FINAL PROGRESS REPORT

Project Title: Business Development Executive (BDE) Program

Covering Period: March 1, 2000 – March 31, 2005

Date of Report: December 5, 2005

Recipient: Institute of Paper Science and Technology (IPST)
IPST at Georgia Institute of Technology
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Award Number: DE-FC36-00GO10588

Subcontractors: N/A

Other Partners: N/A

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Executive Summary: The IPST BDE (Institute of Paper Science and Technology Business Development Executive) program was initiated in 1997 to make the paper industry better aware of the new manufacturing technologies being developed at IPST for the U.S. pulp and paper industry’s use. In April 2000, the BDE program management and the 20 BDEs, all retired senior level industry manufacturing and research executives, were asked by Ms. Denise Swink of OIT at DOE to take the added responsibility of bringing DOE developed energy conservation technology to the paper industry. This project was funded by a DOE grant of \$950,000.

The BDEs:

1. have all been senior industry managers (vice presidents of operations, manufacturing, research, etc.);

2. all know well and are known by the current management of their client companies;
3. are technically well grounded in the pulp and paper manufacturing processes;
4. enjoy traveling to their mill sites at least one to two weeks per month to teach and train;
5. have a strong desire to stay active in the industry;
6. have excellent communication skills.

The program provided a small per diem and travel expenses to visit paper mills, research labs, and corporate offices to describe the many projects developed by DOE to assist the paper industry in reducing energy consumption (a major expense) and enable it to better compete in the worldwide highly competitive paper market place. Global competition is responsible for the closing of several dozens of U.S. mills and the loss of tens of thousands of jobs, and the trend continues. In time, the paper industry could follow textiles and steel to Southeast Asia unless lower costs and/or higher value added products are introduced.

The BDE process usually involved arranging for audits of major energy consuming processes; i.e., motor-pumps, steam losses, compressed air, pinch studies, arranging multi-mill workshops, training sessions and showcases held at major mill locations to which the industrial public was invited. The dollar value in annual savings has been shown to be in the millions of dollars with savings, lower costs, and greater unit productivity, all of significant benefit to the industry and, ultimately, the country. Industry management has been very receptive to the presentations, and sessions were all well attended, sometimes by presidents and CEOs. There was some reluctance, however, particularly by the larger corporations, to share detailed power consumption and cost/ton with competitors. Within a corporation, employees from mills 150-500 miles from the training site attended. At each BDE presentation to mills, corporate, etc., current DOE literature and instructional CDs, etc. were distributed.

In many cases, the BDE assigned to the company had been responsible for these mills as Vice President of Operations, etc. before retiring. Also, in many cases the BDE knew the mills and mill management very well and gained the confidence of mill management early on. This in turn enabled the program to become quickly focused on the key issues. Some of the BDEs were senior executives of supplier companies, and they, too, had no difficulty in reestablishing past business relationships.

Project Description:

1. Using the existing BDE pool of industry knowledge and expertise, the BDEs are able to efficiently and effectively communicate and demonstrate energy efficiency technology to the U.S. paper industry. In the global industry, economics are playing an ever-increasing role as low-cost, Southeast Asian and Brazilian paper producers begin to compete with U.S. mills. Lowering costs by making mills energy efficient helps keep the U.S. paper industry more competitive and better able to survive.
2. At approximately half way through the program, DOE requested that we no longer offer assistance in the form of energy audits and training programs, etc. to individual mills, but instead have all the mills in a region attend. Major mills (Georgia-Pacific, International Paper, Weyerhaeuser, etc.) were not interested in revealing energy cost/ton to their competition since these costs

varied greatly from mill to mill and company to company, and it was felt that this information could potentially give a competitive advantage to other companies making similar grades of paper and board.

3. For future work, I would propose making customized training programs and energy audits available to each of the major corporations' mills selecting meeting sites less than a day's drive from the attending mills to cut down on travel costs—a major issue today. Mills in this category would include:
 - (a) International Paper
 - (b) Georgia-Pacific (Koch Industries)
 - (c) Inland Container
 - (d) Abitibi
 - (e) MeadWestvaco
 - (f) Kimberly-Clark
 - (g) Smurfit Stone
 - (h) Rayonier
 - (i) Potlatch
 - (j) Boise
 - (k) Weyerhaeuser
 - (l) Procter & Gamble
4. Smaller mills, of which there are well over 100, appear to be less reluctant to share information since the benefits to them outweigh the risks; and therefore, several regional meetings could work.
5. Utilizing the resources of the DOE regional offices, DOE in Washington, TAPPI and PIMA were of considerable help in the success of this program.

Background: The Institute of Paper Science and Technology (IPST) employed, as consultants, retirees from the Forest Products Industry to act as technical liaisons between the paper mills, corporate offices, R&D facilities, etc., and IPST. Their mission was to communicate the technological needs of the mills to IPST, the capabilities of IPST to fill those needs and, if indicated, facilitate programs to do so.

Within this project, the BDE Program scope of work was expanded on April 1, 2000 to include dissemination of information on the DOE/OIT programs to the industry, their benefits and how to utilize them.

The project team leader, Valri Robinson, was replaced by Peter Salmon-Cox, January 1, 2003.

The final financial status summary report, for 269A is shown as Exhibit I.

Quarterly detailed reports were submitted as requested starting April 1, 2000 and finishing March 31, 2005, the date the program was terminated for lack of funds. The recipients of these reports were:

- James Alkire
- Elmer Fleischman
- Doug Hooker

- Dickson Ozokwelu
- Valri Robinson
- Peter Salmon-Cox
- Paul Scheihing
- Joseph Springer

The BDEs who participated in this program are listed below. During this program the size of the group varied as members retired and new ones joined.

Name	Title	Company	BDE/OIT Assignee
David Ashcraft	VP, Operations	• Temple Inland	• Temple Inland
Thomas Bridges	VP, Operations	• Smurfit-Stone	• Smurfit (OIT)
Doug Caulkins	VP, Marketing	• Buckman Labs	•
Thomas W. Cook	Director of Engineering	• Procter & Gamble	• Procter & Gamble
Richard W. Detrick	VP, Research	• Abitibi-Consolidated	• Abitibi-Consolidated • Carastar • International Paper
Arthur C. Dreshfield	Director of Research	• Potlatch Corp.	• Potlatch • Gaylord Container, Antioch, CA
Phil Emery	VP, Operations	• Westvaco	• Westvaco
Tom Giles	Director North America	• Hercules, Inc.	• Hercules
Robert G. Guide	VP, Operations	• Longview Fibre	• Longview Fibre
William C. "Pete" Howard	VP, Operations	• Georgia-Pacific	• Georgia-Pacific • Blue Ridge Paper (OIT) • Southeast Paper (OIT) • Riverwood Corporation, Macon, GA
James Lynn Jonakin	Director of Research	• MacMillan Bloedel	• Weyerhaeuser Company • Alabama River Pulp Co. Inc. • Alabama Pine Pulp Co.
Jussi Kokko	Manager Research	• UPM-Kymmene	• UPM-Kymmene
Jim Lewis	VP, Operations	• Appleton	• Appleton
Bill Major	Vice President, Chemical Division	• Westvaco	• Westvaco
Bob Moore	VP, Operations	• International Paper	• International Paper
Ted A. Owens	VP, Operations	• Inland Container	• Inland Paperboard and Packaging
John Preston	VP, Technology/Marketing	• Honeywell-Measurex	• Honeywell-Measurex
E.J. "Woody" Rice	• Global VP • VP and President	• Hercules Paper Chemicals • IPST	• Principal Investigator
Sam Sofia	Director of Marketing	• Nalco	• Nalco (ONDEO)
Lynn L. Wright	ORNL Coordinator National Bioenergy Center and Bioenergy Systems Group Leader	• Oak Ridge National Laboratory	• Oak Ridge National Labs • NREL

Major companies called on, and with presentations made to are listed below. Please note that most of these firms were contacted several times a year at corporate offices, paper mills, laboratories, showcases, and training meetings.

- Abitibi, Augusta Newsprint mill
- Abitibi, Alabama River
- Abitibi HQ, Montreal, Canada
- Abitibi International Falls mill, Augusta, GA
- Abitibi-Donohue, Lufkin, TX
- Abitibi-Donohue, Sheldon, TX
- Abitibi, Snowflake, AZ
- IPST Allied Partnership (preparation)
- American Processes meeting at IPST, Atlanta, GA
- American Processes, Atlanta, GA
- API meeting at IPST, Atlanta, GA
- Appleton Papers
- Appleton Papers - Corporate, West Carrollton and Roaring Spring, PA
- Appleton Papers Inc., Newton Falls, NY
- Auburn Pulp and Paper
- Auburn University Pulp and Paper Foundation
- Augusta Newsprint – “Show Case”, Augusta, GA
- Augusta Newsprint - DOE/OIT “Best Practices 3-day workshop included representatives from nearly all Abitibi’s U.S. and Canadian paper mills.
- Augusta Newsprint – preparing for “Show Case”
- Augusta Newsprint, Augusta, GA
- BDE / DOE Meetings, Atlanta, GA (10 meetings)
- BDE Contact Summaries for Peter Salmon-Cox
- BDE Meeting, Augusta, GA
- BDE/DOE Planning meeting, Atlanta, GA
- Blue Ridge Paper Company, Canton, NC
- Boise Cascade, Wallulla
- California Paperboard Corp., Santa Clara, CA
- Caraustar
- Contact with six DOE auditors
- Creative Packaging International, West Monroe, LA
- Crystal Tissue Co., Middletown, OH
- Deerfield Specialty Papers, Inc., Augusta, GA
- DOE - Industry Expert Meeting, Washington, DC
- DOE / Business Development Executives (BDE) meeting, Atlanta, GA, August 24-25, 2004
- DOE / EERE Meeting, Washington, DC
- DOE / IPST Meeting, Atlanta, GA
- DOE meeting at IPST, December 10-11
- DOE meeting, Atlanta, GA
- DOE Regional office, Atlanta, GA
- DOE steam audit and software class in Houston, TX
- DOE Texas Showcase, Houston, TX
- DOE, Atlanta, GA

- DOE/OIT “Best Practices 3-day workshop included representatives from Abitibi’s paper mills at Alabama River Newsprint, Snowflake, AZ and Houston, TX (in addition to their mills in Canada). Also, representatives from International Paper, Kimberly Clark, and Deerfield Specialty Papers attended.
- DOE/OIT conference calls
- DOE's Oak Ridge National Laboratory – telephone contact with Mitch Olszewski and Greg Harrell
- Dupont, Wilmington, DE
- Durango-Georgia Paper Company (formerly Gilman Paper Company)
- Durango-Georgia, St. Marys, GA
- Fox River Paper Co., Urbana Mill, Urbana OH
- Gaylord (Inland Paperboard and Packaging)
- Gaylord Corporation, Antioch, CA
- Gaylord Corporation, Bogalusa, AL
- Georgia-Pacific / American Processes Conference at Port Hudson Mill
- Georgia-Pacific Corporate Headquarters, Atlanta, GA
- Georgia-Pacific Corporation, Ashdown, AR
- Georgia-Pacific Corporation, Cedar Springs Mill, GA
- Georgia-Pacific Corporation, Crossett Mill, Crossett, AR
- Georgia-Pacific Corporation, Leaf River Pulp Mill, New Augusta, MS
- Georgia-Pacific Corporation, Palatka, FL mill
- Georgia-Pacific mills at Pennington, AL; Nachola Mill; Crossett, AR; Ashdown, AR
- Georgia-Pacific, Dudley, North Carolina for Regional Training at G-P'S Eastern Region Plants (19 people from NC,SC,VA,WV,TN)
- Georgia-Pacific, Green Bay, WI
- Georgia-Pacific, Plattsburg, NY
- Georgia-Pacific, Savannah River Mill for Regional Training (17 people from 4-states)
- Georgia-Pacific, Toledo, OR (Northwest Mills)
- Honeywell, Phoenix, AZ
- Honeywell-Measurex
- Inland Containerboard and Packaging, Maysville, KY
- Inland Containerboard and Packaging, New Johnsonville, TN
- Inland Paperboard & Packaging, Corporate Office, Indianapolis, IN
- Inland Paperboard & Packaging, Ontario, CA mill
- Inland Paperboard & Packaging, Orange, TX
- Inland Paperboard & Packaging, Rome, GA
- International Paper
- International Paper HQ, Memphis, TN
- International Paper, Augusta mill
- IPST
- IPST BDE OIT training meeting, IPST, Atlanta, GA
- IPST, Atlanta, GA (DOE/IPST Allied Partnership agreement)
- IPST/DOE/TAPPI
- Jefferson Smurfit, Santa Clara, CA
- Kelly, Anderson & Assoc., Inc. Alexandria, VA
- Longview Fibre Co., Longview, WA

- Madison Paper Company, Alsip IL
- Miami University, Pulp and Paper department, Oxford, OH
- Nalco Chemical Company, Naperville, IL Corporate Center
- Ohio TAPPI
- Ohio TAPPI Meeting (Best Practices), Miami University, Oxford, OH
- Ohio TAPPI Meeting on Environmental Regulations
- OIT
- OIT Customer Appreciation Day
- OIT Planning session, Washington DC
- OIT/BDE meeting/training
- ONDEO Nalco, Napierville, IL
- Ondeo-Nalco, Corporate
- PIMA , SW Chapter, Santa Clara, CA
- Potlatch, Brainerd, MN
- Potlatch, Cloquet, MN
- Potlatch, Cypress Bend Mill, McGehee, AR
- Potlatch, Lewiston, ID
- Potlatch, San Francisco
- Procter & Gamble, Cincinnati, OH
- Recycled Paperboard Technical Association, Elgin, IL
- Riverwood International Corporation, West Monroe, LA
- Riverwood, Macon, GA
- Silicon Energy
- Smurfit Stone, Jacksonville, FL
- Smurfit-Stone, Brewton, AL
- Smurfit-Stone, Matane mill, Quebec
- Southeast Papers, Dublin, GA
- State Industries of the Future meeting, Little Rock AR
- States IOF Kick Off Meeting, Washington DC
- Steam Audit course March 3-4, 2004 at IPST, Atlanta, GA
- Steam training planning
- Stone Container, Jacksonville, FL
- TAPPI / DOE Energy Summit
- TAPPI / DOE re: upcoming Energy Fair and TAPPI Summit
- TAPPI Pacific Section Executive Committee
- TAPPI, Ohio
- TAPPI, Ohio (preparation)
- TAPPI, Ohio –Boiler & Steam Systems (Appleton, Fox River, Crystal Tissue)
- TAPPI, Southwest Section
- West Carrollton Parchment Co., West Carrollton, OH
- Westvaco Corporation, Evadale, TX
- Westvaco's Luke Mill
- Weyerhaeuser Company, Pine Hill, AL
- Weyerhaeuser, Henderson, KY
- Workshop - State Industries of the Future
- Workshop for Industry Experts, Washington, DC

Closing remarks by the PI: This has been an excellent program for the paper industry, DOE, IPST, and the Business Development Executives. These BDE's gave their full support, enthusiasm, and creativity to making DOE and its energy conservation practices and potential savings a reality. As a result, the major U.S. paper companies know a lot more about DOE and its energy savings and continue to incorporate these best practices into their operations with savings in the multi-million dollar range.

On behalf of IPST and the entire BDE group, thanks for the opportunity to be of service.

E. J. "Woody" Rice
PI and Past President, IPST

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