

B. Art Hughes, Ph.D.

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QUALIFICATIONS PROFILE

Extensive experience in the Electric Utility Industry; expert in areas of Power- Optimization

- Special focus on power optimization related, to implications of utility industry deregulation.
- Understand the upcoming impact of deregulation on utility marketing and sales requirements.
- Experienced in utility planning & operations including inter-company transaction/energy sales.
- Specialist in forecasting early stage trend lines within the industry related to deregulation.
- Author of numerous publications including one IEEE Prize Paper on such topics as:

Power Planning

Power Flows

Distribution Management Service

Special Areas of Competence

Ground-breaking expertise in applying modern technologies including object-oriented modeling and client-server communications to information based, real-time electrical distribution control systems

Known for ability in the areas of:

Initial Conceptualization, Setting Direction, Identifying Tactical Market Tend Lines for sales personnel and others.

Firm grasp of what is sellable in the market place; strategist focused on staying ahead of competition.

PROFESSIONAL EXPERIENCE

CONFIGURED ENERGY SYSTEMS, INC., (CES), Minneapolis, MN <i>Founder/Chairman/CEO</i>	1990 to 1997
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- Started-up and managed this new software company that grew to 40 employees.
- Developed/produced/implemented a distribution management system software product.
- Responsible for strategic business direction, daily operations and overall P&L accountability.
- Provided technical consultation from work statement and. design simulation to support applications.
- Cost effective operations; initial product implementation was funded in-house through customer sales.
- Established the client base; product won over 50% of market place over a 4 year period.

EMPROS (A Division of Siemens Corporation), Minneapolis, MN Formerly Control Data Corporation (CDC) <i>Project Manager-Software Development</i>	1987 to 1990
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- Built/led a team of 25; developed control center software for the electrical power distribution market.
- Set market direction, developed architecture, provided technical leadership for system development.
- Direct responsibility for product definition, producing prototypes, providing marketing/sales support.

ESCA CORPORATION, Seattle, WA <i>President/CEO</i> <i>Manager—Software, Development</i> <i>Project Manager</i>	1980 to 1986
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- Final year as president, sold this successful company which had grown to 150 employees.
- Developed application software for energy management systems, and managed its development.

EDUCATION

UNIVERSITY OF TEXAS-ARLINGTON, Arlington, TX

Degree: Ph.D.

Major: Electrical Engineering

Minor: Optimization

Degree: M.S.

Major: Electrical Engineering

Minor: Optimization

- *Earned Masters & Ph.D. in 3 year period; sole support of education/living costs since 15 years of age.*

UNIVERSITY OF MANITOBA, Manitoba, Canada

Degree: B.S.

Major: Electrical Engineering

RELATED EMPLOYMENT

B.C. HYDRO, British Columbia, Canada

Senior Computer Analyst—Planning Department

1 Year

- Provided support to bring power from Yukon to Vancouver.

MANITOBA HYDRO Winnipeg, Canada

Engineer

3 Years

- Departed from standard and recommended larger than minimum sized conductors: improved the system and saved significant funds in its operation.

SELECTED PUBLICATIONS

Sun D, Ashley B, Brewer B, Hughes BA, Tinney WF. "Optimal Power Flow By Newton's Approach". IEEE Winter Power Meeting, Dallas Texas (IEEE Prize Paper), 1984

Geisler, KI, Neumann SA, Hughes BA. "An Integrated Electrical Distribution Management System Based On A Generalized Information Infrastructure." Proceedings of the 11th International Conference on Electricity Distribution (CIRED) Liege, Belgium, April 22-26, 1991.

Barnes D, McDonald B, Huras T, Frisvold TM, Hughes BA, "Electrical Distribution Operations Control Center AM/FM Applications," AM/FM International Conference Proceedings, San Diego CA, March 1991

Hughes BA, Frisvold TM, Neumann SA, Geisler KI, Muench JM, "Integrated SCADA & AM/FM/GIS Based Operator Decision Support," AM/FM International Conference Proceedings, San Antonio, TX April, 1992

NOTE: On request, complete listings of all publications will be provided

MEMBERSHIPS & AFFILIATIONS

Institute of Electrical & Electronic Engineers, (IEEE), Senior Member

STRENGTHS

- Major strengths and contribution in the area of defining markets market and associated product strategy.
- Work effectively with customers/vendors throughout definition, implementation and testing processes.
- Unusually quick to grasp situations; articulate and responsive to others
- Strong leadership talents and high energy levels; known to move ahead with vigor and resolve to define and meet objectives.
- Focused on planned accomplishment; proven forecasting and decision making skills.

Able to make competitive value-based decisions, identify implications, determine strategic ways to apply data, and design/develop system evolution and maintenance strategies.

References available on request.