

References by activity



Electricity



References by activity



Electricity transmission





ELECTRICITY TRANSMISSION

BRILHANTE

LOCATION ▶ Mato Grosso do Sul State (Brazil)

CUSTOMER ▶ Brilhante Transmissora de Energia (BTE)

TENDER ▶ ANEEL 008/2008. Lot B

PROJECT SCOPE:

Engineering, supply, construction, commissioning, maintenance and operation under concession through a consortium of 50% of an electricity transmission system comprising 470 km of 230/138 kV lines and 8 substations (4 owned) with a transformation capacity of 300 MVA

EPC AMOUNT ▶ EUR 136 million (ENO 50%)

INVESTMENT ▶ BRL 370 million

START DATE ▶ april 2009

FINISH DATE ▶ november 2010

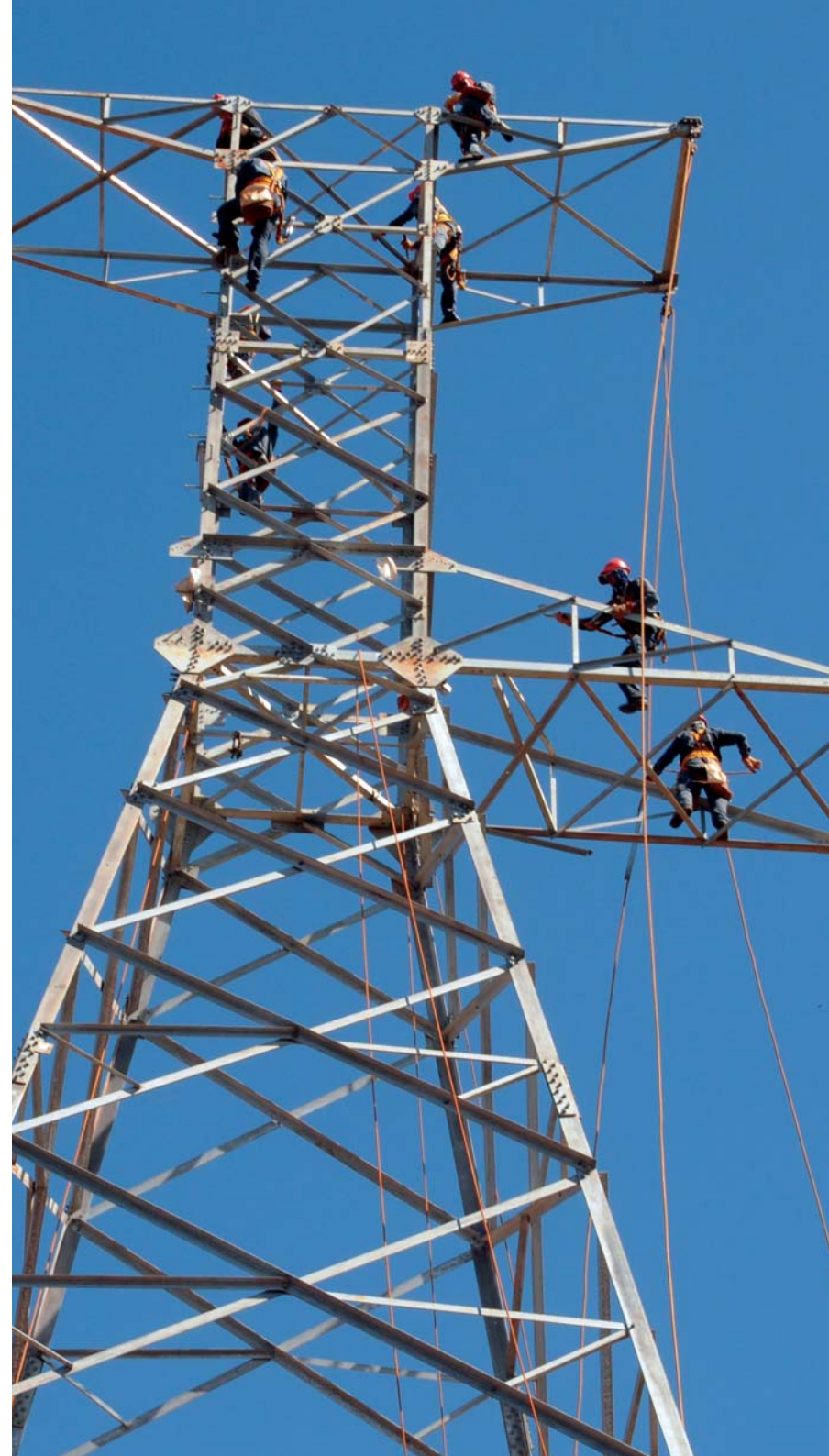
CHARACTERISTICS:

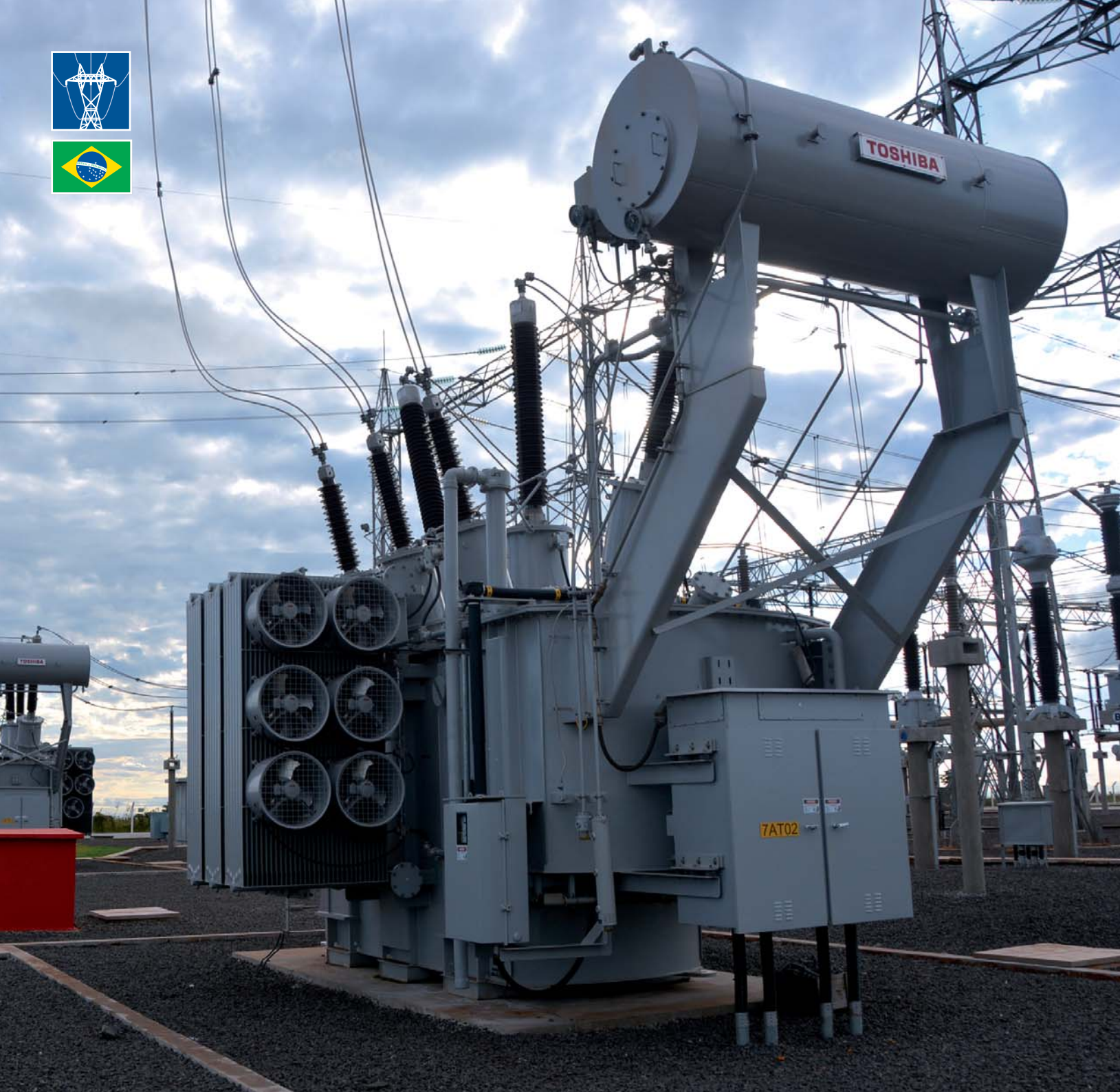
- ▶ High voltage 230 kV, Imbirussu–Sidrolândia, 43.5 km
- ▶ High voltage 230 kV, Sidrolândia–Anastácio, 105.2 km
- ▶ High voltage 230 kV, Chapadão–Imbirussu, 309.4 km
- ▶ High voltage 230 kV, Santa Luzia II–Rio Brilhante, 10.1 km
- ▶ High voltage 230 kV, Santa Luzia II–Eldorado, 37.8 km
- ▶ High voltage 230 kV switching, Nova Porto Primavera–Imbirussu, 2.7 km
- ▶ High voltage 230 kV switching, Nova Porto Primavera–Dourados
- ▶ Substations - Imbirussu 230 kV; Sidrolândia 230 kV; Anastácio 230 kV; Santa Luzia I 138 kV; Santa Luzia II 230 kV; Eldorado 138 kV; Rio Brilhante 230/138 kV; Ivinhema 230 kV; Chapadão 138/230 kV



SOUTH AMERICA
Mato Grosso do Sul State (Brazil)

ELECTRICITY TRANSMISSION
BRILHANTE





ELECTRICITY TRANSMISSION

BRILHANTE II

LOCATION ▶ Mato Grosso do Sul State (Brazil)

CUSTOMER ▶ Brilhante II Transmissora de Energia (BTE II)

PROJECT SCOPE:

Engineering, supply, construction, commissioning, maintenance and operation under concession through a consortium of 50% of a substation with a transformation capacity of 200 MVA

EPC AMOUNT ▶ EUR 8 million (ENO 50%)

INVESTMENT ▶ BRL 28.5 million

START DATE ▶ october 2012

FINISH DATE ▶ november 2014

CHARACTERISTICS:

▶ 230/138 kV substation



SOUTH AMERICA
Mato Grosso do Sul State (Brazil)

ELECTRICITY TRANSMISSION
BRILHANTE II





ELECTRICITY TRANSMISSION

CACHOEIRA

LOCATION ▶ Sao Paulo State (Brazil)

CUSTOMER ▶ Cachoeira Paulista Transmissora de Energia (CPTE)

TENDER ▶ ANEEL 002/2002. Lot E

PROJECT SCOPE:

Engineering, supply, construction, commissioning, maintenance and operation under concession until July 2011 of an electricity transmission system comprising 181 km of 500 kV lines and 2 substations with a transformation capacity of 2,720 MVA

EPC AMOUNT ▶ EUR 47 million (ENO 33%)

INVESTMENT ▶ BRL 205.4 million

START DATE ▶ december 2002

FINISH DATE ▶ december 2004

CHARACTERISTICS:

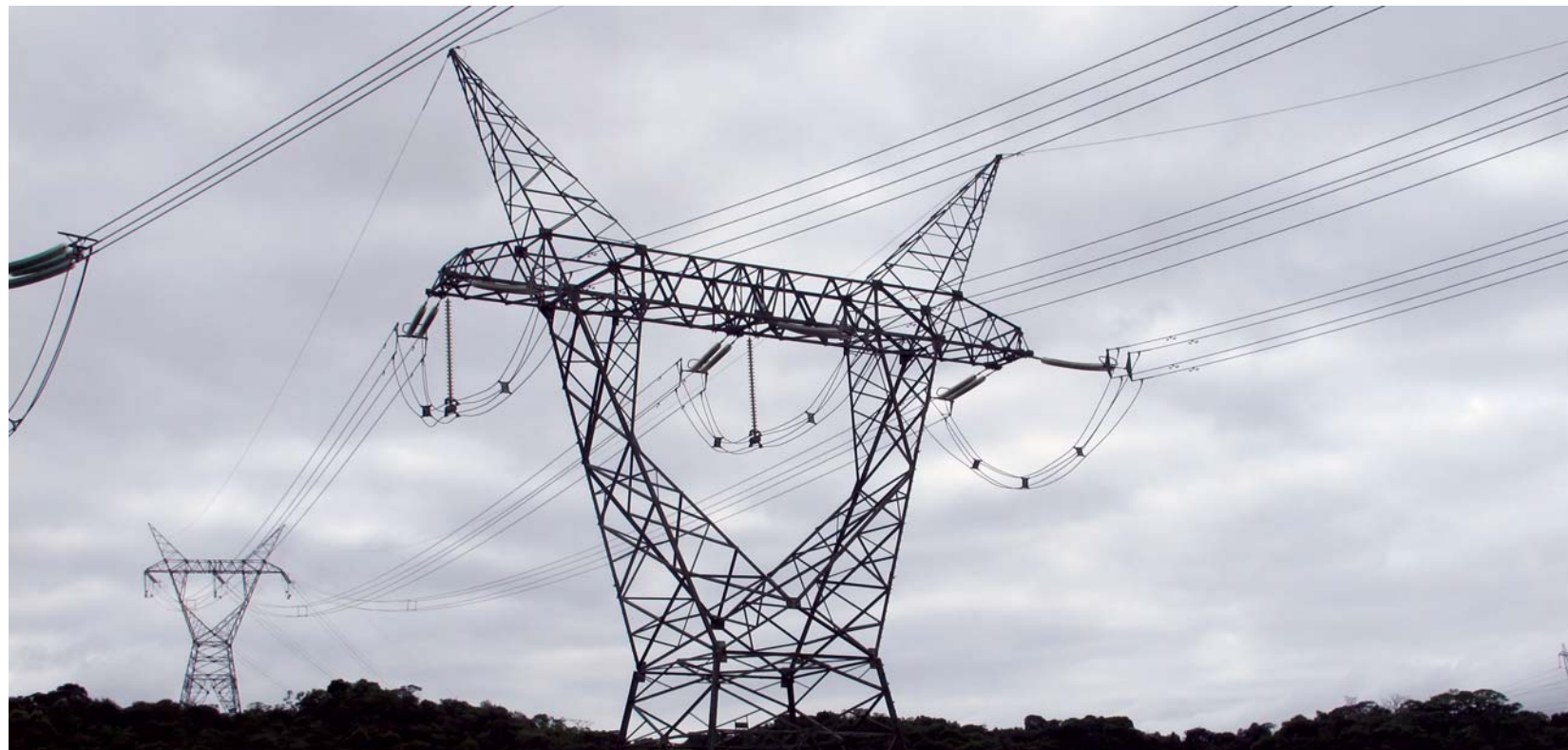
- ▶ 500 kV high voltage, Tijuco Preto–Cachoeira Paulista
- ▶ Cachoeira Paulista substation
- ▶ Tijuco Preto substation



SOUTH AMERICA

Sao Paulo State (Brazil)

ELECTRICITY TRANSMISSION
CACHOEIRA





ELECTRICITY TRANSMISSION

CAIUÁ

LOCATION ▶ Paraná State (Brazil)

CUSTOMER ▶ Caiuá Transmissora de Energia (CATE)

TENDER ▶ ANEEL 006/2011. Lot E

PROJECT SCOPE:

Engineering, supply, construction, commissioning, maintenance and operation under concession through a consortium of 51% of an electricity transmission system comprising 135 km of 230 kV lines and 7 substations (5 owned) with a transformation capacity of 700 MVA

EPC AMOUNT ▶ EUR 54 million

INVESTMENT ▶ BRL 183 million

START DATE ▶ may 2013

FINISH DATE ▶ july 2014

CHARACTERISTICS:

- ▶ High voltage 230 kV Umuarama–Guaira line, single circuit of 105 km starting at the Umuarama Sul substation and finishing at the Guaira substation.
- ▶ High voltage 230 kV Cascavel Oeste-Cascavel Norte line, single circuit of 36 km starting at the Cascavel Oeste substation and finishing at the Cascavel Norte substation.
- ▶ Santa Quiteria substation, 230/69 kV 2 x 150MVA and 230/13.8 kV 2 x 50 MVA
- ▶ Cascavel Norte substation, 230/138 kV 2 x 150 MVA
- ▶ Underground high voltage 230 kV line, 0.9 km
- ▶ Underground high voltage 138 kV line, 0.2 km

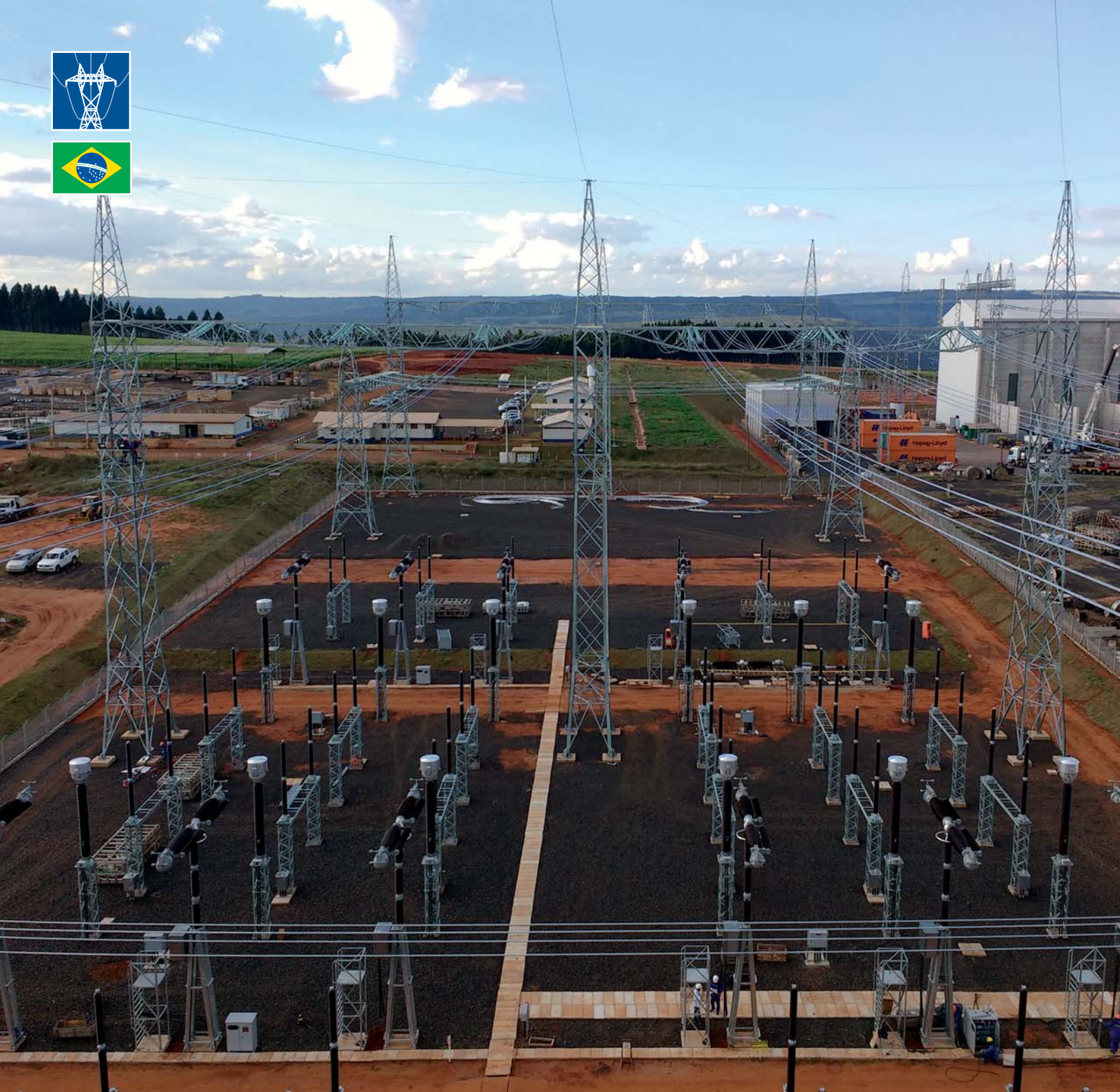


SOUTH AMERICA

Paraná State (Brazil)

ELECTRICITY TRANSMISSION
CAIUÁ





ELECTRICITY TRANSMISSION

CANTAREIRA

LOCATION ▶ São Paulo and Minas Gerais states (Brazil)

CUSTOMER ▶ Cantareira Transmissora de Energia (CANTE)

TENDER ▶ ANEEL 001/2014. Lot F

PROJECT SCOPE:

Engineering, supply, construction, commissioning and maintenance, and operation under a concession through a consortium - 51% of an electricity transmission system comprising 328 km of 500 kV lines and 2 substations

EPC AMOUNT ▶ EUR 248 million

INVESTMENT ▶ BRL 796.5 million

START DATE ▶ 2015

FINISH DATE ▶ 2018

CHARACTERISTICS:

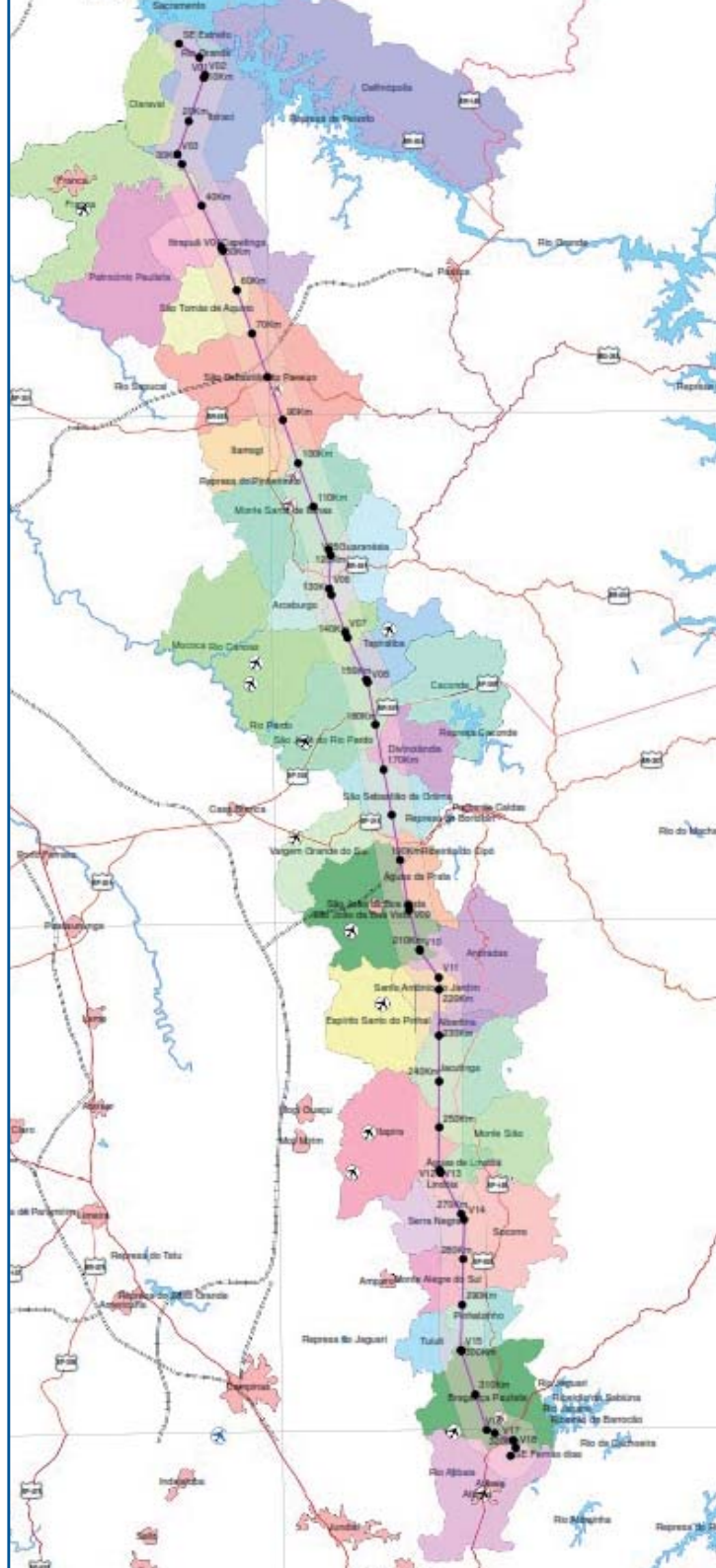
▶ 500 kV HV Estreito-Fernão Dias line with a 328 km dual circuit



SOUTH AMERICA

São Paulo and Minas Gerais states
(Brazil)

ELECTRICITY TRANSMISSION CANTAREIRA





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ELECTRICITY TRANSMISSION **COQUEIROS**

LOCATION ▶ Goiás State (Brazil)

CUSTOMER ▶ Coqueiros Transmissora de Energia (CTE)

TENDER ▶ ANEEL 004/2008. Lot L

PROJECT SCOPE:

Engineering, supply, construction, commissioning, maintenance and operation under concession of an electricity transmission system comprising 65 km of 500/230 kV lines and 5 substations (2 owned) with a transformation capacity of 675 MVA

EPC AMOUNT ▶ EUR 38 million

INVESTMENT ▶ BRL 95 million

START DATE ▶ december 2008

FINISH DATE ▶ august 2010

CHARACTERISTICS:

- ▶ HV 230 kV Itaguaçu–Barra dos Coqueiros, 45 km
- ▶ HV 500 kV São Simão–Itaguaçu, 19 km
- ▶ Itaguaçu 500/230 kV substation, 675 MVA
- ▶ Barra dos Coqueiros substation, 230 kV
- ▶ São Simão substation, 500 kV



SOUTH AMERICA

Goias State (Brazil)

ELECTRICITY TRANSMISSION
COQUEIROS





ELECTRICITY TRANSMISSION

CORUMBÁ

LOCATION ▶ Mato Grosso do Sul State (Brazil)

CUSTOMER ▶ Linha de Transmissão de Corumbá (LTC)

TENDER ▶ ANEEL 008/2010. Lot G

PROJECT SCOPE:

Engineering, supply, construction, commissioning, maintenance and operation under concession of an electricity transmission system comprising 282 km of 230 kV lines and 2 substations (1 owned) with a transformation capacity of 200 MVA

EPC AMOUNT ▶ EUR 83 million

INVESTMENT ▶ BRL 248.4 million

START DATE ▶ october 2011

FINISH DATE ▶ october 2013

CHARACTERISTICS:

- ▶ HV 230 kV line, Anastácio-Corumbá, 282 km
- ▶ Corumbá 230/138 kV substation, 2x100 MVA
- ▶ Anastácio 230 kV substation, 2x20 MVA



SOUTH AMERICA

Mato Grosso do Sul State (Brazil)

ELECTRICITY TRANSMISSION
CORUMBÁ





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ELECTRICITY TRANSMISSION

ENCRUZO NOVO

LOCATION ▶ Maranhão State (Brazil)

CUSTOMER ▶ Encruzo Novo Transmissora de Energia (ENTE)

TENDER ▶ ANEEL 001/2010. Lot E

PROJECT SCOPE:

Engineering, supply, construction, commissioning, maintenance and operation under concession of an electricity transmission system comprising 240 km of 230 kV lines and 2 substations (1 owned) with a transformation capacity of 100 MVA

EPC AMOUNT ▶ EUR 35 million

INVESTMENT ▶ BRL 90 million

START DATE ▶ december 2010

FINISH DATE ▶ december 2012

CHARACTERISTICS:

- ▶ HV 230 kV Miranda-Encruzo Novo line, 240 km
- ▶ Encruzo Novo 230/69 kV substation, 1x100 MVA



SOUTH AMERICA

Maranhão State (Brazil)

ELECTRICITY TRANSMISSION

ENCRUZO NOVO





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ELECTRICITY TRANSMISSION **EXPANSIÓN**

LOCATION ▶ Goiás, Distrito Federal and Minas Gerais States (Brazil)

CUSTOMER ▶ Expansión Transmissão de Energia Elétrica (ETEE)

TENDER ▶ ANEEL 002/2000. Lot B

PROJECT SCOPE:

Engineering, supply, construction, commissioning and maintenance, and operation under a concession until December 2010 of an electricity transmission system comprising 581 km of 500 kV lines and 3 substations

EPC AMOUNT ▶ EUR 127 million (ENO 25%)

INVESTMENT ▶ BRL 372 million

START DATE ▶ december 2000

FINISH DATE ▶ december 2002

CHARACTERISTICS:

- ▶ HV 500 kV Samambaia-Itumbiara line
- ▶ HV 500 kV Samambaia-Emborcação line
- ▶ Itumbiara, Samambaia and Emborcação 500 kV substations



SOUTH AMERICA

Goiás, Distrito Federal and Minas Gerais States (Brazil)

ELECTRICITY TRANSMISSION EXPANSIÓN





ELECTRICITY TRANSMISSION

INTEGRAÇÃO MARANHENSE

LOCATION ▶ Maranhão State (Brazil)

CUSTOMER ▶ Integração Maranhense
Transmissora de Energia (IMTE)

TENDER ▶ ANEEL 006/2011. Lot I

PROJECT SCOPE:

Engineering, supply, construction, commissioning and maintenance, and operation under a concession through a consortium (ENO, 51%) of an electricity transmission system comprising 365 km of 500 kV lines and 2 substations

EPC AMOUNT ▶ EUR 107 million

INVESTMENT ▶ BRL 321.8 million

START DATE ▶ november 2012

FINISH DATE ▶ december 2014

CHARACTERISTICS:

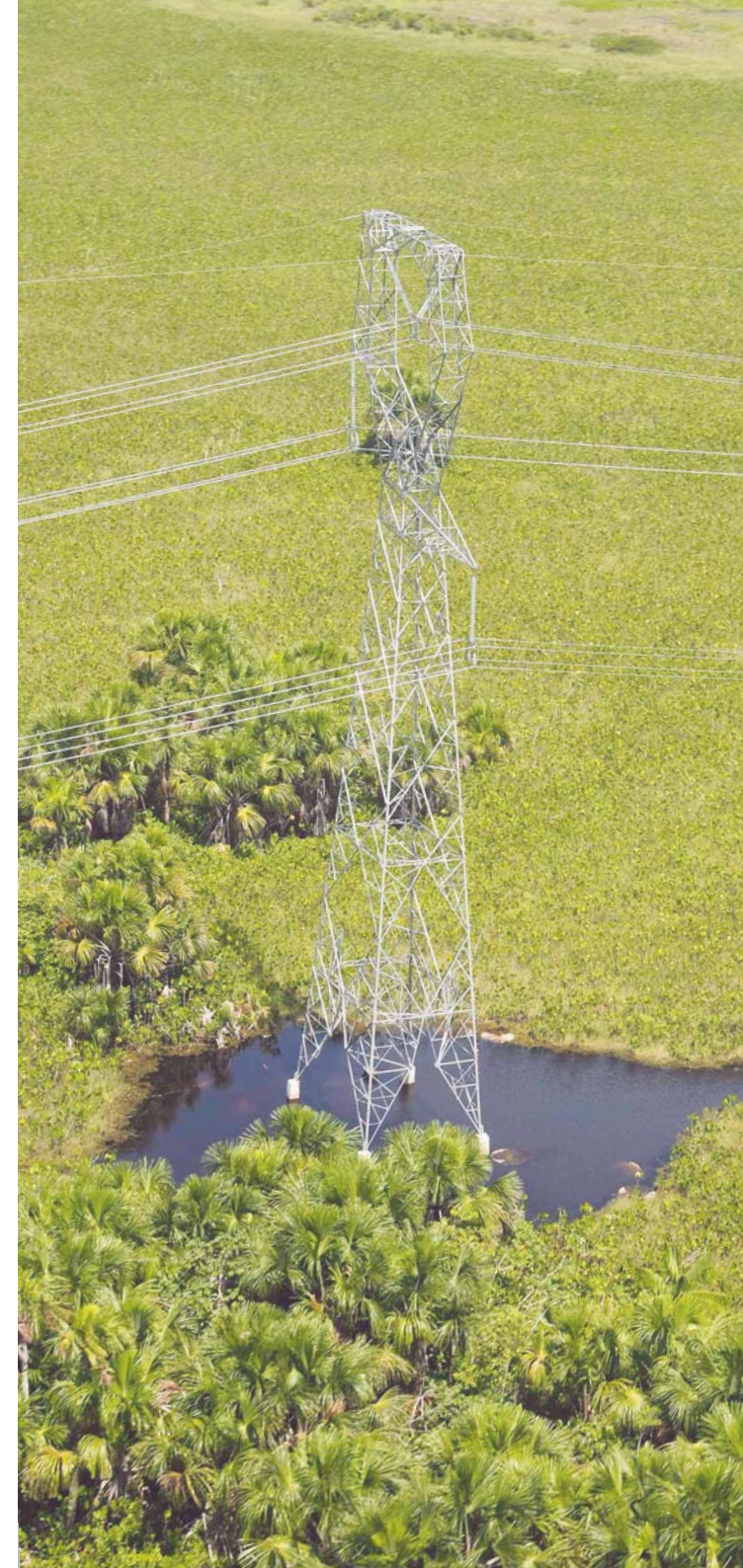
- ▶ 500 kV line in Maranhão State - 365 km between the Açailândia substation and the Miranda II substation, 1 circuit
- ▶ Açailândia substation and Miranda II substation, 500 kV



SOUTH AMERICA

Maranhão State (Brazil)

ELECTRICITY TRANSMISSION
**INTEGRAÇÃO
MARANHENSE**





ELECTRICITY TRANSMISSION

ITUMBIARA

LOCATION ▶ Mato Grosso and Goiás states (Brazil)

CUSTOMER ▶ Itumbiara Transmissora de Energia (ITE)

TENDER ▶ ANEEL 001/2004. Lot A

PROJECT SCOPE:

Engineering, supply, construction, commissioning, maintenance and operation under concession until December 2010 of an electricity transmission system comprising 817 km of 500 kV lines and 3 substations (2 owned) with a transformation capacity of 1,150 MVA

EPC AMOUNT ▶ EUR 263 million (ENO 33%)

INVESTMENT ▶ BRL 762.1 million

START DATE ▶ july 2005

FINISH DATE ▶ november 2006

CHARACTERISTICS:

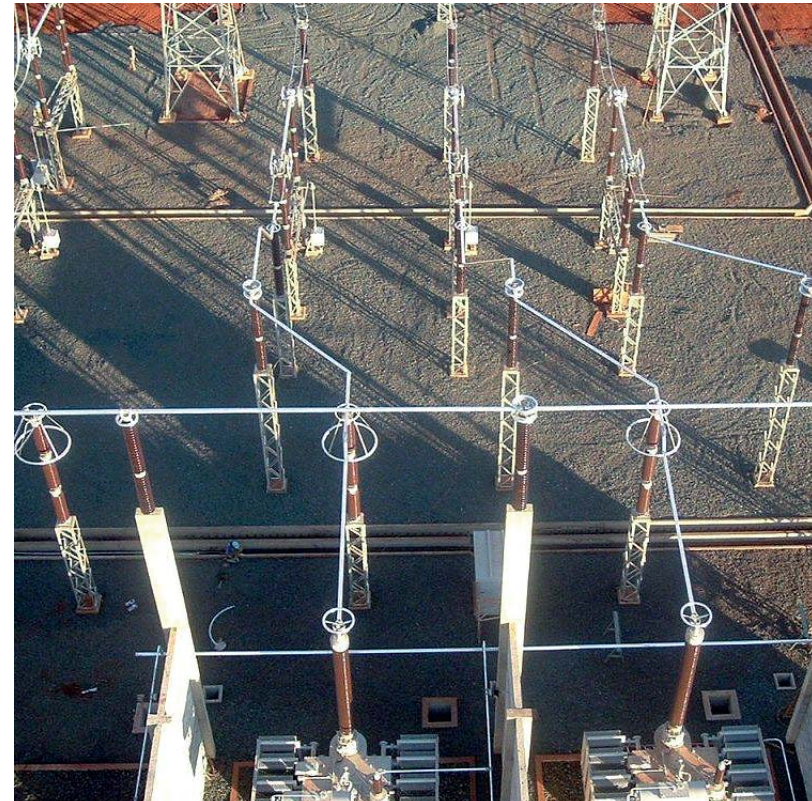
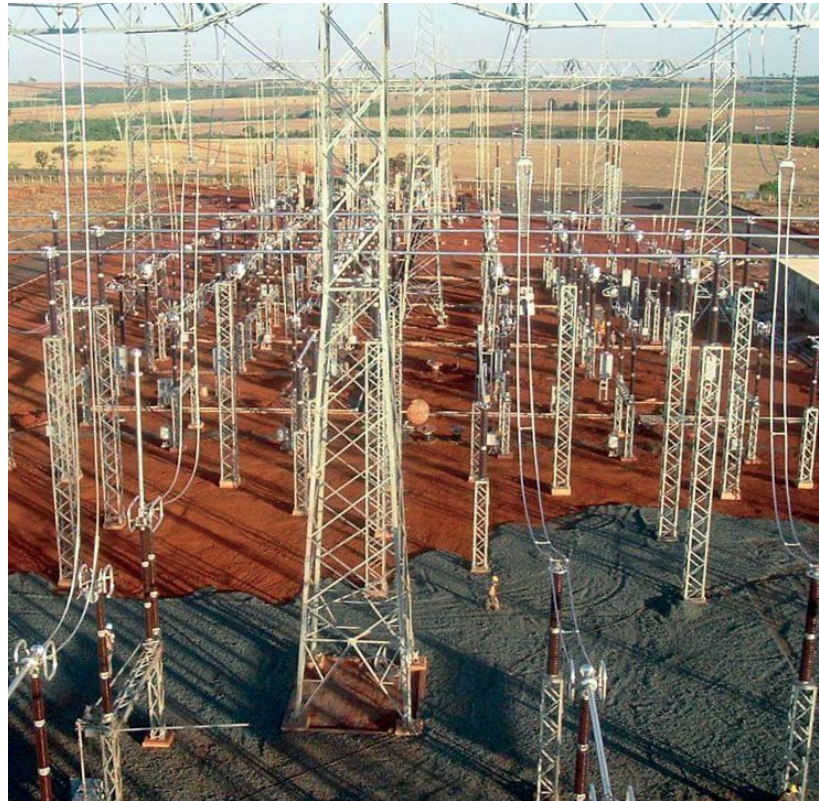
- ▶ 500 kV Itumbiara-Cuiabá transmission line, 813 km
- ▶ 230 kV Ribeirãozinho–Barra do Peixe dual-circuit transmission line, 3.5 km
- ▶ Itumbiara substation, 500 kV
- ▶ Rio Verde Norte substation, 500 kV
- ▶ Ribeirãozinho substation, 500/230 kV
- ▶ Barra do Peixe substation, 230 kV
- ▶ Cuiabá substation, 500 kV



SOUTH AMERICA

Mato Grosso and Goiás states
(Brazil)

ELECTRICITY TRANSMISSION
ITUMBIARA





ELECTRICITY TRANSMISSION

ITUMBIARA MARIMBONDO

LOCATION ▶ Minas Gerais and Goiás states (Brazil)

CUSTOMER ▶ Expansión Transmisión Itumbiara Marimbondo (ETIM)

TENDER ▶ ANEEL 002/2002. Lot G

PROJECT SCOPE:

Engineering, supply, construction, commissioning, maintenance and operation under concession until December 2010 of an electricity transmission system comprising 214 km of 500 kV lines and 2 substations with a transformation capacity of 1,730 MVA

EPC AMOUNT ▶ EUR 40 million (ENO 33%)

INVESTMENT ▶ BRL 193.7 million

START DATE ▶ december 2002

FINISH DATE ▶ june 2004

CHARACTERISTICS:

- ▶ 500 kV Itumbiara-Marimbondo transmission line, 214 km
- ▶ Itumbiara substation
- ▶ Marimbondo substation



SOUTH AMERICA

Minas Gerais and Goiás states
(Brazil)

ELECTRICITY TRANSMISSION ITUMBIARA MARIMBONDO





ELECTRICITY TRANSMISSION

JAURU

LOCATION ▶ Mato Grosso and Rondônia states (Brazil)

CUSTOMER ▶ Jauru Transmissora de Energia (JTE)

TENDER ▶ ANEEL 005/2006. Lot A

PROJECT SCOPE:

Engineering, supply, construction, commissioning, maintenance and operation under concession through a consortium (ENO, 33%) of an electricity transmission system comprising 949 km of 230 kV lines and 7 substations with a transformation capacity of 740 MVA

EPC AMOUNT ▶ EUR 198 million (ENO 33%)

INVESTMENT ▶ BRL 523.7 million

START DATE ▶ april 2007

FINISH DATE ▶ december 2009

CHARACTERISTICS:

- ▶ 230 kV Samuel-Ariquemez transmission line, 154 km
- ▶ 230 kV Ariquemez-Ji Parana transmission line, 165 km
- ▶ 230 kV Ji Parana-Pimenta Bueno transmission line, 117 km
- ▶ 138 kV Pimenta Bueno-Vilhena transmission line, 160 km
- ▶ Jaura substation, 230 kV
- ▶ Vilhena substation, 230 kV



SOUTH AMERICA

Mato Grosso and Rondônia states
(Brazil)

ELECTRICITY TRANSMISSION

JAURU





ELECTRICITY TRANSMISSION

ORIXIMINÁ- PARITINS

LOCATION ▶ States of Pará and Amazonas (Brazil)

CUSTOMER ▶ PATE (Parintins Amazonas Transmissora de Energia, S.A.)

PROJECT SCOPE ▶

Full engineering, procurement and construction (EPC) fixed-price contract, with all risks included, to obtain the environmental licences, and licences for expropriations, engineering, supply, construction and commissioning of 2 new substations, expansion of a substation and two transmission lines

AMOUNT ▶ EUR 230 million

START DATE ▶ march 2019

FINISH DATE ▶ march 2024

CHARACTERISTICS:

- ▶ Construction of 2 new 230/138 kV substations in Juruti and Parintins
- ▶ 500/230 kV expansion of the Oriximiná substation
- ▶ 230 kV transmission line between Oriximiná-Juruti (138 km and 299 pylons). Includes a 2.3 km crossing over the Amazon River, for which two 253 m-tall suspension pylons will be installed, weighing approximately 1,300 tonnes.
- ▶ 230 kV transmission line between Juruti-Parintins (102 km and 226 pylons)



SOUTH AMERICA

States of Pará and Amazonas
(Brazil)

ELECTRICITY TRANSMISSION
**ORIXIMINÁ-
PARITINS**





ELECTRICITY TRANSMISSION

PEDRAS

LOCATION ▶ Rio de Janeiro State (Brazil)

CUSTOMER ▶ Pedras Transmissora de Energia (PTE)

TENDER ▶ ANEEL 004/2008. Lot J

PROJECT SCOPE:

Engineering, supply, construction, commissioning, maintenance and operation under concession of an electricity transmission system comprising 52 km of 345 kV lines and 1 substation with a transformation capacity of 800 MVA

EPC AMOUNT ▶ EUR 31 million

INVESTMENT ▶ BRL 112.5 million

START DATE ▶ december 2008

FINISH DATE ▶ december 2010

CHARACTERISTICS:

- ▶ 345 kV Adrianópolis–Venda das Pedras power line, 25.9 km
- ▶ 345 kV Venda das Pedras–Macaé power line, 25.9 km
- ▶ Venda das Pedras substation, 345/138 kV





SOUTH AMERICA

Rio de Janeiro State (Brazil)

ELECTRICITY TRANSMISSION

PEDRAS





ELECTRICITY TRANSMISSION

POÇOS DE CALDAS

LOCATION ▶ São Paulo and Minas Gerais States (Brazil)

CUSTOMER ▶ Poços de Caldas Transmissora de Energia (PCTE)

TENDER ▶ ANEEL 005/2006. Lot B

PROJECT SCOPE:

Engineering, supply, construction, commissioning, maintenance and operation under concession until December 2010 of an electricity transmission system comprising 308 km of 500 kV lines and 4 substations with a transformation capacity of 2,000 MVA

EPC AMOUNT ▶ EUR 117 million (ENO 33%)

INVESTMENT ▶ BRL 370.7 million

START DATE ▶ april 2007

FINISH DATE ▶ september 2009

CHARACTERISTICS:

- ▶ 500 kV Ribeirão Preto–Poços de Caldas substation, 136 km
- ▶ 500 kV Ribeirão Preto–Estreito substation, 118 km
- ▶ 500 kV Jaguara–Estreito substation, 46 km
- ▶ Transmission operations centre at the Ribeirão Preto substation
- ▶ Ribeirão Preto substation, 500 kV
- ▶ Ribeirão Preto substation, 440 kV
- ▶ Jaguara substation, 500 kV
- ▶ Estreito substation, 500 kV
- ▶ Poços de Caldas substation, 500 kV
- ▶ Telecommunications system



SOUTH AMERICA

São Paulo and Minas Gerais States
(Brazil)

ELECTRICITY TRANSMISSION

POÇOS DE CALDAS





ELECTRICITY TRANSMISSION

PORTO PRIMAVERA

LOCATION ▶ São Paulo and Mato Grosso do Sul States (Brazil)

CUSTOMER ▶ Porto Primavera Transmissora de Energia (PPTe)

TENDER ▶ ANEEL 001/2004. Lot J

PROJECT SCOPE:

Engineering, supply, construction, commissioning, maintenance and operation under concession until July 2011 of an electricity transmission system comprising 508 km of 230 kV lines and 3 substations (2 owned) with a transformation capacity of 1,200 MVA

EPC AMOUNT ▶ EUR 118 million (ENO 33%)

INVESTMENT ▶ BRL 339.1 million

START DATE ▶ july 2005

FINISH DATE ▶ october 2006

CHARACTERISTICS:

- ▶ 230 kV power line, Nova Porto Primavera–Imbirussu, 290 km
- ▶ 230 kV power line, Nova Porto Primavera–Dourados, 216 km
- ▶ 440 kV UHE power line, Sérgio Motta–Nova Porto Primavera, 2 km
- ▶ Nova Porto Primavera 230 kV substation
- ▶ Imbirussu 230 kV substation
- ▶ Dourados 230 kV substation

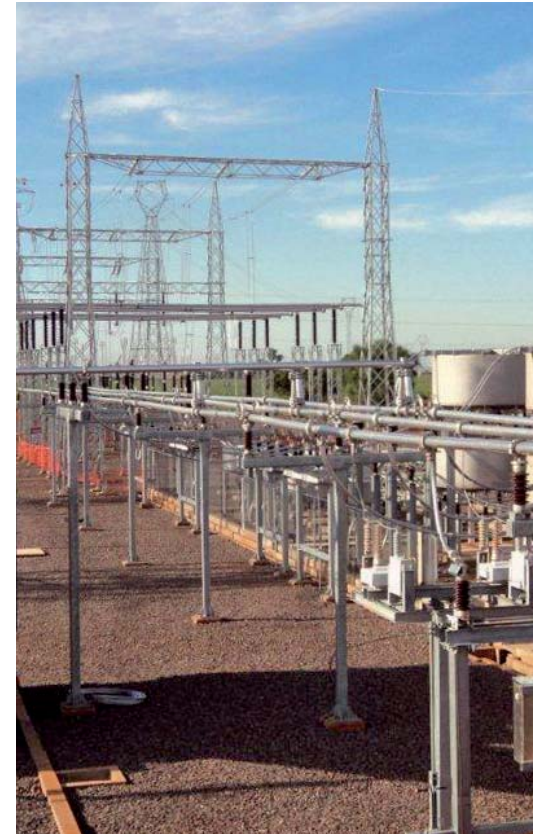
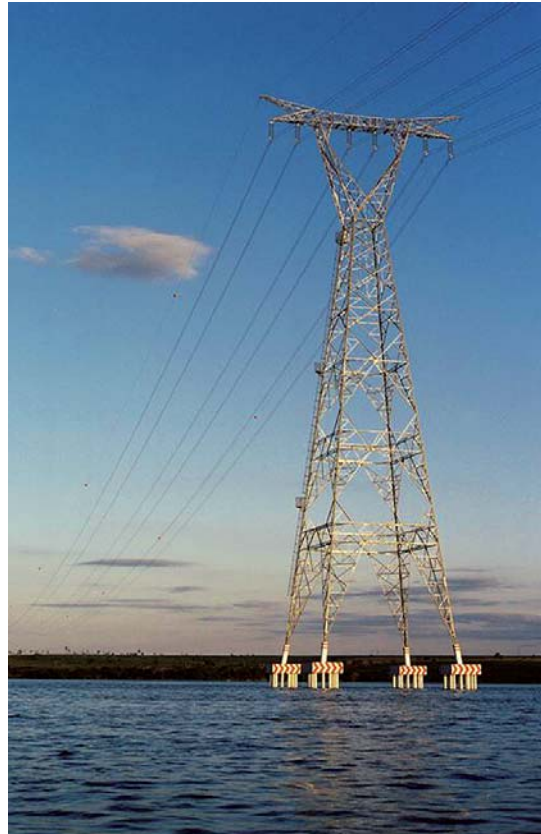


SOUTH AMERICA

São Paulo and Mato Grosso do Sul States (Brazil)

ELECTRICITY TRANSMISSION

PORTO PRIMAVERA





ELECTRICITY TRANSMISSION

RIBEIRÃO PRETO

LOCATION ▶ Minas Gerais and São Paulo States (Brazil)

CUSTOMER ▶ Ribeirão Preto Transmissora de Energia (RPTe)

TENDER ▶ ANEEL 005/2006. Lot C

PROJECT SCOPE:

Engineering, supply, construction, commissioning, maintenance and operation under concession until December 2010 of an electricity transmission system comprising 412 km of 500 kV lines and 3 substations with a transformation capacity of 2,000 MVA

EPC AMOUNT ▶ EUR 88 million (ENO 33%)

INVESTMENT ▶ BRL 275.1 million

START DATE ▶ april 2007

FINISH DATE ▶ september 2009

CHARACTERISTICS:

- ▶ 500 kV Ribeirão Preto–Marimbombo substation, 198 km
- ▶ 500 kV Marimbombo–São Simão substation, 210 km
- ▶ Transmission operations centre at the Ribeirão Preto substation
- ▶ Marimbombo substation, 500 kV
- ▶ São Simão substation, 500 kV
- ▶ Ribeirão Preto substation, 500 kV
- ▶ Telecommunications system

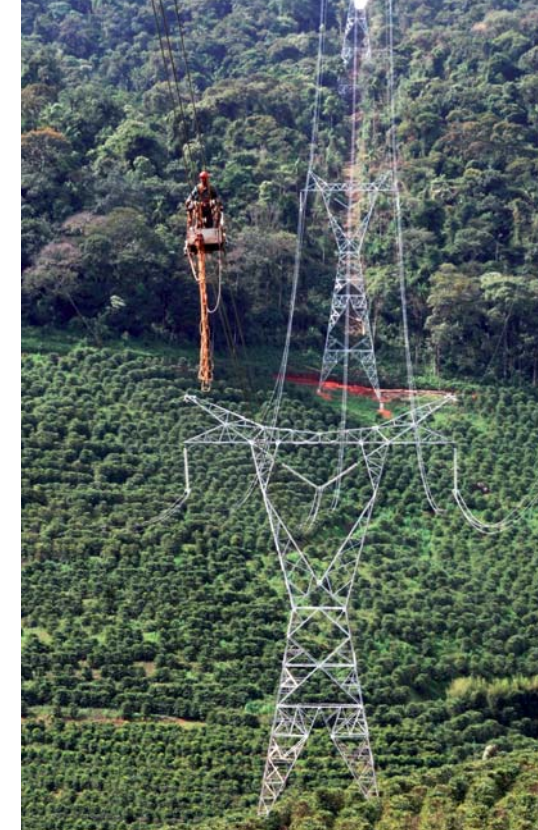


SOUTH AMERICA

Minas Gerais and São Paulo States
(Brazil)

ELECTRICITY TRANSMISSION

RIBEIRÃO PRETO





ELECTRICITY TRANSMISSION

SERRA DA MESA

LOCATION ▶ Goiás, Distrito Federal and Minas Gerais States (Brazil)

CUSTOMER ▶ Serra da Mesa Transmissora de Energia (SMTE)

TENDER ▶ ANEEL 001/2005. Lot C

PROJECT SCOPE:

Engineering, supply, construction, commissioning, maintenance and operation under concession until December 2010 of an electricity transmission system comprising 681 km of 500 kV lines and 3 substations (2 owned) with a transformation capacity of 600 MVA

EPC AMOUNT ▶ EUR 227 million (ENO 33%)

INVESTMENT ▶ BRL 613.6 million

START DATE ▶ october 2011

FINISH DATE ▶ october 2013

CHARACTERISTICS:

- ▶ 500 kV Serra da Mesa-Luzitania-Samambaia-Paracatú-Emborcação power line, 681 km
- ▶ Serra da Mesa, Luziânia, Samambaia, Emborcação and Paracatú substations - 525 kV, 600 MVA, 180 MVAr



SOUTH AMERICA

Goiás, Distrito Federal and Minas Gerais States (Brazil)

ELECTRICITY TRANSMISSION SERRA DA MESA





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ELECTRICITY TRANSMISSION

SERRA PARACATÚ

LOCATION ▶ Minas Gerais State (Brazil)

CUSTOMER ▶ Serra Paracatú Transmissora de Energia (SPTE)

TENDER ▶ ANEEL 003/2006. Lot A

PROJECT SCOPE:

Engineering, supply, construction, commissioning, maintenance and operation under concession until December 2010 of an electricity transmission system comprising 246 km of 500 kV lines and 2 substations (1 owned) with a transformation capacity of 1,650 MVA

EPC AMOUNT ▶ EUR 103 million (ENO 33%)

INVESTMENT ▶ BRL 265.6 million

START DATE ▶ june 2007

FINISH DATE ▶ april 2009

CHARACTERISTICS:

- ▶ 500 kV Paracatú 4–Pirapora 2 power line 244 km
- ▶ Operations centre at the Luziana substation
- ▶ Paracatú 4 substation, 500 kV
- ▶ Pirapora 2 substation, 500 kV
- ▶ Pirapora 2 substation, 345 kV
- ▶ Pirapora 2 substation, 138 kV
- ▶ Telecommunications system



SOUTH AMERICA

Minas Gerais State (Brazil)

ELECTRICITY TRANSMISSION

SERRA PARACATÚ





ELECTRICITY TRANSMISSION

TRIÂNGULO

LOCATION ▶ Minas Gerais State (Brazil)

CUSTOMER ▶ Linha de Transmissão Triângulo (LTT)

TENDER ▶ ANEEL 001/2005. Lot D

PROJECT SCOPE:

Engineering, supply, construction, commissioning, maintenance and operation under concession of an electricity transmission system comprising 706 km of 500 kV lines and 6 substations (1 owned) with a transformation capacity of 1,800 MVA

EPC AMOUNT ▶ EUR 196 million (ENO 33%)

INVESTMENT ▶ BRL 578.1 million

START DATE ▶ July 2007

FINISH DATE ▶ December 2008

CHARACTERISTICS:

- ▶ 500 kV Nova Ponte–Itumbiara power line, 182 km
- ▶ 500 kV Nova Ponte–Estreito power line, 140 km
- ▶ 500 kV Emborcação–Nova Ponte C2 power line, 88 km
- ▶ 500 kV Nova Ponte–São Gotardo 2 power line, 194 km
- ▶ 500 kV São Gotardo 2–Bom Despacho 3 C2 power line, 91 km
- ▶ Transmission operations centre at Itumbiara
- ▶ Emborcação substation, 500 kV
- ▶ Nova Ponte substation, 500 kV
- ▶ Itumbiara substation, 500 kV
- ▶ Estreito substation, 500 kV
- ▶ Estreito substation, 345 kV
- ▶ São Gotardo 2 substation, 500 kV
- ▶ Bom Despacho 3 substation, 500 kV



SOUTH AMERICA

Minas Gerais State (Brazil)

ELECTRICITY TRANSMISSION
TRIÂNGULO





ELECTRICITY TRANSMISSION

VILA DO CONDE

LOCATION ▶ Pará State (Brazil)

CUSTOMER ▶ Vila do Conde Transmissora de Energia (VCTE)

TENDER ▶ ANEEL 001/2004. Lot D

PROJECT SCOPE:

Engineering, supply, construction, commissioning, maintenance and operation under concession of an electricity transmission system comprising 325 km of 500 kV lines and 2 substations with a transformation capacity of 675 MVA

EPC AMOUNT ▶ EUR 85 million (ENO 33%)

INVESTMENT ▶ BRL 274.4 million

START DATE ▶ july 2005

FINISH DATE ▶ may 2006

CHARACTERISTICS:

- ▶ 500 kV Tucuruí-Vila do Conde power line, 325 km
- ▶ Tucuruí substation
- ▶ Vila do Conde substation
- ▶ Telecommunications system and control supervision system



SOUTH AMERICA

Pará State (Brazil)

ELECTRICITY TRANSMISSION

VILA DO CONDE





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ELECTRICITY TRANSMISSION

ALTO JAHUEL

LOCATION ▶ Metropolitan Region and regions VI and VII (Chile)

CUSTOMER ▶ Alto Jahuel Transmisora de Energía (AJTE)

PROJECT SCOPE:

Engineering, supply, construction, commissioning, maintenance, and concession operation of an electricity transmission system comprising 256 km of 500 kV lines and 2 substations

EPC AMOUNT ▶ EUR 180 million

INVESTMENT ▶ USD 323 million

START DATE ▶ april 2010 (1st circuit)

FINISH DATE ▶ january 2016 (2nd circuit)

CHARACTERISTICS:

- ▶ Construction of a high-voltage line (500 kV) forming a 256 km dual circuit (in 2 stages), and 2 output lines in Ancoa and Alto Jahuel. Installation of two 110 MVar reactor banks, and a bank of 219 MVar condensers in Ancoa. Includes civil engineering, installation of telecommunications system, control system and reactor control and protection system



SOUTH AMERICA

Metropolitan Region and regions VI and VII (Chile)

ELECTRICITY TRANSMISSION

ALTO JAHUEL





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ELECTRICITY TRANSMISSION **CHARRÚA**

LOCATION ▶ VII and VIII regions (Chile)

CUSTOMER ▶ Charrúa Transmisora de Energía (CHATE)

PROJECT SCOPE:

Engineering, supply, construction, commissioning, maintenance, and concession operation of an electricity transmission system comprising 198 km of 500 kV lines and 2 substations

EPC AMOUNT ▶ EUR 87 million

INVESTMENT ▶ EUR 153 million

START DATE ▶ february 2013

FINISH DATE ▶ february 2018

CHARACTERISTICS:

- ▶ Construction of a 2x500 kV high-voltage line forming a 198 km dual circuit from the Charrúa substation to the Ancoa substation. Dual-circuit structure and laying of first circuit with a capacity of 1,400 MVA



SOUTH AMERICA

VII and VIII regions (Chile)

ELECTRICITY TRANSMISSION

CHARRÚA





ELECTRICITY TRANSMISSION

NUEVA DIEGO DE ALMAGRO

LOCATION ▶ III region (Chile)

CUSTOMER ▶ Diego de Almagro Transmisor de Energía (DATE)

PROJECT SCOPE

Engineering, supply, construction, commissioning, maintenance and operation under concession of an electricity transmission system comprising 40 km of 220 kV lines, 1 substation and an autotransformer bank 1x750 MVA, 500/220 kV

EPC AMOUNT ▶ EUR 74 million

INVESTMENT ▶ USD 90 million

START DATE ▶ May 2016

FINISH DATE ▶ May 2018 (Stage 1: Substation Nueva Diego de Almagro and switching) and November 2019 (Stage 2: Line 2x220 kV, Nueva Diego de Almagro-Cumbres and autotransformer bank in SS Cumbres)

CHARACTERISTICS:

- ▶ Construction of the substation Nueva Diego de Almagro along with its switching, a 40 km double circuit 220 kV line with a capacity of 600 MVA which will connect the Nueva Diego de Almagro substation with the Cumbres substation and the installation of a 1x750MVA, 500/220kV autotransformer bank in the Cumbres substation





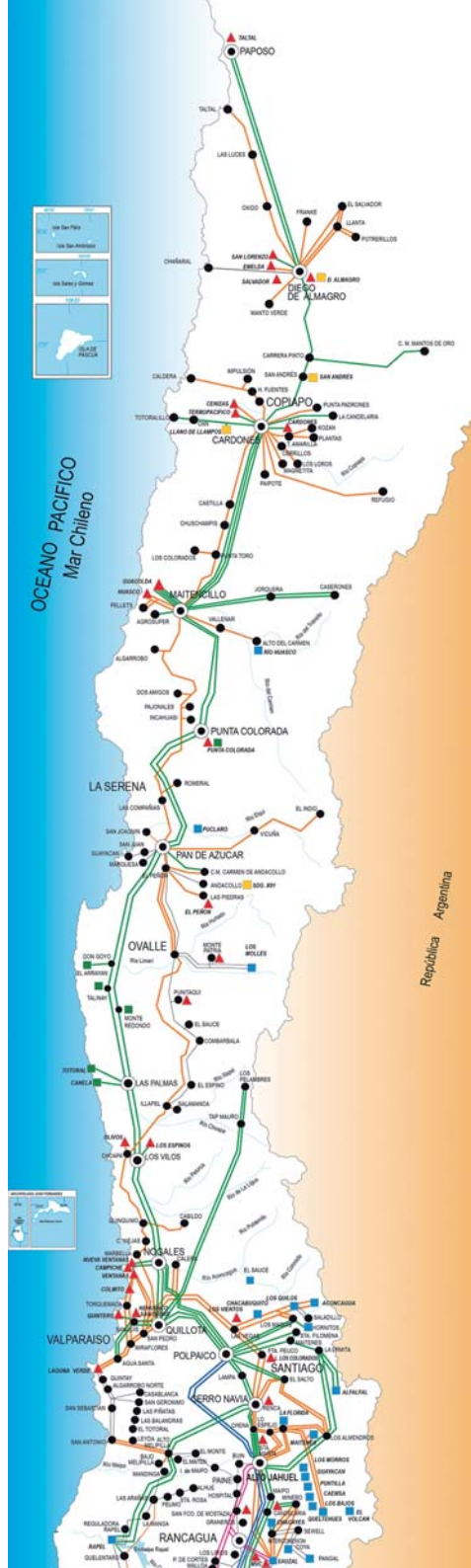
SOUTH AMERICA

III region (Chile)

ELECTRICITY TRANSMISSION NUEVA DIEGO DE ALMAGRO



CHILE



REFERENCIAS

- NUDO
- SUBESTACIÓN
- CENTRAL TÉRMICA
- CENTRAL HIDROELÉCTRICA
- CENTRAL SOLAR
- CENTRAL EÓLICA
- LÍNEA EN 345 KV
- LÍNEA TRONCAL EN 220 KV
- LÍNEA EN 220 KV
- LÍNEA EN 110 KV
- LÍNEAS < 110 KV

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