
 <p>The cornerstone of confidence™</p>		July 2005
		Article 1 of 3
<p>SEMINARS PinnacleOne Institute</p> <hr/> <p>SERVICES Program & Project Management</p> <p>Dispute Avoidance & Resolution</p> <p>Energy Services</p> <hr/> <p>PinnacleOne is a national construction consulting firm that provides sound advice, strategic solutions and peace of mind to its clients. Its diverse, highly trained professionals guide its clients through every step of the design, construction and contract closeout process to help them achieve their goals, and at the same time, avoid and manage risk. PinnacleOne's unimpeachable objectivity, along with a proven approach to planning and attention</p>	<div style="border: 1px solid black; padding: 10px; text-align: center;"> <p>Today's Energy Market...</p> </div> <p>The energy industry is undergoing one of the greatest paradigm shifts ever experienced. By virtue of its size as the third largest industry in America, the changes will affect every business and every person. Clearly, the changes are more revolutionary in nature than evolutionary. They have spawned a new phase for the energy industry, "Marketing Phase."</p> <p>The energy industry has evolved from several decades of regulated utilities into dynamic enterprises. Where large vertically integrated monopolies once dominated the industry, entrepreneurs and private investors are taking advantage of new opportunities to provide goods and services competitively. Where government once stood guard over the public interest through regulation of the market, policy makers are now re-examining the nature of that interest and the best way to serve it.</p> <p style="text-align: center;">"We can try to avoid making choices by doing nothing, but even that is a decision."</p> <p>This famous quote from author, <i>Gary Collins</i>, is true today for the energy industry. We can no longer afford not to make decisions about our energy use. Energy conservation, while we are looking for new sources of energy, is the only answer!</p> <p>The current energy market can be evaluated by the following topics:</p>	 <p>Darr Hashempour, Ph.D., P.E.</p> <p>Darr Hashempour has over 29 years of experience helping private companies and public agencies manage their energy usage, develop new approaches to reduce overall energy consumption, and develop strategies for energy efficiency upgrades. He specializes in advising corporate leaders and government agencies on the most efficient ways of navigating the often-treacherous waters of utility deregulation, and balance utility demands and cost reduction concerns.</p> <p>Dr. Hashempour currently serves as Vice President of Energy Solutions at PinnacleOne, a leading national program and project</p>

to detail, has earned the company a reputation as one of the finest consultants in the construction industry.

Headquartered in Phoenix, PinnacleOne regional operations are located in Irvine, Los Angeles, Sacramento, Williamsburg, New York and Hartford.

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1. Energy Crisis, Are There Any Solutions?
2. What is Green Building and Who Is Leading LEED™?
3. What Is Commissioning?

ENERGY CRISIS, ARE THERE ANY SOLUTIONS?

Today, corporate and government (local, state, and federal) leaders, in general, are concerned about power reliability and the high costs of energy. For instance, when on September 23, 1996, former California Governor Pete Wilson signed into law, "Assembly Bill 1890," to deregulate the electric utility, the people of California were promised a significant energy cost reduction of 10 to 25%. Nearly seven years after California's electric utility was deregulated (July of 1998), the electric utility costs had risen by more than 70% and there was no end in sight. Today, power reliability has disappeared and energy costs have become unpredictable.

Current Energy Market Status

The power industry represents the third largest industry in the U.S., with an estimated end-user market of over \$245 billion of sales in 2000 produced by an aggregate base of power generation facilities with a capacity of approximately 840,000 megawatts per day. The power generation industry has historically been largely characterized by electric utility monopolies producing electricity from old, inefficient, high-cost generating facilities selling to a captive customer base. Industry trends and regulatory initiatives have transformed the existing market into a more competitive market where end-users may purchase electricity from a variety of suppliers, including non-utility generators, power marketers, utilities, and others.

As a result, a heightened atmosphere of competition, as well as uncertainty, exists in the industry. Some electric utilities have already decided to exit the power generation aspect of the business and have focused their resources on the transmission and distribution business segments. Other electric utilities have merged, including mergers with gas distribution companies.

management consulting firm. Prior to joining PinnacleOne, he served as Vice President of Syska Hennessy Group, National Director of Energy Services for CH2M HILL, and as Senior Project Manager with the Los Angeles Department of Water & Power and Southern California Edison.

Throughout his career, Dr. Hashempour has successfully developed and implemented over \$340 Million in energy projects. He is an expert in a wide range of energy-related topics including utility deregulation, demand side management, utility rate structure analysis, cogeneration, distributed generation, renewable energy, and power transmission and distribution systems.

Dr. Hashempour is a registered professional engineer and a licensed contractor in the State of California and holds a Ph.D. Degree in Mechanical Engineering, specializing in Power Generation and Energy Conversion. He also serves as a part-time faculty member at California State University, Long Beach, instructing Mechanical Engineering courses.

Against this background, energy demand is growing significantly. According to the Department of Energy's report *Energy Information Administration Energy Outlook 1999*, a projected 363,000 megawatts of new generating capacity will be needed by 2020 to meet the growing demand for electricity in the U.S. and to offset planned retirements of existing old and inefficient generating capacity. This expansion is estimated to cost \$300 to \$500 billion.

The fastest growing market segment for power consumption is the communications industry. Such growth is driven by the power requirements associated not only with the geographic expansion of communications networks, but also by the incremental power needed to support capacity expansion required by the growth in broadband, especially the integration of video.

In addition to absolute quantity demand increases, many end-users are also demanding more reliable, higher quality, more readily accessible and lower cost energy. In particular, the market for reliable and clean (free of harmonics and voltage irregularities) power is a rapidly growing market segment. Driven by the need to minimize electrical disturbances of the digital economy, the "Three Nines" (99.9%) reliability standard of the energy industry has been replaced by the "Six Nines" (99.9999%) requirement of the digital economy, resulting in a multi-billion dollar and rapidly growing market segment for higher quality power.

For instance, the average age of universities across the country is approximately 60 years old. Often universities' energy infrastructures (electrical and gas distribution systems, lighting and HVAC systems, etc.) are as old as the buildings surrounding these infrastructures. Almost all universities have limited budgets and as a result can hardly maintain and repair their existing equipment, let alone, replace aging and inefficient systems with newer and state-of-the-art energy-efficient systems. The following are some interesting statistics of universities' annual energy consumptions by systems:

- | Lighting - 21%
- | Space Conditioning - 26%

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- | Water Heating - 26%
- | Office Equipment - 15%
- | Others - 12%

We know that most universities prefer to allocate their entire budget to enhance and improve their academic standards, or at least maintain their academic status, rather than "wasting their money on energy infrastructures."

Universities' alumnus and supporters contribute their hard-earned money to educational programs and not energy infrastructures improvements. Similarly, funds from major American corporations are donated to universities for medical research and technology advancements.

Are There Any Solutions?

There are too many solutions and customers are confused by which solution will meet their needs. Some solutions are exclusively tailored for certain industries or customers and some require fundamental changes in the customers' business model.

"THE ONLY SOLUTION - COMPREHENSIVE ENERGY PLANNING"

Using innovative project financing, *generating enough energy and operating cost savings to pay for the infrastructure upgrades over a period of time*, customers could overcome their energy crisis and upgrade their facilities by implementing the following steps:

Short-term Planning - Simple, Low Cost, and Quick:

- | Reduce Usage - Operating Improvements
- | Demand Reductions (simple systems) - Reduce Lighting/HVAC Operating Hours

- | System Reliability - Use of Existing Backup Generators
- | Utility Rate Changes - Long-term Utility Contract Negotiations
- | Load Aggregation - Increase Purchasing Power
- | Building Commissioning and Retro-commissioning

Long-term Planning - Comprehensive Solutions:

- | Cogeneration/On-site Generation - New Infrastructures
- | Alternative Energy Source - Renewable Energy (Solar, Wind, etc.)
- | Building Envelopes - Renovation of Existing Structure
- | Green Building and LEED™ Certifications
- | Comprehensive Demand Reductions - Retrofit Lighting/HVAC Systems
- | Peak Shaving Technologies - Thermal Energy Storage
- | Power Quality - Electrical Distribution System Upgrades

Retaining an Energy Management Consultant who is 100% unbiased and can only protect the customer's interests is highly recommended. There are energy companies that intend to sell either their products (material equipment, electricity, and/or natural gas) or services (engineering designs and/or construction), which is not entirely in the best interest of customers.

Furthermore, the Energy Management Consultant should not only provide demand-side management consulting to the customers, but also know the supply-side of the business, including commodities (Natural Gas and Electricity), utility rate structures, power distribution systems, on-site generation and cogeneration, and renewable energy (solar, wind, and others). Additionally, water conservation, LEED™ consulting, and commissioning services should be a part of the Energy Management Consultant's services.

This article serves as an introduction and overview of the current energy market. In the upcoming issues of PinnacleOne's eNewsletter, we will discuss Green Building and LEED™ Rating systems and Building Commissioning concepts.

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