Studies on US workforce aging have long expressed concern over the pending and inevitable knowledge gap businesses will face over the next decades - the so-called "brain drain." The US Department of Energy recently reported that the cumulated knowledge base of the baby boomers (an estimated 78 million individuals born between 1946 and 1964) represents almost 50 percent of the American workforce! These baby boomers are now retiring. One study conducted by the American Public Power Association (APPA) reported that 15 to 50 percent of public power workers became eligible for retirement by 2006. Over the next decades, businesses will be forced to better anticipate their need to strengthen their investments in the educating, training, and retooling of our electrical engineering and utility workforce.

The knowledge challenge for the power generation, distribution and transmission companies, utilities, regional transmission operators, area power authorities, and independent system operators is not limited to the pending retirements of senior engineering staff and the need to replace this talent. Additional challenges such as the growing demand for integrating renewable energy sources, developing smart grids, and addressing an aging transmission system will also require a more prepared workforce. The growing demand for global energy and decreased tolerance for outages compound these difficult challenges that lie ahead.

Power Engineering Workforce Stats
The workforce challenge is real. Age statistics from the APPA study suggest that the average public power worker is almost 20 percent older than the average worker employed outside the public power sector. From a succession planning standpoint, this means that the power industry will be forced to address the talent shortage earlier than other industries. These age statistics also apply to operational level personnel, from electricians to lineworkers. This serves to reinforce the imperative for education at all levels. New power engineers will be required to become the innovators of the next generation - a generation that will face changes to its demographic base, changes in power engineering, transmission and distribution technologies, as well as a resource base constrained by both worker and fuel limitations.

The Strategy
A suggested strategy to address the workforce shortage dilemma is to tap into junior colleges, trade schools and universities to recruit the new generation of utility workers and power engineers. If these retirement statistics hold true, however, this strategy may fall short as these retirement statistics also apply to university and college faculty retirements, limiting student enrollment or leading to the elimination of these programs all together. University power engineering programs are also facing stiff competition for students from new and highly marketed technology programs such as nanotechnology and micro devices. Using a recruit-to-replace strategy may stem the tide, but it does nothing to address the competition for students from other programs, or to address any growth demands for power engineers in light of new technologies such as smart grids, metering, wind, solar, and nuclear, nor does the strategy face the reality that many university power engineering programs just don’t have the financial support or faculty to sustain solid programs. To compound the problem, fueled by rising energy costs, climate changes, and environmental concerns, utilities face continued legislative pressure for increased renewable portfolios. Therefore, it is imperative that we acknowledge and address these workforce issues and ensure the industry can meet these demands.
The Siemens PTI Power Academy Approach

While university-based power engineering programs will remain a vital part of the training and workforce replacement solution, the industry still needs to foster innovative ways to educate and train existing utility workers and power engineers alongside the newly-hired. It is vital that any strategy an organization employs to address training and education include not only the necessary fundamental principles of power engineering learned in an academic program, but also include the real-world application of technology and advanced engineering principles. This training is best delivered and led by practicing engineers.

At Siemens PTI, our consulting engineers have been in the business of educating power engineers for over 30 years. Our engineering staff is world renowned for helping our customers learn power engineering principles in our Power and Distribution Technologies programs, from mastering the use of PSS®E software for load flow and steady state analysis, to advanced dynamic simulation.

Siemens PTI Power Academy offers over 66 power engineering courses and also offers an extensive series of product-based training courses in High and Medium Voltage Switching Technology, Regulator and Breaker Maintenance, and Energy Management and Information Systems software. Four new curriculum paths have been designed to help identify series of courses that will help provide students with the knowledge needed to advance in their careers and help guide them through concentrations in power systems engineering, power distribution engineering, power transmission engineering, and power systems software. Students can pick and choose individual courses or work towards completing one of the curriculum paths for advanced certification. Our programs have been approved for masters level transfer credit and we have partnership programs with numerous universities to support the academic interests of our students.

In June 2008 Siemens PTI opened a new training facility in Schenectady, NY, in addition to regional offices with training facilities in Denver, CO; Houston, TX; San Jose, CA; and Minnetonka, MN; and additional training space in Jackson, MS; Orlando, FL; and Raleigh, NC. Siemens PTI Power Academy is uniquely poised to meet our customers’ power education training, retraining, and employee development needs.

We hope you will look to Siemens PTI Power Academy as your partner in education and your source of power systems engineering training. We appreciate and value the experience, the skills, and the collective knowledge this industry’s workforce maintains as a profession. We also understand the risks of failure if we do not address the educational challenges we surely will face.

Call us today for additional information on our programs, or visit our website for course information and class schedules.

4 Ibid.