

DR. MEHERWAN P. BOYCE, P.E.



SPECIFIC AREAS OF PROFESSIONAL INTEREST

Aerodynamics
Automotive Engineering
Bio-Engineering

Cogeneration
Environmental Engineering
Fluid Mechanics
TurboMachinery

PROFESSIONAL EXPERIENCE

Dr. Meherwan P. Boyce, P.E., CEng, Fellow ASME, IMechE & IDGTE; has 45 years of experience in the field of TurboMachinery in both industry and academia. His industrial experience covers 20 years as Chairman and CEO of Boyce Engineering International, and five years as a designer of compressors and turbines for gas turbines for various gas turbine manufacturers. His academic experience covers a 15 year period, which includes the position of **Professor of Mechanical Engineering at Texas A&M University** and **Founder of the TurboMachinery Laboratories** and **The TurboMachinery Symposium**, which is now in its thirty - seventh year. He is the author of several books such as the **Gas Turbine Engineering Handbook** (Elsevier), **Cogeneration & Combined Cycle Power Plants** (ASME Press), and **Centrifugal Compressors, A Basic Guide** (PennWell Books). He is a contributor to several Handbooks; his latest contribution is to the **Perry's Chemical Engineering Handbook Seventh Edition** (McGraw Hill) in the areas of **Transport and Storage of Fluids**, and **Gas Turbines**. Dr. Boyce has taught over 100 short courses globally attended by over 3000 students representing over 400 Companies. He is a much-requested speaker at Universities and Conferences throughout the world.

CONSULTING

Experience assimilated over forty two years of industrial consultation covering a wide range of subjects with Aerospace, Utilities, Offshore and Petrochemical Industries, and TurboMachinery manufacturers. Project Development and Engineering throughout the world including design consultant on compressors and turbines for various manufacturers, such as Dresser, GE, Thomassen, United Technologies, Rolls Royce, and Volvo. Expertise including Heavy Fuels Combustion, Performance Evaluation of Combined Cycle Power Plants. Forensic Engineering and Expert Witness Testimony on Combustion Turbines, Steam Turbines and Compressors.

Research and Design on various TurboMachinery Components

- Blade Design
- Impeller Design
- Combustor Design
- Diffuser Design
- Environmental Systems for Aircraft

Condition Monitoring

Pioneer of the introduction of On-Line Performance Monitoring for Large Rotating Machinery in Petrochemical and Utility applications in the world

Independent Power Project Development

Financial Analysis
Preliminary Design

Combined Cycle and Cogeneration Plants

Design
Performance Testing

Heavy Fuel Combustion in Gas Turbine Operation

Wet Combustors
Dry Low NO_x Combustor

Troubleshooting Turbine and Compressor Problems

Educational Programs

- Advanced Gas Turbines
- Turbine and Compressor Design, Operation and Maintenance
- Performance and Testing of Combined Cycle Power Plants
- Combined Cycle & Cogeneration Plants
- Steam Turbines
- Centrifugal Compressors

Forensic Engineering and Maintenance Practices

- Analysis and Expert Testimony
- Maintenance Manuals

Consultant for Major Utilities and Independent Power Producers, including:

BAHRAIN	BAHRAIN ELECTRIC
CANADA	NORTHLAND POWER PETRO-CANADA
CHINA	CHINA LIGHT & POWER
COLUMBIA	THERMOFLORES
FRANCE	ELECTRICITY DE FRANCE
GREECE	PUBLIC POWER CORP.
INDIA	TATA ELECTRIC COMPANIES
MALAYSIA	TENAGA NASIONAL
MEXICO	CFE
NETHERLANDS	EPON
PAKISTAN	WAPDA
SAUDI ARABIA	SCECO
SINGAPORE	SINGAPORE POWER
TAIWAN	EVERPOWER
U.A.E.	DUBAI GAS & ELECTRIC DUBAI ALUMINIUM
U.K.	NATIONAL POWER POWERGEN THAMES POWER
U.S.A.	ATHENS GENERATING COMPANY, LP. AES WOLF HOLLOW AES RED OAK AMOCO PRODUCTION COMPANY COGEN BLACK AND VEATCH CALPINE CORPORATION CENTRAL HUDSON GAS & ELECTRIC CRS SIRRINE ENGINEERS, INC DESERT POWER, L.P. DOW CHEMICAL

U.S.A	ELECTRIC POWER RESEARCH INSTITUTE E.G. & G. IDAHO FOSTER WHEELER FLORIDA POWER & LIGHT GAYLORD CONTAINER COGEN GULF STATE UTILITIES HARRIS GROUP, INC. INLAND CONTAINER COGEN OLSEN-BEAL & ASSOCIATES PUBLIC UTILITIES BROWNSVILLE PRECO TURBINE & COMPRESSOR SERVICES, INC. REVAK ENTERPRISES, INC. SALT RIVER PROJECT SPECIAL PROCESSES OF ARIZONA, INC. SOUTHWESTERN PUBLIC SERVICE TEXAS UTILITIES ELECTRIC COMPANY TRACTEBEL USA U.S. DEPARTMENT OF ENERGY WATSON ENERGY WESTERN ENERGY WHEELABRATOR NORWALK ENERGY COMPANY WICHITA FALLS ENERGY COMPANY ZURN/NEPCO
VENEZUELA	CADAFE, CARACAS ENELBAR - BARQUISIEMENTO ENELVEN-MARACAIBO

Consultant for Major Petrochemical Companies, including:

CANADA	PETROSAR POLYSAR
FRANCE:	TOTAL
INDIA:	OFFSHORE NATIONAL GAS CORPORATION
INDONESIA:	MOBIL OIL CORP
MEXICO:	PEMEX
NORWAY:	AMOCO NORWAY OIL COMPANY NORSK HYDRO PHILIPS PETROLEUM COMPANY STATOIL
PAKISTAN:	ESSO FERTILIZER
QATAR:	QATAR FERTILIZER CORPORATION

QATAR GENERAL PETROLEUM COMPANY
QATAR PETROCHEMICAL COMPANY

SAUDI ARABIA: ARAMCO
UNIVERSAL OIL PRODUCTION

UAE: DUBAI FERTILIZER
DUBAI PETROLEUM
GASCO

U.K.: BRITISH PETROLEUM
CONOCO
HAMILTON BROTHERS
HYDROCARBONS G.B.
MARATHON OIL
SHELL CHEMICAL
SHELL OIL CO.

U.S.A.: ALLIED CHEMICAL CORPORATION
AMOCO OIL COMPANY
AMOCO CHEMICALS CORPORATION
ARCO OIL & GAS ALASKA
BRIDGELINE GAS HOLDINGS
COASTAL CHEMICAL CORPORATION
CHARTER OIL CORPORATION
COLUMBIA GAS TRANSMISSION CORPORATION
COLUMBIA NITROGEN CORPORATION
DOW CHEMICALS CORPORATION
ENERGAS, A DIVISION OF ATMOS ENERGY
ENTERPRISE PRODUCTS COMPANY
EXXON CHEMICAL
KAISER AGRICULTURE & CHEMICALS
KAISER ALUMINUM
KINDER MORGAN ENERGY PARTNERS, L.P.
OCCIDENTAL CHEMICAL
PHILLIPS 66
PRAXAIR, INC
ROHM & HAAS
SUN OIL CORPORATION
UNION CARBIDE CORPORATION

VENEZUELA: CORPOVEN
LAGOVEN
MARAVEN
MENEVEN
PEQUIVEN

Consultant for Various Armed Forces and Civil Aviation Companies

CANADA	PEACE HELICOPTERS
SWEEDEN:	ROYAL SWEEDISH NAVY
U.K.	DEFENCE EVALUATION RESEARCH AGENCY
U.S.A.:	CONTINENTAL AIRLINES U.S. ARMY U.S. NAVY U.S. AIRFORCE

Consultant for Various Government and Trade Agencies

U.S.A.	DEPARTMENT OF ENERGY DEPARTMENT OF JUSTICE ELECTRICAL POWER RESEARCH INSTITUTE
NETHERLANDS:	KEMA
SAUDI ARABIA:	SABIC

Consultant for the Major TurboMachinery Manufacturers, including:

JAPAN	IHI INDUSTRIES KOBE STEEL KAWASAKI MITSUBISHI
NETHERLANDS:	THOMASSEN
SWEDEN:	VOLVO AEROSPACE
U.K.:	JOHN BROWN CORPORATION ROLLS ROYCE CORPORATION RUSTON TURBINES
U.S.A.:	CATERPILLAR TRACTOR CORPORATION DAIMLER CHRYSLER DELAVAL TURBINES DRESSER CORPORATION DRESSER RAND CORPORATION GENERAL ELECTRIC CORPORATION SIEMENS WESTINGHOUSE POWER CORPORATION SOLAR TURBINES CORPORATION UNITED TECHNOLOGIES CORPORATION HAMILTON STANDARD TURBO-POWER AND MARINE

ACADEMIC EXPERIENCE

BOARD OF VISITORS - UNIVERSITY OF OKLAHOMA

1998- Present Department of Mechanical and Aerospace Engineering

BOARD OF VISTORS – SOUTHWEST TEXAS STATE UNIVERISTY

1995-Present Department of Computer Science

TEXAS A&M UNIVERSITY – COLLEGE STATION, TEXAS

1972-1981	Founding Director	TurboMachinery Laboratories
1972-1981	Founding Chairman	TurboMachinery Symposium
1978-1981	Professor	Mechanical Engineering
1973-1978	Associate Professor	Mechanical Engineering
1969-1973	Assistant Professor	Mechanical Engineering

UNIVERSITY OF OKLAHOMA

1967-1969 Instructor Aerospace and Mechanical Engineering

MAGAZINES AND TECHNICAL JOURNALS

POWER AND ENERGY MAGAZINE (Magazine for the China Market) Associate Editor for Combined Cycles, January 2008

CHEMICAL PROCESSING MAGAZINE Compressor Expert Monthly Column "Ask the Expert" January 2008

ASME JOURNAL OF TURBOMACHINERY Associate Editor from June 2003-2006

TURBOMACHINERY INTERNATIONAL Regular Contributor since March 1973

APPLIED MECHANICS JOURNAL Associate Editor from 1972-1982

INDUSTRIAL EXPERIENCE

THE BOYCE CONSULTANCY GROUP, LLC

1997-Present Chairman

International Management Consultation and Development of Independent Power Projects.
Consulting and Technical Support for the Power and Petrochemical Industry.
Forensic Engineering in Rotating Equipment and Major Prime Movers.

BOYCE ENGINEERING INTERNATIONAL, INC. – HOUSTON, TEXAS

1977 – 1997 Chairman of the Board and Chief Executive Officer

Responsible for the overall strategy, planning and direction of the Company. Annual sales of over \$ 5 million and 50 employees. Product line sold September 1997

COGEN TECHNOLOGIES INC. – HOUSTON, TEXAS

1983-1986 Founder of the company and Director of Technology. Responsible for development and engineering of Cogeneration Plants.

FAIRCHILD HILLER CORPORATION – BAYSHORE, NEW YORK

1966-1967 Group Leader, Aerodynamics

CURTISS WRIGHT CORPORATION – WOODRIDGE, NEW JERSEY

1965-1966 Group Leader, Compressor Design

CUMMINS ENGINE CORPORATION – COLUMBUS, INDIANA

1964-1965 Project Engineer, Turbocharger, Fuel Injection Development

JOY MANUFACTURING CORPORATION – BUFFALO, NEW YORK

1963-1964 Analytical Engineer

GENERAL TURBINE CORPORATION – BUFFALO, NEW YORK

1962-1963 Project Engineer

AWARDS

- **AMERICAN SOCIETY OF MECHANICAL ENGINEERS**

Dedicated Service Award 2007

Best Technical Paper Award – Electric Power Committee, IGTI, 2004

Key Note Speaker ASME Joint Power Conference Phoenix Arizona June 2002

Best Technical Paper Award – Pipelines & Compressors Committee, IGTI, 1996

Elected Fellow--June, 1985

Recipient 1974 Herbert Allen Award for Excellence for Aerodynamics and

Advancing the Profession technically more than any other member in the Section during the previous year.

- **INSTITUTION OF MECHANICAL ENGINEERS**, United Kingdom Elected Fellow—December 2007

- **INSTITUTION OF DIESEL AND GAS TURBINE ENGINEERS**, United Kingdom Elected Fellow—July 1999

- **SOCIETY OF AUTOMOTIVE ENGINEERS**

Recipient 1973 National Ralph Teetor Award for outstanding Young Engineers and Researchers.

- **TEXAS A&M UNIVERSITY TURBOMACHINERY LABORATORIES**

1980 Award for Outstanding Achievement

- **DISTINGUISHED AWARDS**

Who's Who in America in the South and Southwest

International Who's Who

Distinguished Americans for Contribution in Engineering

• **EXPORT AWARDS**

SMALL BUSINESS ADMINISTRATION - U S DEPARTMENT OF COMMERCE

EXPORTER OF THE YEAR AWARDS

1996

DISTRICT AWARD: HOUSTON

1996

STATE AWARD: TEXAS

1996

REGIONAL AWARD: SOUTHWEST USA

PROFESSIONAL LICENSES

Registered Professional Engineer: Texas No. 30135

Chartered Engineer UK: Registration No. 569278

PROFESSIONAL AND SCIENTIFIC MEMBERSHIPS

- American Society of Mechanical Engineers (Fellow)
- Institution of Diesel and Gas Turbine Engineers (Fellow)
- Institution of Mechanical Engineers (Fellow)
- The Association of Energy Engineers
- International Gas Turbine Institute
- National Society of Professional Engineers
- Society of Automotive Engineers
- Sigma XI
- Pi Tau Sigma
- Tau Beta Pi
- Phi Kappa Phi

COMMITTEES

- Technical Program Chair Manufacturing Group ASME IMECE 2005, 2006
- Chairman, ASME, Plant Engineering and Maintenance Division- July 2003 –June 2005
- Chairman, ASME, Conferences Committee, July 2003 - Present
- Chairman, Gas Turbine Users Conference- April 2002-Present
- Chairman, DOE Condition Monitoring Conference- February 2002-Present
- Chairman ASME-IGTI - Electric Power Committee June 2003- June 2005
- Vice Chairman- IGTI - Electric Power Committee- June 2001 - June 2003
- Chairman, International Power and Petrochem Consortium 2000-Present
- Chairman, ASME PTC 55 Aircraft Engine Performance (Codes) July 2001 -Present

- Member ASME- IGTI – Controls Committee
- Member ASME – IGTI- Aircraft Committee
- Member ASME – IGTI – Pipelines and Petrochemicals Committee
- Chair ASME – IGTI –Membership Committee 1990 -1996
- Program Chair ASME – IGTI Annual Expo & Conference Houston, TX 1975
- Chair ASME- IGTI- Technology Resource Committee 1974 -1978
- Member ASME – IGTI Education Committee 1970-1980
- Member ASME – IGTI -Electric Utilities and Co-generation Committee
- Member ASME – IGTI Turbomachinery Committee 1964-1980
- Texas A&M TurboMachinery Symposium–Advisory Committee Member: 1972-Present (in 2005 appointed Life Member of the Committee)
- Co-Chairman, Standardization and Condition Monitoring Workshop-1991
- Chairman, Texas A&M TurboMachinery Symposium–Advisory Committee:1972-1980
- International Machinery Monitoring and Diagnostic Conference-Advisory Board
- SAE Condition Monitoring
- ISO Subcommittee 5 TC 108

EDUCATION

- Mechanical Engineering, Ph.D. --University of Oklahoma, 1969
- Mechanical Engineering, M.S.--State University of New York at Buffalo, 1964
- Mechanical Engineering, B.S.--South Dakota School of Mines and Technology, 1962

BOOKS

Perry's Chemical Engineering Handbook. 8th edition, McGraw Hill: 2007. Chapter : 10 on Transport and Storage of Fluids.

The Gas Turbine Handbook US Department of Energy Office of Fossil Energy
National Energy Technology Laboratory, Axial Flow Compressors Section 2.0, 2006

Gas Turbine Engineering Handbook. Third Edition, Elsevier Publisher, 2006

Centrifugal Compressor: A Basic Guide. PennWell Press February 2003 Tulsa OK.

Gas Turbine Engineering Handbook. Second Edition, Butterworth-Heinemann
Publisher, December 2001.

Cogeneration and Combined Cycle Power Plants. ASME Press January 2002, New
York. Second printing 2004 ASME Press.

Perry's Chemical Engineering Handbook. 7th edition, McGraw Hill: 1997. Chapters
on Fluid Machines and Gas Turbines.

Gas Turbine Engineering Handbook. German Edition, Springer Verlag, Berlin, Germany: 1997.

Gas Turbine Engineering Handbook. 5th.Printing. January 1992, Houston: Gulf Publishing, 1987.

TurboMachinery Maintenance Handbook. Houston: Boyce Engineering International, 1983

Centrifugal Compressor Handbook. Houston: Boyce Engineering International, 1981.

Air Movement and Vacuum Devices. Process Equipment Series. 2 vols. Connecticut: Technomic Publishing, 1981.

PATENTS

United States Patent 3,930,742
Meherwan P. Boyce January 6, 1976
Velocity probe for compressor surge control

PUBLIC SERVICE

President 1994 – 2006. **The Houston Galveston Stavanger Sister City Society.** Part of the City of Houston Sister City Program to assist in Developing Trade and Education through an active Student Exchange program.

Chairman 2005- Present,. **The Virtuosi of Houston.** A Young Artist's Chamber Orchestra.
President 2000 – 2005

Member, Board of Directors 2004- Present **The Sam Houston Chapter of the Boy Scouts of America.** Holder of the Bharat Scout (India's Equivalent to Eagle Scout)

Member, Board of Advisors 1995-1997. **Global Children's Foundation** A foundation created by Nobel Peace Prize Laureate Ms. Betty Williams to create a Marshal plan to alleviate suffering for children in war torn countries

Member Board of Directors 1993-1999 The **US Committee of UNICEF.** Houston, Texas

Member, Executive Board 1993 – 1995 **Wilhelm Schole International,** Houston, Texas. A unique private school dedicated to children of all communities with the belief that the entire world is one family. The school is renowned for its multi-cultural curriculum.

Member, Executive Board 1993 – 1995 **Zoroastrian Association of Houston,** Houston, Texas, and Chairman, 7th North American Zoroastrian Congress_– Houston, Texas.

Vice President 1991 – Present **World Zoroastrian Organization.** London, United Kingdom

PUBLICATIONS

TECHNICAL

- Boyce, M. P., Compressors are the Core of Gas Turbines, Power and Energy Technology – China, Summer 2008
- Boyce, M. P., Advanced Gas Turbines, Availability and Maintainability, Power and Energy Technology – China, Spring 2008
- Boyce, M. P., When Things Go Wrong: Identifying Combined Cycle Problem Areas. Modern Power Systems November 2007, pages 30-37l,
- Boyce, M. P., Preventing Compressor Surges, Turbomachinery International, Pg. 40-42, September/October 2007
- Boyce, M. P., Combined-Cycle Power Plants use Gas and Steam to Generate Electricity Efficiently, Spring 2007 Power and Energy Technology, pg 12-18
- Boyce, M. P., The Testing of Gas Turbines, ASME Power 2007, San Antonio, Texas, July 2007
- Boyce, M. P., Advanced Axial Flow Turbines, March/April 2007 Turbomachinery International, Pg 40-41
- Boyce, M. P., Combined Cycle Power Plants, Power and Energy International, Pg 34-35 Nov/Dec 2006
- Boyce, M. P., Maintaining Combustors-New Designs Reduce Emission But Require Additional Care, Turbomachinery International, Pg 34-35 Nov/Dec 2006
- Boyce, M. P., Recovering Performance Compressor Operation and Maintenance is Crucial to Regaining Losses in Gas Turbine Efficiency and Output, Turbomachinery International, Pg 6-7 July/August 2006
- Boyce, M. P., Performance Characteristics Of Advanced Gas Turbine Cogeneration Power Plants ASME – IMECE 2005-82325 Proceedings of International Mechanical Engineering Congress and Exposition, Orlando Florida. November 2005
- Boyce, M. P., Francisco Gonzales, A Study of On-Line and Off-Line Turbine Washing to Optimize the Operation of a Gas Turbine, ASME – GT -2005-69126, Reno, Nevada. June 2005. Also published in the Journal of Turbomachinery June 2006 GTP-05-1136
- Boyce, M. P., They Don't Make 'Em Like That Anymore "Reliability, Availability, Maintainability of Advanced Gas Turbines" Turbomachinery International, September/October 2004, Vol.45 No.5 Pg. 16

- Boyce, M. P., Jeffery N. Phillips, Jay Grandmont, Leonard Angelo, Simplified On-Line Performance Monitoring of Simple Cycle Gas Turbines using Spreadsheet based Calculation, ASME – GT -2004-54123, Vienna, Austria. June 2004.
- Boyce, M. P., Operation of Combined Cycle Power Plants ASME Vienna Austria. June 2004.
- Boyce, M. P., Long Term Service Agreements for Large Combined Cycle Power Plants, ASME Vienna Austria. June 2004.
- Boyce , M. P., Operation of New Advanced Gas Turbines for Combined Cycle Power Plants ASME Power Conference Baltimore, MD. April 2004
- Boyce , M. P., Long Term Service Agreements for New Advanced Gas Turbine Power Plants ASME Power Conference Baltimore, MD. April 2004
- Boyce, M. P., Identification and Correction of Machinery Losses by Modeling Plant Thermodynamics of Combined Cycle Power Plants. IDGTE Gas Turbine Conference, Milton Keynes, U.K. October 2003
- Boyce, M. P., Increase in Availability and Reliability of Combined Cycle Power Plants, ASM International Conference on Combustion Turbines and Hot Section Components, Conference Proceedings, Pittsburgh PA. October 2003
- Boyce, M. P., Latcovich, Jr., John A., Condition Monitoring and Its Effect on the Life of New Advanced Gas Turbines, ASME -IGTI, Global Gas Turbine News Volume 42: 2002, No. 3 Page 4, November 2002
- Boyce, M. P., A Compendium of Condition Monitoring for New Advanced Gas Turbines, Imperial College, October 2002
- Boyce, M. P., Latcovich, Jr., John A., Condition Monitoring and Its Effect on the Life of New Advanced Gas Turbines, Gas Turbine Users Conference, Houston TX. April 2002
- Boyce, M. P., Advanced Condition Monitoring For Advanced Gas Turbines, EPRI Conference, International Conference on Advances In Life Assessment and Optimization of Fossil Power Plants Orlando FL., March 2002.
- Boyce, M. P., Assessments of Trends in Condition Monitoring Systems and Life Cycle Cost Management for Combined Cycle Power Plants, DOE, Advanced Gas Turbine and Condition Monitoring Conference and Workshop, February 2002.
- Boyce, M. P., Assessments of Trends in Condition Monitoring Systems and Life Cycle Cost Management for Combined Cycle Power Plants, DOE Morgantown December 2001

- Boyce, M. P., Turbomachinery in the Next Millennium, Gas Turbine Symposium, Sponsored by the Institute of Diesel and Gas Turbine Engineers, Milton Keynes, England, UK, September 2001
- Boyce, M. P., New Trends In Gas Turbines a Seminar Naval Post Graduate School, Monterey CA, July 2001
- Boyce, M. P., Reliability, Availability, and Maintainability Program for Advanced Gas Turbines in Combined Cycle Applications, US. DOE. Next Generation Turbine Stakeholder Meeting, April 9-10, 2001
- Boyce, M. P., "Turbo Machinery in the next Millennium" ASME – IGTI January 2001
- Boyce, M. P., Advanced Cycles for Combined Cycle Power Plants, Russia Gas Turbo-Technology Publication, November-December 2000
- Boyce, M. P., Turbo-Machinery for the Next Millennium, Russia Gas Turbo-Technology Publication, September-October 2000
- Boyce, M. P., Gonzales F.J. " Solutions to Field Problems of a Gas Turbine-Axial Flow Chemical Process Compressor Train based on Computer Simulation of the Process" Proceedings of the 28th. TurboMachinery Symposium, Texas A & M University, September, 1999. pp 89-104.
- Boyce, M. P. " Managing Power Plant Life Cycle Costs", Russia Gas Turbo-Technology Publication, January - February 2000
- Boyce, M. P. "Performance Characteristics of a Steam Turbine in a Combined Cycle Power Plant" Proceedings of the 6th. EPRI Steam Turbine Generator Workshop August 1999.
- Boyce, M. P. "Cutting Edge Turbine Technology" Middle East Electricity October/November 1999
- Boyce, M. P. "Condition Monitoring of Combined Cycle Power Plants" Asian Electricity July/August 1999, pp35-36
- Boyce, M. P. "Managing Power Plant Life Cycle Costs" International Power Generation, July 1999, pp21-23.
- Boyce, M. P. "Performance Monitoring of Large Combined Cycle Power Plants" Proceedings of the ASME 1999 International Joint Power Generation Conference, July 1999, San Francisco CA. Volume 2 pp183-190.
- Boyce, M. P. "How to Identify and Correct Efficiency Losses through Modeling Plant Thermodynamics" Proceedings of the CCGT Generation Power Conference, March, 1999, London U.K.
- Boyce, M. P. "Total Performance Condition Monitoring Of Major Petrochemical Facilities" Presented at the Materials, Selection and Application in the

Chemical Process Industry Seminar, London, UK, Sponsored by The Institute of Materials, and co-sponsored by Institute of Chemical Engineers, and the Institute of Corrosion, November 1998.

Boyce, M.P. "The Economics of Captive Power Plants." – Presented at Power in the Gulf conference in December 1997.

Boyce, M.P. and Cox, William M. "Condition Monitoring Management-Strategy." – Presented at The Intelligent Software Systems in Inspection and Life Management of Power and Process Plants in Paris, France, August 1997.

Boyce, M.P. and Venema, J. Condition Monitoring and Control Center – Presented at the Power Gen Europe in Madrid, Spain, June 1997.

Boyce, M.P. "Improving Performance with Condition Monitoring" – Power Plant Technology Economics and Maintenance, March/April 1996, pp. 52-55.

Boyce, M.P. "Control and Monitoring an Integrated Approach." Presented at Middle East Electricity, December 1994, pp. 17-20.

Boyce, M.P., Meher-Homji, C.B., Lakshminarasimha, A.N., gas Turbine and Combined Cycle Technologies for Power and Efficiency enhancement in Power Plants ASME 94-GT-435

Boyce, M.P., Gabriles, G.A. and Meher-Homji, C.B. "Enhancing System Availability and Performance in Combined Cycle Power Plants by the Use of Condition Monitoring." Presented at the European Conference and Exhibition Cogeneration of Heat and Power. Athens, Greece. 3-5 Nov. 1993.

Boyce, M.P. and Herrera, G. "Health Evaluation of Turbine Engines Undergoing Automated FAA Type Cyclic Testing." Presented at the SAE International Ameritech '93. Costa Mesa, CA, 27-30 Sept. 1993. SAE Paper No. 932633.

Meher-Homji, C.B., Boyce, M.P., Lakshminarasimha, A.N., Whitten, J.A. and Meher-Homji, F.J. Condition Monitoring and Diagnostic Approaches for Advanced Gas Turbines." Proc. ASME Cogen Turbo Power 1993. 7th Congress and Exposition on Gas Turbines in Cogeneration and Utility. Sponsored by ASME in participation of BEAMA. IGTI-Vol. 8 Bournemouth, United Kingdom. 21-23, Sept. 1993. pp. 347-55.

Boyce, M.P., Gabriles, G.A., Meher-Homji, C.B., Lakshminarasimha, A.N. and Meher-Homji, F.J. "Case Studies in Turbomachinery Operation and Maintenance using Condition Monitoring." Proc. of the 22nd Turbomachinery Symposium. Dallas, TX. 14-16 Sept. 1993. 101-12.

Boyce, M.P. "Principles of Operation and Performance Estimation of Centrifugal Compressors." Prod. of the 22nd Turbomachinery Symposium. Dallas, TX. 14-16 Sept. 1993. 161-78.

Boyce, M.P., Meher-Homji, C.B., and Lakshminarasimha, A.N. "Evolution of a Unified Turbomachinery Condition Monitoring System and its Application

to Gas and Steam Turbine Utility Plants.” Proc. of 3rd EPRI Steam Turbine/ Generator Workshop. Albany, NY. 20-23 July 1993.

Boyce, M.P. “Turbomachinery Condition Monitoring Systems for the Hydrocarbon Processing Industry.” Hydrocarbon Technology International Magazine. 26-27 June 1993.

Boyce, M.P., Lakshminarasimha, A.N., and Meher-Homji, C.B. “Design and Implementation of an advanced Multi-Machine Gas Turbine Train Condition Monitoring and Control system.” Presented at the Third Congress of Turbomachinery. Queretaro, Mexico. Dec. 1992.

Lakshminarasimha, A.N., Boyce, M.P. and Meher-Homji, C.B. “Modeling and Analysis of Gas Turbine Performance Deterioration.” Presented at the 37th ASME International Gas Turbine and Aeroengine Congress and Exposition. Cologne, Germany. 1-4 June 1992. ASME Paper No. 93-GT-395.

Boyce, M.P. “Performance Monitoring of Cogeneration Facilities.” Presented at the 1st International POWER Technology Exposition and Conference. McCormick Place, Chicago. Oct. 31-Nov. 2, 1989.

Boyce, M.P. and Echegaray, L.E. “Aerothermal Analysis Improves Efficiency and Availability of TurboMachinery.” Plant Services Handbook of Computerized Maintenance Management and Predictive Maintenance. Oct. 1989, pp.102-104.

Barnes, G., Boyce, M.P., Wooldridge, B. and Meher-Homji, C.B. “On-Line Condition Monitoring of Two Westinghouse CE 352 Gs Turbine Compressor Sets.” Proc. of the 8th NRCC Symposium on Industrial Application of Gas Turbines. Ottawa, Canada, 24-27 Sept. 1989. 85-98.

Boyce, M.P., Bhargava, R.K. and Chinoy, R. “On-Line Condition Monitoring of TurboMachinery.” Proc. of the 1st International Machinery Monitoring and Diagnostic Conference. Las Vegas, NV. 11-14 Sept. 1989. 419-27.

Boyce, M.P., Meher-Homji, C.B. and Wooldridge, B. “Condition Monitoring of Aeroderivative Gas Turbines.” Presented at the Gs Turbine and Aeroengine Congress and Exposition. Toronto, Canada. 4-8 June 1989. ASME Paper No. 89-GT-36.

Boyce, M.P., Meher-Homji, C.B. and Mani, G. “A Diagnostic Methodology for Condition Monitoring of High Speed TurboMachinery.” Presented at the Society of Tribologists and Lubrication Engineers Conference. Atlanta, GA. 1-4 May 1989. Publication No. STLE SP-27.

Boyce, M.P. “Rerating of Centrifugal Compressors-Part II.” Diesel and Gas Turbine Worldwide. Jan.-Feb. 1989. 8-20.

- Unsal, R. and Boyce, M.P. "Experience with On-Line Condition Monitoring System." Proc. of the 17th TurboMachinery Symposium. Dallas, TX. 8-10 Nov. 1988. pp.57-66.
- Boyce, M.P. "Rerating of Centrifugal Compressors-Part I." Diesel and Gas Turbine Worldwide. Oct. 1988. 46-50.
- Boyce, M.P. "Advanced Condition Monitoring Protection and Control of TurboMachinery." Presented at the BHRA Conference. Milton Keynes, U.K. 27-28 Oct. 1988. Paper C-4.
- Boyce, M.P. "Advanced Maintenance Management System Design for the LM2500 Gas Turbine." Presented at the SAE Conference and Exposition on Future Transportation Technology. San Francisco, CA. Aug. 1988. SAE Paper No. 881171.
- Boyce, M.P. "Advanced Monitoring Protection and Control of TurboMachinery." Diesel and Gas Turbine Worldwide. May 1988.
- Boyce, M.P. "Rerating of Centrifugal Compressors." Proc. of the 16th Texas A&M TurboMachinery Symposium. Dallas, TX. 27-29 Oct. 1987.
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LECTURES AND SHORT COURSES

2008

Gas Turbine Technology and Planned Optimization of Combined Cycle Power Plants, April 28th - May 2nd 2008

Energy: Past, Present and Future; ASME South Texas Section, Dinner Meeting, February 21st 2008.

2007

Gas Turbine Technology and Planned Optimization of Combined Cycle Power Plants, 5 Day Course, Sole Instructor, London England, October 15-19, 2007

Gas Turbine Technology, Short Course, Sole Instructor, Sponsored by Texas A&M University sponsored course at the TurboMachinery Symposium, Houston TX., September 10, 2007

Gas Turbine and Centrifugal Compressor Course, Sole Instructor, Houston, Texas June 12-15, 2007

Centrifugal Compressor and Gas Turbine Technology for Engineers, 2 Day Course, Sole Instructor, Queretaro Mexico, April 17-18, 2007

Gas Turbine Technology and Planned Optimization of Combined Cycle Power Plant Short Course, Sole Instructor, London, England, January 30-February 2, 2007

The Combined Cycle Power Plants Operations, Maintenance and Planned Optimization Short Course, Sole Instructor, Houston, Texas January 16-19, 2007

2006

Introduction to Gas Turbines, Short Course, Sole Instructor, Sponsored by Texas A&M University sponsored course at the TurboMachinery Symposium, Houston TX., September 25, 2006

Centrifugal Compressor and Gas Turbine Technology for Engineers 4 Day Short Course, Sole Instructor for Enterprise Products Operating, LP. Personnel only, Mont Belvieu, Texas. July 17-20, 2006

Technology of Advanced Gas Turbines – Short Course, Sole Instructor, for Impartir Conferencia “Operación Y Mantenimiento De Turbinas De Gas” en el IX Congreso y Exposición Latinoamericana De Turbomaquinaria”, Vera Cruz, Mexico., June 21-22, 2006

Centrifugal Compressor and Gas Turbine Technology for Engineers – 4 Day Short Course, Sole Instructor, Houston, Texas. June 13-16, 2006

Centrifugal Compressor and Gas Turbine Technology For Engineers Technology of Advanced Gas Turbine – Short Course for PEMEX personnel only, Sole Instructor, Queretaro, Mexico, June 1-2, 2006

New Gas Turbine Technology and Plant Optimization for Engineers
3 Day Short Course, Sole Instructor, London, England, May 15-17, 2006

New Gas Turbine Technology for Engineers – Short Course, Sole Instructor, Barcelona Spain, May 5-6, 2006

2005

Combined Cycle Power -Short Course, Sole Instructor, Sponsored by Texas A&M University sponsored course at the TurboMachinery Symposium, Houston TX., December 12, 2005

Technology of Advanced Gas Turbines and Centrifugal Compressors – Short Course, Sole Instructor, Las Vegas, December 4-5, 2005

2004

Combined Cycle Power -Short Course, Sole Instructor, Sponsored by Texas A&M University sponsored course at the TurboMachinery Symposium, Houston TX., September 20, 2004

The Outlook for Engineering – Dinner Speech for the Scholarship Award Dinner Aerospace and Mechanical Engineering Department, University of Oklahoma, September 8, 2004

Technology of Advanced Gas Turbines and Centrifugal Compressors – Short Course, Sole Instructor, Houston, April 27-30, 2004

Technology of Advanced Gas Turbine – Short Course for PEMEX personnel only, Sole Instructor, Monterey, Mexico, March 23-March 24 2004

Technology of Advanced Gas Turbine – Short Course for Legal personnel only, Sole Instructor, Birmingham, AL., January 20, 2004

2003

Combined Cycle Power -Short Course, Sole Instructor, Sponsored by PowerGen, Las Vegas, Nevada, December 7 – December 8, 2003

Technology of Advanced Gas Turbine -Short Course, Sole Instructor, Sponsored by Texas A&M University sponsored course at the TurboMachinery Symposium, Houston TX., September 8, 2003

Technology of Advanced Gas Turbine – Short Course for PEMEX personnel only, Sole Instructor, Vera Cruz, Mexico, June 24-June 25 2003

2002

Advanced Gas Turbine Technology-Short Course, Sole Instructor, Sponsored by PowerGen, Orlando Florida, December 8 – December 9, 2002

Gas Turbine - Short Course—One Day, Sole Instructor, Texas A&M University sponsored course at the TurboMachinery Symposium, Houston TX., September 9, 2002,

Technology of Advanced Gas Turbine – Short Course, Sole Instructor, Amsterdam The Netherlands, May 31-June 1 2002

Advance Gas Turbine Technology, Short Course, Sole Instructor, Galveston TX., February 28 - March 1, 2002

2001

Advanced Gas Turbine Technology-Short Course, Sole Instructor, Sponsored by PowerGen, Las Vegas NV., December 9-10, 2001

Combined Cycle Power Plants – Short Course, Sole Instructor, London UK, October 22-26, 2001

Gas Turbine - Short Course—One Day, Sole Instructor, Texas A&M University sponsored course at the TurboMachinery Symposium September, 2001, Houston, Texas

The Basics Of Gas Turbine Technology-Short Course, Sole Instructor, New Orleans La., Sponsored by ASME- IGTI June 1 – June 2, 2001

2000

“Condition Monitoring for Advanced Gas Turbines” Invited Lecturer, Department of Energy Sponsored Conference on Advancing The Gas Turbine Power Industry, December 4-6, 2000. Washington, D.C.

“Advanced Control System Technology”, Invited Lecturer by the Department of Energy, at their sponsored Workshop “The Aerospace/Power Industry Control System Technology Transfer” November 16, 2000, Orlando, Florida.

“New Techniques in Condition Monitoring” Department of Energy Sponsored Workshop, November 13, 2000 – Orlando, Florida.

TurboMachinery for the Energy Industry- Sole Instructor for a Two Day Short Course- November 2000 – Sponsored by PowerGen, Orlando Florida

TurboMachinery for the Energy Industry- Sole Instructor for the Five Day Short Course-October-November 2000 – Sponsored by the Institute of Diesel and Gas Turbine Engineers, - London U. K.

International Power and Petrochem Consortium- Chairman and Invited Lecturer
October 2000 at DERA, Farnborough, U.K.

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sponsored course at the TurboMachinery Symposium September, 2000, Houston,
Texas

“Condition Monitoring of Large Combined Cycle Power Plants” Invited Lecturer,
Department of Energy, Power Producers and Petrochemical Users of Advanced Gas
Turbines- Workshop, June 6-7, 2000, Washington D.C.

TurboMachinery for the Energy Industry- Sole Instructor for the Five Day Short
Course-May 2000 - Sponsored by the Institute of Diesel and Gas Turbine
Engineers,- London U. K.

TurboMachinery for the New Millennium- Chairman and Invited Lecturer May 2000
at DERA, Farnborough, U.K.

1999

TurboMachinery for the Energy Industry- Sole Instructor for the Five Day Short
Course-December 1999-Singapore.

Combined Cycle Power Plants-- Sole Instructor for the Five Day, Short Course
September 1999-London, U.K.

TurboMachinery for the New Millennium –Key Note Speaker TurboMachinery
Symposium September 1999

New Developments in Gas Turbines- Invited Lecturer at the Naval Post Graduate
School Monterey CA.-July 1999.

Optimizing Condition Monitoring, and Modeling of Plant Aerothermodynamics for
Improved Plant Availability, Maintainability and Efficiency Short Course - March,
1999.

1996

Combined Cycle Power Plant Operation, Berlin, Germany, December 1996.

Gas Turbines in Utility Service, Berlin, Germany, January 1996.

Gas Turbines and Centrifugal Compressors Operation and Maintenance, Warrick,
U.K., May 1996.

1995

Combined Cycle Power Plant and High Technology Gas Turbines, For National
Power, November, 1995. Swindon U.K.

Combined Cycle Power Plants, Arnhem, The Netherlands, September 1995.

Gas Turbines and Centrifugal Compressor Technology, Dubai, April 1995.

Gas Turbines for Utilities – Arnhem, The Netherlands, September 1995.

1977-1994

Gas Turbines and Compressors for the North Sea, Oslo, Norway, Short Course presented annually from 1991-1994.

Gas Turbine and Centrifugal Compressor, Margarita Island, Venezuela, April 15-18, 1991.

Gas Turbines and Centrifugal Compressors, United Kingdom, presented annually 1990-1996.

Operation and Maintenance of Gas Turbines. Cranfield School of Mechanical Engineering, January 8-12, 1990, Cranfield, England.

Design Operation and Maintenance of TurboMachinery, Aberdeen, Scotland, May, 1988.

Design, Operation and Maintenance of TurboMachinery Short Course, Dubai, U.A.E., February, 1988.

Gas Turbine-Centrifugal Compressor Short Course, Norway, November, 1987.
General TurboMachinery Course, London, England, June, 1987.

New Developments in On-line Diagnostics for TurboMachinery. Lecture at Cranfield University, Cranfield, England, 1987.

Short Course on TurboMachinery, Anchorage, Alaska, March 1987.

Operation and Maintenance of Gas Turbines and Centrifugal Compressors, Boyce Engineering/Nico International, DUBAI, U.A.E., January, 1987.

Gas Turbine and Centrifugal Compressor Short Course, Houston, Texas, November, 1986.

Gas Turbine and Centrifugal Compressors, Houston, Texas, May, 1986.

Gas Turbine and Centrifugal Compressor Course, London, England, May, 1986.

Rotating Machinery Short Course. Short Course, Anchorage, Alaska, February, 1986.

New Developments in TurboMachinery Design, Lecture at University of Houston, 1986.

Gas Turbine and Centrifugal Compressor Short Course, Houston, Texas, November, 1985.

Short Course on Centrifugal Compressors, London, England, October, 1985.

Gas Turbine and Centrifugal Compressor Short Course, Houston, Texas, - October 1984.

General TurboMachinery Short Course, Houston, Texas, April, 1984.

Maintenance and Reliability Improvement Short Course, Houston, Texas, April, 1984.

Gas Turbine Short Course, S.A. Meneven, Caracas, Venezuela, October, 1981.

TurboMachinery Short Course, Boyce Engineering International, Inc. facilities, Houston, Texas, September, 1981.

Maintenance of Rotating Machinery Short Course. Boyce Engineering International, Inc. facilities, Houston, Texas, July, 1981.

Short Course on Gas Turbines and Centrifugal Compressors, Phillips 66, Stavanger, Norway, March 1981.

Gas Turbines Short Course, S.A. Meneven, Caracas, Venezuela, October, 1980.

Surge Characteristics in Centrifugal Compressors sponsored by ASME Houston, Chapter, September, 1978.

Spectrum Analysis for Surge Control. A Lecture sponsored by the Engineering Foundation at New England College, Hoeneker, New Hampshire, July, 1978.

Spectrum Analysis, A Look in TurboMachinery Maintenance. Invited Lecturer, Nicolet Scientific, June, 1977.

Cavitation Problems and Pump Sizing. Invited Lecturer at Pump Symposium sponsored by Chemical Engineering, January, 1977.