This report includes references from 2000 to 2012 in the following industries:

- Bauxite
- Chrome
- Copper
- Gold
- Iron ore
- Limestone
- Manganese
- Lead
- Metallurgical coal
- Nickel
- Silver
- Thermal coal
- Uranium
- Zinc
- Other
Kaunisvaara - ITB2

Country: Sweden | Plant name/location: Datavägen 14
Enduser: Northland Resources AB, Sweden
Customer: Northland Resources AB, Sweden
Process: Benefication, Open pit mining
Mineral: Iron Ore
Capacity: 3 MTPY
Project type: Greenfield
Description: E-containers, civil and network equipment directly to Northland Resources
Year of award: 2012, Start of operation: 2012

Equipment:

POWER DISTRIBUTION
Distribution transformers, LV distribution, MCC motor control centers, MV switchgear, Overhead lines

MOTORS and DRIVES
LV variable speed drives

CONTROL and INSTRUMENTATION
Process control system, System 800xA

INFRASTRUCTURE
Cables and installation material, Fire detection and protection, Prefabricated electrical rooms

Kaunisvaara EC&I for Metso Minerals

Country: Sweden | Plant name/location: Datavägen 14
Enduser: Northland Resources AB, Sweden
Customer: Metso Systems AB, Sweden
Process: Benefication, Material handling/transportation, Open pit mining
Mineral: Iron Ore
Capacity: 3 MTPY
Project type: Greenfield
Description: Electrification and Automation for Iron Ore Beneficiation Plant - Tapuli Line - in North Sweden
Year of award: 2012, Start of operation: 2012

Equipment:

POWER DISTRIBUTION
Distribution transformers, LV distribution, MCC motor control centers, MV switchgear, Overhead lines

ENGINEERING
Automation engineering, Cable planning, Complete electrical & automation design & engineering, Equipment design, Power distribution engineering, Wiring engineering

SERVICES
Commissioning, Operations assistance, Supervision of installation, Training

MOTORS and DRIVES
LV variable speed drives, MV motors, MV variable speed drives

CONTROL and INSTRUMENTATION
Control room equipment, System 800xA

COLLABORATION PRODUCTION MANAGEMENT
Knowledge Manager

INFRASTRUCTURE
Cables and installation material, Fire detection and protection, Ventilation and air conditioning
Vale Minerals Malaysia Automation System

Country: Malaysia  | Plant name/location: Unit No. 17F-PBS-2
Enduser: Vale Malaysia Manufacturing Sdn Bhd, Malaysia
Customer: VALE Malaysia Manufacturing Sdn Bhd, Malaysia

Process: Material handling/transportation, Port facilities
Mineral: Iron Ore
Capacity: 30Mt/a
Project type: Greenfield
Description: Vale transshipment hub in Asia for iron ore
Year of award: 2012, Start of operation: 2014

Equipment:

POWER DISTRIBUTION
Emergency diesel generator

CONTROL and INSTRUMENTATION
Control room equipment, Electrical control system, System 800xA

COLLABORATION PRODUCTION MANAGEMENT
Stockyard management system

INFRASTRUCTURE
Communication system

Jabal Sayid - bundled electrification packages

Country: Saudi Arabia  | Plant name/location: Jabal Sayid
Enduser: Bariq Mining, Saudi Arabia
Customer: Bariq Mining, Saudi Arabia
Consultant/EPC(M): SNC-Lavalin Australia

Process: Concentrator
Mineral: Copper
Capacity: 60000 t/y.
Project type: Greenfield
Description: Copper concentrator to process ROM from Jabali Sayid underground mine
Year of award: 2011, Start of operation: 2012

Equipment:

POWER DISTRIBUTION
Distribution transformers, LV distribution, MCC motor control centers

MOTORS and DRIVES
LV variable speed drives

CONTROL and INSTRUMENTATION
Control room equipment

INFRASTRUCTURE
Fire detection and protection, Prefabricated electrical rooms, Ventilation and air conditioning

Selection Criteria: Year From 2000 Year To 2012
Mineral: Bauxite | Manganese | Chrome | Metallurgical coal | Nickel | Copper | Silver | Gold | Thermal coal | Iron ore | Uranium | Limestone | Zinc | Other | Lead

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References | 3
Mina Ministro Hales electrification

Country: Chile | Plant name/location: Corporation Nacional del Cobre Codelco, Chile
Enduser: Corporation Nacional del Cobre Codelco, Chile
Customer: Corporation Nacional del Cobre Codelco, Chile
Consultant/EPC(M): Hatch Ingenieros y Consultores Ltda.

Process: Concentrator
Mineral: Copper; Silver
Capacity: 170000t/y copper
Project type: Greenfield
Description: New concentrator located at 3000 masl in Calama, Chile
Year of award: 2011, Start of operation: 2011

Equipment:

POWER DISTRIBUTION
Harmonic filter, HV switchgear, MV switchgear, Power transformers

ENGINEERING
Equipment design, PFC and harmonic filter study, Substation planning

SERVICES
Commissioning, Supervision of installation, Training

MOTORS and DRIVES
Gearless mill drive system

INFRASTRUCTURE
Prefabricated electrical rooms

BMZ Zhlobin lime kiln

Country: Belarus | Plant name/location: Zhlobin
Enduser: Belarusskiy Metallurgicheskiy Zavod Rupp, Belarus
Customer: Belarusskiy Metallurgicheskiy Zavod Rupp, Belarus
Contractual partner(s): Maerz Ofenbau AG / A Company of Polysius, Switzerland

Mineral: Limestone
Capacity: 400 t/d
Project type: Extension
Year of award: 2010, Start of operation: 2011

Equipment:

POWER DISTRIBUTION
LV distribution, MCC motor control centers

ENGINEERING
Complete electrical & automation design & engineering

SERVICES
Commissioning, Supervision of installation, Training

MOTORS and DRIVES
LV variable speed drives

INFRASTRUCTURE
Earthing & lightning protection
Toromocho concentrator electrification and control

Country: Peru | Plant name/location: Minera Chinalco Perú S.A. Toromocho, Peru
Enduser: Minera Chinalco Perú S.A. Toromocho, Peru
Customer: Minera Chinalco Perú S.A. Toromocho, Peru
Consultant/EPC(M): Aker Solutions
Process: Concentrator
Mineral: Copper
Capacity: 1'000'000 t/y
Project type: Greenfield
Description: Copper mine and concentrator located at an altitude of 4800 masl in the Andes
Year of award: 2010, Start of operation: 2012

Equipment:

POWER DISTRIBUTION
Distribution transformers, Harmonic filter, LV distribution, MCC motor control centers, MV switchgear, Power factor compensation, Unit substations

MOTORS and DRIVES
Gearless mill drive system, LV variable speed drives, MV variable speed drives

CONTROL and INSTRUMENTATION
Process control system, System 800xA

INFRASTRUCTURE
Fire detection and protection, Lighting system, Prefabricated electrical rooms, Ventilation and air conditioning

ENGINEERING
Automation engineering, Complete electrical & automation design & engineering, Equipment design, PFC and harmonic filter study, Power distribution engineering, Power system study, Substation planning

SERVICES
Commissioning, Supervision of installation, Training

Sulb DRI power distribution

Country: Bahrain | Plant name/location: Hidd
Enduser: United Stainless Steel Company BSC ©, Bahrain
Customer: Kobe Steel, Ltd. KOBELCO, Japan
Process: Direct reduction
Mineral: Iron Ore
Capacity: 1.5 Mt/a
Project type: Greenfield
Description: New DRI Line
Year of award: 2010, Start of operation: 2012

Equipment:

POWER DISTRIBUTION
Distribution transformers, Emergency diesel generator, MCC motor control centers, MV switchgear, Power transformers

INFRASTRUCTURE
Cables and installation material, Earthing & lightning protection, Fire detection and protection, Lighting system

ENGINEERING
Cable planning, Equipment design, Network study, Power distribution engineering, Power system study, Substation planning, Wiring engineering

SERVICES
Commissioning, Operations assistance, Supervision of installation, Training
Bayovar phosphate desalination plant

Country: Peru | Plant name/location: Enduser: Vale Bayovar, Peru Customer: Vale Bayovar, Peru
Mineral: Other Project type: Greenfield Description: Plant electrification and control Year of award: 2010, Start of operation: 2012

Equipment:

**POWER DISTRIBUTION**
Distribution transformers, LV distribution, MV switchgear

**ENGINEERING**
Complete electrical & automation design & engineering

**CONTROL and INSTRUMENTATION**
Operator station, Process control system, System 800xA

**SERVICES**
Commissioning, Supervision of installation

Itabiritos

Country: Brazil | Plant name/location: Diretoria de Ferrosos Sul Enduser: Vale, Brazil Customer: Vale, Brazil

Equipment:

**POWER DISTRIBUTION**
Distribution transformers, MCC motor control centers, MV switchgear

**ENGINEERING**
Automation engineering, Equipment design, Power distribution engineering

**MOTORS and DRIVES**
LV variable speed drives, MV variable speed drives

**SERVICES**
Commissioning

**CONTROL and INSTRUMENTATION**
Process control system, System 800xA

**INFRASTRUCTURE**
Prefabricated electrical rooms
### Salobo II

**Country:** Brazil  |  **Plant name/location:** Salobo  
**Enduser:** Vale, Brazil  
**Customer:** Vale, Brazil  
**Process:** Concentrator  
**Mineral:** Copper; Gold  
**Capacity:** 127'000 t/y  
**Project type:** Extension  
**Description:** Phase 2 to double the capacity of the copper/gold concentrator in Marabá, State of Pará  
**Year of award:** 2010  
**Start of operation:** 2013  

**Equipment:**
- **MOTORS and DRIVES**  
  Gearless mill drive system, MV motors, MV variable speed drives
- **ENGINEERING**  
  Equipment design, PFC and harmonic filter study
- **SERVICES**  
  Commissioning, Supervision of installation

### Vitoria - revamp of plants 1, 2 7 and utilities

**Country:** Brazil  |  **Plant name/location:** Vitoria / Ponta de Tubarao  
**Enduser:** Vale, Brazil  
**Customer:** Vale, Brazil  
**Process:** Pelletizing  
**Mineral:** Iron Ore  
**Project type:** Up-grade/Revamp  
**Description:** Revamp of electrical and control systems  
**Year of award:** 2010  
**Start of operation:** 2013  

**Equipment:**
- **POWER DISTRIBUTION**  
  Distribution transformers, MCC motor control centers, MV switchgear
- **ENGINEERING**  
  Automation engineering, Equipment design, Power distribution engineering
- **CONTROL and INSTRUMENTATION**  
  System 800xA
- **SERVICES**  
  Commissioning

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*Selection Criteria: Year From  2000  
Year To  2012  
Mineral: Bauxite | Manganese | Chrome | Metallurgical coal | Nickel | Copper | Silver | Gold | Thermal coal | Iron ore | Uranium | Limestone | Zinc | Other | Lead*  
*References  7*
Antapaccay copper concentrator

Country: Peru  |  Plant name/location: Antapaccay copper concentrator  
Enduser: Xstrata Peru, Peru  
Customer: Xstrata Peru, Peru  
Process: Concentrator  
Mineral: Copper  
Capacity: 70'000 t/d  
Project type: Greenfield  
Description: Electrification  
Year of award: 2010  
Start of operation: 2012

Equipment:

POWER DISTRIBUTION
LV distribution, MCC motor control centers, MV switchgear, Power factor compensation

ENGINEERING
PFC and harmonic filter study, Power distribution engineering

SERVICES
Commissioning, Supervision of installation

MOTORS and DRIVES
LV variable speed drives, MV variable speed drives

Rönnskär -Smelter

Country: Sweden  |  Plant name/location: Rönnskär Smelter  
Enduser: Boliden Mineral AB, Sweden  
Customer: Boliden Mineral AB, Sweden  
Mineral: Copper  
Project type: Up-grade/Revamp  
Description: Large process control system with 15'000 I/O's  
Year of award: 2009  
Start of operation: 2009

Equipment:

CONTROL and INSTRUMENTATION
Operator station, Process control system, System 800xA, Former ABB Process Control system

ENGINEERING
Automation engineering

SERVICES
Commissioning, Supervision of installation
Cerro Verde debottlenecking

Country: Chile | Plant name/location: Interor puente ojancos KM9
Enduser: Freeport-McMoRan Copper & Gold Inc, Chile
Customer: Freeport-McMoRan Copper & Gold Inc, Chile

Process: Concentrator
Mineral: Copper
Capacity: 20'000 t/d
Project type: Extension
Description: Debottlenecking project to increase production by 20%
Year of award: 2009, Start of operation: 2010

Equipment:

POWER DISTRIBUTION
LV distribution, MV switchgear, Power transformers

ENGINEERING
Equipment design, Power distribution engineering

SERVICES
Commissioning, Supervision of installation

OIC material handling and pelletizing plant, Sohar

Country: Oman | Plant name/location: Falaj Al Qabail
Enduser: Vale Oman Pelletizing Company L.L.C, Oman
Customer: Vale Oman Pelletizing Company L.L.C, Oman
Consultant/EPC(M): Essar Steel

Process: Material handling/transportation, Pelletizing, Port facilities
Mineral: Iron Ore
Capacity: 9 m/t/y pellets, 40mt/y port
Project type: Greenfield
Description: Vales iron ore and pellets hub in the Middle East
Year of award: 2009, Start of operation: 2011

Equipment:

POWER DISTRIBUTION
Distribution transformers, Emergency diesel generator, Harmonic filter, HV switchgear, MCC motor control centers, MV switchgear,
Power factor compensation, Power transformers, Transformer

ENGINEERING
Automation engineering, Cable planning, Complete electrical & automation design & engineering, Electrical feasibility study,
Equipment design, Network study, PFC and harmonic filter study,
Power distribution engineering, Power system study, S

SERVICES
ACS800 - Maintenance and operation course, Commissioning,
Knowledge Manager - Application engineering course, Life cycle support, Operations assistance, Supervision of installation, Training

COLLABORATION PRODUCTION MANAGEMENT
Knowledge Manager

INFRASTRUCTURE
Cables and installation material, Lighting system

Selection Criteria: Year From   2000       Year To  2012
Mineral: Bauxite | Manganese | Chrome | Metallurgical coal | Nickel | Copper | Silver | Gold | Thermal coal | Iron ore | Uranium | Limestone | Zinc | Other | Lead
References    9

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Vitoria - revamp of complete iron ore harbour

Country: Brazil | Plant name/location: Vale, Brazil
Enduser: Vale, Brazil
Customer: Vale, Brazil
Process: Port facilities
Mineral: Iron Ore
Project type: Up-grade/Revamp
Description: Revamp of electrical and control systems
Year of award: 2009, Start of operation: 2013

ENGINEERING
Automation engineering, Equipment design, Power distribution engineering

SERVICES
Commissioning

POWER DISTRIBUTION
Distribution transformers, MCC motor control centers, MV switchgear

MOTORS and DRIVES
LV variable speed drives

Canaã dos Carajás - Serra Sul project

Country: Brazil | Plant name/location: Sossego
Enduser: Vale, Brazil
Customer: ThyssenKrupp Fördertechnik Latino Americana, Brazil
Process: Material handling/transportation
Mineral: Copper
Project type: Extension
Description: Process control and MCC’s for three reclaimer machines
Year of award: 2009, Start of operation: 2014

POWER DISTRIBUTION
MCC motor control centers

CONTROL and INSTRUMENTATION
System 800xA
Carajas - 130Mtpa project

Country: Brazil  |  Plant name/location:  Carajas
Enduser: Vale, Brazil
Customer: Vale, Brazil
Process: Benefication, Material handling/transportation
Mineral: Iron Ore
Project type: Greenfield
Description: Plant-wide process control system
Year of award: 2009,  Start of operation: 2012

Equipment:
CONTROL and INSTRUMENTATION
System 800xA

ENGINEERING
Automation engineering, Equipment design

Moatize Coal Mine, complete turnkey project

Country: Mozambique  |  Plant name/location: Moatize Coal Mine
Enduser: VALE, Mozambique
Customer: VALE, Mozambique
Consultant/EPC(M): Africon Engineering Co
Process: Coal Preparation, Open pit mining
Mineral: Metallurgical Coal; Thermal Coal
Capacity: 11mt/y
Project type: Greenfield
Description: Project involves exploitation of an open pit mine with 370 million ton coal reserve for 35 years.
Year of award: 2009,  Start of operation: 2011

Equipment:
POWER DISTRIBUTION
Distribution transformers, Harmonic filter, HV switchgear, LV distribution, MCC motor control centers, MV switchgear, Overhead lines, Power factor compensation, Power transformers, Transformer, Unit substations

MOTORS and DRIVES
LV variable speed drives, VSD Multi

CONTROL and INSTRUMENTATION
System 800xA

ENGINEERING
Automation engineering, Cable planning, Complete electrical & automation design & engineering, Equipment design, Network study, PFC and harmonic filter study, Power distribution engineering, Power system study, Substation planning, Wiring eng

SERVICES
Commissioning, Operations assistance, Supervision of installation, Training

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Selection Criteria: Year From   2000       Year To  2012
Mineral: Bauxite | Manganese | Chrome | Metallurgical coal | Nickel | Copper | Silver | Gold | Thermal coal | Iron ore | Uranium | Limestone | Zinc | Other | Lead

References    11
Dubal SBRT 6

Country: United Arab Emirates | Plant name/location: Dubai Aluminium Co. Ltd., United Arab Emirates
Enduser: Dubai Aluminium Co. Ltd., United Arab Emirates
Mineral: Bauxite
Capacity: 65 kA
Project type: Extension
Year of award: 2008, Start of operation: 2009

Aluminium Smelter Project HELGUVIK, Potline 1

Country: Iceland | Plant name/location: Grundartangi
Enduser: Nordural Nordic Aluminum, Iceland
Mineral: Bauxite
Capacity: 360 pots
Project type: Greenfield
Year of award: 2008, Start of operation: 2010

Equipment:
POWER DISTRIBUTION

Cables and installation material

SERVICES
Commissioning, Supervision of installation
Koniambo automation and drives

Country: New Caledonia | Plant name/location: Koniambo Mine
Enduser: Société Minière du Sud Pacifique, New Caledonia
Customer: Société Minière du Sud Pacifique, New Caledonia
Consultant/EPC(M): Hatch

Mineral: Nickel
Project type: Greenfield
Description: Nickel smelter to produce 60'000 t/y of ferronickel
Year of award: 2008, Start of operation: 2012

Equipment:
MOTORS and DRIVES
MV motors, MV variable speed drives
CONTROL and INSTRUMENTATION
Process control system, System 800xA

ENGINEERING
Automation engineering, Equipment design

SERVICES
Commissioning

Salobo I

Country: Brazil | Plant name/location: Salobo
Enduser: Vale, Brazil
Customer: Vale, Brazil

Process: Concentrator
Mineral: Copper; Gold
Capacity: 127'000 t/y Cu concentrate
Project type: Greenfield
Description: Phase I of concentrator in Marabá, state of Pará, to produce 120'000 t/y concentrate and 130'000 ounces of gold as a by-product
Year of award: 2008, Start of operation: 2011

Equipment:
POWER DISTRIBUTION
Harmonic filter
MOTORS and DRIVES
Gearless mill drive system, MV motors, MV variable speed drives
CONTROL and INSTRUMENTATION
Operator station, Process control system, System 800xA

ENGINEERING
Automation engineering, Equipment design, PFC and harmonic filter study

SERVICES
Commissioning, Operations assistance, Supervision of installation
Vitória - pelletizing plant 8

Country: Brazil | Plant name/location: Vitoria / Ponta de Tubarao
Enduser: Vale, Brazil
Customer: Vale, Brazil

Process: Pelletizing
Mineral: Iron Ore
Project type: Extension
Description: Plant-wide process control system
Year of award: 2008, Start of operation: 2012

Equipment:

POWER DISTRIBUTION
MCC motor control centers
MOTORS and DRIVES
LV variable speed drives
CONTROL and INSTRUMENTATION
Asset optimization, Operator station, System 800xA

Worsley Alumina Refinery Power distribution

Country: Australia | Plant name/location: Gastaldo Road
Enduser: Worsley Alumina Refinery, Australia
Customer: Bechtel Australia Pty Ltd, Australia

Mineral: Bauxite
Capacity: 10Mt/a
Project type: Extension
Year of award: 2008, Start of operation: 2010

Equipment:

POWER DISTRIBUTION
MCC motor control centers, MV switchgear
INFRASTRUCTURE
Earthing & lightning protection, Fire detection and protection,
Prefabricated electrical rooms, Ventilation and air conditioning

ENGINEERING
Complete electrical & automation design & engineering, Power distribution engineering

SERVICES
Commissioning, Supervision of installation, Training
### Aitik concentrator expansion

**Country:** Sweden  |  **Plant name/location:** P.O.Box 85  
**Enduser:** Boliden Mineral AB, Sweden  
**Customer:** Boliden Mineral AB, Sweden  

**Process:** Concentrator  
**Mineral:** Copper; Gold; Silver  
**Project type:** Extension  
**Description:** Expansion to double throughput capacity from 18 to 36 million mt/y of ore.  
**Year of award:** 2007,  
**Start of operation:** 2009

**Equipment:**

**POWER DISTRIBUTION**
- Distribution transformers, Harmonic filter, HV switchgear, LV distribution, MCC motor control centers, MV switchgear, Power transformers

**MOTORS and DRIVES**
- Gearless mill drive system, LV motors, LV variable speed drives, MV motors, MV variable speed drives

**CONTROL and INSTRUMENTATION**
- Operator station, Process control system, System 800xA

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### CBA Mirai - Control of Bauxite Plant

**Country:** Brazil  |  **Plant name/location:**
**Enduser:** CBA - Cia Brasileira de Aluminio SA, Brazil  
**Customer:** CBA - Cia Brasileira de Aluminio SA, Brazil  

**Mineral:** Bauxite  
**Description:** 2 operator station, 2 controller, 1576 I/O, 204 MCC  
**Year of award:** 2007,  
**Start of operation:** 2008

**Equipment:**

**POWER DISTRIBUTION**
- MCC motor control centers

**CONTROL and INSTRUMENTATION**
- Operator station, System 800xA
### Tenke Fungurume copper cobalt concentrator

**Country:** Congo  | **Process:** Concentrator  
**Plant name/location:** Tenke Fungurume Mine  | **Mineral:** Copper  
**Enduser:** Freeport- McMoRan Copper & Gold Inc, Congo  | **Capacity:** 115'000 t/y  
**Customer:** Freeport- McMoRan Copper & Gold Inc, Congo  | **Project type:** Greenfield  
**Year of award:** 2007, **Start of operation:** 2009

**Equipment:**
- **POWER DISTRIBUTION**
  - Distribution transformers, HV switchgear, LV distribution, MCC  
  - Motor control centers, MV switchgear
- **MOTORS and DRIVES**
  - LV motors, LV variable speed drives
- **CONTROL and INSTRUMENTATION**
  - Field instrumentation, System 800xA

**ENGINEERING**
- Automation engineering

### GIIC 2nd pelletizing plant

**Country:** Bahrain  | **Process:** Pelletizing  
**Plant name/location:**  
**Enduser:** Gulf Industrial Investment Company (E.C), Bahrain  | **Mineral:** Iron Ore  
**Customer:** Kobe Steel Ltd, Japan  | **Capacity:** 6 Mio t/y  
**Contractual partner(s):** Kobe Steel Ltd, Japan  | **Project type:** Greenfield  
**Description:** Kobe technology  
**Year of award:** 2007, **Start of operation:** 2009

**Equipment:**
- **POWER DISTRIBUTION**
  - Emergency diesel generator, Harmonic filter, LV distribution, MCC  
  - Motor control centers, Power factor compensation
- **MOTORS and DRIVES**
  - LV motors, MV motors
- **CONTROL and INSTRUMENTATION**
  - Field instrumentation, Operator station, System 800xA

**ENGINEERING**
- Cable planning, Equipment design

**SERVICES**
- ACS800 - Maintenance and operation course, Commissioning, Knowledge Manager - Application engineering course, Supervision of installation, System 800xA: Applications for minerals - Config. & operation course, Training

**COLLABORATION PRODUCTION MANAGEMENT**
- Knowledge Manager

**INFRASTRUCTURE**
- Cables and installation material, Communication system, Earthing & lightning protection, Fire detection and protection, Lighting system

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Selection Criteria: Year From  2000  Year To  2012  
Mineral: Bauxite | Manganese | Chrome | Metallurgical coal | Nickel | Copper | Silver | Gold | Thermal coal | Iron ore | Uranium | Limestone | Zinc | Other | Lead

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References | 16
Oyu Tolgoi copper-gold concentrator

Country: Mongolia | Plant name/location: 
Enduser: Ivanhoe Mines Mongolia Inc., Mongolia 
Customer: Ivanhoe Mines Mongolia Inc., Mongolia 
Consultant/EPC(M): Fluor Canada Ltd 

Process: Concentrator 
Mineral: Copper; Gold; Silver 
Capacity: 500'000 
Project type: Greenfield 
Description: Concentrator located in South Gobi region of Mongolia to produce 500'000 t/y of copper and 650'000 ounces of gold 
Year of award: 2007, Start of operation: 2013

Equipment:

**POWER DISTRIBUTION**
Distribution transformers, HV switchgear, MCC motor control centers, MV switchgear, Power factor compensation, Power transformers

**MOTORS and DRIVES**
LV variable speed drives

**COLLABORATION PRODUCTION MANAGEMENT**
Expert Optimizer

**INFRASTRUCTURE**
Prefabricated electrical rooms

**ENGINEERING**
Electrical feasibility study, Equipment design, PFC and harmonic filter study, Power distribution engineering, Substation planning

**SERVICES**
Commissioning

Hosco 1&2 - new production line

Country: Iran | Plant name/location: Bikiot 
Enduser: National Iranian Steel Company "NISCO", Iran 
Contractual partner(s): MME Mines & Metals Engineering Co., Iran

Process: Direct reduction 
Mineral: Iron Ore 
Description: Process control system 
Year of award: 2007, Start of operation: 2008

Equipment:

**CONTROL and INSTRUMENTATION**
Operator station, System 800xA

**ENGINEERING**
Automation engineering

**SERVICES**
Commissioning, Supervision of installation
Shadeed Hotlink

Country: Oman  |  Plant name/location: Sohar
Enduser: Shadeed Iron & Steel L.L.C, Oman
Customer: Kobe Steel Ltd (KOBELCO), Japan
Contractual partner(s): Kobe Steel Ltd (KOBELCO), Japan
Process: Direct reduction
Mineral: Iron Ore
Project type: Greenfield
Year of award: 2007,  Start of operation: 2009

Equipment:
POWER DISTRIBUTION
HV switchgear, MV switchgear, Transformer

ENGINEERING
Equipment design

SERVICES
Supervision of installation

Onça Puma ferronickel plant

Country: Brazil  |  Plant name/location: Onça Puma mine
Enduser: Vale, Brazil
Customer: Vale, Brazil
Contractual partner(s): Progen Projetos Gerenciamento e Engenharia, Brazil
Consultant/EPC(M): Hatch
Mineral: Nickel
Capacity: 58'000 t/y
Project type: Greenfield
Description: The plant produces 220'000 t/y of FerroNickel alloy in 2 production lines with rotary kilns and electric furnaces
Year of award: 2007,  Start of operation: 2008

Equipment:
POWER DISTRIBUTION
Distribution transformers, LV distribution, MV switchgear, Power transformers

MOTORS and DRIVES
LV variable speed drives, MV variable speed drives

CONTROL and INSTRUMENTATION
Process control system, System 800xA

INFRASTRUCTURE
Prefabricated electrical rooms
Gaby-006 copper electrowinning

Country: Chile  |  Plant name/location:  
Enduser: CODELCO, Chile  
Customer: CODELCO, Chile  
Consultant/EPC(M): Fluor Chile S.A.

Process: Solvent extraction/Electro Winning  
Mineral: Copper  
Capacity: 100'000 t/y  
Project type: Greenfield  
Description: Rectifier plant for the Gaby copper oxide plant  
Year of award: 2006,  Start of operation: 2008

Equipment:

POWER DISTRIBUTION  
Harmonic filter, Power transformers, Rectifier transformer, Rectifiers, Transformer

ENGINEERING  
Equipment design, PFC and harmonic filter study

SERVICES  
Commissioning, Supervision of installation

Zam Zam 1 Control Revamping & Oxygen Injection

Country: Iran  |  Plant name/location:  Ahwaz-Bandar  
Enduser: Khouzestan Steel Co., Iran  
Customer: AscoTec GmbH, Germany

Process: Material handling/transportation  
Mineral: Iron Ore  
Capacity: 700'000 t/y  
Project type: Up-grade/Revamp  
Year of award: 2006,  Start of operation: 2007

Equipment:

MOTORS and DRIVES  
Application engineering

CONTROL and INSTRUMENTATION  
Field instrumentation, System 800xA

ENGINEERING  
Automation engineering, Wiring engineering

SERVICES  
Commissioning, Supervision of installation, Training

COLLABORATION PRODUCTION MANAGEMENT  
Knowledge Manager, Former CPM system version
Khuzestan DRI

Country: Iran  |  Plant name/location:  Ahwaz-Bandar
Enduser:  Khouzestan Steel Co., Iran
Customer:  AscoTec GmbH, Germany

Process:  Direct reduction, Material handling/transportation
Mineral:  Iron Ore
Capacity:  800'000t/y
Project type:  Greenfield
Description:  Due to raising demand, Khouzestan Steel built a complete new production line in Ahwaz.
Year of award:  2006,    Start of operation:  2007

Equipment:

POWER DISTRIBUTION
Transformer

ENGINEERING
Automation engineering

CONTROL and INSTRUMENTATION
Field instrumentation, System 800xA

SERVICES
Commissioning, Gaz analyzer course, Supervision of installation

COLLABORATION PRODUCTION MANAGEMENT
Knowledge Manager, Former CPM system version

Yabulu nickel refinery

Country: Australia  |  Plant name/location:  Yabulu Refinery
Enduser:  QNI Pty Ltd, Australia
Customer:  QNI Pty Ltd, Australia

Mineral:  Nickel
Capacity:  30'000 t/y
Description:  Process Control System with 26 operator station, 35 controller, 30'000 I/O
Year of award:  2006,    Start of operation:  2008

Equipment:

CONTROL and INSTRUMENTATION
Operator station, System 800xA

ENGINEERING
Automation engineering

SERVICES
Commissioning
Sohar PL1

Country: Oman | Plant name/location: Al Harthy Complex
Enduser: Sohar Aluminium Co. L.L.C, Oman
Customer: Sohar Aluminium Co. L.L.C, Oman
Consultant/EPC(M): Bechtel & Co. LLC
Mineral: Bauxite
Capacity: 360pots, 360kA
Project type: Greenfield
Year of award: 2006, Start of operation: 2008

Equipment:
POWER DISTRIBUTION
HV switchgear

CONTROL and INSTRUMENTATION
Process control system

INFRASTRUCTURE

Minera Condestable concentrator

Country: Peru | Plant name/location: Consorcio Minero S.A., Peru
Enduser: Trafigura CORMIN & Union del Peru SAC
Process: Concentrator
Mineral: Copper
Capacity: 5'000 t/d
Project type: Greenfield
Year of award: 2006, Start of operation: 2009

Equipment:
POWER DISTRIBUTION
Distribution transformers, LV distribution, MCC motor control centers, MV switchgear

CONTROL and INSTRUMENTATION
Field instrumentation, Process control system, System 800xA

ENGINEERING
Automation engineering, Equipment design, Power distribution engineering

SERVICES
Commissioning, Supervision of installation
Paragominas Bauxite Plant - 9,9Mtpy

Country: Brazil  | Plant name/location: Paragominas Enduser: Vale (Ex CVRD Paragominas), Brazil Customer: Vale (Ex CVRD Paragominas), Brazil

Mineral: Bauxite
Capacity: 9,9Mtpy
Project type: Extension
Description: 1 operator station, 3 controller, 4000 I/O, 150 MCC
Year of award: 2006, Start of operation: 2008

Equipment:

POWER DISTRIBUTION
MCC motor control centers

ENGINEERING

CONTROL and INSTRUMENTATION
Field instrumentation, Operator station, System 800xA

Pilot plant to produce cathode

Country: Brazil  | Plant name/location: Carajás Hydrometallurgical Plant (UHC) Enduser: Vale, Brazil Customer: Vale, Brazil

Mineral: Copper
Capacity: 10'000 t/y
Project type: Greenfield
Description: Rectifiers, instrumentation and control
Year of award: 2006, Start of operation: 2008

Equipment:

POWER DISTRIBUTION
Rectifiers

ENGINEERING
Automation engineering, Equipment design

SERVICES
Commissioning

CONTROL and INSTRUMENTATION
Field instrumentation, Operator station, Process control system, System 800xA
Chador Malu extension line 4

Country: Iran | Plant name/location: Chador Malu Mining & Industrial Co., Iran
Enduser: Chador Malu Mining & Industrial Co., Iran
Customer: National Iranian Steel Co. "NISCO", Iran
Contractual partner(s): Kobe Steel Ltd, Japan
Process: Benefication
Mineral: Iron Ore
Capacity: 1.7 Mio t/y
Project type: Extension
Description: Electrification and control of Line 4 as well as modernization of control system for lines 1-3
Year of award: 2005, Start of operation: 2007

Equipment:

**POWER DISTRIBUTION**
- MCC motor control centers

**ENGINEERING**
- Automation engineering, Equipment design

**MOTORS and DRIVES**
- LV motors, LV variable speed drives, MV motors, MV variable speed drives

**SERVICES**
- Commissioning, Supervision of installation

**CONTROL and INSTRUMENTATION**
- Field instrumentation, Operator station, Process control system, System 800xA

**INFRASTRUCTURE**
- Communication system, Fire detection and protection

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Cerro Lindo zinc and lead concentrator

Country: Peru | Plant name/location: Minera Cerro Lindo
Enduser: Compañía Minera Milpo, Peru
Customer: Compañía Minera Milpo, Peru
Process: Concentrator
Mineral: Zinc; Lead
Capacity: 5'000 t/d
Project type: Greenfield
Description: Plantwide automation and instrumentation system
Year of award: 2005, Start of operation: 2007

Equipment:

**CONTROL and INSTRUMENTATION**
- Control room equipment, Operator station, Process control system, System 800xA

**ENGINEERING**
- Automation engineering, Equipment design

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Selection Criteria: Year From 2000 Year To 2012
Mineral: Bauxite | Manganese | Chrome | Metallurgical coal | Nickel | Copper | Silver | Gold | Thermal coal | Iron ore | Uranium | Limestone | Zinc | Other | Lead

References | 23
LKAB MK3 - pelletizing plant and concentrator expansion

Country: Sweden  | Plant name/location: Malmberget
Enduser: LKAB, Sweden
Customer: LKAB, Sweden

Process: Concentrator, Material handling/transportation, Pelletizing
Mineral: Iron Ore
Capacity: 2.5 - 4 million t/y
Project type: Extension
Description: Expansion of the existing 145kV switchyard and concentrator and a new pellet plant in northern Sweden.
Year of award: 2005, Start of operation: 2006

Equipment:

**POWER DISTRIBUTION**
Distribution transformers, Emergency diesel generator, HV switchgear, LV distribution, MCC motor control centers, MV switchgear, Power factor compensation, Power transformers, Transformer

**ENGINEERING**
Automation engineering, Cable planning, Complete electrical & automation design & engineering, Network study, PFC and harmonic filter study, Power distribution engineering, Power system study

**SERVICES**
Commissioning, Supervision of installation

**MOTORS and DRIVES**
LV motors, LV variable speed drives, MV motors, MV variable speed drives

**POWER DISTRIBUTION**
Distribution transformers, Emergency diesel generator, HV switchgear, LV distribution, MCC motor control centers, MV switchgear, Power factor compensation, Power transformers, Transformer

**SERVICES**
Commissioning, Supervision of installation

**CONTROL and INSTRUMENTATION**
Field instrumentation, System 800xA

**COLLABORATION PRODUCTION MANAGEMENT**
Knowledge Manager

Sungun Tailings PCS project

Country: Iran  | Plant name/location: Sungun Copper Complex
Enduser: National Iranian Copper Industries Co. "NICICO", Iran
Customer: National Iranian Copper Industries Co. "NICICO", Iran
Consultant/EPC(M): Pooyesh Tec Pars

Mineral: Copper
Capacity: 300'000 t/y
Project type: Greenfield
Description: Process control system with 5 operator station, 5 controllers, 1'600 I/O
Year of award: 2005, Start of operation: 2007

**CONTROL and INSTRUMENTATION**
Operator station, Process control system, System 800xA

**ENGINEERING**
Automation engineering

**SERVICES**
Commissioning, Supervision of installation

Selection Criteria: Year From 2000 Year To 2012
Mineral: Bauxite | Manganese | Chrome | Metallurgical coal | Nickel | Copper | Silver | Gold | Thermal coal | Iron ore | Uranium | Limestone | Zinc | Other | Lead

References | 24
Isal Unit C5

Country: Iceland  | Plant name/location: Straumsvik
Enduser: Rio Tinto Alcan, Iceland
Mineral: Bauxite
Project type: Extension
Year of award: 2005, Start of operation: 2006

Equipment:
POWER DISTRIBUTION
Transformer

CONTROL and INSTRUMENTATION
Process control system, Former ABB Process Control system

SERVICES

Cerro Verde plant electrification & drives

Country: Peru  | Plant name/location: Cerro Verde
Enduser: Sociedad Minera Cerro Verde S.A.A., Peru
Customer: Sociedad Minera Cerro Verde S.A.A., Peru
Consultant/EPC(M): Fluor Canada Ltd
Mineral: Copper
Process: Concentrator
Capacity: 200'000 t/y
Project type: Greenfield
Description: Primary sulphate plant located close to Arequipa
Year of award: 2005, Start of operation: 2007

Equipment:
POWER DISTRIBUTION
Distribution transformers, Harmonic filter, HV switchgear, MV switchgear, Power transformers, Rectifier transformer

MOTORS and DRIVES
Gearless mill drive system, LV variable speed drives, MV variable speed drives

ENGINEERING
Equipment design, Power distribution engineering

SERVICES
Commissioning, Supervision of installation, Training
**Paragominas Bauxite Plant - 4,5Mtpy**

Country: Brazil  | Plant name/location: Paragominas  
Enduser: Vale (Ex CVRD Paragominas), Brazil  
Customer: Vale (Ex CVRD Paragominas), Brazil  
Mineral: Bauxite  
Capacity: 4,5 Mtpy  
Project type: Greenfield  
Description: 4 operator station, 12 controller, 6000 I/O, 300 MCC  
Year of award: 2005, Start of operation: 2007  

**Equipment:**  
**POWER DISTRIBUTION**  
MCC motor control centers  
**ENGINEERING**  
CONTROL and INSTRUMENTATION  
Field instrumentation, Operator station, System 800xA

**Nordural Potline 2**

Country: Iceland  | Plant name/location: Grundartangi  
Enduser: Nordural Nordic Aluminum, Iceland  
Mineral: Bauxite  
Project type: Extension  
Year of award: 2004, Start of operation: 2006  

**Equipment:**  
**POWER DISTRIBUTION**  
Rectifier transformer  
**SERVICES**  
CONTROL and INSTRUMENTATION  
Process control system, Former ABB Process Control system  
**INFRASTRUCTURE**  
Cables and installation material
**Gol-E-Gohar pellet plant**

Country: Iran  |  Plant name/location:  Gol-e-Gohar Iron Ore, Iran
Enduser: Gol-e-Gohar Iron Ore, Iran
Customer: Gol-e-Gohar Iron Ore, Iran
Contractual partner(s): Outokumpu Technology, Germany; TAIM WESER S.A, Spain; CIC Concrete Industries & Copper, Iran

Process: Pelletizing
Mineral: Iron Ore
Capacity: 5 Mio t/y
Project type: Greenfield
Description: Electrification and control for a pelletizing plant using Outokumpu (Lurgi) process
Year of award: 2003,  Start of operation: 2007

---

### Equipment:

**POWER DISTRIBUTION**
- Distribution transformers, Harmonic filter, LV distribution, MCC motor control centers, MV switchgear, Power factor compensation, Power transformers

**MOTORS and DRIVES**
- LV motors, LV variable speed drives, MV motors, MV variable speed drives

**CONTROL and INSTRUMENTATION**
- Control room equipment, Field instrumentation, Process control system, System 800xA

**COLLABORATION PRODUCTION MANAGEMENT**
- Knowledge Manager

**INFRASTRUCTURE**
- Cables and installation material

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**Toquepala leaching plant**

Country: Peru  |  Plant name/location: Toquepala
Enduser: Southern Peru Copper Corp., Peru
Customer: Southern Peru Copper Corp., Peru

Process: Solvent extraction/Electro Winning
Mineral: Copper
Capacity: 110'000 t/y
Project type: Extension
Description: Electrification system
Year of award: 2002,  Start of operation: 2004

---

### Equipment:

**POWER DISTRIBUTION**
- Distribution transformers, LV distribution, MV switchgear, Power transformers

**ENGINEERING**
- Automation engineering, Cable planning, Complete electrical & automation design & engineering, Equipment design, Network study, PFC and harmonic filter study, Power distribution engineering, Power system study

**SERVICES**
- Commissioning, Supervision of installation, Training
**Sossego concentrator electrification & drives**

Country: Brazil  | Plant name/location:  Sossego
Enduser: Vale, Brazil
Customer: Vale, Brazil
Consultant/EPC(M): Aker Kvaerner

**Process:** Concentrator
**Mineral:** Copper
**Capacity:** 467'000 t/y
**Project type:** Greenfield
**Description:** Concentrator has an average annual production capacity of 467'000 tons of copper concentrate which is equivalent to 140'000 tons of copper
**Year of award:** 2002,  **Start of operation:** 2004

**Equipment:**
- **POWER DISTRIBUTION**
  - HV switchgear, MV switchgear
- **MOTORS and DRIVES**
  - FSD Single LCI, Gearless mill drive system, LV variable speed drives, MV variable speed drives
- **CONTROL and INSTRUMENTATION**
  - Process control system, System 800xA

**ENGINEERING**
- Automation engineering, Equipment design, Power distribution engineering, Substation planning

**SERVICES**
- Commissioning, Supervision of installation, Training

**Dunkerque, PL1 (Booster)**

Country: France  | Plant name/location: Dunkerque, PL1 (Booster)
Enduser: Aluminium Pechiney S.A, France

**Mineral:** Bauxite
**Project type:** Up-grade/Revamp
**Year of award:** 2001,  **Start of operation:**

**Equipment:**
- **POWER DISTRIBUTION**

**CONTROL and INSTRUMENTATION**
- Process control system
Ardakan pellet plant electrification and control

Country: Iran  | Plant name/location: Ardakan
Enduser: Chador Malu Industrial & Mining Company, Iran
Customer: National Iranian Steel Co. "NISCO", Iran
Contractual partner(s): Kobe Steel Ltd, Japan; TAIM WESER S.A., Spain

Process: Pelletizing
Mineral: Iron Ore
Capacity: 3 Mio t/y
Project type: Greenfield

Engineering
Automation engineering, Cable planning, Complete electrical & automation design & engineering, Equipment design, Network study, PFC and harmonic filter study, Power distribution engineering

Services
Commissioning, Supervision of installation, Training

Power Distribution
Emergency diesel generator, LV distribution, MCC motor control centers, Power factor compensation

Motors and Drives
FSD Single (motor), FSD Single (motor) + starter, LV motors, LV variable speed drives, MV motors, MV variable speed drives, VSD Single

Control and Instrumentation
Field instrumentation, Process control system, Video system

Collaboration Production Management
Knowledge Manager

Infrastructure
Cables and installation material

Sunndal PL4

Country: Norway  | Plant name/location: Sunndal PL4
Enduser: Hydro Aluminium A. S., Norway

Mineral: Bauxite
Project type: Up-grade/Revamp
Year of award: 2001, Start of operation:

Equipment:

Power Distribution

Control and Instrumentation
Process control system

Selection Criteria: Year From 2000 Year To 2012
Mineral: Bauxite | Manganese | Chrome | Metallurgical coal | Nickel | Copper | Silver | Gold | Thermal coal | Iron ore | Uranium | Limestone | Zinc | Other | Lead

References    29

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**Sungun copper concentrator - drives and automation**

- **Country**: Iran  | **Plant name/location**: Sungun Copper Complex
- **Enduser**: National Iranian Copper Industries Co. "NICICO", Iran
- **Customer**: National Iranian Copper Industries Co. "NICICO", Iran
- **Contractual partner(s)**: Metso Systems AB, Sweden
- **Consultant/EPC(M)**: IRITEC Iran International Engineering Co.

**Process**: Concentrator  
**Mineral**: Copper  
**Capacity**: 300'000 t/y  
**Project type**: Greenfield  
**Description**: Largest open-cast copper mine in Iran, located in East Azerbaijan  
**Year of award**: 2001  
**Start of operation**: 2007

**Equipment**:

- **MOTORS and DRIVES**
  - FSD Single (motor), LV variable speed drives, MV variable speed drives, VSD Single

- **CONTROL and INSTRUMENTATION**
  - Process control system, System 800xA

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**Grundartangi, PL1 (Booster)**

- **Country**: Iceland  
  | **Plant name/location**: Grundartangi
- **Enduser**: Nordural Nordic Aluminum, Iceland
- **Mineral**: Bauxite
- **Project type**: Up-grade/Revamp
- **Year of award**: 2001  
**Start of operation**:

**Equipment**:

- **CONTROL and INSTRUMENTATION**
  - Process control system

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Selection Criteria: Year From 2000 Year To 2012

Mineral: Bauxite | Manganese | Chrome | Metallurgical coal | Nickel | Copper | Silver | Gold | Thermal coal | Iron ore | Uranium | Limestone | Zinc | Other | Lead

References | 30

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Renukoot, PL9-11

Country: India  |  Plant name/location:  
Enduser: Hindalco Industries Ltd. (Plant), India
Mineral: Bauxite
Project type: Up-grade/Revamp
Year of award: 2000,  Start of operation:

Equipment:
CONTROL and INSTRUMENTATION
Process control system

Escondida concentrator phase IV

Country: Chile  |  Plant name/location:  Escondida
Enduser: Minera Escondida Limitada, Chile
Customer: Minera Escondida Limitada, Chile
Consultant/EPC(M): BECHTEL Chile Ltda.

Process: Concentrator
Mineral: Copper
Capacity: 600'000 t/y
Project type: Extension
Description: Largest single-phase expansion of the world's largest open-pit copper mine
Year of award: 2000,  Start of operation: 2002

Equipment:
MOTORS and DRIVES
Gearless mill drive system, MV variable speed drives
CONTROL and INSTRUMENTATION
Process control system, System 800xA

ENGINEERING
Automation engineering, Equipment design, PFC and harmonic filter study

SERVICES
Commissioning, Supervision of installation, Training
Yanacocha leaching & refining

Country: Peru  | Plant name/location:  Cajamarca
Enduser: Minera Yanacocha SA, Peru
Mineral: Gold
Year of award: 2000, Start of operation:

Equipment:
POWER DISTRIBUTION
Distribution transformers, HV switchgear, LV distribution, MCC
motor control centers, MV switchgear, Power factor compensation,
Power transformers

Bikiot ore handling and port facilities

Country: Iran  | Plant name/location:  Bikiot
Enduser: National Iranian Steel Co. "NISCO", Iran
Contractual partner(s): TAIM WESER S.A, Spain
Mineral: Iron Ore
Capacity: 2.5 Mio t/y
Project type: Greenfield
Description: Ore handling terminal
Year of award: 2000, Start of operation: 2004

Equipment:
POWER DISTRIBUTION
LV distribution, MCC motor control centers, MV switchgear, Power
factor compensation
MOTORS and DRIVES
LV motors, MV motors, VSD Single
CONTROL and INSTRUMENTATION
Field instrumentation, Process control system
INFRASTRUCTURE
Cables and installation material, Lighting system

References | 32
Pingguo, PL2

Country: China  |  Plant name/location: Pingguo Aluminium Ind. Co., China
Enduser: Pingguo Aluminium Ind. Co., China
Mineral: Bauxite
Project type: Up-grade/Revamp
Year of award: 2000, Start of operation:

Equipment:

POWER DISTRIBUTION

CONTROL and INSTRUMENTATION
Process control system

Toquepala concentrator

Country: Peru  |  Plant name/location: Toquepala
Enduser: Southern Peru Copper Corp., Peru
Customer: Southern Peru Copper Corp., Peru
Process: Concentrator
Mineral: Copper
Capacity: 60'000 tpd
Project type: Extension
Description: Plantwide process control system
Year of award: 2000, Start of operation: 2002

Equipment:

CONTROL and INSTRUMENTATION
Control room equipment, Process control system, System 800xA,
Former ABB Process Control system

ENGINEERING
Automation engineering

SERVICES
Commissioning, Supervision of installation
### Vale Vitoria - pelletizing plant, lines 1-7 and utilities

<table>
<thead>
<tr>
<th>Country: Brazil</th>
<th>Plant name/location: Vitoria / Ponta de Tubarao</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enduser: Vale, Brazil</td>
<td></td>
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<tr>
<td>Process: Pelletizing</td>
<td></td>
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<tr>
<td>Mineral: Iron Ore</td>
<td></td>
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<tr>
<td>Capacity: 26 Mio t/y</td>
<td></td>
</tr>
<tr>
<td>Project type: Up-grade/Revamp</td>
<td></td>
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<tr>
<td>Description: Plantwide automation upgrade</td>
<td></td>
</tr>
<tr>
<td>Year of award: 2000, Start of operation: 2004</td>
<td></td>
</tr>
</tbody>
</table>

#### Equipment:

**CONTROL and INSTRUMENTATION**
ABB Controller 800F, Process control system, Former ABB Process Control system

**ENGINEERING**
Automation engineering, Cable planning

**SERVICES**
Commissioning, Installation work, Supervision of installation, Training

**INFRASTRUCTURE**
Cables and installation material

### Sao Luis pellet plant

<table>
<thead>
<tr>
<th>Country: Brazil</th>
<th>Plant name/location: Sao Luis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enduser: Vale, Brazil</td>
<td></td>
</tr>
<tr>
<td>Customer: Vale, Brazil</td>
<td></td>
</tr>
<tr>
<td>Process: Material handling/transportation, Pelletizing</td>
<td></td>
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<tr>
<td>Mineral: Iron Ore</td>
<td></td>
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<tr>
<td>Capacity: 7.5 million t/y</td>
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<tr>
<td>Project type: Greenfield</td>
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<tr>
<td>Description: Vale's twelfth pelletizing plant located in Maranhão state is considered the largest pellet plant in the world</td>
<td></td>
</tr>
<tr>
<td>Year of award: 2000, Start of operation: 2002</td>
<td></td>
</tr>
</tbody>
</table>

#### Equipment:

**POWER DISTRIBUTION**
Harmonic filter, MCC motor control centers, Power factor compensation

**ENGINEERING**
Automation engineering, Equipment design, Power distribution engineering

**SERVICES**
Commissioning, Supervision of installation

**MOTORS and DRIVES**
FSD Single (motor), LV variable speed drives, MV motors, MV variable speed drives, VSD Single

**CONTROL and INSTRUMENTATION**
ABB Controller 800F, Field instrumentation, Operator station, Process control system