Technical Qualifications
and
Professional Experience

Kenneth John Slater

EDUCATION

B.Sc.,	Pure Mathematics and Physics,	Sydney University, 1960
B.E.,	Electrical Engineering,	Sydney University, 1962
M.A.Sc.,	Management Sciences,	University of Waterloo, 1974

PROFESSIONAL AFFILIATIONS

Association of Professional Engineers of Ontario
- Registered Professional Engineer

Institute of Electrical and Electronics Engineers
- Member of Power Engineering Society
- Past member of Power System Engineering Committee
- Past member of System Economics subcommittee and working group

EXPERIENCE

1957-62 Mr. Slater was a Junior Professional Officer at the Electricity Commission of New South Wales attending university and undergoing on-the-job training in power station and substation design, construction, protection, maintenance, and operation.

1962-67 Mr. Slater was a Professional Engineer Grades 1 and 2 at The Electricity Commission of New South Wales, engaged in a variety of functions within the areas of Power Station Construction, Generation Planning, System Operation and Load Dispatch.

1967-69 As Assistant Engineer Area Operation/Sydney West (Professional Engineer, Grade 3) with the Electricity Commission of New South Wales, Mr. Slater was responsible for the day-to-day operation of the Sydney West Area (approximately 20% of the State System).

He supervised the day-to-day work of more than 18 operators as they provided safe working conditions for Commission staff and others on system apparatus, and as they provided safe, secure,

reliable and economic operation of this portion of the State System.

He performed the liaison function with head office staff, other divisions and customers on all operating activities, directed the performance of complicated operating procedures and trained both regular and emergency operators.

While he was in this and his previous position, Mr. Slater was responsible for the design and manufacture of the live line testing devices used by the Commissions' operators and linemen.

As well, he assumed responsibility for the preparation and execution of "black start" exercises and for the arrangement and detailing of complicated switching for major rearrangements and commissionings on the State System. He also developed original computer applications.

1969-74 As Engineer, and then Senior Engineer, heading the Production Development Section of Ontario Hydro's Operating Department, Mr. Slater was engaged in developing computational procedures and computer programs for Production Economics and Resource Management.

Major contributions included (1) the development and implementation of the computer program which, for more than 20 years, produced the daily generation schedule for the Ontario Hydro System, (2) the formulation of a Stochastic System Model to coordinate and optimize the production planning, maintenance planning, interchange planning and resource management of the Ontario Hydro System, and (3) the development of PROMOD, a Probabilistic Production Cost and Reliability model, the first version of the "core" of the Stochastic Model in (2) above.

As a member of the project group implementing the Operating Department's Data Acquisition and Computer System, he headed a work unit responsible for providing the application programs related to generation scheduling, power interchange and resource management. Also, he held responsibilities in the areas of policy determination, analytical techniques and the planning of future applications.

1974-75 As Manager of Engineering at the Ontario Energy Board, Mr. Slater was heavily involved in public hearings into Ontario Hydro's System Expansion Plans and Financial Policies, and into Ontario Hydro's Bulk Power Rates.

During this time, he provided much of the power system engineering input necessary for the start-up and formulation of the public hearing process related to Ontario Hydro. He also provided the engineering input for the regulation of Ontario's three major investor owned gas utilities.

1975-76 For 12 months, Mr. Slater was a private consultant contracted to the Royal Commission on Electric Power Planning, in Ontario, as its Research Director. During this time, he directed and participated in various studies of different aspects of electricity supply. He was also a member of the panel of expert examiners in a number of the Royal Commission's public hearings.

1976-83 As President of Slater Energy Consultants, Inc., in Toronto, Mr. Slater performed or made major contributions to a number of important assignments at the forefront of the electrical energy industry. These included:

- The Export of Electrical Power
  ….a study for the Ontario Ministry of Industry and Tourism.

- Load Management Studies
  ….for the Detroit Edison Company.

- California Utilities Increased Integration Study
  ….for San Diego Gas & Electric Company, Southern California Edison Company, Los Angeles Department of Water and Power, and Pacific Gas and Electric Company.

- Bradley-Milton 500kV Transmission Lines
  ….a study for the Ontario Ministry of Energy and the Interested Citizens Group (Halton Hills).

- Solar Energy and the Conventional Energy Industries
  ….a study for the Canadian Ministry of Energy, Mines and Resources.

- The Expert Examiner for the Ontario Royal Commission on Electric Power Planning during hearings into Priority Projects.

- Various Studies into Unconventional Electrical Resources
  ….for the P.E.I. Institute of Man and Resources and the P.E.I. Energy Corporation.

- Analysis and Expert Testimony in Support of Lower Demand Rates for Lake Ontario Steel Company, Ivaco Industries Limited and Atlas Steels.

- Claims for Consequential Damages of the Roseton Boiler Implosions
  ….for Consolidated Edison Company, Central Hudson Power Company and Niagara Mohawk Power Corporation.

- A study of the Potential for Megawatt Scale Wind Power Plants in Electrical Utilities
  ….for the Canadian Ministry of Energy, Mines and Resources.

These studies have included the need to create special and unique power system models and solution techniques and have addressed significant issues of major importance in the electrical supply industry. Mr. Slater also has carried out assignments for the following clients:

Nova Scotia Power Corporation.
The Government of Prince Edward Island.
The New Brunswick Electric Power Commission.
Ontario Energy Corporation.
Ontario Energy Board.
Go-Home Lake Cottagers Associations.
Saskatchewan Power Corporation.
FMC Corporation.
FMC of Canada Limited.
ERCO Industries Limited.
Canadian Occidental Petroleum Ltd.
State Energy Commission (Western Australia).
Toronto District Heating Corporation.

In connection with his consulting activities, Mr. Slater gave expert testimony in the state of Idaho and in the provinces of Ontario and Prince Edward Island.

Mr. Slater also was a principal developer of PROMOD III®, a proprietary electric utility production cost and reliability model owned by Energy Management Associates, Inc. This model was used by over seventy utilities in Canada, the United States, Japan and Australia. Its wide acceptance made it the "Industry Standard" in the U.S..

1983-90 As Vice President and Chief Engineer for Energy Management Associates, Inc., Mr. Slater was responsible for giving technical direction for the development and maintenance of Energy Management Associates, Inc.'s state-of-the-art software products. As Senior Vice President and Chief Engineer, Mr. Slater was head of Energy Management Associates, Inc.'s utility consulting practice. He led or made significant contributions to a number of important consulting engagements, including:

- Study and regulatory testimony concerning the value to the Idaho Power Company system of the interruptibility provisions in F.M.C.'s supply contract.

- Generation planning studies for Cincinnati Gas and Electric Company, San Diego Gas & Electric Company and the City of Austin Electric Utility Department.

- Assistance to legal counsel during regulatory litigation regarding the hostile takeover of a major Canadian gas utility holding company (union Enterprises), including definition and examination of issues, selection of witnesses, and analysis of the opposing case.

- Development and demonstration of a method for the allocation of Inland Power Pool's operating reserve requirement among its members.

- Analysis of replacement power costs during the outage of Niagara Mohawk Power Corporation's Nine Mile Point #1 nuclear unit.

- Reserve margin assessments for Public Service Company of Indiana, Alleghany Power System Inc., Iowa Electric Light & Power Company, San Diego Gas & Electric Company, and El Paso Electric Company.

- Examination of the gas supply situation in Southern California and regulatory testimony regarding "unbundling" of storage service.

- Evaluation of the operational, planning and financial impacts of merging two large Eastern U.S. electric utilities.

- Study and regulatory testimony regarding the value and appropriate level of interruptible demand for the Union Gas system.

- Evaluation of the benefits of increased operational integration of a group of electric utilities.

- Assistance for Tucson Electric Power Co. and its legal counsel during arbitration of its dispute with San Diego Gas and Electric Company regarding the operation of a large power sale agreement.

- Analysis of the economics of a third A/C transmission line linking California and Oregon.

- A seminar on "Power Pooling and Inter-Utility Interconnections" for the management of the Central Electricity Generating Board and other parties involved in U.K. privatisation.

- Determination of the benefits of pool membership for two electric utilities in the Northeast U.S..

- Assistance for Riley Stoker Corporation and its legal counsel with the arbitration of direct and consequential damages arising out of the late completion and early poor performance of two major coal-fired generating units. The work included case examination and development, detailed reconstruction of events, analysis of all financial and economic consequences of project delay and performance with separation of fault, analysis of opponent's case and assistance with cross-examination, direct and rebuttal testimony, and assistance with oral and written argument.

Mr. Slater's consulting assignments included the areas of power system planning, operations, reliability, economics, ratemaking

and assessment of the worth of unconventional resources. He appeared as an expert witness in regulatory hearings in Idaho, Iowa, Indiana, Florida, California, Texas, Ontario and Nova Scotia and in civil arbitration proceedings in Louisiana and Pennsylvania.

Mr. Slater continued to contribute to the development of E.M.A.'s utility software products. His contributions included being a principal developer of SENDOUT®, E.M.A.'s proprietary supply model for gas utilities.

1990- In August 1990, Mr. Slater returned to working in his own practice, in Atlanta, where he heads a small corporation, Slater Consulting, which provides consulting services and expert testimony for various different participants in the utility industry.

Slater Consulting assignments, led by Mr. Slater, have included:

- Assistance to legal counsel for creditors of a bankrupt utility.
- Analysis and testimony for Texas – New Mexico Power Company regarding prudent alternatives to their decision to build TNP ONE Unit 2.
- Assistance and analysis for a utility and its legal counsel during litigation regarding damages sustained because of interference in a proposed merger of that utility with another utility.
- Analyses and testimony before the New York PSC for Sithe Energies, Inc., in certification proceedings and in numerous avoided cost and buy-back rate proceedings.
- Analyses and testimony for the Independent Power Producers of New York in QF curtailment, buy-back rate and back-up rate proceedings before the New York PSC.
- Analysis and testimony for Southwestern Public Service Co. at FERC and before the New Mexico Public Service Commission regarding the lack of production cost savings from the proposed merger of Central & South West Utilities with El Paso Electric Company.

- Analyses and testimony before the Public Service Commission for Independent Power Producers in Florida regarding QF curtailment.

- Analyses and testimony in Civil Court cases for Independent Power Producers in Florida regarding the correct implementation of contractual dispatchability provisions.

- Testimony before regulatory commissions in New York, Pennsylvania, Texas, Florida and Louisiana regarding various aspects of emerging competition.

- Analyses and testimony before the Georgia Public Service Commission on behalf of Mid-Georgia Co-gen and others regarding avoided costs on the Georgia Power / Southern Company system.

- Analysis and testimony before the Georgia Public Service Commission on behalf of Georgia Power Company regarding the Prudence of Georgia Power's 1978-1980 investment in the Rocky Mountain pumped storage plant.

- Testimony before the regulatory commissions of Texas, Virginia and Wisconsin regarding the fair allocation of utility revenue requirements to individual customer classes.

- Testimony before the United States Bankruptcy Court regarding the value of the non-nuclear assets of Cajun Electric Power Co-operative, Inc.

- Analyses for Sithe Energies, Inc. of the future dispatch and associated energy revenues for numerous generating resources in the Northeast United States.

- Operational planning analyses for Sithe Energies, Inc. regarding numerous existing and new generating resources in the Northeast United States.

- Analyses and testimony in Courts and before arbitrators for the non-operating owners of the South Texas Nuclear Project, the Cooper nuclear unit in Nebraska, and the Millstone 3 nuclear unit in Connecticut concerning the replacement power costs during extended outages.

In connection with these and other assignments, Mr. Slater has appeared as an expert in regulatory proceedings in Florida, Georgia, Louisiana, New Mexico, New York, Pennsylvania, South Carolina, Virginia, Wisconsin and Texas, and at the Federal Energy Regulatory Commission. He has also appeared in Federal Bankruptcy Court, state courts in Virginia, Nebraska, Texas and Florida, and civil arbitration proceedings in Nevada and Pennsylvania.

PUBLICATIONS & PRESENTATIONS

"Meeting System Demand"
Canada-USSR Electric Power Working Group Electrical Seminar,
Montreal, March, 1973.

"Stochastic Model for Use in Determining Optimal Power System Operating Strategies."
Power Devices and Systems Group, Electrical Engineering Department,
University of Toronto – 1973.

"Economy-Security Functions in Power System Operations"
IEEE Power System Economic Subcommittee Work Group Paper
IEEE T.P.A.S. Sept/Oct 1975 p. 1618.

"A Large Hydro-Thermal Scheduling Model"
TIMS/ORSA
Miami, November 1976.

"Generation System Modeling for Planning and Operations"
Atlantic Regional Thermal Conference
Charlottetown, June 1978.

"The Feasibility of Electricity Export from CANDU Nuclear Generation"
Canadian Nuclear Association
Ottawa, June 1978.

"Evaluation of the Worth of System Scale Wind Generation to the Prince Edward Island Electrical Grid."
IEEE Canadian Conference
Toronto, Ontario 1979.

"The Results of a Study Examining the Possible Impact of Solar Space Heating on the Electrical Utility in New Brunswick."
The Potential Impacts of the Deployment of Solar Heating on Electrical Utilities – A workshop sponsored by the Canadian Department of Energy, Mines and Resources
Ottawa, May 1980.

"Reliability Indices: Their Meaning and Differences"
Planmetrics/Energy Management Associates, Inc. 8th Annual National Utilities Conference
Chicago, May 1980.

"Description and Bibliography of Major Economy-Security Functions
Part I - Description
Part II - Bibliography (1959-1972)
Part III - Bibliography (1973-1979)"
IEEE Power System Economics Subcommittee Working Group
Papers (3).
IEEE TPAS January 1981, p.211, p.214, p. 224.

"PROMOD III® Evaluation of the Worth of Grid Connected WECS."
Fifth Annual Wind Energy Symposium, Ryerson Polytechnical Institute
Toronto, December 1982.

"Probabilistic Simulation in Power System Production Models"
China-U.S.A. Power System Meeting, Electrical Power Research Institute of China
Tianjin, China, June 1985.

"Computer Modeling of Wheeling Arrangements"
Electricity Consumers Resource Council Seminar
Washington, D.C., September 1985.

"Power Systems Reliability Improvement Benefits – A Framework for Analysis"
ASME Energy-Sources Technology Conference
Dallas, February 1987.