

# **STATEMENT OF QUALIFICATIONS**

Energy Efficiency Institute, Inc.

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## OVERVIEW

EI's principals, Paul A. Cillo and Harlan Lachman, each have more than thirty years of field-based program design, implementation, and evaluation experience. They have provided on-site efficiency analysis and project oversight for hundreds of homes, small and large commercial facilities, schools, hospitals and colleges. They have designed and managed: low income fuel assistance and weatherization programs in Vermont, Ohio and Texas; Vermont's Residential Conservation Service (RCS) Energy Auditing and Arranging Service Programs; and award winning utility Demand-Side Management Programs, including the Burlington Electric Department's Neighbor\$ave CFL direct-install leasing program. They have performed or participated in numerous program evaluations, including evaluations of low-income programs, utility programs, and Vermont's RCS program.

Cillo and Lachman's current work includes the development and design of energy efficiency and renewable energy programs using Pay As You Save<sup>®</sup> (PAYS<sup>®</sup>), a market-driven system designed to stimulate consumer purchase of building resource-efficiency measures. They launched the PAYS<sup>®</sup> concept with their 1999 NARUC-sponsored paper on the subject and in 2001 designed the first pilots using the PAYS<sup>®</sup> concept for two New Hampshire utilities. They are the foremost experts on PAYS<sup>®</sup>.

They first worked together on Vermont's Residential Conservation Service program in 1980. Since 1985, they were partners at Energy Solutions, Inc. prior to founding the Energy Efficiency Institute, Inc. in 1988.

## SELECTED EXPERIENCE

### Program Design

- 2007 - 2009 Center on Wisconsin Strategy (Wisconsin); Environmental Defense Fund (Texas); Sustainable Systems Inc. (Texas)  
Developed concept papers for programs using the PAYS<sup>®</sup> platform for the Cities of Milwaukee and San Antonio and for Oncor's service territory in Texas. The Center on Wisconsin Strategy program would involve city-wide retrofits in Milwaukee for residential, commercial and city buildings. In work completed with Sustainable Systems Inc. for San Antonio, PAYS<sup>®</sup> pilot programs would retrofit residential and city buildings and install solar water heating systems (SWH) in large commercial buildings. For Oncor's service territory, the concept paper lays out a program to retrofit multi-family buildings. This paper was attached to testimony submitted by the Environmental Defense Fund in Docket 35717 in November 2008.
- 2005 - 2006 Delta Institute, Chicago Illinois.  
Worked with the Delta Institute on conceptual development of PAYS<sup>®</sup> pilots for two Michigan municipal utilities (one water utility and one water, steam and electric utility). These pilots would enable residents and local businesses to purchase and install efficiency measures that save gas and electricity, fuels provided by investor-owned utilities that have not offered efficiency programs to help their customers for more than fifteen years. These pilots will also spur local economic activity and be key components of these communities' climate change

efforts. In 2008, Michigan applied for grants totaling more than one-half million dollars from the National Governor's Association and the Department of Energy to begin implementing programs based on the PAYS<sup>®</sup> platform, in large part, based on the design work performed for and interest by these municipalities.

- 2004 New Hampshire Public Interest Research Group (NHPIRG).  
Designed expansion of the PAYS<sup>®</sup> system in New Hampshire recommended by NHPIRG to utilities and regulators. The design opened PAYS<sup>®</sup> to new markets and new utilities without requiring any additional system benefit funds and within the context of New Hampshire's existing CORE programs. The design included an analysis showing how NHPIRG's recommended approach to PAYS<sup>®</sup> would result in more resource efficiency than the existing rebate programs or the utilities' proposal. The Commission ordered Public Service of New Hampshire (PSNH) and the New Hampshire Electric Co-op (NHEC) to continue offering the PAYS<sup>®</sup> tariff to their customers through 2007.
- 2002 Soluziona Philippines Inc.  
Retained as the International Technical Experts, EEI provided the IFC/GEF Efficient Lighting Initiative - Philippines with information on compact fluorescent lighting (CFL) leasing programs we designed and operated in the US and analysis of how the unique barriers experienced in the Philippines will affect CFL penetration. Designed a market-driven CFL leasing program concept to permit Philippine utilities to fulfill their obligation to provide efficiency services to customers at little cost to their utilities. CEPALCO, the Philippines' second largest utility, incorporated EEI-designed features into their proposed program.
- 2001 New Hampshire Electric Co-op/Public Service of New Hampshire  
Assisted two utilities with program design for submission to the New Hampshire Public Utilities Commission using the PAYS<sup>®</sup> system to increase customer investment in energy efficiency. The utilities' submission included a detailed work plan, with budgets, draft forms and contracts, target markets, proposed tariffs, and plans for implementation, training, and evaluation. The Commission approved the design on November 29, 2001. With EEI's program start up and staff training assistance, PSNH launched the first PAYS<sup>®</sup> program in the nation on January 1, 2002 and NHEC officially began its pilot on June 1, 2002. A positive evaluation by GDS Associates, Inc. is now available on PAYS America's website ([www.paysamerica.org](http://www.paysamerica.org))
- 1994 - 1997 Texas Utilities Electric Company (TUEC) and Central and South West Utilities; Low Income Programs  
Developed three low-income weatherization piggyback programs to meet the needs of TUEC's (now Oncor's) low-income customers and the requirements of a Texas Public Utilities Commission's order in Docket 11735. The programs used existing service provider networks (e.g., low income weatherization providers) and innovative bidding and lease fee mechanisms to minimize utility program costs. The programs had a positive benefit-cost ratio, using both the Total Resource Cost (TRC) and Utility Cost (UC) tests (TUEC's programs were independently evaluated by RLW Analytics).

Program Training & Management Assistance

- 2007 Midwest Energy; Management Assistance  
Assisted managers at Midwest Energy with design, obtaining regulatory approval, and implementation of their How\$mart program based on PAYS<sup>®</sup>. Midwest Energy used EEI developed forms, contracts and contractual relationships as the basis for their How\$mart effort which received Kansas Corporation Commission approval in December 2007 for a pilot and subsequently for full implementation in September, 2008. This program has provided retrofits for more than 100 residential customers in addition to retrofit of residential rental and commercial buildings.
- 2007 Hawaii Renewable Energy Alliance; Management Assistance  
On behalf of Hawaii Renewable Energy Alliance, provided management assistance to Hawaii's four electric utilities, required by Hawaii statute (Act 240) to implement pilots based on the PAYS<sup>®</sup> system to help customers who were renters or who had previously rejected SWH systems as too costly to purchase them. Three of those utilities (HECO companies) took advantage of this management assistance and now offer PAYS<sup>®</sup> pilots through their SolarSaver programs. HECO has recently proposed expanding use of the PAYS<sup>®</sup> system to solar photovoltaic systems.
- 2002 Public Service Company of New Hampshire; Management Assistance  
Worked with program managers to develop PAYS<sup>®</sup> product certification standards, evaluation protocols and survey instruments, PAYS<sup>®</sup> tariff calculation methodology and worksheet, and program forms. Helped PSNH trainers refine training agenda and trainees' manual and presented portions of the training for PAYS<sup>®</sup> field staff.
- 1997 Texas Utilities Electric Company; DSM Training  
Developed and implemented training programs for a neighborhood summer blitz program operated in Fort Worth Texas and trained low-income weatherization personnel to piggyback utility program measures and services onto their existing programs. Case workers were trained to use meters to evaluate annual refrigerator electric consumption, how to evaluate when replacement of incandescent lighting is cost effective, how to minimize non-utilization of replacement compact fluorescent lights, and when and how to clean refrigerator coils, install water saving devices, and provide basic energy education.
- 1989 - 1991 Burlington Electric Department; Design & Management  
Designed, obtained funding for and helped manage a Department of Energy supplemental fuel switching pilot program. The program evaluation (coordinated by Lawrence Berkeley Laboratory) indicated an effective penetration rate of 66%. The utility received a 1992 D.O.E. Energy Innovation Award, Utility Technology Category, for its fuel switching program. Its fuel switching program has converted more than 50% of the electrically heated residences in the service territory to alternate fuels.
- 1990 Burlington Electric Department; Design & Management  
Set-up and managed a residential on-site lighting program, based on one of our earlier program designs. Trained and managed college students to wrap electric water heaters and install water saving devices and to enroll customers in using

compact fluorescent lighting. This program achieved more than a 50% penetration rate among all residential customers. At a total cost of less than \$90 per visit (including administration, marketing and materials), more than 70% of those visited installed an average of 4.75 light bulbs and almost all electric water heaters were insulated. The utility received the 1992 APPA Energy Innovator Award.

### Expert Witness

- 2008 Environmental Defense Fund (EDF); Expert Witness  
Served as an expert witness to EDF in Docket 35717. Helped design the overall strategy, prepared testimony, and helped to draft testimony for other key witnesses. EDF's argument in this case was similar to one EEI used successfully in 1993 (Docket 11735). The basic argument was that Texas utility customers owning or living in large apartment complexes were paying for programs that effectively precluded their participation. EEI prepared a concept paper that provided details about the type of program needed to serve these customers. This program concept was the basis for negotiations between Oncor and EDF about implementation of a pilot. As of March 6, 2009, the case had not been resolved.
- 2006 Michigan Public Service Commission.  
Filed comments and testimony with the Michigan Public Service Commission (MPSC) in Case Nos. U-13808, U-14667, and U-14718) (at <http://efile.mpsc.cis.state.mi.us/>) regarding electric and gas utility implementation of PAYS® tariffs in Michigan. In one case, involving the Detroit Edison Company (DTE), EEI both supported the company's proposal for a PAYS® pilot and suggested specific additions for MPSC consideration to facilitate implementation of PAYS® tariffs by DTE and other Michigan utilities.
- 2004 New Hampshire Public Interest Research Group  
Served as expert witness to NHPIRG in Docket DE-04-052. None of New Hampshire's utilities wanted to implement all three elements of the PAYS® tariff. The Commission ordered both utilities which had implemented PAYS® pilots to continue offering the PAYS® tariff to customers through 2007.
- 1993 - 1995 Texas Legal Services Center; Expert Witness  
Provided testimony focusing on the special needs of low-income ratepayers as part of TUEC Docket 11735. Our testimony included three cost-effective program designs and budgets, targeting DSM services to low-income customers and addressed the impact of cost recovery, performance, and marketing decisions on low-income persons. In its order, the Commission determined that the utility's DSM programs had failed to overcome market barriers to participation by low income customers and ordered the utility to submit, in conjunction with interested parties, programs specifically designed to meet the needs of low income persons as part of its IRP submission.
- 1993 Office of the Massachusetts Attorney General; Expert Witness  
Provided testimony to the Massachusetts Public Utilities Commission on the performance by Commonwealth Electric Company and Cambridge Electric Light Company regarding their implementation of DSM programs. EEI's testimony

explained the value of establishing milestones for future DSM activity, arranging for independent evaluation of such DSM activity, and for implementing predetermined penalties in the event of continued mismanagement of DSM by these utilities. The Commission acknowledged the utility to be remiss in fulfilling its obligations and took what it considered appropriate steps to address its non-performance.

### Program Evaluation

- 1995 Centerior Energy; Evaluation  
 Provided evaluation of Centerior Energy's Reduce the Use program using the four tests of the California Standard Practice Manual. Used CEI program progress reports, expenditures, avoided costs, and discount rate combined with a custom designed evaluation tool and enhanced engineering savings estimates to determine program cost effectiveness. Although the program failed Ohio's Revised Utility Cost test, it passed the TRC test (the test in effect when the program was designed and operated). The evaluation was accompanied by program worksheets and recommendations for potential enhancements to the program.
- 1990 Burlington (VT) Electric Department (BED); Evaluation  
 Assisted BED in obtaining evaluation assistance from Lawrence Berkeley Laboratory (LBL) and worked with BED and LBL staff to design evaluation of BED's supplemental fuel switching program. Also designed and participated in BED's focus group to field test the program as recommended in EEI's original program design.
- 1989 - 1996 Centerior Energy /TU Electric/Central Power & Light; Evaluation  
 As part of all of our program designs for these and other utilities, developed benefit-cost analyses using all four tests of the California Standard Practice Manual. All recommended programs passed the TRC, UC, and Participant Cost tests. Some of EEI's Fair Share programs passed the Rate Impact Measure Test. All program designs included detailed plans for process and impact evaluation tailored to each utility's resources and evaluation needs.

## **SELECTED PUBLICATIONS, PRESENTATIONS & AWARDS**

- 2008 New York State Public Service Commission. Efficiency Portfolio Standard Proceeding, Committee on On-Bill Financing & Tariffed Installation Programs; *Pay As You Save*<sup>®</sup> (*PAYS*<sup>®</sup>) & *On Bill Financing*. Presentation at technical session.
- 2008 American Solar Energy Society. *Is PAYS*<sup>®</sup> *The Answer to Financing Solar Water Heating Systems?* With Warren S. Bollmeier II of Hawaii Renewable Energy Alliance and Hermina Morita Hawaii House of Representatives. Refereed Conference Proceedings.
- 2008 Carsey Institute at the University of New Hampshire. Policy Leadership Initiative. *Pay As You Save*<sup>®</sup>. Presentation for policy leaders in Maine, New Hampshire, and Vermont.
- 2007 Iowa Utilities Board. *Introduction to PAYS*<sup>®</sup>. (With support from Sierra Club).
- 2007 Hawaii Public Utilities Commission. *Pay As You Save*<sup>®</sup> (*PAYS*<sup>®</sup>) (on behalf of Hawaii Renewable Energy Alliance). Presentation at technical hearing.

- 2007 Hawaii House Energy Committee. *Pay As You Save® (PAYS®)* (on behalf of Hawaii Renewable Energy Alliance). Testimony.
- 2006 Washington, D.C. Energy Office. *Introduction to PAYS®* with the Pace Energy Project at Pace University (with support from the Ford Foundation)
- 2005 New York State Energy Research and Development Authority, Albany, NY; *Potential for Development of PAYS® in New York State*. Commissioned paper with Fred Zalcman and Daniel Rosenblum of the Pace Energy Project at Pace University
- 2005 Detroit Edison Collaborative, Lansing, MI; *Pay As You Save® (PAYS®)*; Presentation
- 2004 National Association of Regulatory Utility Commissioners Committee on Energy Resources & the Environment; NARUC Winter Committee Meetings; *PAYS® Update*; Presentations
- 2003 National Association of Regulatory Utility Commissioners Committee on Energy Resources & the Environment; NARUC Winter Committee Meetings; *PAYS® Update*. Presentation
- 2003 Connecticut Department of Public Utility Control, New Britain, CT; *Pay As You Save® (PAYS®)*; Presentation at technical hearing.
- 2002 National Association of Regulatory Utility Commissioners Committee on Energy Resources & the Environment; NARUC Winter Committee Meetings; *PAYS® Update*; Presentation.
- 2001 National Association of Regulatory Utility Commissioners Committee on Energy Resources & the Environment; *More Distributed Generation with Pay As You Save®*; Commissioned paper.
- 2001 U.S. Combined Heat and Power Association; National CHP Roadmap Workshop; *Pay As You Save®: A New Approach to Promoting CHP*; Presentation.
- 2000 New Hampshire Public Utilities Commission; Concord, NH; *Pay As You Save® Energy Efficiency Products*; Presentation.
- 2000 Chewonki Foundation; Wiscasset, ME; *Pay As You Save® Energy Efficiency Products*; Conference presentation.
- 1999 National Association of Regulatory Utility Commissioners Committee on Energy Resources & the Environment; *PAY AS YOU SAVE® ENERGY EFFICIENCY PRODUCTS -- Restructuring Energy Efficiency*; Commissioned paper.
- 1996 National Association For State Community Services Programs; *Making Enhanced Weatherization Cost Effective as Utility DSM*; Presentation
- 1995 National Association of Regulatory Utility Commissioners; *A Win/Win Approach to DSM*; Presentation
- 1994 Electricity Journal; *A Win/Win Approach for C&I Customers*; Volume 7, Number 9; November 1994
- 1992 National Consumer Law Center; *Designing Cost Effective DSM Programs for Low Use Customers*; Conference Presentation.
- 1989 Electric Power Research Institute; *When Electric Utilities Will Invest in Energy Efficiency*; Volume 1; EPRI CU-6367; April 1989. Refereed Conference Proceedings.
- 1988 Governor's Special Commendation For Excellence in Energy; Vermont
- 1985 Department of Energy Technology Transfer Award.

## SELECTED REFERENCES

Mr. Eric Sundquist, Senior Associate; Center on Wisconsin Strategy; Program Design; (608) 265-6155  
 Ms. Nancy Brockway; Consultant; Former New Hampshire Public Utilities Commissioner; Program Design/ Settlement Facilitation; (617) 645-4018  
 Mr. Thomas Stanton; Technical Assistant; Michigan Public Service Commission; Training, Presentation, Program Design, Participation in Regulatory Proceedings (517) 241-6086

Mr. Warren S. Bollmeier, II; Director; Hawaii Renewable Energy Alliance; Program Design, Management Assistance; (808) 247-7753

Mr. Thomas Buckley; Burlington Electric Department; Program Design/Training; (802) 865-7339

Mr. Michael Volker; Director of Regulatory and Energy Services; Midwest Energy; Management Assistance, Program Design; (785) 625-1476

Mr. Jerrold Oppenheim; (formerly with) Massachusetts Office of the Attorney General; Expert Witness; (978) 283-0897

## **Harlan Lachman**

Mr. Lachman co-founded EEI in 1988. He has more than 30 years of experience in resource efficiency program design, evaluation, management, and training. His energy-related work has included setting up and managing low-income, state and utility energy efficiency programs, analysis and design of residential, commercial and industrial utility DSM programs, training field staff and program operators, and providing expert witness testimony. He has been a co-author of papers, articles and presentations on energy efficiency and its impacts on utilities, participants and non-participants.

His current work includes Pay As You Save<sup>®</sup> (PAYS<sup>®</sup>) system design for regulators, utilities and efficiency advocates, and assisting in the management of innovative utility DSM programs.

Mr. Lachman received his Bachelor of Science degree in Psychology from Columbia College in 1972. He received his Masters Degree in English from Columbia University's Teachers College in 1974. Before founding The Energy Efficiency Institute, he was a principal of Energy Solutions Inc., the executive officer of Vermont's Residential Conservation Corporation; a regional and associate director of the University of Massachusetts' Energy Extension Service; and the Energy Director of the Bennington-Rutland Opportunity Council. Prior to his work in resource efficiency, Mr. Lachman taught English and basketball in public schools and helped manage a multi-million dollar real estate and property management firm in New York City.

## **Paul A. Cillo**

Mr. Cillo co-founded EEI in 1988. He has more than 30 years experience in resource efficiency program design, evaluation, management, and training. His energy related work has included setting up and managing state and utility-operated energy efficiency programs, energy analysis and retrofit management for commercial and industrial clients, analysis and design of residential, commercial and industrial utility DSM programs, training field staff and program operators, and providing expert witness testimony. He has been a co-author of numerous articles and presentations on energy efficiency and its impacts on utilities, participants and non-participants. Mr. Cillo served in the Vermont House of Representatives from 1988 – 1998 including four years on the Ways and Means Committee and four years as Majority leader. He chaired the Vermont House's Special Committee on Electric Utility Restructuring in 1997.

His current work includes Pay As You Save<sup>®</sup> (PAYS<sup>®</sup>) system design for regulators, utilities and efficiency advocates, and assisting in the management of innovative utility DSM programs. He is a member of the National Conference of State Legislatures' Advisory Council on Energy.

Mr. Cillo received his Bachelor of Arts degree in philosophy from the University of Vermont in 1975. Before founding the Energy Efficiency Institute, he was a founder of Energy Solutions Inc., and program manager of Vermont's Home Energy Audit Program. Prior to his work in energy efficiency, Mr. Cillo was employed by an electrical contracting firm.