

## **Sunflower Corporation Principals Detailed Background**

**Gary Cler—Vice President, Engineering**

**Eric Gertler—Treasurer**

**John Hutson—Vice President, Engineering**

**Larry Kinney—Vice President, Product Development**

**Ross McCluney—Vice President, Research**

**Peter Novak—CEO**

**Jim Walsh—President**

## Gerald (Gary) Cler

### Vice President, Engineering, Sunflower Corporation

622 Parkview Mountain Drive, Windsor, CO 80550  
tel 970-674-8728, email gary.cler@comcast.net

### EDUCATION:

Colorado State University, Ft Collins, CO, Master of Science, Mechanical Engineering, May 1987

University of Illinois, Urbana, IL Bachelor of Science, Mechanical Engineering, May 1984

Parkland College, Champaign, IL, Transferred to University of Illinois, May 1981

### WORK EXPERIENCE:

#### Professional consulting

Windsor CO 80550

Dec 2001 – present

Consulting services include renewable energy, combined heat and power, energy technology evaluation, and energy auditing of residential, commercial and industrial facilities. Services have been provided to electric utilities, renewable energy-CHP developer, Colorado ski industry, technology development companies, provided technology evaluation for energy information companies, and technical assistance numerous product development projects.

Conducted walk-through energy audits on approximately 40 industrial & commercial facilities for a MN electric utility as well as 18 residential and C/I audits on Indian Reservations. I assisted in an engine evaluation and selection for a landfill gas project. Provided design assistance, economic feasibility, alternative fuel and application assessment for an innovative Brayton cycle engine-this project is on going and I am part of the design and manufacturing team. I have provided design, economic analysis, and manufacturability assistance for an energy savings external shutter system and novel day lighting system. I have written reports and provided technical review for energy information companies. Recent projects include reports summarizing utility owned standby generator programs, alternative fuels for diesel engines, cooling technology options for distributed generation utilizing heat recovery, distributed generation equipment in the 500 kW – 10 MW range, technologies for cleaning up diesel engines (fuels, engine, and aftertreatment), and dual fuel options for diesel engines. I was a major contributor to a multi-client study focusing on lessons learned from early adopters of microturbines, a market assessment for a company interested in developing fuel cells, and inverter based reciprocating engine generator feasibility assessment.

Additionally, I've provided technical review to energy information companies on documents reviewing CHP software tools, dual fuel technology options for diesel engines, energy service and maintenance contracts for distributed generation technologies, and others. I assisted a recycling company in developing a material flow plan and plant layout as well as business model development. I have conducted numerous technically based telephone interviews for clients.

### Encorp, Inc.

Manager, Advanced Systems Development

Windsor CO 80550

Apr 2000 – Dec 2001

Primary responsibilities included system design, procuring equipment, and setting up engine-driven generator test capabilities. Project responsibilities included installation and testing of

dual-fuel (diesel/natural gas) conversion systems on diesel engines and testing of alternative fuels, such as diesel/water emulsions. I also provided technical assistance to the sales team in the areas of dual fuel retrofits, exhaust emissions control, and cogeneration. Supervisory responsibilities included managing two engineers and a mechanical technician.

At the time of my departure I was also responsible for developing requirements specifications for an advanced dual-fuel control system and a manifold water injection system for diesel engine NOx reduction and to allow increased natural gas substitution rates while avoiding engine knock.

**E Source, Inc.**

Research Manager

Boulder, CO 80302

Sep 1995 – Apr 2000

Primarily focus way on natural gas technologies, including distributed energy systems (fuel cells, microturbines, and reciprocating and Stirling engines) and gas and thermal powered cooling systems (engine driven and absorption chillers, desiccant dehumidification, and gas powered heat pumps) as well as other heating and cooling technology evaluation. Developed economic and market analysis data for emerging technologies and evaluated cogeneration projects at a screening level. Published numerous documents on energy efficient HVAC and distributed energy technologies and presented this information at conferences and workshops. Provided technical review for numerous reports in a wide range of energy related topics.

**U.S. Army Construction Engineering Research Laboratories**

Principal Investigator

Champaign, IL 61826

Jun 1988 - Sep 1995

Conducted applied research and numerous projects and demonstrations in HVAC, power generation, and other energy related technology areas. Developed research and demonstration programs, scheduling, and budgeting for projects, and supervising other employees. Performed feasibility studies, developed conceptual designs, reviewed and provided comments on contractor developed detailed designs, managed project construction, collected and analyzed performance data, documented findings, and regularly meet with DOD and contractors during all phases of these projects. Reviewed and provided comments to DOD personnel on the accuracy and suitability of many contractor prepared, energy related feasibility studies. Developed feasibility and analysis software tools. Prepared contractor specifications for research projects and managed those projects performed by outside contractors. Conducted field demonstrations of fuel cell, gas cooling, desiccant dehumidification, storage cooling, and cogeneration systems. Evaluated numerous chiller plants, solar thermal systems, and other energy related projects. Presented this information at conferences and workshops.

**University of Illinois**

Visiting Research Engineer (One year contract with extension)

Urbana, IL 61901

Apr 1987 – Jun 1988

Assisted in the design and managed construction of the University of Illinois 2000 m<sup>2</sup> salt gradient solar pond, monitored performance, and documented and presented results and conferences and journal articles.

**Colorado State University**

Solar Energy Applications Laboratory

Research Assistant

Ft Collins, CO 80523

Jan 1985 – Mar 1987

Designed, installed, operated, and maintained a residential solar regenerated desiccant cooling system. Tested solar collectors, performed system maintenance, monitoring, analyzed system performance, and project documentation.

**Paul's Machine and Welding Corp.**  
Machinist, welder, designer, drafter

Villa Grove, IL 61956  
Apr 1974 – Jan 1980

Performed all aspects of machine work (manual and CNC), welding, and fabrication. Designed, drafted, and built many specialty components and equipment for the agricultural, chemical, food, mining, and other industries. Designed and set up production and assembly areas, optimizing process flow and material handling, evaluated staffing requirements to maximize throughput/labor-hour.

Additionally, I have significant practical experience in the installation of residential and light commercial plumbing and HVAC systems working for my father's company, Frank Cler Plumbing & Heating, while attending high school and college. I am an active member of the Board of Directors, Community Resource, Inc., a recycling company in Champaign, IL. I received a Department of the Army Commendation for Outstanding Work Performance 4 times and completed the US Army Facilities Engineering Management Training course.

#### **RELEVANT PUBLICATIONS:**

**“New Designs in Active Daylighting: Good Ideas Whose Time Has (Finally) Come,”** Proceedings of the 2005 Solar World Congress, August 2005 (co-author with R. McCluney, L. Kinney, and J. Hutson)

**“Insulating Shutters: Innovative Enhancements for Energy Saving, Comfort, and Security,”** Proceedings of the European Council for an Energy Efficient Economy 2005 Summer Study, May 2005 (coauthored by L. Kinney)

**“Energy Audits of the Pueblo of Laguna”** Prepared for the Council of Energy Resource Tribes, co-authored with Larry Kinney and Wyncia Clute. Feb 2005.

**Global Fuel Cell Market Assessment – An Overview of Market Barriers and Markets,** Subcontractor to E Source. I was one of several authors and provided an assessment of the market potential and barriers for fuel cells in stationary applications at Department of Defense facilities and remote applications as well as diesel powered genset performance, cost, and emissions specifications, March 2003.

**Microturbines: Lessons Learned From Early Adopters,** E Source Multi-Client Study, E Source Inc. Nov 2002. I was one of several authors on this project. My focus was on direct use of thermal energy; combined cooling heating, and power; resource recovery (flare gas); and the Business model (Mariah Energy) sections as well as numerous end user interviews.

**Residential Distributed Generation: Options and Opportunities,** E Source Distributed Energy Series DE-6, Mar 1999, with Nicholas Lenssen and Claudia Manz  
**The York Triathlon: Natural Gas-Fired, Engine-Driven Heat Pump,** E Source Product Profile PP-95-4, Nov 1995

## Eric T. Gertler

237 Pearl Street  
Boulder, Colorado 80302

Home: 303.939.9114  
Email: [Egertler@pcisys.net](mailto:Egertler@pcisys.net)

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### Senior Financial Manager MBA/CPA with 20+ Years of Finance and Accounting Experience

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Highly capable, hands-on professional with extensive experience in a broad array of financial disciplines gained during a career in public accounting, banking, and software. This includes line and staff positions in large, established corporations and tiny startups. Responsibilities have ranged from SEC filings and presentations to investors and the Board of Directors to general ledger input, payroll processing and monthly accounting closes, and everything in between.

#### Selected Skills

- Complex financial analysis and computer modeling
- Hands-on power user of accounting and financial systems
- Budgeting and forecasting for operating/strategic plans and fund raising
- Managing financial, HR and administrative operations for early stage start-ups
- First class conceptual thinker and out-of-the-box problem solver

#### Selected Results

- Created complex financial models which supported fund-raising efforts, budgeting, investment and pricing decisions. These include financial models used by Bank of America to price adjustable rate mortgages and manage a multi-billion dollar mortgage loan portfolio. Financial models were created to support a spin-off transaction from Lockheed Martin, seed stage venture fundings, and a planned IPO.
- Set up the accounting, financial, HR and administrative structures for five venture capital funded technology start-up companies. This included accounting and HR operations, the corporate financial model used to raise seed capital, and stock and stock option plans.
- Played key, end-to-end role in several equity fund-raising rounds. Responsible for financial models to set price and terms, managing review and approval of the transaction structure, working with attorneys to create all documents, closing and post closing activities.
- Negotiated and managed bank lines of credit including capital and operating leases, collateralized and unsecured lines. Managed multi-million dollar cash positions to insure minimal risk while earning market rates of return.

Venture Capital Funded Start-up Companies

**Oxlo Systems Inc., Broomfield, CO**

Develops software that supports secure, real-time data exchange over the Internet.

**Roving Planet, Inc. Westminster, CO**

Develops software that enables management and control of wireless local area networks.

**ipSEAL, Inc., Westminster, CO**

Developed software enabling data management and service creation in large networks.

**Solant, Inc., Westminster, CO**

Develops software for electronic bill presentment and payment, and Internet customer care.

**KBkids.com LLC, Denver, CO**

An Internet retailer of toys, software, videos and other children's products.

**Datria Systems, Inc., Englewood, CO**

A Lockheed Martin spin-off created to market tools to facilitate data gathering for GIS.

**Previous Corporate Experience**

**Sybase, Inc., Emeryville, CA and Boulder, CO**

Subsidiary and Divisional Controller – Positions in Financial Analysis and Accounting

**Bank of America NT & SA, San Francisco, California**

Positions in Financial Analysis and Accounting

**Coopers & Lybrand, Chicago, Illinois**

Audit Senior/CPA

**Education and Certification**

**CPA** - Illinois

**MBA** – Accounting & Finance, Kellogg Graduate School of Management

**BA** - Political Science, University of Illinois at Urbana/Champaign

**Community Service**

**Wildlands Restoration Volunteers** – Board of Directors / Treasurer. WRV is a non-profit organization that brings together members of the community to restore Wildlands damaged by overuse.

**Boulder Economic Vitality Advisory Board** – Renewable Energy & Green Building Task Force. The EVAB was established by Boulder's City Council to develop and execute strategies to reinvigorate Boulder's economy.

## John Hutson

### Vice President, Engineering, Sunflower Corporation

Amsterdam, The Netherlands

#### EDUCATION

**Yale School of Management**, Master's degree in Business Administration, 1999.

- Majors in Strategy and Marketing; Minor in Finance.

**University of Rochester**, Bachelor of Science in Electrical Engineering, 1983.

#### WORK EXPERIENCE

2004 to present, **IBM Corporation, Business Consulting Services, Senior Consultant**

- Evaluated proposed surveillance, detection, communications, biometrics, and portable computing technologies, synthesized solutions, and managed a large scale demonstration for the US Border Patrol's America's Shield Initiative. Represented IBM in various multi-company working groups. Analyzed Border Patrol operations for Business Process Modeling.
- Analyzed the strengths, weaknesses, opportunities, and strategic environment of Cabinet level agencies to determine potential business opportunities with the e-Government initiatives.
- Managed a project to select workflow and document management software for client.

2003-2004, **Synergistic Building Technologies**, Boulder CO. Product Manager / Strategist

- Developed corporate business plan.
- Created marketing plan including market size estimates, geographically staged introduction, pricing, and return on investment.
- Product Manager for line of residential and commercial energy conservation systems.

1999 – 2003 and Summer 1998, **Network Appliance**, Sunnyvale, CA / Boulder CO.

Product Marketing Manager (Marketing Intern - summer '98), Enterprise File Servers

- Analysis
  - Responsible for market analysis, product line pricing, mixed margin financial analysis, unit and revenue forecasts. Sales deviated minimally from plan.
  - Established models for performance requirements, market size, and pricing that are now used to define product parameters.
  - Performed in-depth analyses of competitors' products and practices for positioning and product development.
- Management
  - Product manager for two generations of flagship file servers representing 50% of revenue. Responsible for feature prioritization, product requirements, physical look, ISO9000 reviews, product release schedules, beta program, and both internal and external promotional materials.
  - Product Manager for all file servers in telco, NEBS, and DC powered applications.
  - Drove introduction of first new features in many generations including multiprocessing and advanced boot-up techniques.

- Led efforts and represented product marketing in cross-organizational program to develop IP based automated “phone home” for advanced service and diagnostics.
- Led product marketing to develop strategic hardware platform roadmap.
- Created and presented product roadmap to high-level customers worldwide including many US government agencies and contractors.
- Produced materials for end customers that explained NetApp technology.
- Integrated product return process with automated quote system for improved accountability

1991 – 1997, **Accom Inc.**, Menlo Park, California.

Project Engineer/Staff Engineer, R&D Engineering

- Project and hardware engineer for Axess, a multi-node networked real-time video clip and still server. Designed video I/O, RAID-based disk storage, video-bandwidth chassis interconnection method, video signal processing, and control system.
- Hardware engineer for Axial video editing systems. Redesigned i80960 based CPU board, designed audio I/O system, designed PCI based multi-channel serial communications card.
- Presented products and assisted sales at major trade shows and with key customers.

1989 - 1991, **Trimble Navigation Ltd.**, Sunnyvale, California.

Member of Technical Staff, Marine and OEM groups

- Defined chip functionality and architecture with team for full custom RF ASIC. Designed mixer, ensured testability of entire IC, selected and administered CAD system.
- Defined architecture and designed digital control/processing board for Trimble's first integrated antenna and GPS receiver system.

1983 - 1989, **Ampex Corp.**, Redwood City, California.

Senior Engineer, Audio/Video Systems Division

- Project Engineer for transport control for VPR-300 high performance composite digital video recorder (later modified to become Ampex's 19mm data recorder).
- Team leader for control and servo electronics.
- Designed CPU card, threading system servo hardware, control track recovery hardware.
- Hardware engineer for Emmy<sup>®</sup> winning ACR-225 digital video library. Designed multi-purpose counter/timer ASIC for servo/CPU interface, digital servo for video scanner, interchassis communications system. Three Patents.
- Presented products and assisted sales at major trade shows.

#### **Patents:**

- 4,713,832 – programmable counter/timer for servos
- 4,935,827 – dynamic head positioning system for magnetic tape playback
- 5,077,662 - Microprocessor control system having expanded interrupt capabilities

**Member:** IEEE, International Dark Sky Association – dedicated to safe and effective lighting that preserves the night sky.

## Larry Kinney

Vice President, Product Development, Sunflower Corporation  
1335 Deer Trail Road; Boulder, CO 80302  
303-449-7941 (V); 303-546-0343 (F)  
larrykinney@sunflowercorp.net

### EDUCATION

1976 Ph.D., Syracuse University (Philosophy)  
1962 B.A., Rhodes College (Philosophy; Minor: Physics)

### PROFESSIONAL EXPERIENCE

June 2006 to Present  
Contributing Editor, Boulder Green Building Journal

February 1984 to Present  
CEO and President, Synertech Systems Corporation, Syracuse, New York; Boulder, Colorado  
Director of a project to conduct energy audits and provide a range of energy efficiency consulting services to Thistle Community Housing, a non-profit affordable housing organization in Boulder, CO.  
Director of projects to perform energy audit a range of buildings on Indian tribal lands and to teach Native American Technicians the craft of energy auditing. Technical and evaluation consultant on a range of programs for the Colorado Weatherization Program

August 2002 to June 2005  
Senior Researcher, Southwest Energy Efficiency Project (SWEET)  
Responsible for the assessment of building energy use, codes and standards, and energy conservation program planning and evaluation

February 2000 – July 2002  
Research Manager, Technology Assessment Group, and Senior Consultant, Consulting Group, E SOURCE, Boulder, Colorado. Director of two projects to assess energy conserving options in the new commercial building sector in California. Involved in research in energy building simulation, daylighting, controls, refrigeration, HVAC systems, radiant cooling, safety and heat pump DHW

### Synertech Experience

Director of research projects to develop innovative daylighting devices for marketing;  
Director of two projects to develop methodologies and electronic tools to assess refrigerator performance in the field and the lab and two projects to evaluate refrigerator replacement programs; Director of research projects to quantify energy losses in residential thermal distribution systems; Founder and Publisher of *Energy Exchange*, a national newsletter for energy and weatherization professionals; Member of the National Weatherization Evaluation's working group (an advisory committee) and team leader for Synertech's five consulting projects with the Oak Ridge National Laboratory in support of the National Evaluation; Researcher and author of five case studies on the technology transfer consequences of projects funded by the NYS Energy Research and Development Authority. Topics were demand-side measurement, ice pond R&D, cogeneration engine development, natural gas vehicles, and a lighting research center; Director of a project to perform a comprehensive evaluation of the New York State Weatherization Program;

Consultant for energy conservation evaluation for the New York Power Authority and for the Niagara Mohawk Power Corporation; Certified Auditor, Energy Audit Services to Industry Program for the NYS Energy Office; Director of a project to design and develop a state-of-the-art, low cost, calibrated door fan for air infiltration testing; Director of various projects to supply technical assistance on new technologies and evaluation to weatherization programs in California, Illinois, Indiana, New York, Pennsylvania, Virginia, and Vermont; Director of Weatherization Assistance Programs training needs assessment for the USDOE.

April 1973 to February 1984

Technical Writer, Research Fellow, Senior Research Fellow, and Director, Energy Research Center, Syracuse Research Corporation. Director of a project to design exterior insulating shutters for residential applications; Director of two projects to design, develop, and evaluate innovative daylighting strategies, and director of a project to design a 55,000 square foot passively heated energy education facility in Syracuse, New York; Major contribution to a series of projects to provide formative evaluation and technical assistance services in support of energy assistance programs in Pennsylvania, New York, Delaware, and the District of Columbia; Principal investigator of a project to provide technical support services for a pilot low-income furnace retrofit project; Director of two projects to prepare policy analyses of Energy Crisis Assistance Programs; Principal investigator on a project to assess federally-mandated energy conservation programs in Federal Region III.

June 1973 to 1978

Adjunct Professor of Philosophy, Onondaga Community College, Syracuse, New York.

September 1970 to July 1972

Adjunct Instructor (first academic year); Assistant Professor (second academic year), University of Poitiers, Poitiers, France. Designed and taught courses in Scientific English and Philosophy.

February 1963 to April 1968

Navigator, Electronic Countermeasures Officer, USAF. Honorably discharged as Captain to pursue graduate studies as an NDEA Fellow at Syracuse University.

#### PATENT

Three-Reflection Collection System for Solar and Lunar Radiant Energy, U. S. Patent 6,128,135, October 3, 2000 (co-holder with M. Stiles).

#### PUBLICATIONS AND PAPERS PRESENTED

Author or co-author of over 100 papers, articles, and reports to clients. A selected list follows:

“Practical Innovations for Low-Energy Community Housing,” *Proceedings of the ACEEE 2006 Summer Study on Energy Efficiency in Buildings*, August 2006 (co-author with R. Belshe, G. Cler, W. Clute, R. Fragua, J. Hutson, R. McCluney, L. Schlussler).

“Single-Axis Tracking Beam Sunlighting System,” *Proceedings of the Solar 2006 Conference of the American Solar Energy Society*, July 2006 (co-author with R. McCluney, G. Gler, and J. Hutson).

“Field Notes: New Designs in Active Daylighting,” *Home Energy*, January/February 2006, co-author with Ross McCluney.

“New Designs in Active Daylighting: Good Ideas Whose Time Has (Finally) Come,” *Proceedings of the 2005 Solar World Congress*, August 2005 (co-author with R. McCluney, G. Gler, and J. Hutson).

“Insulating Shutters: Innovative Enhancements for Energy Saving, Comfort, and Security,” *Proceedings of the European Council for an Energy Efficient Economy 2005 Summer Study*, May 2005 (shutters paper co-authored by G. Cler).

“Best Directions,” article on window orientation considerations, *Home Energy* March/April 2005

“Window Strategies in the Southwest,” feature article in Special issue of *Home Energy*, 2005.

“Windows and Window Treatments,” SWEEP, prepared for the USDOE’s Building America Program, September 2004.

“Homes that Work: Practical, Energy-Efficient Residential Designs,” *Proceedings of the European Council for an Energy Efficient Economy Summer Study*, June 2003.

“Innovations in Direct-Beam Daylighting Systems,” paper presented at Right Light 5, a joint conference on energy-efficient lighting in Nice, France, May 2002.

“Electrochromics: Now You See It; Now You Don’t,” *Emerging Technology Currents*, E SOURCE, Number 4, November, 2000.

“Practical Control Strategies for Harvesting Daylight Savings,” E SOURCE Core Report, ER-00-13, July 2000.

“Glazing,” Design Brief for *Energy Design Resources*, [www.energydesignresources.com](http://www.energydesignresources.com) 1999.

“Solar Lighting: A New Industry” in *Light and Engineering*, March 1999 (co-author with R. McCluney and M. Stiles)

"Design, Development and Evaluation of Innovative Daylighting Strategies (Phase II)," Final Report, NYSERDA, September 1991. (Co-author with M. Stiles)

"Development of a Monitoring System and Evaluation Method for a Daylighting Retrofit," Second International Daylighting Conference, 1986. (Co-author with G. Thomas, S. Manwell)

"Design and Demonstration of Innovative Daylighting Strategies in Nottingham Public High School, Syracuse, New York," Tenth National Passive Solar Conference, October 1985, published in the Conference Proceedings. (Co-author with P. Arsenault)

"Daylighting and Shuttering: Reflective Insulating Blind System Mechanical Design and Preliminary Performance Data," Sixth International conference on Alternative Energy Sources, 1983, published in the Conference Proceedings (Co-author with D. Reynolds)

"Exterior Insulating Shutter, Final Prototype Design," prepared for the Department of Energy and New York State Energy Research and Development Authority, June 1982. (Co-author with G. Dike)

## Ross McCluney

### Vice President, Research, Sunflower Corporation

Principal Research Scientist, Florida Solar Energy Center  
219 Johnson Ave., Cape Canaveral FL 32920  
321-783-4161; rmcluney@cfl.rr.com

### Academic Background

Rhodes College, Memphis, Tennessee, 1959 to 1963, B.A. in physics. University of Tennessee, Knoxville, Tennessee, 1963 to 1966, M.S. in physics. Courses in advanced optics at the Institute of Optics, University of Rochester, Rochester, New York, 1967. University of Miami, Coral Gable, Florida, 1967 to 1973, Ph.D. in physics.

### Work Experience

1976 - 2004. Principal Research Scientist and Program Director, Buildings Research Division, Florida Solar Energy Center, a research institute of the University of Central Florida.

2003-2004, Adjunct Professor of Philosophy, Department of Philosophy and Religion, University of Central Florida. Taught 3 credit course, PHI 3033, Philosophy, Religion, and Environment, 2 semesters.

1976-1978, Adjunct Research Professor, Department of Oceanography and Ocean Engineering, and 1984-1986, Adjunct Research Professor, Department of Physics, Florida Institute of Technology, Melbourne, Florida.

1973 - 1976, Research Scientist, Hydrology and Oceanography Branch, NASA/Goddard Space Flight Center, Greenbelt, Maryland. General duties included the application of the principles and techniques of oceanography and optics to the NASA Earth Observations Program.

July 1966 - August 1967, and June-August 1968, Development Engineer, Apparatus and Optical Division, Eastman Kodak Company, Rochester, New York. Duties included both systems analysis and optical system testing technique development.

Summer 1964, Lab Assistant at the Southwest Center for Advanced Studies near Dallas, Texas.

### Professional Consulting Experience

Kenergy Corporation, Orlando, FL. National manufacturer of skylights, 1981-84.

Lighting Research Institute, New York, NY. 1983-85. Assistance in developing a program of research in daylighting.

3M Corporation, St. Paul, MN, 1983. Window energy calculations.

Public Works Canada, Ottawa, 1983-84. Advice and review of daylighting research plans.

Syracuse Research Corporation, Syracuse, New York, 1984. Consultation on daylighting research.

Synertech Corporation, Syracuse, New York, 1984 - 1986. Consultation on daylighting research.

Metropolitan Dade County Department of Parks and Recreation, Miami, FL. 1984. Daylight building design assistance.

T. J. Bottom Industries, Cuba, MO, 1985. Energy performance of translucent, operable awnings.

New York State Psychiatric Institute, New York, 1985-88. Assistance in light therapy research.

Verosol Division of BW-USA Pittsburgh, PA, 1987-1991.

Office of Technology Assessment, National Institute of Standards and Technology, Gaithersburg, MD, 1987-98. Evaluation of energy-related inventions.

Holder Construction Company, Atlanta, GA. 1990. Calculated coordinates for sun paths, hour lines, and other markings on the wall and floor of the world's largest sundial, part of the structure of a Disney World office building at Lake Buena Vista, Florida.

BRW Architects, Phoenix, AZ. 1990 - 1991. Participated in the design of solar lighting systems for a planned NASA lunar base.

Queen's University, Kingston, Ontario, Canada, 1992. Technical consultant on an ASHRAE-funded study of the design of indoor and outdoor calorimeters for fenestration systems.

Kell, Munoz, and Wigodsky Architects, San Antonio, TX. 1995-96. Technical consultant on the design and construction of a large sundial for the University of Texas at Edinburg.

Morrison Associates of Canada, Burlington, ON, Canada, 1996-97. Consultation on sundial design.

OMI Corporation, Melbourne, FL, 1997. Technical consultant on characterizing output wavelength of nanosecond pulsed laser diode ranging system on night vision dual eyepiece monocular.

Harley Gutin, attorney, Cocoa, FL, consultation on constitutionality of police procedure for stopping vehicles at night based on perceptions of window film transmittance level, 1997.

AAIC Architects, Collinsville, IL. 1998. Calculations related to the design of a new sundial.

Leo A. Daly, Planning, Architecture, Engineering, Interiors, Omaha, NE. Consultation on the design and fabrication of a new sundial plaza for the Council Bluffs, IA public library, 1998.

Allied Glass Enterprises, Kansas City, MO. Consultation on the design of the windows for new sky boxes for Neyland Stadium, University of Tennessee, Knoxville, 1999.

Brevard County Public Defender (PD). Expert witness on an automobile window tint case, August 1999.

U. S. Department of Justice, Civil Division, New York. Expert witness on an international trade case involving window shade fabric, 2000.

Cardinal Industries, Minneapolis, MN, insulated glazing systems manufacturer. Technical consulting on a major project involving solar reflection from glazing systems, including the design of field experiments and analysis of measured data, plus computerized optical ray tracing work. Also computations of solar heat gain through spectrally selective glazing systems. 2004-2005.

### **Teaching Experience**

Lecturer, FSEC's workshops on Low Energy Building design and Solar in Schools 1983-2000.

Adjunct Professor, Florida Institute of Technology 1976-77 (Oceanography and Ocean Engineering), and 1984-1986 (Physics and Space Sciences). 2001-present, instructor in occasional half-day short courses on selecting the best windows for residences in hot climates.

1995-present, instructor in occasional half-day short courses on radiometry and photometry for SPIE the international optical engineering society. 2003 - 2004. Instructor, Philosophy 3033, Philosophy, Religion, and the Environment, University of Central Florida.

### **Past Research Experience**

Designed and built a ten-pass holographic differential interferometer for plasma diagnostics at the University of Miami. Performed the laboratory work for a paper by Dr. J.G. Hirschberg on a technique of thermal imaging using holography (Applied Optics, **9**, 761 [1970]). Designed and built a multi-channel laser light scattering meter as part of dissertation research. Investigated light scattering by marine phytoplankton.

At NASA/Goddard Space Flight Center, designed a two-channel laser light scattering meter for

oceanographic use, which was subsequently built at GSFC and has been used in several experiments involving measurements of the two-degree and ninety-degree scattering functions of natural waters. Received a patent for this device, October 11, 1977.

In September 1975, provided overall scientific coordination and direction for a joint NASA/Cousteau Society experiment in the Bahama Islands. The Cousteau vessel, *Calypso*, and a vessel chartered from the Johns Hopkins Applied Physics Laboratory, the *Beayndon*, rendezvoused in clear, shallow waters at selected locations in the Bahamas and performed measurements of water depth, water transparency, and bottom reflectance.

### **Honors, Awards, and Appointments**

Elected to Sigma Pi Sigma, national physics honor society in 1964; associate membership in Sigma Xi, scientific research honorary in 1965, and to full membership in Sigma Xi in 1975. Held a two-year NASA graduate fellowship and a one-year NSF fellowship at the University of Miami, 1967-1970.

Received a National Aeronautics and Space Administration Certificate of Recognition, 12 July 1976. Appointed to the Energy Element Policy Advisory Committee of the Florida Division of State Planning in 1977 and elected to the Boards of Directors of the Indian River and Florida Audubon Societies in 1976 and 1977, respectively. Chairman of the Board, Brevard Community for Individual Education, 1981-84. Vice Chairman of the Board of Florida Audubon Society in 1980 and 1981. Chairman of the Board, Brevard Community Band 1985-86. Founding Vice President and Director, Earth Ethics Research Group, Inc., 1988-1989, 1991-92.

Florida Solar Energy Center Researcher of the year Award 1986, College Award for Excellence in Research 1986, University of Central Florida Foundation. U. S. Delegate to Technical Committee 3.07 on International Collaboration in Daylight Availability Measurements of the *Commission Internationale de l'Eclairage* (CIE), the International Lighting Commission, 1983-1991. Chair of CIE Technical Committee 6.17 on the spatial and temporal variability of radiation exposure and human behavior, 1987-1990. Certificate of Appreciation from the American Society of Heating, Refrigerating, and Air Conditioning Engineers for service as the Chairman of its Fenestration Technical Committee from 1984 to 1986. Program Chairman, 1986 International Daylighting Conference. Who's in Science and Engineering, 1993-present. Marquis Who's Who in America, 2003, 57<sup>th</sup> edition. Founder and first president, North American Sundial Society ([www.sundials.org](http://www.sundials.org)), 1994-1995.

### **Publications**

Author of over 60 technical papers on a variety of subjects, Dr. McCluney's textbook, *Introduction to Radiometry and Photometry*, was published by Artech House in 1994. He is author and editor, respectively, of two textbooks, *Humanity's Environmental Future*, and *Getting to the Source*, the latter being an anthology of essays by prominent environmental writers on environmental values. These books were published by SunPine Press of Cape Canaveral, FL in April 2004. He has authored several encyclopedia chapters on radiometry, photometry, daylighting, and window energy performance. He also authored two chapters in *The Final Energy Crisis*, ed. Andrew McKillop and Sheila Newman, Pluto Press, 2005. Publications list: <http://www.fsec.ucf.edu/bldg/active/fenestration/pubs/RMpublist04.htm>

## Peter Novak

### Chief Executive Officer, Sunflower Corporation

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A globally seasoned entrepreneurial executive with significant accomplishments in customer relationship management, new market growth, strategic partner development, cross functional metrics driven performance enhancement, negotiation, organizational empowerment and supply chain development. Successfully expanded sales and improved operations in Asia, Europe and North America leading and mentoring changes needed to meet the requirements of Automotive, Aerospace and other diverse industrial customers. Strong abilities to pull teams and individuals out of their boxes building both loyalty and passion to achieve significant improvements in top and bottom line. Demonstrate high integrity and ethics living and working on three continents.

- **Negotiator**—Strengthened Channel, Strategic Partner, and End User relationships generating over \$30 million in new business in the past three years.
- **Revenue Growth**—Sustained rate of growth significantly better than GDP through key account management and incentive initiatives, 2004–2006.
- **Turn Around**—Cut operating costs 33% (\$1,000,000) increased inventory turns from 1-2 to 4-5 across multiple service centers, reduced inventory from \$5 million to \$1 million and past due accounts by \$3 million 1999-2003.
- **Performance Improvement**—Drove efficiency from low 60s to mid-90s through best practices and training multifunctional teams – direct and indirect reports.
- **Customer Service**—“Cooper Service moved from being a liability to an asset” quote from key customer, 1996-1999.

### PROFESSIONAL EXPERIENCE

**COOPER INDUSTRIES**, Houston, Texas 1990-2006

Publicly traded manufacturer with seven electrical product and two tool divisions with \$4.7 billion in revenues, 29,000 employees.

CooperTools Group is a top global manufacturer of industrial power tools, automated assembly systems and hand tools with 5,400 employees and revenues of \$750 million.

**Vice President, Asia Operations**, Cooper Power Tools Division (2004-2006), Shanghai, China

Started-up physical presence in Asia including sales and service, marketing, operations and finance. Primary focus on Australia, China, Korea, Japan, Singapore, Thailand, Taiwan and Malaysia markets. Directed product brands, sales and marketing activities. Established local commercial capabilities supporting direct sales of automated systems and channel sales of industrial tools and related consumables. Analyzed potential acquisition, JVs, and strategic partnership targets providing business case and due diligence. Finalized strategic alliance with partner and competitor in Japan. Developed engineering and local operational strategy for Asia. Served on the Cooper China Business Council and IT Council. Built organization across Asia with five direct and 10 indirect reports growing to over 35 by June 2006, expanding sales, engineering and operations functions.

- Tripled Asian sales from \$6.7 million in 2003, \$17.4 million in 2004 and \$19.5 million in 2005 by taking market share away from competitors.
- Improved outsourcing 160-fold. Led decision-making team for one of two key programs driving sourcing from \$50,000 in 2004 to \$3,500,000 in 2005 and an estimated \$8,500,000 in 2006. Served as local executive mentor for global sourcing initiatives.

**Director Global Development**, Cooper Power Tools (2003-2004), Lexington, South Carolina  
Architect of “Asian growth” and “Service as a Product” strategies with target growth of \$10 million. Worked to leverage global strengths across functions for growth. Developed products and services and sold them in a technical setting. Managed key customer relationships. 35 dotted line indirect reports globally.

- Mentored French Sales Executive co-developing proposal to close three year service contract worth \$1.3 million including 5% to top line on service business at 50% margins with Airbus by enhancing Service and Growth program.
- Led Global Team landing BMW as new account in USA with small initial order of \$235,000 leading to multiple millions in year two due to time to market for engineered solutions and meeting commitments five times faster than competitor.

**Director Customer Satisfaction**, Cooper Power Tools (1999-2003), Lexington, South Carolina  
Developed and maintained Parts and Service organization with 12 direct and 48 indirect reports that consistently and efficiently met customer demands for after-sales product support. Oversaw multi-site operations and complied with import and export regulations.

- Integrated acquisition (service and satellite distribution centers).
- Turned around Service Centers from losses to break even or profit centers, closed five of 11 centers reducing annual operating costs by over \$1 million.
- Collected \$3 million in past due accounts across key customers by leading cross functional team.
- More than doubled inventory turns to 3-5 turns per year across multiple service centers.
- Moved delivery performance from low double digit to 95 % using aggressive customer centric metrics and best practices in team effort with Sales, Marketing, Operations and Finance.

**Project Leader–Global SAP/R3**, Cooper Power Tools (1997-1998), Lexington, South Carolina  
Implemented full SAP suite across North America and Europe: 10 manufacturing facilities and 11 sales and distribution centers as Global Project Leader. Seven direct and 45 indirect reports.

- Provided capability of real time reports instead of one, seven, or 30 days, integrating business processes across functions through investment of \$14.5 million in SAP system, on time and on budget.

**Manager Customer Satisfaction**, Cooper Power Tools (1996-1999), Lexington, South Carolina  
Maintained appropriate contacts with customers, dealers, employees, suppliers, government authorities and general public. Served on Distributor Advisor Council. Four direct and 12 indirect reports.

- Changed customer perception of service from “liability to asset” working across functions to improve service levels from quote to cash.
- Improved international air transit times from weeks to days with 50% cost reduction. Reduced forwarders from 42 to two negotiating door to door rates including clearance for all key markets.

**Manager Planning and Information Systems**, Cooper Power Tools (1993-1996) Westhausen, Germany  
Served as Product and Market Manager (\$35 million in sales). Led CE (European norms) compliance initiative, product development efforts and made key decisions about new product investments. Capital Planning Manager (\$2.5 million in spend across functions) and IT Manager (supporting 100 million in sales and operations). Assured availability of top quality competitive products while meeting or exceeding brand expectations. Ensured strategies were targeted to achieve or exceed profitability, sales revenue, cash flow, market share and return on capital objectives. One direct and four indirect reports.

- Established business partnership (\$1 million annual savings) co-leading product strategy with engineering manager outsourcing development for critical electronic component while maintaining control of Intellectual Property.
- Strategy and Execution–Mentored senior management in down turn on business restructuring and meeting division expectations resulting in proactive bottoms up restructuring reducing headcount by 10%.

#### **Additional Positions Held**

##### **COOPER-CHAMPION AUTOMOTIVE**

**International Planning Analyst** (1992-1993)

***Assistant to Vice President International*** (1991-1992)  
***Safety Manager*** (1990-1991)

**SIEMENS ELECTRIC**

***Risk Analysis, Semiconductors Division***, Munich, Germany (1990)

**LIBERTY MUTUAL INSURANCE GROUP**

***Risk Management Consultant*** (1986-1988)

**EDUCATION**

MBA, Thunderbird Garvin School of International Management, Glendale, Arizona, 1989  
Attended one semester at European Business School in Winkel, Germany

BS, Engineering, University of Vermont, Burlington, Vermont, 1985 (with studies at University of Vienna, Strobl, Austria)

Post graduate studies: Strategic Management, Robotics and German Language, Technical University of Munich, 1985-1986

## James P. Walsh

### President, Sunflower Corporation

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### **EDUCATIONAL BACKGROUND:**

*Master of Arts*, Public Administration, 1977.

University of Colorado Graduate School of Public Affairs, Boulder, CO. Graduate emphasis on energy policy analysis, especially as related to U.S. Government policies during 1970's "energy crisis". Served as Student Administrator to President of University 1975-76. Member of Colorado Department of Regulatory Agencies "Sunset" studies graduate internship 1976-77.

*Bachelor of Arts*, Individually Structured Major

(Economics, Political Science, Sociology) 1975. University of Colorado at Boulder.

### **PROFESSIONAL EXPERIENCE:**

#### **1989 to Present:**

*Founder and President*, Energy Service Associates, Inc., Boulder, CO. ESA is a Colorado small business that provides resource management consulting and turnkey operational management services to public and private sector clients.

ESA's clients include school districts, municipalities, counties, utility companies, and commercial clients including the country's premier ski resorts. ESA's services include energy conservation programs, security systems engineering and planning, FEMS and CMMS design and development, and water resource management services. ESA provides turnkey project management and commissioning services for all our projects.

ESA's Colorado school district clients include Boulder Valley, Harrison Two, Falcon 49, Woodland Park, and Denver Public Schools.

Mr. Walsh received the *Association of Energy Engineers'* regional **Energy Manager of The Year** award for 1993 for the Boulder Valley Schools' \$8 million Energy Modernization Program, and the district won a regional **Energy Project of the Year** award in 1995.

**1986 to 1989:**

*Branch Manager and Marketing Director*, Energy Masters Corporation, Denver, CO. Mr. Walsh directed a full-service energy engineering, test and balance, and project contracting operation in the Denver branch until June, 1989. Projects were marketed primarily to ski and golf resorts nationally, and included conservation projects for Vail, Beaver Creek, Copper Mountain, Mammoth, Squaw Valley, Tammaron, and Innisbrook resorts, among others. Energy conservation projects encompassing more than 4 million square feet with a total value exceeding \$3.5 million were completed by the Denver branch under Mr. Walsh's direction.

A project developed by Mr. Walsh and installed for Vail Associates, Inc. which incorporated one of the first applications of "shared savings" financing received both a *State of Colorado* and *U.S. Department of Energy* **Energy Innovation Award** for the company in 1987.

**1980 to 1986:**

*Founder and President*, Energy Institute, Inc., Broomfield, CO. (formerly Computerized Energy Audits, Inc.) EI was originally organized as a residential energy conservation company with an emphasis on energy audits and instrumented technical studies of energy consumption. The company was acquired by Energy Masters in July, 1986. EI was one of a handful of firms nationally to incorporate blower door and furnace efficiency testing techniques in conjunction with standardized computer analyses to accurately depict the energy load profiles of new and existing homes. EI's construction division performed residential energy retrofits, and was recognized by the City of Boulder and Metropolitan Home Builders Association of Denver for certifying the air infiltration rates of new homes.

While with EI, Mr. Walsh was instrumental in the development of the Home Energy Loan Program (HELP), which won the *State of Colorado* and *U.S. Department of Energy* **Energy Innovation Awards** in 1985. The HELP program provided an accurate appraisal tool for energy conservation improvements on homes, and was endorsed and accepted by major primary and secondary mortgage lenders, FHA, VA, and the Society of Real Estate Appraisers.

EI adopted to a commercial focus as energy costs stabilized or declined in the mid-80's, and developed and executed some of the first "shared savings" now "performance contracting" contracts with Vail and Copper Mountain resorts and a number of commercial office buildings in the Denver area.

**1977 to 1980:**

*Contractor, residential properties.* Originally recruited by the Solar Energy Research Institute after graduation in 1977, Mr. Walsh organized and operated a residential construction company after SERI's budget (and the position for which he was recruited) was cut in the spring of 1977. Mr. Walsh's continued interest in energy conservation techniques, coupled with his hands-on experience in residential construction, led to the decision in 1980 to form a company with emphasis on residential energy audits and retrofit.