat konsult):
2020-11/12	Electrical design work for a replacement of relay protections REG670 and RET670 at Jimenoa hydropower station in Dominican Republic for ABB substations in Västerås Sweden.
2020-02 – 2020-11	Commissioning lead for SVK 400kV Trolltjärn project for Siemens in Västerås Sweden.
2020-01/02	Test lead engineer for PreFAT, FAT at Aedilis in Lithuania for SVK 400kV Trolltjärn project for Siemens in Västerås Sweden.
2020-01	Developing and conducting a relay protection training course in Gothenburg for Teknologiskt Institute in Gothenburg, Sweden

Date:	Experience Record, showing Positions held, Tasks, Location of Assignments etc during 2019 (a-kvadrat konsult):
2019-11	Commissioning of a new MotorControlPanel with AC500/AC500S plc and CP650 hmi, for a synchronous machine at Skoghall paper mill I Sweden, for ABB Machines in Västerås Sweden.
2019-08	Preparing a selectivity plan for a Hemsjö hydropower station for Uniper (Sykraft hydropower) in Sweden.
2019-08 – 2019-12	Test lead engineer for PreFAT and FAT at Aedilis in Lithuania for SVK 400kV Trolltjärn project for Siemens in Västerås Sweden.
2019-06 – 2019-10	Test lead engineer for PreFAT and FAT at Aedilis in Lithuania for SVK 400kV Hedenlunda project for Siemens in Västerås Sweden.
2019-06	Testing of relay protections type Deif Delomatic3 for KG2 gas turbine generators from Dresser-Rand in Norway at Haukeland hospital in Bergen.

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2019-05	Testing of relay protections type Deif GPU for KG2 gas turbine generators from Dresser-Rand in Norway at NETS in Oslo, Norway.
2019-05	Participating in commissioning and testing of relay protections type VAMP for KG2 gas turbine generators in Tunisia for Dresser-Rand in Norway.
2019-04/05	Electrical design work for a replacement of relay protections REG670 and RET670 at Valdesia hydropower station in Dominican Republic for ABB substations in Västerås Sweden.
2019-02/03/04/05	Relay protection testing and giving training at Ale El in Alafors Gothenburg.
2019-01/02	Commissioning of generator REG670, REG650 and transformer protections RET670 and line protection REL670 synchronizer GPU at Rio Blanco hydropower station in Dominican Republic for ABB Substations in Västerås Sweden.

Date:	Experience Record, showing Positions held, Tasks, Location of Assignments etc during 2018 (a-kvadrat konsult):
2018-10/11/12	Electrical design work for a replacement of relay protections REG670,REG650,RET670,REL670 and GPU at Rioblanco hydropower station in Dominican Republic for ABB substations in Västerås Sweden.
2018-11	Giving a presentation for synchronous machines, motor control panel, excitation system and protection at Sabic in Saudi Arabia, for ABB Machines in Västerås Sweden.
2018-10	Developing and conducting a relay protection training course in Gotheburg for Teknologiskt Institute in Gotheburg, Sweden
2018-10	FAT of a new MotorControlPanel with AC500/AC500S plc and CP650 hmi, for a synchronous machine at ABB Finland in Helsinki, for ABB Machines in Västerås Sweden.

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2018-10	Commissioning of a new MotorControlPanel with AC500/AC500S plc and CP650 hmi, for a synchronous machine at Basell Moncia chemical plant in Poland, for ABB Machines in Västerås Sweden.
2018-09	Commissioning of relay protection REF615 at Torsås 20/10kV substation for VSN in Sweden.
2018-09	Testing of relay protections type Deif GPU for KG2 gas turbine generators from Dresser-Rand in Norway at NETS in Oslo, Norway.
2018-09	Testing of relay protections type Deif Delomatic3 for KG2 gas turbine generators from Dresser-Rand in Norway at Haukeland hospital in Bergen.
2018-08	Preparing a selectivity plan for a Östanå hydropower station for Uniper (Sykrfat hydropower) in Sweden.
2018-05/06	Commissioning of generator REG670 and transformer protections RET670 and synchronizer GPU at Moncion hydropower station in Dominican Republic for ABB Substations in Västerås Sweden.
2018-05/07/08/10/12	Relay protection testing and giving training at Ale El in Alafors Gothenburg.
2018-05	Maintenance testing fault tracing of MotorcontrolPanels for two refiner motors at Estcell in Estonia for ABB Machines in Västerås Sweden.
2018-03/05	Pre commissioning of 4 synchronous generators for Exxon Liza project in Drammen Norway for ABB Machines in Västerås Sweden.
2018-02	Preparing documents regarding relay protection needs and requirements for 4 different types of small hydro power plants for Uniper (Sydkraft Hydropower) in Sweden
2018-01/02	Commissioning of a new MotorControlPanel with AC500/AC500S plc and CP650 hmi, for a synchronous machine at SaidNihayda gas plant in Oman, for ABB Machines in Västerås Sweden.

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Date:	Experience Record, showing Positions held, Tasks, Location of Assignments etc during 2017 (a-kvadrat konsult):
2017-11/12	Commissioning of a new MotorControlPanel with AC500/AC500S plc and CP650 hmi, for a synchronous machine at SaidNihayda gas plant in Oman, for ABB Machines in Västerås Sweden.
2017-10	FAT in Västerås for REG670/RET670 for Moncion hydropowerstation in Dominican Republic for ABB Substation in Sweden.
2017-09	Preparing relay configuration for ABB Automation systems for one substation in Sandviken. Participating in commissioning of REF/REM protections at preemraf in Gotheburg.
2017-09	Testing of relay protections type Deif Delomatic3 for KG2 gas turbine generators from Dresser-Rand in Norway at Haukeland hospital in Bergen.
2017-08	Fault tracing and commissioning of RET650 for 11kV transformers at gantry cranes in the port of Liverpool for ABB Cranse in Västerås Sweden.
2017-08	Replacing reverse power relay protections and fault tracing on generator excitation at LaCaixa in Barcelona for Dresser-Rand in Kongsberg Norway.
2017-07/08	Replacing one REL316 for one REL670 and fault tracing on synchronizer RES010 and reading out information from REL316 and REL511 for Ellevio and ÅF in Ljusdal, Sweden.
2017- 06/07/08/09/ 10/11/12	Preparing documents regarding relay protection needs and requirements for 4 different types of small hydro power plants for Uniper (Sydkraft Hydropower) in Sweden
2017-05	Developing and conducting a relay protection training course in Gotheburg and at Forsmark nuclear plant for Teknologiskt Institute in Gotheburg, Sweden
2017-04/09	Developing configurations for REF615, REM620 and REF620 and commissioning at Preem refinery in Gothenburg Sweden
2017-03/04	Commissioning of a new MotorControlPanel with AC500/AC500S plc and CP650 hmi, for a synchronous machine at CODELCO gaseous cleaning plant in Rancagua, Chile for ABB Machines Sweden.

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2017-03/08/10	Participating in increase of nominal voltage from 20kV to 40kV in HEAB and Vattenfall distribution substation in Råda Sweden. Responsible for implementing parallel operation of transformer voltage regulation by REU615 and parallel operation of neutral voltage compensation equipment EFC.
2017-03	Commissioning of REF615, REM620 and REF620 at Preem refinery in Lysekil for ABB SA systems in Västerås Sweden.
2017-02	Maintenance testing of relay protections for 3 pcs of KG2 gasturbines at LaCaixa in Barcelona for Dresser-Rand in Kongsberg Norway.
2017-01	Assisting Västfastigheter with commissioning in a project for replacing control cabinets for two KG2 emergency gasturbine generators at NÄL hospital in Trollhättan Sweden.

Date:	Experience Record, showing Positions held, Tasks, Location of Assignments etc during 2016 (a-kvadrat konsult):
2016-12	Developing configurations for RET670, REL670 and RED670 with IEC61850 communication for a substation project in Iceland for ABB SA systems in Västerås Sweden.
2016-12	Testing of a Multilin 469 protection for a asynchronous motor at Stena recycling in Halmstad Sweden for BEPC in Sweden.
2016-10/11/12	Assisting Västfastigheter with preparations and FAT in a project for replacing control cabinets for two KG2 emergency gasturbine generators at NÄL hospital in Trollhättan Sweden.
2016-11	Replacing old REL511 distance protections by new REL670 at Ellevio substation in Lindmon, Sweden for ABB SA Systems in Västerås Sweden
2016-10	Replacing old relay protections by a REF615, REM620 and REM615 at Preem refinery in Lysekil, Sweden for ABB SA Systems in Västerås Sweden
2016-09	Developing configuration for REF615 relay protections for a 10kV substation in Sandviken Sweden for ABB SA Systems in Västerås Sweden.
2016-07/09	Service mission to Haukeland hospital in Bergen Norway to trouble shoot an old AC31 plc, for Dresser Rand in Norway, Testing of relay protections type Deif Delomatic3 for KG2 gas turbine generators from Dresser-Rand in Norway at Haukeland hospital in Bergen.

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2016-07/08/09	Developing configurations for RET670, REL670 and RED670 with IEC61850 communication for a substation project in Ethiopia for ABB SA systems in Västerås Sweden.
2016-07	Replacing two old RET521 transformer protection by two new RET670 at Laforssen substation in Sweden for ABB SA Systems in Västerås Sweden
2016-06	Replacing a RAMDE relay protection by a REM615 for an asynchronous motor at Absolute Company in Åhus, Sweden for ABB SA Systems in Västerås Sweden
2016-05	Commissioning of a new MotorControlPanel with AC500/AC500S plc and CP650 hmi, for a synchronous machine at Munksund papermill in Piteå, Sweden for ABB Machines Sweden.
2016-05/10	Developing and conducting a relay protection training course in Stockholm for Teknologiskt Institute in Gotheburg, Sweden
2016-04/05	Commissioning of a new MotorControlPanel with AC500/AC500S plc and CP650 hmi, for a synchronous machine at CODELCO gaseous cleaning plant in Rancagua, Chile for ABB Machines Sweden.
2016-04	Participating in a FAT for Modbus communication between AC500 plc and DCS in Singapore, for ABB Machines in Sweden
2016-02	Commissioning of a synchronous generator at Goliat platform offshore Norway including REG670, Synchrotacht5 and Unitrol 1000 for ABB Machines in Sweden.
2016-01	Developing and conducting a commissioning training course for REG670, Synchrotacht5 and Unitrol1020 for and at ABB Machines in Västerås, Sweden.

Date:	Experience Record, showing Positions held, Tasks, Location of Assignments etc during 2015 (a-kvadrat konsult):
2015-12	Commissioning of a new MotorControlPanel with AC500 plc and CP650 hmi, for a synchronous machine at AGA oxygen plant in Oxelösund, Sweden.
2015-10/11/12	Commissioning of K9 a 130/10kV substation for Göteborg Energi in Backa Gothenburg Sweden, RET521, REV615 and REF615 protection terminals and unigear switchgear 10kV and EFC neutral voltage compensation equipment, for ABB substations in Gothenburg

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2015-09	Testing of relay protections type Deif Delomatic3 for KG2 gas turbine generators from Dresser-Rand in Norway at Haukeland hospital in Bergen.
2015-07	Start up of a synchronous machine at AGA oxygen plant in Stenungsund, Sweden.
2015-05/06/07/08	Commissioning of a 40/10kV substation for Vattenfall in Kungshamn Sweden, RET650, REU615, REF615 and P132 protection terminals and unigear switchgear 10 and 40kV and EFC neutral voltage compensation equipment, for ABB substations in Gothenburg
2015-04	Service mission, supervising the start up of a refurbished synchronous motor at CODELCO gas plant in Ranagua, Chile with an old JA excitation panel. Fault tracing at ENAMI oxygenous plant in Copiapo, Chile, AC31 plc excitation equipment for a synchronous motor. Both missions for ABB Machines in Västerås.
2015-03	Commissioning of a steam turbine driven generator in Esbjerg Denmark. Unitrol-1000 excitation equipment and REG670 protection. For ABB Machines in Västerås Sweden.
2015-02/03	Replacement of synchronizers at Jigüey hydro power plant in the Dominican Rep. AS800 were replaced by DEIF GPU. Replacement of RTXP testswitches and power supplies for IED 670 terminals at Jigüey hydro power plant in the Dominican Rep. for ABB substations in Västerås Sweden.

Date:	Experience Record, showing Positions held, Tasks, Location of Assignments etc during 2014 (a-kvadrat konsult):
2014-06/07/08/09/10/11	Commissioning lead during refurbishment of Hällby 85MW hydropowerstation in Ängermanälven in Sweden. Inroducing new control system ABB 800XA and protection ABB REG670 and RET670 and Siemens 7UT633, event reporting from protection IED's by use of IEC61850 for ABB Power Generation I Västerås Sweden.
2014-09	Testing of relay protections type Deif Delomatic3 for KG2 gas turbine generators from Dresser-Rand in Norway at Haukeland hospital in Bergen.
2014-07	Maintenance at hydro power plants In Dominican Republic, for ABB Substation in Sweden.

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2014-06	Testing of relay protection ERA for railway application for IETV in Ulricehamn, Sweden.
2014-05	Troubleshooting and maintenance testing of REF543 and RET521 protection IED's at SSAB steelmill in Luleå for ABB substation in Ludvika.
2014-05	Troubleshooting of RET543 prtotecion IED's at Ystad Energi substation M1, for ABB Substation I Gothenburg.
2014-03	Assisting during maintenance of one synchronous motor 18MW for refiner drive at CMPC papermill in Maule Chile, with PLC AC800M, operator interface PP220 and SPAM150 relay protection for ABB Motors in Västerås Sweden.
2014-02/04/12	Assisting ABB Finland at their factory with FAT testing of MCP from ABB in Västerås together with motor from Finland. AC500 plc, Pluto safety plc and PP820 HMI.
2014-01/02/03/04	Assisting Dresser-Rand at their test facility in Drammen in testing 30MW gas turbine driven synchronous generators from GE Canada for their Chevron project.
2014-01/02/03/04	Commissioning of a 30MW synchronous generator with Unitrol1000 excitation equipment, REG670 protection and Synchrotact5 synchronizer at Dresser-Rand in Drammen Norway for ABB Machines in Västerås Sweden.

Date:	Experience Record, showing Positions held, Tasks, Location of Assignments etc during 2013 (a-kvadrat konsult):
2013-11/12	Assisting Dresser-Rand at their test facility in Drammen in testing 30MW gas turbine driven synchronous generators from GE Canada for their Chevron project.
2013-09/10/11	Commissioning of a 30MW synchronous generator with Unitrol1000 excitation equipment, REG670 protection and Synchrotact5 synchronizer at Dresser-Rand in Drammen Norway for ABB Machines in Västerås Sweden.
2013-10	Service mission to Borealis petrochemical plant in Stenungsund Sweden to assist in testing of relay protections for synchronous motors, for ABB Substation in Gothenburg, Sweden.
2013-10	Service mission at EON power plant Heleneholmsverket, maintenance testing of ABB synchronizer RES010.

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2013-09	Testing of relay protections type Deif Delomatic3 for KG2 gas turbine generators from Dresser-Rand in Norway at Haukeland hospital in Bergen and NETS in Oslo.
2013-07	Service mission to Piltun –B platform outside Shakalin in Russia, commissioning of one Synchronous generator and Unitrol-F excitation equipment for ABB Machines in Västerås, Sweden.
2013-06/08	Commissioning of generator relay protection at EON Heleneholm power plant in Malmö, Sweden. Replacing ABB REG110 and 150 by REG670, for ABB Substation in Gothenburg. In house test of ABB generator relay protections REG670 for Heleneholm power plant I Malmö Sweden, for ABB Substations in Gothenburg Sweden.
2013-06/07/09	Refurbishment of the emergency power plant at NÄL hospital in Trollhättan Sweden for Västfastigheter AB, replacing combiflex generator protections by REG650 and adding a QPF unit in the excitation equipment.
2013-06	Service mission to Altek Alarko power plant in Kirklareli Turkey for ABB Machines in Västerås Sweden.
2013-06	Conducting a 1week training course for Kaltim5 project in Indonesia for synchronous machines at ABB Machines in Västerås, Sweden.
2013-05	Commissioning of a 35MW, 49kV AMT 1600L synchronous motor offshore on Statoil Troll A platform in the Northsea for ABB Machines in Västerås, Sweden
2013-04	Service mission to Enaex chemical plant in Mejillones Chile to trouble shoot and test REM545 protections for a steam turbine driven generator for ABB Machines in Västerås, Sweden.
2013-03	Service mission to Vattenfall 40/10kV substation Tullboden in Sweden, updating RET543, REF541 protection, for ABB Substation in Västerås
2013-02/03	Conducting a 2week commissioning engineer training course for synchronous machines at ABB Machines in Västerås, Sweden. Technical support and preparation for a commissioning engineer course for synchronous machines at ABB Machines in Västerås, Sweden.
2013-02	Service/ troubleshooting on the emergency power plant at Kvarnbergshemmet in Kungshamn Sweden for Sotenäs community.
2013-02	Commissioning of two 36MW synchronous generators at Dresser-Rand in Drammen Norway for ABB Machines in Västerås Sweden.
2013-02/03	Service mission at Rottneros paper mill in Sweden for ABB Machines in Västerås Sweden.

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2012-12	Service/ troubleshooting on the emergency power plant at NÄL hospital in Trollhättan Sweden for Västfastigheter AB
2012-10	Development work for Megger AB in Sweden.
2012-10	Test of relay protections P132, P435, P632 and KVGC from Areva for Linjemontage I Grästorp AB at Vattenfall substation in Färlev Sweden.
2012-10	Test of relay protections 7SJ80 from Siemens for Holtab AB at a windfarm nearby Hällevadsholm, Sweden.
2012-09	Maintenance testing of relay protections for 3 pcs of KG2 gasturbines at LaCaixa in Barcelona for Dresser-Rand in Kongsberg Norway.
2012-09	Service mission at Rottneros paper mill in Sweden for ABB Machines in Västerås Sweden.
2012-09	Testing of relay protections type Deif Delomatic3 for KG2 gas turbine generators from Dresser-Rand in Norway at Haukeland hospital in Bergen and BBS in Oslo.
2012- 05/06/07/08	Commissioning manager at Heerema yard outside Rotterdam for ABB OWC delivery to the 800MW +- 320kV offshore HVDC station for DoWin Alpha windfarm located 70km outside the German northsea coast.
2012-01/02/03/04	Overall commissioning manager at HSM yard in Rotterdam for ABB OWC offshore substation 150/30kV for Thorton banks 350MW windfarm located 30km outside the Belgian coast.

Date:	Experience Record, showing Positions held, Tasks, Location of Assignments etc during 2011 (a-kvadrat konsult):
2011-11/12	Overall commissioning manager at HSM yard in Rotterdam for ABB OWC offshore substation 150/30kV for Thorton banks 350MW windfarm located 30km outside the Belgian coast.
2011-11	Commissioning of a 30MW synchronous generator with Unitrol1000 excitation equipment, REG670 protection and Synchrotact5

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	synchronizer at Dresser-Rand in Drammen Norway for ABB Machines in Västerås Sweden.
2011-10	Testing of relay protections type Deif Delomatic3 for KG2 gas turbine generators from Dresser-Rand in Norway at Haukeland hospital in Bergen and BBS in Oslo.
2011-10	Relayprotection study for IETV in Ulricehamn, Sweden.
2011-10	Participated in commissioning of relay protections at Rosenlundsverket in Gothenburg for ABB Substations in Västerås, Sweden.
2011-09	Maintenance testing of generator protection REG100, SPAD346 and SPAF 1G50 in Sweden for Kraftringen production AB in Lund Sweden.
2011-08/09	Commissioning of Vattenfall 40/10kV substation Tullboden in Sweden, with RET543, REF541 protection and ABB indoor switchgear on both voltage levels, for ABB Substation in Västerås Sweden.
2011-06/07	Commissioning of 4pcs of synchronous machines with AC31 and Pluto PLC, PP826 HMI, 2pcs 59MW as air compressor drives and 2pcs 39MW as nitrogen compressor drives at Linde gas separation plant in Mirfa Abu Dahbi for ABB Machines in Västerås Sweden.
2011-04/05	Commissioning of a 45MW blower motor with AC31 plc at NLMK in Russia for ABB Machines in Västerås Sweden.
2011-03	Commissioning at Hydro One Kirkland Lake shunt compensation station in Canada for ABB FACTS in Västerås Sweden. Working with relay protection like RET670 from ABB, different types from SEL, T60 from GE multilin and 7UT633 from Siemens.
2011-03	Service mission at Haukeland hospital in Bergen Norway for Dresser Rand in Kongsberg Norway.
2011-02	Service mission at Maule paper mill in Chile for ABB Machines in Västerås Sweden.
2011-02/04/06	Pre-commissioning of Tullboden 40/10kV substation and Rullen 40/10kV mobile substation both jobs in Sweden for ABB Substation in Västerås Sweden. Pre FATon relay and control panels for Tullboden 40/10kV substation for ABB Substation at their location in Västerås Service mission at Tullboden substation in Sweden for ABB Substation in Västerås Sweden.
2011-01	Teacher during a training course for commissioning engineers at ABB Machines, for ABB Machines in Västerås Sweden.

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Date:	Experience Record, showing Positions held, Tasks, Location of Assignments etc during 2010 (a-kvadrat konsult):
2010-12	Maintenance test of ABB Combiflex relay protections for a gas turbine driven generator onboard TOTAL platform Alwyn in the North Sea, for ABB Relays in Västerås Sweden.
2010-11/12	Commissioning of a 40MW compressor motor with AC31 plc and REG670 protections at ILVA in Taranto Italy for ABB Motors.
2010-10	Presentation and demonstration of electrical test equipment GOOSER and transformer differential protection Wizard for Freja 306 at a conference in Jakarta Indonesia for Megger Sweden AB.
2010-10	Trouble shooting on REG110 generator protection at Heleneholms verken power plant in Malmö for ABB Substations.
2010-09/10	Preparation of a timeschedule and workplan for replacemet of relay protections at Överby substation in Sweden for ABB Substations
2010-08	Testing of relay protections type Deif Delomatic3 for KG2 gas turbine generators from Dresser-Rand in Norway at Haukeland hospital in Bergen and BBS in Oslo.
2010-03/05/06/07 /09/10	Commissioning lead and electrical safety lead during commissioning of one 40/10kV substation in Flen Sweden with ABB protection terminals REF541 and RET670, for ABB substations in Västerås Sweden. Configuration of ABB protection terminals REF541 and RET670 for one 40/10kV project in Flen Sweden, for ABB substations in Västerås Sweden.
2010-03/04/09	Commissioning lead and electrical safety lead during commissioning of one 40/10kV substation in Hedekas Sweden with ABB protection terminals REX521 and RET543, for ABB substations in Västerås Sweden.
2010-02	Configuration of ABB line protection terminal REL650 by use of the new type of configuration tool PCM600 Ver 2.1 at Terco in Stockholm.
2010-02	Maintenance testing of relay protections fo 3 pcs of KG2 gasturbines at LaCaixa in Barcelona for Dresser-Rand in Kongsberg Norway.
2010-02	Trouble shooting of Areva T&D transformer protection P633 at Gjemån hydropower plant in Hemavan, Sweden for Vattenfall vattenkraft.

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Date:	Experience Record, showing Positions held, Tasks, Location of Assignments etc during 2009 (a-kvadrat konsult):
2009-10/11	Different kind of work in Dominican Republic, related to previous projects.
2009-09	Testing of relay protections type Deif Delomatic3 for KG2 gas turbine generators from Dresser-Rand in Norway at Haukeland hospital in Bergen and BBS in Oslo. Scheduled maintenance of one KG2 gasturbine and AVK generator at ConocoPhillips gas platform Murdoch on brittish sector in the north sea for Dresser-Rand A/S in Kongsberg, Norway.
2009-05/06/07/08	Engineering and setting calculation, installation supervising and commissioning of protection and control systems for line, transformer and generator protections, for Las Damas hydro power station in Dominican Republic for ABB Substations, Västerås Sweden. Equipment included control and protection terminals from ABB REL670, RET670, REG670 and REF615. Automatic synchronizer from Deif GPU.
2009-01/02/03/04	Commissioning lead engineer and electrical safety lead during commissioning of ETESA 230kV/115kV/34.5kV 1.5 diameter outdoor switchgear substation in Changuinola with remote end in Fortuna Panama. With autotransformer, earthing transformer and local service transformer, battery system, low voltage switchgear, emergency generator ABB protection and control terminals RED670, REL551, REL531, REB551, REC561, RADHA, REF545, SPAJ140, RAHB411 and RAVK. Siemens OSCOP/SIMEAS disturbance recorder, NEXUS energy meters and Intouch HMI and Scada system. For ABB Substations in Västerås Sweden.

Date:	Experience Record, showing Positions held, Tasks, Location of Assignments etc during 2008 (a-kvadrat konsult):
2008-12	Commissioning of ABB generator protection REG670 at AES power thermal plant in San Nicolas Argentina, for ABB Relays in Västerås, Sweden.
2008-11	Commissioning of one 17MW 6.6kV steam turbine driven generator AMS 900LH from ABB, with Basler DECS-200 excitation equipment,

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	General electricl g60 generator protection and Deif FAS115DG synchronizer. At KBR-EBIC cemical plant in Egypt, for ABB Motors in Västerås, Sweden
2008-10	Trouble shooting a P243 Areva motor protection due to unwanted tripping at Holmen papermill in Norrköping Sweden for Areva T&D in Västerås Sweden
2008-10	Scheduled maintenance of one KG2 gasturbine and AVK generator at ConocoPhillips gas platform Murdoch on brittish sector in the north sea for Dresser-Rand A/S in Kongsberg, Norway.
2008-09	Testing of relay protections type Deif Delomatic3 for KG2 gas turbine generators from Dresser-Rand in Norway at Haukeland hospital in Bergen and BBS in Oslo.
2008-07/08	Commissioning of one synchronous motor 18MW for refiner drive at CMPC papermill in Maule Chile, with PLC AC800M, operator interface PP220 and SPAM150 relay protection for ABB Motors in Västerås Sweden. Replacement of PLC for another synchronous motor. Implementation of line cosphi regulation at the remote end of the incoming 220kV based on measurement in the paper mill end and compensation for the reactive power contribution from the 220kV overhead line.
2008-06	Fault tracing after trip of underexcitation protection for a 50MVA generator at Kispest powerplant in Budapest, Hungary, for ABB Motors in Sweden.
2008-05	Maintenance testing of ABB generator protection REG100 for two generators at Örtofta sugermill in Sweden, for ABB Relays in Sweden.
2008-01/02/03/04	Commissioning, installation supervising, engineering of protection and control systems and setting calculations for line, transformer and generator protections, for 9 different hydro power plants in Dominican Republic for ABB Substations, Västerås Sweden. Equipment included control and protection terminals from ABB REL670, RET670, REC670. Automatic synchronizer from Deif GPU and from ABB AS-800, for ABB Substations in Sweden.

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Date:	Experience Record, showing Positions held, Tasks, Location of Assignments etc during 2007 (a-kvadrat konsult):
2007	Commissioning, installation supervising, engineering of protection and control systems and setting calculations for line, transformer and generator protections, for 9 different hydro power plants in Dominican Republic for ABB Substations, Västerås Sweden. Equipment included control and protection terminals from ABB REL670, RET670, REC670. Automatic synchronizer from Deif GPU and from ABB AS-800, for ABB Substations in Sweden.

Date:	Experience Record, showing Positions held, Tasks, Location of Assignments etc during 2006 (a-kvadrat konsult):
2006-10/11/12	Commissioning, installation supervising, engineering of protection and control systems and setting calculations for line, transformer and generator protections, for 9 different hydro power plants in Dominican Republic for ABB Substations, Västerås Sweden. Equipment included control and protection terminals from ABB REL670, RET670, REC670. Automatic synchronizer from Deif GPU and from ABB AS-800, for ABB Substations in Sweden.
2006-10	Test of transformer protection Micom P633 in Eskilstuna for Alstom Power AB Sweden.
2006-09	Trouble shooting synchronous machines at Hyundai and Samsung shipyard in South-Korea for ABB Motors in Sweden.
2006-09	FAT of generator protection Micom P343 in Norrköping for Siemens Finspång and Areva T&D Sweden.
2006-07	Commissioning/relay setting calculations for two synchronous motors 17MW with (AC31 PLC and PP220 HMI from ABB and relay protection Siprotec from Siemens) for compressor drive at an air and nitrogen liquidation plant in Vresova Czech republic for Linde Germany and ABB Motors.
2006-03/04/05/06	Commissioning of one 22MW synchronous machine for both motor and generator application with ABB AC31 PLC and ABB REM543 and REM545 relay protection at Panipat refinery PAT plant in India for ABB Motors in Sweden.

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2006-03	Commissioning of Kontiskan a 130kV HVDC link between Sweden and Denmark. Main responsibilities relay protections and protection schemes for 400kV AC filters and converter transformers for Areva TD. Conducted a training course for relay protection P634, P122 from Areva TD and CPR97-N and -H from Trench in 2006-03.
2006-02	Commissioning of two 30MW gas turbine (LM2500) driven generators and one 25MW steam turbine driven generator with ABB Unitrol-F excitation equipment, ABB REG316 relay protection and ABB Sychrotact4 synchronizer in Kirklareli Turkie for ABB Motors in Sweden
2006-01/02	Commissioning of one 14MW steam turbine driven generator with Basler DECS-200 excitation equipment, GE Multilin SR489 relay protection and Deif FAS-115DG synchronizer in Ansan City South Korea for ABB Motors in Sweden.

Date:	Experience Record, showing Positions held, Tasks, Location of Assignments etc during 2005 (a-kvadrat konsult):
2005-11	Commissioning of one 22MW synchronous machine for both motor and generator application with ABB AC31 PLC and ABB REM543 and REM545 relay protection at Panipat refinery PAT plant in India for ABB Motors in Sweden.
2005-10/12	Commissioning of two 30MW gas turbine (LM2500) driven generators and one 25MW steam turbine driven generator with ABB Unitrol-F excitation equipment, ABB REG316 relay protection and ABB Sychrotact4 synchronizer in Kirklareli Turkie for ABB Motors in Sweden.
2005-09	Trouble shooting excitation panel on Norsk Hydro Oseberg Syd platform in the north sea for ABB Motors.
2005-08	Trouble shooting excitation panel on AGA gas plant in Oxelösund Sweden for ABB Motors.
2005-08	Commissioning of two 15MW synchronous motors for refiner drive with AC31 PLC as excitation control at Kvarnsveden papermill in Sweden for ABB Motors in Sweden.
2005-06	Trouble shooting excitation panel on Norsk Hydro Oseberg Öst platform in the north sea for ABB Motors.

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2005-05/06	Commissioning of Kontiskan a 130kV HVDC link between Sweden and Denmark. Main responsibilities relay protections and protection schemes for 400kV AC filters and converter transformers for Areva TD. Conducted a training course for relay protection P634, P122 from Areva TD and CPR97-N and -H from Trench in 2006-03.
2005-04	Commissioning/relay setting calculations for a 14.2MW synchronous motor for feed gas compressor drive with Unitrol-F excitation equipment (AVR&FCR) and relay protection (Multilin 469 from GE), at Berri Gas plant in Saudi Arabia for Technip, Dresser-Rand and ABB Motors in Sweden.
2005-03	Relay setting calculations for protections (P132 from ArevaTD) for asynchronous motor drives (1050kW, 700kW and 550kW) for pumps and fans at a waste treatment plant in St Petersburg Russia for Areva TD.
2005-02/03	Commissioning/relay setting calculations for two synchronous motors 17MW with (AC31 PLC and PP220 HMI from ABB and relay protection Siprotec from Siemens) for compressor drive at an air and nitrogen liquidation plant in Vresova Check republic for Linde Germany and ABB Motors.
2005-01/02	Commissioning of the worlds two first HVDC fed 56kV, 40MW variable speed synchronous motors for compressor drive on board TrollA platform in the Norwegian sector of the Northsea for Statoil and ABB Motors.

Date:	Experience Record, showing Positions held, Tasks, Location of Assignments etc during 2004 (a-kvadrat konsult):
2004-12	Commissioning of Unitrol-F excitation equipment (AVR&FCR) onboard Petrobras P48 offshore in Brazil for Rolls Royce and ABB Motors.
2004-12	Preparations for commissioning of the worlds two first HVDC fed 56kV, 40MW variable speed synchronous motors for compressor drive on board TrollA platform in the Norwegian sector of the Northsea for Statoil and ABB Motors.
2004-11	Commissioning/relay setting calculation for Micom P243 motor protection for 8MW asynchronous motors for refiner drive at Braaviken paper mill in Norrköping Sweden for Areva TD.

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2004-10/11	Commissioning/relay setting calculations/performing training courses for a 15.3MVA steam turbine driven generator with Unitrol-F excitation equipment (AVR&FCR) and relay protection (REG316 and synchroniser Synchrotact5 from ABB), at Karlskoga waste power plant in Sweden for Siemens and ABB Motors in Sweden.
2004-10	Commissioning/relay setting calculation for Micom P225 motor protection for 2.5MW asynchronous motors for refiner drive at Braaviken paper mill in Norrköping Sweden for Areva TD.
2004-09	Commissioning of Micom P343, P632, P922 at Nye Tyin hydropower plant in Årdal Norway for Hydro Energi and Alstom Power A/S.
2004-08	Commissioning of Micom P430 relay protections from Areva TD at Skanstull in Stockholm for Fortum and Areva TD.
2004-06/07/08	Commissioning/relay setting calculations for a 10MVA steam turbine driven generator with Unitrol-F excitation equipment (AVR&FCR) and relay protection (DGP from GE and Synchroniser MX3EG1A from Alstom), at Pertamina refinery in Cilacap Indonesia for Nuovo Pignone and ABB Motors in Sweden.
2004-05	Upgrading and test of relay protections at Elekrenai and Kronius substations in Lithuania for ABB Substations.
2004-03/04	Commissioning of a 11.2MVA gas turbine driven generator with Unitrol-F excitation equipment (AVR&FCR) and relay protection (REG316), at AGIP Bu-Attifel oil field in Libya for ABB Motors in Sweden.
2004-01/02	Commissioning of a 50MVA steam turbine driven generator with Unitrol-F excitation equipment (AVR&FCR), in Budapest for ABB Motors in Sweden.

Date:	Experience Record, showing Positions held, Tasks, Location of Assignments etc during 2003 (a-kvadrat konsult):
2003-12	Commissioning of a PS-1 substation 110/20kV in Romania for ABB in Sweden.
2003-10/11	Commissioning of relay protections (Alstom P343, P544, P141, P633 and P120) among with commissioning of other equipment at Esti hydro power plant in Panama for Alstom Power.
2003-08	Commissioning of relay protections (ABB REL511) at Edsberg substation 70/10kV in Stockholm for ABB Utilities.

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2003-07	Commissioning of relay protections (ABB RET316, REGT110 and RADHA) at Neastved thermal power plant in Denmark for ABB Motors.
2003-06	Test, troubleshooting and upgrading of firmware for Alstom distance line differential and generator protections (P442, P441, P543, P127, P343) at Grönstad 132kV substation and Öjeforsen hydro power plant in Sweden, for Alstom T&D in Sweden.
2003-06	Developed a manual in English for a modern line protection terminal (ABB REL511) for Terco AB in Stockholm. To be used as an instruction manual for their products for educational purposes, sold worldwide.
2003-05	Factory test of large synchronous and asynchronous machines 5-40MW in the test laboratory at ABB Motors/Machines in Västerås Sweden.
2003-04	Pre commissioning of two gas turbine driven synchronous generators 40MW each for ABB Motors/Machines on Isle of Man.
2003-01/02/03	Commissioning Lead and electrical safety engineer: Maraba 500kV substation in Brazil for ABB Utilities AB. Extension with one diameter with two over head lines and shunt reactors on one line in a one-half breaker configuration. Including HV apparatuses, automation system uScada, touchscreen and REC561 control terminals, Hathaway transient fault recorder and relay protections REL531, RET521, REB551, REU523.

Date:	Experience Record, showing Positions held, Tasks, Location of Assignments etc during 2002:
2002-11/12	Commissioning Lead and electrical safety engineer (a-kvadrat konsult): Maraba 500kV substation in Brazil for ABB Utilities AB. Extension with one diameter with two over head lines and shunt reactors on one line in a one-half breaker configuration. Including HV apparatuses, automation system uScada, touchscreen and REC561 control terminals, Hathaway transient fault recorder and relay protections REL531, RET521, REB551, REU523.
2002-08/09/10	Commissioning supervisor and teacher (SWECO Energuide): Commissioning supervisor for ABB Utilities projects "6 substations" and "Rehabilitation of Yarmouk substation" in Baghdad, Iraq, including

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	<p>setting calculations for relay protections REL511 and RET521 test of relayprotections REL505,REL511,RET521 and RADHL.</p> <p>Developed and conducted a 9 day theoretical and practical relay protection training course for Rex5xx and RET521 for the client in Baghdad.</p>
2002-04/05/06/07	<p>Senior Electrical engineer (SWECO Energuide): Pre-study for the electrical part of a mud pumping plant for the port of Göteborg. Including low voltage switchgear, Transformer, 10kV switchgear and variable frequency drives.</p> <p>Performing a FAT for ABB Utilities in Sibiu, Romania including relay protections REL531&REL316 for the Romanian 400kV network.</p>
2002-01/02/03	<p>Discipline Lead engineer (GVA Consultants): Discipline lead engineer for EI&IC for the basic design of the BP Thunder Horse project. This is the largest semi submersible for drilling and production of oil and gas in the world; location will be the Mexican gulf. My tasks were leadership of 9 engineers, electrical engineering, coordination with other disciplines and the subcontractor doing the Power System Study. The equipment onboard consists of variable frequency drives for drilling, transformers, switchgears, UPS's, MCC's, diesel generators for emergency and normal power supply, VMS, fire&gas detection, CCTV etc. The work was performed in GVA-C office in Göteborg as well as in BP office in Houston.</p>

Date:	Experience Record, showing Positions held, Tasks, Location of Assignments etc during 2001 (GVA Consultants):
2001	<p>Discipline Lead engineer: Discipline lead engineer for EI&IC for the basic design of the BP Thunder Horse project. This is the largest semi submersible for drilling and production of oil and gas in the world; location will be the Mexican gulf.</p>

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	<p>My tasks were leadership of 9 engineers, electrical engineering, coordination with other disciplines and the subcontractor doing the Power System Study.</p> <p>The equipment onboard consists of variable frequency drives for drilling, transformers, switchgears, UPS's, MCC's, diesel generators for emergency and normal power supply, VMS, fire&gas detection, CCTV etc.</p> <p>The work was performed in GVA-C office in Göteborg as well as in BP office in Houston.</p>
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Date:	Experience Record, showing Positions held, Tasks, Location of Assignments etc during 1997 – 2001 (ABB Network Partner):
1997 - 2001	<p>Commissioning lead engineer: Commissioning at Shangan thermal power plant in China, including REG110, REG150 and various combiflex generator protections, RET316 transformer protection, RES synchronizer and REOR disturbance recorder.</p> <p>Commissioning at the thermal power plant in Västerås, Sweden including REG110, REG150 and various combiflex generator protections.</p> <p>Commissioning in Tanzania for a 220kV overhead line from Arusha to Singida. This was a DANIDA project run by ABB in Denmark. Including REL100 distance protection with fault locator, auto recloser and disturbance recorder. Various combiflex protections were also in the scope like protections for transformers and reactors as well as breaker failure protections.</p> <p>Commissioning at Kozlodouy nuclear power plant in Bulgaria. Including REG110, REG150 and various combiflex generator protections as well as RASC synchro check relay.</p> <p>Commissioning in Uganda for 132kV overhead lines from Owen falls power station to Kampala. This was a DANIDA project run by Sycon and one Danish company. Including REL100 distance protection with fault locator, auto recloser</p>

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	<p>and disturbance recorder. Various combiflex protections were also in the scope like protections for transformers and reactors as well as breaker failure protection.</p> <p>Commissioning of two transformer substations in Mackay and Melbourne, Australia. This work included REL500 series distance and line differential protection terminals, REB103 busbar protection and relay protections from the Spacom series. RET521 transformer protection terminals. All protection terminals were connected to Microscada.</p> <p>Commissioning at Öresundsverket a gas turbine power plant in Malmö, Sweden. This included REG110, REG150 and combiflex generator protections.</p> <p>Commissioning at Lycksele thermal power plant in Sweden. Including REG110, REG150 and combiflex generator protections.</p> <p>Commissioning of a 10kV substation in Göteborg, Sweden including switchgear and Spacom relay protection terminals. A Microscada was also included for the automation part.</p> <p>Commissioning at a hydro power plant in Bulgaria including REG and RET316 protection terminals.</p> <p>Electrical Engineering activities: Participation in development of configurations and protection schemes for a new 765kV network in South Korea.</p> <p>Setting calculations for generator protections for ABB STAL for a job in the USA. Including REG110 and REG150.</p> <p>Testing, configuration, service and fault tracing: Fault tracing in Curacao after a suspected mal-operation of combiflex transformer protection. Checking and replacing old combiflex relay protections for generators at the thermal power plant in Curacao.</p>
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	<p>Reengineering, preparations and implementation of a change to existing RADSS busbar protections in Norway. This work was performed in substations, which were alive. Relay protection test, configuration and fault tracing in South Korea. Including REL561 distance and line differential protection terminal and REL521 distance protection terminal.</p> <p>REL500 series and RET521 test, configuration, fault tracing and service in Turkey, Poland, Ghana, China, USA, Holland and Jersey.</p> <p>Developed and conducted training courses: Developed and conducted a 7 day relay protection training course for REL500 series line protections as well as Spacom SPAU syncro check relay for the Sucat Araneta project in Manila in the Philippines.</p> <p>Developed and conducted a 4 day relay protection training course for REL500 series line protections as well as REL316 line differential protection for a NORAD project in Anuradapura in Sri Lanka.</p> <p>Developed and conducted several training courses for generator protection including REG 100 series, REx 316 series and combiflex at ABB in Västerås. Some of these courses have been tailor made for ABB STAL as well as for ABB Generation.</p> <p>Developed and conducted REL500 series training courses as well as test and commissioning in several parts of Iran.</p> <p>Developed and conducted a one week training course for the REL500 series in Bulgaria.</p>
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Date:	Experience Record, showing Positions held, Tasks, Location of Assignments etc during 1991 – 1997 (Dresser-Rand):
1991 - 1997	Service engineer: Test and commissioning of different gas turbine plants 2-22MW (KG2, KG5, GE LM2500) both onshore and offshore for continuous and

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	<p>back-up (emergency) operation.</p> <p>Service work, electrical and mechanical on KG2 stand by gas turbines at Sahlgrenska hospital, Borås hospital, Telecom utilities in Göteborg and Stockholm and Statoil in Stenungsund all in Sweden. KG2 are normally equipped with a Woodward speed controller 2301 or 2301A. Control logic was normally relay logic but also ABB Procontic PLC/Controller has been used. Generators from AVK or Piller among others.</p> <p>Installation and commissioning of one GE LM2500 gas turbine at DSM in Maastricht, Holland.</p> <p>For the Brage project, test of three LM2500, two generator drives and one compressor drive, in Kongsberg, Houston and LeHavre before shipping to module yard. Equipment included were Woodward speed controller 511, Bently Nevada vibration monitor, ABB Unitrol AVR/FCR, ABB Generators, Siemens Simatic PLC and Teleperm automation system.</p> <p>Commissioning engineer: Offshore test and commissioning of the gas turbine plant 3*(LM2500) on the Brage platform in the North sea.</p>
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Date:	Experience Record, showing Positions held, Tasks, Location of Assignments etc during 1983 – 1986 (ASEA Distribution):
1983 - 1986	<p>Commissioning engineer: Commissioning of GIS substations in Saudi Arabia and Adelanto HVDC station in the USA. The commissioning work included testing of auxiliary circuits for switchgears and transformers, DC and AC distribution systems and various different types of relay protections.</p>

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