



## GP DELIVERS RESULTS

Dirk Hughes, Luminant Academy Director, likes to tell a story about a Luminant employee who came to him one day and said she'd like to be a supervisor. He told her that there were only two questions she needed to answer. "What was the company's most important asset?" "People," she said. "Right answer," he responded. "Now for the second question: Do you *really* believe it?"

Luminant management had an objective: To found a new academy to provide technical and leadership training for Luminant's 3,500 employees. The initial challenge was to create a physical training center, with curriculum, for new employees at three of the company's new power plants. The facility opened in February of 2008, one month earlier than the projected target date of March 2008. According to Hughes, that project would be the answer to his second question.

## PROJECT HISTORY

Luminant (formerly TXU) had operated a training facility from the early 1970s until 1995. Due to stable workforce conditions and limited growth, the facility was underused and eventually closed. However, with the construction of three new power plants and attrition levels due to an aging workforce, management realized that training was a critical piece of the future planning process at Luminant.

When Hughes took on a new role at Luminant in 2006 with the single goal of resurrecting the training program, he had his work cut out for him. The only training materials in existence were on Betamax, floppy disks, and overhead projector slides.

Luminant management interviewed four colleges in search of a small to medium-sized college or university to partner with. Tyler Junior College (TJC) in Tyler, Texas met the criteria: they actively supported continuing education, had experience working with industrial customers, were receptive to working with organizational behavior, and the college was centrally located in Luminant's service area. Luminant and TJC entered into a business agreement for managing floor space within the Tyler Junior College's West Campus Skills Training Center for the Academy.

Luminant Academy was founded and announced to the employees of Luminant in October of 2006. However, Luminant did not want to re-create the wheel, nor did the management team have time to develop new curriculum for their new worker classifications. In early 2007, Luminant contacted General Physics Corporation (GP) to discuss the potential for another alliance. "We talked to three or four different companies before choosing GP," said Dirk Hughes. "What basically sold us on them was their willingness to incorporate training materials from outside General Physics into our training program, and the fact that they actually have power plant people working for them. They had the experience to help us get our training program to where it needed to be."

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## Did You Know?

The nuclear power industry in the United States is made up of 104 nuclear reactors at 64 sites, located in 31 different states.

There are four reactor suppliers broken down into two fundamental types: Pressurized Water Reactors (PWRs) and Boiling Water Reactors (BWRs). The reactor suppliers are:

1. Westinghouse (49 units)
2. General Electric (34 units)
3. Combustion Engineering (14 units)
4. Babcock & Wilcox (7 units)

We provided our [Generic Fundamentals](#) course to all but four of these units.

The objective of this new alliance was to design, develop and implement a “best in class” workforce qualification program that would support numerous power plants and mines. The project encompassed full workforce training program development including both immediate and long term visions.

## THE FACILITY

With an investment of 2.5 million dollars, a state-of-the-art, two-floor, 25,000-square-foot training complex was constructed. The key to designing the Academy’s facilities was enabling the curriculum to focus on hands-on training; in addition to traditional classrooms, the facility offers technical labs containing process simulators purchased from Lab-Volt. These training simulators provide the students hands-on experience with electrical and mechanical technologies including pumps, piping, lifting, rigging, hydraulics, pneumatics, wiring, and tubing.

The keystone of the academy’s audio / visual catalogue is the video conference room. Two 60-inch plasma screens present material on one wall and high-definition projectors present the same materials on five-foot screens on the opposite wall, giving students a 360 degree view. The room also boasts ceiling-mounted speakers and microphones, an AMX control panel, and a Symposium touchscreen interface from Smart Technologies that makes any instructor an accomplished artist at the electronic whiteboard.

The academy currently houses two site-specific, high-fidelity distributed control system (DCS) simulators with six more in planning and development stages. The eight simulators will reflect all coal-fired generating stations in the Luminant fleet. The 7.8 million dollar Emerson contracted and GSE built simulators use the same digital control system as the units they simulate, allowing students to be trained in safe start-up and shut-down of a power plant. Operating anomalies can be programmed into the simulator, so the students also get training for unusual operating events. Elbert Page, plant operator and Academy student said, “Being able to get on a simulator pays off...then when I get down to the plant and we get ready to start it, we don’t make million dollar mistakes. I wish I had had that training 25 years ago when I started with this company.”

## THE PROCESS

TJC’s responsibilities include providing assurance that courses offered by Luminant Academy meet the standards of the Southern Association of Colleges and Schools (SACS) and the Texas Higher Education Coordinating Board for Texas Colleges and Universities. TJC maintains a permanent record of each student’s participation for both stand-alone certified courses and certified curriculum courses, provides qualified instructors for courses taught by TJC, and maintains documentation proving the instructors’ credentials and experience. “We’re really a credentialing institution,” explained Dr. Aubrey Sharpe, Dean of Continuing Education at TJC.

Luminant Academy’s responsibilities include working with TJC staff to ensure courses have proper documentation and curriculum structure to qualify for certification.

TJC receives continuing education contact hour reimbursement from the State of Texas per employee contact hour of training that is conducted at Luminant Academy. This money comes from the State of Texas – not from Luminant. It is estimated that TJC will receive \$475,000 to \$500,000 a year from this program.

GP was contracted to generate a project plan, now known as Phase 1, and to outline Phases 2 and 3.

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**Phase 1:** The project plan generated a single document that overviews the task and methodology for meeting aggressive Luminant goals. GP reviewed information from Luminant's needs and skills assessments, collected survey data from the plants, reviewed the different approaches needed for the Luminant fleet mix (coal and gas generation divisions), determined the optimum "blended learning" delivery methods, and designed an e-learning approach that supports these programs.

**Phase 2:** GP designed curriculums for the "Equipment Specialist" Foundation, Process, Mechanical, and Electrical technologies based on required knowledge, skill, and job task analysis supplied by Luminant. A GPiLEARN portal with specific integrated learning (IL) sequences enabled Luminant Academy to implement training immediately, with 24/7 access for the students. GPiLEARN is GP's web-based training, offering access to over 3,200 lessons and exams designed for the power industry, the ability to be incorporated into the Luminant's Learning Management System from Oracle, and reduced training costs with potential for Associates or Bachelors Degree accreditation.

**Phase 3:** The curriculum work of Phase 2 resulted in an 18-week "Basic Skills Toolbelt" program required for all power plant employees.

GP has a large database of entry-level and apprentice training material for employees entering the power industry. Luminant Academy purchased several of the apprentice training programs and adapted them for training entry-level employees, saving countless man-hours.

GP also worked with Luminant Academy instructors and Lab-Volt employees in a teaming environment to develop a comprehensive hands-on technical skills training program using Lab-Volt equipment. Only Luminant instructors, however, were used in the Technical Foundation courses. These courses instill the culture of Luminant, so it was important that they be provided by Luminant Academy employees. GP conducted the initial power plant Technical Process training and provided oversight for Luminant instructors, who now instruct Technical Process. GP instructors are currently providing instructors for the "Equipment Specialists" Technical Mechanical and Technical Electrical classes and the new apprenticeship program that was kicked off in 2009. Deborah Tovar, an equipment specialist and Academy student commented, "I spent many years doing things without knowing why...they'd say, 'I don't know, you just do that.' The Technical Process class answered all of my questions."

After completing the Basic Skills Toolbelt, employees now begin Luminant's apprenticeship program and will be required to take training in specific areas of process, electrical technologies, and mechanical technologies coursework. Successful completion of the coursework, along with demonstration of job performance measures and good performance reviews, will earn an employee a promotion and pay increase.

"Now they're more valuable employees, they're getting paid more," said Tom Mullins of the Tyler Economic Development Council. "We knew it would have a positive economic impact. It works because you're bringing new dollars into the economy."

## **THE RESULTS**

The launch of the first pilot Basic Skills Toolbelt Training class was in February of 2008, one month ahead of schedule. This initial class gave Luminant Academy hints about how to adjust schedules and streamline content in anticipation of the coming flood of new employees. In March of 2008, the first large class came in with over 40 employees. Since opening, more than 130 employees have completed the Basic Skills Toolbelt Training.

The location of the Academy on the Tyler Junior College campus helps employees see this training as serious continuing education. Every student is given a General Physics Corporation pre-assessment test before beginning training and then given a similar test as a final exam. Results show the training is not only increasing knowledge, it's sticking with students beyond graduation. "This tells me they are not only doing well in school when they graduate, but they are actually retaining the information," said Hughes.

GP continues to assist Luminant with training needs. Supplemental work outside of the original three-phase scope has included additional Instructor-led Training, developing a Technical Coal-Handling series, and supplying technical instructors. GP has also been contracted to develop site-specific systems training and procedure documents for Luminant's new Sandow 5 CFB and Oakgrove generating stations.

Corporate University Xchange recognized Luminant Academy in 2008 as a finalist for the 10<sup>th</sup> Annual Corporate University Xchange Awards for Excellence and Innovation. Finalists are selected for demonstrating outstanding work in corporate learning and talent development. The awards establish high standards in eight important learning areas. In March 2009, Luminant Academy won two awards in the areas of Alliances and Launching.

"When General Physics, Lab-Volt or other contract employees come through the door, they put their company hats in a locker. They are all Luminant Academy team members. It's great to see everybody working toward the success of the Luminant Academy," said Hughes.

A year ago, the question posed by the management team of Luminant Academy was, "Can we do this?" Now, after forming strong alliances, the question is, "What can we do next?"

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## Around GP



GP is proud to announce a new consulting partnership with Bersin & Associates, a research and advisory firm that focuses solely on enterprise learning, talent management, and talent acquisition. This innovative partnership program provides GP professionals access to proprietary methodologies, toolkits, and research for corporate learning engagements. The program also includes an intensive three-day training workshop for GP consultants, as well as ongoing, exclusive analyst briefings and project support sessions.

*Doug Sharp, president of GP, stated, "As a certified partner, GP will now have the ability to leverage Bersin and Associates' research on the most critical and successful dimensions of corporate training to create higher levels of business impact from the solutions we provide. GP will synthesize this research for our clients and advise them on how best to apply, manage, govern and benchmark their learning and development function against top-performing organizations."*

## Learn with GP

### Improve your knowledge and advance your career!

GP offers many courses on operations, maintenance, and performance improvement for all levels of power industry professionals. We conduct workforce development courses that focus on the operations and maintenance of fossil, combined cycle, and renewable power plants. And we conduct heat rate improvement courses that focus on understanding the concepts behind fossil and combined cycle performance improvement. Additionally, our courses can be customized to fit the needs of your company. For more information, visit our [website](#).

### Attend one of the following GP classes while at POWER-GEN International:

- [CPC 102 Understanding Fossil Power Plant Performance Using First Principles Models](#)
- [CPC 201 Heat Rate Awareness and Carbon Reduction](#)

### GPiLEARN Training

GP hosts several GPiLEARN training classes throughout the year to help you become more familiar on how to effectively administer your GPiLEARN branded site.

There is no charge to attend the GPiLEARN webinars. Webinars are conducted at 10:00 AM and 4:00 PM EDT, and are scheduled to last one hour. Space is limited, [sign up](#) today!

- November 4 - Running Reports
- December 16 - Permissions
- January 6 - Setting Certifications

There is no registration fee for clients to attend our Administrator training classes. Space is limited. To register for a class, send an email to [gpilearn@gpworldwide.com](mailto:gpilearn@gpworldwide.com) noting the class you would like to attend. GP will contact you to confirm your place in the class.

- Station Administrator Training, November 10 - 11 - Sacramento, CA
- Company Administrator Training, January 12 - 13 - Columbia, MD

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**EtaPRO™**  
PERFORMANCE MONITORING SYSTEM

**EtaPRO 9.2** integrates GP's proprietary VirtualPlant™ technology for on-line and off-line prediction and analysis of power plant efficiency and capacity. Immediate end-user benefits include desktop access to first principles thermodynamic plant models for conducting rigorous "what-if" analyses, real-time data validation using an integrated plant model, as well as advanced data filtering and trending for benchmarking plant and equipment performance.

New with this release 9.2.14, VirtualPlant provides the ability to combine multiple power cycles into an overall plant model using “sub-cycles”. Multi-unit models can share cooling systems, auxiliary steam supplies, and other common systems to product a total plant thermodynamic model. The product's embedded event log also received numerous feature additions and enhancements requested by end-users.

Upcoming features & products:

- Check the EtaPRO support site next month for a download of the EtaPRO WEB 2009 beta installation. Using Microsoft Silverlight technology, this application aggregates multiple EtaPRO 9.2 servers into a single web browser environment. End-users will have ready access to EtaPRO’s real-time displays, pop-up trends, EPLogs, and EPreports using their favorite internet browser.
- VirtualPlant will provide the ability to build boilers and HRSGs from individual heat transfer sections (superheaters, evaporators, economizers, etc.) adding more flexibility to its already powerful boiler modeling capabilities.

*"With EtaPRO installed on over 650 power generating units worldwide, our customers continually expand the benefits derived from our EtaPRO and VirtualPlant technologies in their day-to-day plant operations," said Richard DesJardins, Vice President of GP's Performance Engineering Services.*

**Check out these exciting changes and more at the...**

**EtaPRO Technology Training Workshop**

May 3 - 7 • San Antonio, TX

More Information Coming Soon!



GP is currently developing the following NERC Reliability Standards for Generator Owners (GO) and Generator Operators (GOP). This new series will address:

- Introduction to Power Systems for Generator Owners (GO) and Generator Operators (GOP)
- Sabotage Reporting
- Disturbance Reporting
- Equipment Ratings and Limitations
- System Reliability
- System Protection Coordination
- Generator Operation for Maintaining Network Voltage Schedules

Look for this new training series to be available starting in November on GP's web-based training portal, [GPiLEARN](#).

**To see what GPiLEARN can do for you come to the..**

**GPiLEARN Users Conference**

May 4 - 6 • San Antonio, TX

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Locate GP

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December 8 - 10 • Las Vegas, NV  
Booth # C3-1071

**Join GP as we host the Fossil Simulator Track at the  
Power Plant Simulation Conference**

February 21 - 26 • San Diego, CA  
Visit SCS for more information

General Physics Corporation  
[www.energy.gpworldwide.com](http://www.energy.gpworldwide.com)  
800.803.6737