

RESUME

KIRK M. HUYSER, P.E.

EDUCATION University of Denver, B.S.E.E. 1973, Magna Cum Laude

PROFESSIONAL Professional Engineer, Colorado (Reg. No. 14836)
Member Institute of Electrical and Electronics Engineers (IEEE 06334916)

EXPERIENCE SUMMARY Mr. Huyser has 40 years' experience as Startup Manager, Startup Engineer, Owner's Representative, Electrical Engineer, Systems Integrator, Control Systems Engineer, Project Resident Engineer, and Test Engineer. Past projects are mostly industrial though local projects include commercial.

Electrical engineering experience includes industrial engineering and design of medium voltage (4160V to 60KV) and low voltage distribution systems, motor controls, control systems integration, grounding systems, hazardous area classifications, on-site power generation, and lighting.

Owner's Representative experience includes overseeing power plant construction and commissioning.

Startup Manager experience includes managing and supervising pre-commissioning, commissioning, operator training, and systems turnover for two gas fired power plants.

Plant Startup Engineer experience includes pre-commissioning, commissioning, operator training, and turnover package completion for coal, wood, and gas fired power plants. The work included electrical, I&C, and mechanical systems.

Project Resident Engineering experience includes field engineering support (all disciplines) and liaison with home office engineering for two shale oil projects, an aluminum mill, sulfur recovery plant, and copper smelter.

PROFESSIONAL EXPERIENCE

April 1985 **HESI (Huyser Engineering Services Inc.)**
To Summary of Projects:
Present 2008-Present: Various projects requiring electrical engineering, design, control systems integration, tuning, troubleshooting, and general consulting. Current projects include remote support for projects that began in 1998 and 2000 as well as for local companies such as EnCana, Solvay Chemicals, American Shale Oil, Shale Tech International, MPA Consulting Engineers, and SGM Engineers.
2006-2007: Control systems tuning for combined cycle power plant in Oklahoma
2005-2008: Forensics and evaluation of emissions monitoring systems for 11 cement plants.
2003-2004: Control Systems Tuning for coal fired power plant in Santo Domingo
1999-2003: Engineering and Commissioning consultant for local and overseas power projects
1997-1998: Distributed Control Systems / I&C commissioning for wood chip gasification project in Burlington, VT.
1996-1997: Owner's Rep and Startup Manager for 115 MW Combined Cycle plant in Auckland, New Zealand.
1996: Began control systems upgrade for 77 MW Combined Cycle plant in Greeley, CO, with ongoing troubleshooting and upgrades to the present.
1993-1996: Owner's Rep for 1000 MW Combined Cycle plant in Oswego, NY. Startup Manager for 80 MW Combined Cycle plant in Rensselaer, NY.
1985-1992: Electrical power and controls commissioning, and some mechanical commissioning of 14 wood fired power plants, 2 gas-fired combined cycle plants, and 2 coal fired plants in California, Maine, Colorado, and New York.

Following is the detailed project history for Kirk Huyser's personal services, dba HESI since 1985. 1973-1985 experience with Martin Marietta and Stearns-Roger Engineering follows.

2015 **Pyramid Corporation**
Arc Flash Hazard analysis for Kobe Water Storage facility in De Beque, Colorado; Single line diagrams, fault current analysis, and hazardous area classifications for two natural gas production facilities.

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2013-2015	SGM Engineers Waste Water electrical review and Fire Station design review; Electrical engineering and design for various commercial and residential projects.
2011 to 2013	SHALE TECH INTERNATIONAL Hazardous area classifications and electrical design
2011 to 2013	AMERICAN SHALE OIL CORP Hazardous area classifications and Down-Hole Heater failure analysis
Apr 2012 To Present	Solvay Chemicals , Parachute, CO Electrical Engineering and Design for various plant upgrade projects
2009 - 2014	Pitkin County Jail , Emergency Power System upgrade, Aspen, Colorado Electrical engineering and design for replacement and capacity upgrade of emergency power generator and electrical distribution. Follow-up engineering and design to interconnect the new Data Center and Courthouse server room to Emergency Power System. Periodically handle other small engineering projects for Pitkin County.
July 1998 To Present	AMERICAN GYPSUM , Eagle Gypsum Wallboard Manufacturing Plant, Gypsum, CO <u>Systems Integrator</u> : Wonderware HMI and Industrial SQL (Wonderware Historian) installation and development, as well as Allen-Bradley PLC-5 logic modifications. Programmed SQL interface in Excel to query Wonderware Historian for gas consumption reports and alarm history reports. Began second upgrade in 2014.
Aug 2012	City of Glenwood Springs New parking structure lighting review and recommendation
2012	Berthod Motors , Glenwood Springs, CO New Chrysler dealership parking lot lighting design.
June 2000 To Present	DOYLE 1, LLC , Doyle Energy Facility, Monroe, GA <u>Systems Integration and Remote Support</u> for control systems. This is a 348 MW simple cycle peaking plant with 5 gas turbine-generators.
2011 To Present	MPA Consulting Engineers , Glenwood Springs, CO Electrical engineering and design for natural gas production waste water processing facilities and sodium bicarbonate materials handling systems.
Aug 1998 To May 2009	SITHE ENERGIES , Greeley Energy Facility, Greeley, CO; Independence Power Station, Oswego, NY <u>Control Systems Engineering</u> : Modifications and systems integration for plant enhancements, upgrades, and problem resolution. Installation and development of computers, Wonderware InTouch, and Industrial SQL Real-Time Database Server and Client Tools. Also performing maintenance and modifications to Bailey Net 90 DCS. Integrated Wonderware HMI with GE Atlas Gas Turbine Control System.
April 2011	Ennovate Corporation , City of Carbondale Public Works Building, Carbondale, CO Electrical design: upgrade of power distribution
1996 to 2011	DYNEGY , Independence Power Station, Oswego, NY <u>Consulting Engineer</u> : Control system upgrades, system integration, and plant tuning for 1000 MW CC plant.
Jul 2010 to Sep 2010	Northway Construction , Pitkin County Jail Data Center, Aspen, Colorado Electrical design for underground power and grounding
Jul 2010 To Sep 2010	Ennovate Corporation , Pitkin County Jail Data Center, Aspen, Colorado Electrical design for data center cooling system power.
Sep 2010	EnCana , Parachute, Colorado Designed hazardous area classification plan and grounding plan for Logan Wash produced water loadout, storage and injection site.
Aug 2010	EnCana , Parachute, Colorado (through MPA Consulting Engineers) PE review and signoff of power distribution system for C17 OU2 produced water injection site. Electrical design for hazardous area classification and grounding plan.
July 2010	Rentech , Commerce City, Colorado Consulting engineer for wood gasification process

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July 2009
To
Mar 2010
MPA Consulting Engineers, EnCana Gas Exploration and Development projects, Parachute, CO
Electrical engineering, design, and hazardous area classification for natural gas production waste water processing facilities.

Sep 2008
To
May 2009
MPA Consulting Engineers, Climax Decant Structure, Climax Molybdenum, Leadville, CO
Electrical design

Sep 2008
To
Jan 2009
ConocoPhillips, Diesel Fuel Storage and Transfer, Piceance Basin, Colorado
Electrical engineering and design for diesel generator fuel storage and transfer.

Sep 2008
HB Rental, Mobile Electrical Power Skid
Electrical engineering and design for portable power distribution skid.

Aug 2008
Dogwood Energy, 655 MW Combined Cycle Generating Station, Cass County, Missouri
Consulting for implementing Automatic Generation Control (AGC)

June 2008
To
Oct 2008
Balkan Energy, Osagyefo 160 MW Barge Mounted Electrical Generating Station, Ghana, Africa
Consulting engineer for control systems upgrade and commissioning.

Mar 2008
To
Sep 2008
ConocoPhillips TLQ, Temporary Living Quarters, Piceance Basin, Colorado
Electrical Engineering for stand-alone diesel generator power system and power distribution.

Jan 2008
To
Mar 2009
Climax Molybdenum, Water Decant Structure, Leadville, Colorado
Electrical engineering and design for power distribution and lighting.

April 2007
To
May 2007
24-7 Electric, Vail, Colorado
Engineering for electrical under-pavement snow-melt

June 2007
To
Sep 2007
Henderson Mill, Parshall, CO
Electrical engineering for mine portal heating system upgrade.

Aug 2006
To
April 2007
Redbud Energy, 1080 MW Combined Cycle Generating Station, Luther, OK
Control Systems Engineer responsible for tuning and ABB Infi-90 DCS configuration changes to incorporate automatic generation control (AGC) and remote setpoint control for two separate energy markets. I also provide consulting services for NERC CIP compliance. Most of the work is done remotely through secure virtual private network.

Nov 2005
To
July 2008
CEMEX
Consultant performed technical forensics and evaluation of emissions monitoring for 11 U.S. cement plants.

July 2005
Caravan Inn, Glenwood Springs, Colorado
Lighting design and photometrics plan for parking lot.

Aug 2003
To
June 2004
EGE Itabo, Santo Domingo, Dominican Republic coal fired power plant
Consulting Engineer providing tuning and modifications to the Bailey Infi 90 DCS. Most of the work was done remotely via broadband Internet VPN (Virtual Private Network) connection.

Dec 1998
To
Jan 2000
SITHE ENERGIES, New York City, NY
Project Manager for Y2K Project team. The team provided oversight for 4 phases of Y2K Readiness and developing contingency planning guidelines.

Sep 1998
to
Oct 1998
TOMAHAWK TRUCK STOP, Laundromat
Electrical engineering and design for laundromat addition

Jan 1998
To
June 1998
SITHE ENERGIES, Samutprakarn Cogeneration Co., Ltd, Thailand
Consulting Engineer: Instrumentation and controls design review for the 120 MW Bangpoo Energy Facility

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April 1997 To Aug 1998 **OPERATIONAL ENERGY CORPORATION**, Vermont Wood Gasification Project, Burlington, VT
Controls Engineering: Configuration changes and additions, systems integration, loop checks, HMI modifications, logic and controls verification, tuning, CAD drawing changes, and tag database for Bailey Infi 90 DCS with LAN-90 PCView HMI and Allen-Bradley SLC 5/03 and 5/04 programmable controllers. Installation and development work on Wonderware InTouch HMI and Industrial SQL Real-Time Database Server and Client Tools.

Feb 1996 to Mar 1997 **TRANS ALTA ENERGY CORPORATION**, 115 MW Combined Cycle Cogeneration, Auckland, NZ
Senior Engineer and Startup Manager assisting project management in coordinating engineering and construction activities. Performed electrical engineering review. Represented owner in factory acceptance testing of substation equipment. Managed the plant startup and personally commissioned several mechanical systems and DCS controls. Worked two months following commercial operation to tune and enhance the Bailey Infi 90 DCS controls.

Jan 1996 **SITHE ENERGIES, INC.**, 77 MW Combined Cycle Cogeneration Plant, Greeley, CO
Consulting Engineer contracted to complete report to Public Service Company of Colorado for use in system stability analysis, update electrical distribution drawings, and modify Bailey Net 90 DCS controls.

May 1994 to Jan 1996 **SITHE ENERGIES, INC.**, Independence Station 1000 MW Combined Cycle Cogeneration, Oswego, NY
Consulting Engineer serving as Owner's Representative to perform design review of plant electrical and controls systems, interpret and enforce compliance to specifications, write specifications and administer work for installation of data acquisition systems and network interfaces, identify deficiencies and application problems, review electrical 1-lines, 3-lines, and electrical system protection, and provide liaison between owner and contractor for startup activities.

Aug 1993 to April 1994 **LG&E POWER SYSTEMS**, 80 MW Rensselaer Combined Cycle Cogeneration Facility, Rensselaer, NY
Startup Manager contracted for management, control, and technical direction for startup of the plant consisting of a Westinghouse 251 Gas Turbine, Mitsubishi Steam Turbine, Zurn HRSG, Westinghouse WDPF Distributed Control System, and Allen-Bradley PLC5 burner control system.

Feb 1993 to Aug 1994 **SITHE ENERGIES, INC.**, 1000 MW Gas Fired Combined Cycle Cogeneration Facility, Oswego, NY
Consulting Engineer contracted as Owner's Representative to perform design review for Piping and Instrument Diagrams, control systems, and electrical distribution systems.

Nov 1992 to Feb 1993 **UNIVERSITY OF COLORADO**, 35 MW Combined Cycle Cogeneration, Boulder, CO:
Control Systems Consultant contracted to identify deficiencies, program, and configure changes for Bailey Infi 90 Distributed Control System. Developed data acquisition and reporting program for monthly billing on gas turbine maintenance contract, which is temperature and load dependent.

April 1992 to Oct 1992 **OEC DIVISION OF ZURN/NEPCO**, 55 MW Combined Cycle Cogeneration, Batavia, NY
Control Systems Startup Engineer contracted for loop checks, configuration and logic verification, debugging, tuning, and commissioning of the L&N Max I Distributed Control System and various changes to Allen-Bradley PLC5.

Jan 1992 to April 1992 **HYDRA-CO OPERATIONS INC.**, Imperial, CA:
Consulting Engineer contracted for systems integration and programming of a remote data acquisition and remote troubleshooting system interfacing with a Bailey Net 90 Distributed Control System.

Aug 1991 to Nov 1991 **DUKE/FLOUR-DANIELS**, Solvay, NY:
Startup Consultant, Debugged, configured, and tuned a Bailey Infi 90 Distributed Control System on an 80 MW Pulverized Coal Fired power plant and resolved deficiencies in the protective relaying for the plant electrical systems.

Nov 1989 through March 1993 **SITHE ENERGIES**, 50 MW Coal-fired CFB Cogeneration, Port of Stockton, CA:
Controls Engineer contracted to correct control systems deficiencies for lime feed, coal feed, ammonia, ash handling, loop tuning, and enhancements on an L&N Max I Distributed Control System and Allen-Bradley PLC2. Provided electrical and controls design for plant modifications, including installation and programming of Programmable Logic Controllers for ash handling additions and coal conveying, and programming for a custom emissions data acquisition and reporting system. Provided consulting on as-needed basis for protective relay problems, electrical distribution problems, and remote data acquisition.

July 1990 to Sep 1990 **ULTRASYSTEMS ENGINEERS AND CONSTRUCTORS**, Jasmin, Poso, and Rocklin, CA:
Electrical Startup Engineer for checkout of generator and synchronizing systems. Synchronized three 25 MW cogen plants.. Coordinated with the utility for interconnection requirements.

June 1989 to Nov 1989 **GENERAL ELECTRIC**, 25 MW Wood-Fired Generating Plant, Burney, CA
Control Systems Startup Engineer contracted for checkout, commissioning, tuning, and configuration changes on a Bailey Net 90 Distributed Control System for a 25 MW wood burning plant startup.

June 1989 **GENERAL ELECTRIC**, Stanford University, 50 MW Combined Cycle Cogeneration
Electrical Engineer Corrected instrumentation installation problems for 50 MW combined cycle plant.

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Oct 1988 to April 1989	GENERAL ELECTRIC , 2 13 MW Biomass-Fired Fluidized Bed Generating Units, Merced, CA <u>Control Systems Startup Engineer</u> contracted for testing, commissioning, tuning, and debugging for two Bailey Net 90 systems and various PLCs at the El Nido and Chowchilla biomass cogeneration plants with fluidized bed boilers.
April 1988 to Sep 1988	GENERAL ELECTRIC , 25 MW Wood-Fired Generating Plant, Redding, CA <u>Control Systems Startup Engineer</u> contracted to test, commission, and tune the Bailey Net 90 DCS and other plant equipment and controls.
Sep 1987 to March 1988	GENERAL ELECTRIC , 25 MWe, 450 KPPH Steam Cogeneration Plant, Scotia, CA <u>Control Systems Startup Engineer</u> contracted for Bailey Net 90 DCS checkout, configuration, controls tuning for 3 wood-fired boilers and 2 turbine-generators owned by Pacific Lumber Company.
March 1987 to Aug 1987	BABCOCK AND WILCOX , 2 27.5 MW Wood-Fired CFB Generating Plants, Maine <u>Control Systems Engineer</u> contracted for startup testing, tuning, troubleshooting, and modifications for the Bailey Net 90 controls for twin plants in West Enfield and Jonesboro, Maine.
June 1987	ULTRASYSTEMS , 25 MW Wood-Fired Generating Plant, Fresno, CA <u>Electrical Startup Engineer</u> . Performed checkout and utility coordination to synchronize the generator.
July 1986 to Feb 1987	ULTRASYSTEMS ENGINEERS AND CONSTRUCTORS , West Enfield and Jonesboro, Maine <u>Lead Electrical Startup Engineer</u> . Supervised startup engineers and performed systems checkout for turbine-generator, Bailey Net 90 controls, PLCs, and other systems and equipment for two 27.5 MW wood-fired, CFB boiler power plants. Coordinated with utility for interconnection requirements.
Mar-Jul 1986	ULTRASYSTEMS ENGINEERS AND CONSTRUCTORS , Chinese Station, CA <u>Lead Electrical Startup Engineer</u> for Chinese Station 25 MW wood-fired fluidized bed plant.
Nov 85 – Feb 86	MIDCONTINENT COAL AND COKE , Glenwood Springs, CO <u>Consulting Engineer</u> : Economic study for electrical upgrades, Mid-Continent Resources, Inc., Redstone, CO.
April 85 to Sep 85	ULTRASYSTEMS ENGINEERS AND CONSTRUCTORS , Blue Lake, CA <u>Lead Electrical Startup Engineer</u> . Performed checkout, testing, and commissioning of 60 KV substation, 15 KV and 480 V switchgear, 4160 V starters and motors, protective relays, boiler, turbine-generator, and controls for an 11 MW wood-fired power plant, on contract for Ultrasystems, Blue Lake, California.
March 75 to April 85	STEARNS-ROGER CORPORATION , Denver, Colorado, working assignments as follows: <u>Lead Electrical Startup Engineer</u> Supervised electrical plant start-up and performed checkout and testing on turbine-generator, switchgear, motors, and boiler control systems for the following plants: PUBLIC SERVICE CO. OF COLORADO 450 MW coal fired Pawnee Power Plant, Brush, CO UTAH POWER AND LIGHT 450 MW Hunter Power Plant and Scrubber, Castledale, Utah. <u>Startup Engineer</u> Tested and commissioned turbine-generator controls and protection, 24 KV generator breaker, protective relays, digital control system, generator synchronizing, and mechanical systems. COLORADO UTE ELECTRIC ASSOCIATION 450 MW coal fired Yampa Power Plant, Craig, CO. <u>Electrical Startup Engineer</u> Tested and commissioned motors and controls, precipitator, ash system, extraction steam controls, annunciator, and logic system. UTAH POWER AND LIGHT 410 MW coal fired Huntington Power Plant, Huntington, Utah. <u>Resident Engineer</u> in charge of quality control, field engineering, and procurement review for following: KENNECOTT Copper Smelter, Hurley, NM CHEVRON Carter Creek Gas Plant, Sulfur Recovery Plant modification, Evanston, Wyoming COORS Aluminum Mill, Ft. Lupton, Colorado UNION OIL COMPANY Shale Oil Project, Parachute, Colorado EXXON Shale Oil Project, Parachute, Colorado <u>Electrical Design Engineer</u> , power and controls design and engineering for several projects
July 73 to March 75	MARTIN MARIETTA CORPORATION <u>Microwave Antenna Test Engineer</u> : tested antennas for Mars Viking Mission and defense projects.