Market Trends Digest

Newton-Evans Research Turns 30!

January 2008

NEWTON-EVANS
RESEARCH
COMPANY

Newton-Evans Research is Turning 30!

Help us celebrate this important milestone by purchasing any of our existing reports online, and take 30% off of the listed sale price! This substantial savings is our way of saying "thank you" to our loyal customers for your support. We know we wouldn't be where we are now if it weren't for you.

To take advantage of this offer while it lasts, visit our website at www.newton-evans.com to place an order online. When prompted for a discount code on the billing information page, enter the code 30YEARS.

COMING SOON IN 2008!!

SPRING

The Worldwide Market for Substation Automation and Integration programs in Electric Utilities: 2008-2010

In 1997, Newton-Evans Research Company conducted its first extensive multi-client research program providing a clear view of the worldwide substation automation marketplace among electric utilities. In 2000, a second series of studies was conducted, followed by a third series in the third quarter of 2002. During Spring of 2008, Newton-Evans Research will be reexamining the world market for substation automation and integration programs for the 2008-2010 timeframe. Publication of the series will begin later this year.

This most recent series of market studies will measure current market sizes, and estimate and forecast demand for substation automation equipment. In addition to profiling utility requirements, the research program is focused on defining the broader product and market requirements which suppliers must meet in order to successfully participate in the substation automation programs within electric utilities worldwide. The reports will provide an appraisal of products, instruments and related substation equipment which electric utilities of all sizes will be specifying, recommending and purchasing during the forecast period.

A sample of the topics to be covered in this research program include the following: number of substations now in operation; plans for new and retrofit substations; current utility substation automation and integration strategy; obstacles to implementing substation automation programs; communications methods and protocol choices; external assistance required for substation automation-related activities; ranking of importance of activities for transmission and distribution substations; and, estimates of likely spending for substation automation programs.

FALL

Worldwide Study of the Protective Relay Marketplace in Electric Utilities: 2008-2010

The Worldwide tudy of the Protective Relay Marketplace in Electric Utilities: 2008-2010 will be the sixth worldwide study of protective relays undertaken by Newton-Evans. The study will measure current market sizes and contain projections - on a world region basis - for the next several years. The study will provide worldwide marketing information enabling suppliers to formulate effective product and marketing plans to participate successfully in the major growth market areas for protective relays and associated services in the world's electric utilities.

This study will look into the following areas of interest: relay product awareness and current usage patterns; vendor evaluations; and, purchase plans and purchasing decisions. In addition, the following topics will be covered: budget ranges and relay purchasing policies; relay protection and relay information communications requirements; use of test switches; maintenance topics; the integration of protection and control; and, what to expect from an "ideal" relay.

In previous years, response to this study yielded important market technology information enabling Newton-Evans to prepare a four-volume series with reliable forecasts for major classes and types of relays. The complete study of the world relay marketplace targets the following geographic areas: the United States, Canada, Europe, the Pacific Basin, Latin America, and the Middle East, Mediterranean and African Markets.

Products & Services

Did you know that Newton-Evans does more than conduct surveys and sell reports? We are a full service marketing research firm, and offer many solutions for businesses and government organizations involved in the energy marketplace. Since 1978, Newton-Evans has been serving leading equipment suppliers, IT and automation systems providers, energy industry consulting firms and end-users active in the energy industry. Because it's the beginning of a new year, which marks our 30th year in business, we thought it might be a good time to make our more recent MTD readers aware of what additional services we offer:

Proprietary efforts:

Research studies

Our company's "bread and butter" activity is researching topics brought to us by corporations in the energy sector, including vendors, consultants and utilities. We develop specific reports that are proprietary to the commissioning company, and most often include both primary and secondary research efforts. Primary research can take the form of in-person interviews, telephone and email surveys, and print surveys mailed to target respondents.

Corporate Market Planning/Analysis

On many occasions, Newton-Evans has provided clients with marketing assistance in the form of market planning activities and industry analysis on a macro-economic or micro-economic level. Our niche position in the industry enables us to customize the information we provide to help corporations make appropriate marketing choices to help meet their short- or long-term product, service or overall business objectives.

Onsite Briefings:

Corporate Briefings

Professional market analysts from Newton-Evans are available to come to your location and provide "state-of-the-industry" briefings to audiences of any size. Key issues are highlighted, opportunities are fully described, and unresolved issues are clarified. We will customize presentations around marketing issues and technology pertinent to your company. We can also present highlights and findings from our most recently completed studies with an eye to how these findings impact the client organization. All presentations are enhanced by computerized or traditional visual aids and are interactive sessions with the audience.

Corporate Sales Training

Newton-Evans can put together a training session appropriate for your newest sales recruits, who may have little or no prior energy industry experience. We work together with your company to address the necessary topics and develop curriculum.

Guest Speaking

Our President Charles Newton is available for your next industry event to speak on pertinent energy-related topics of interest to the particular seminar or conference. His experience in speaking at local, regional, national and international events spans more than 30 years, and he is much sought after for his industry insights and commentary.

Publications:

In-house studies

You may have initially learned about us by purchasing one of our in-house reports, which focus on topics in the energy industry. Others may have read articles based on our research in the many trade publications serving the energy industry. We have been dubbed by some as the "automation market experts" within our industry. Most of our popular series, such as World Market for Supervisory Control and Data Acquisition Systems in Gas & Oil Pipeline Operations and Gas Distribution Utilities, The World Market for Substation Automation and Integration Programs in Electric Utilities and The World Market for Protective Relays are repeated every few years. Three of these studies will be conducted and re-published in 2008, so be sure to check back with us for updates on their status from time-to-time during the year.

Executive Summaries

For a nominal fee, you can purchase the summary to any of our in-house reports. These summaries provide basic general information on the highlights of our findings.

Presentations

We can develop and provide custom presentations on any of our research topics and tune them to your corporation's interests. These can also take the form of custom briefings, tailored to the client's special requirements.

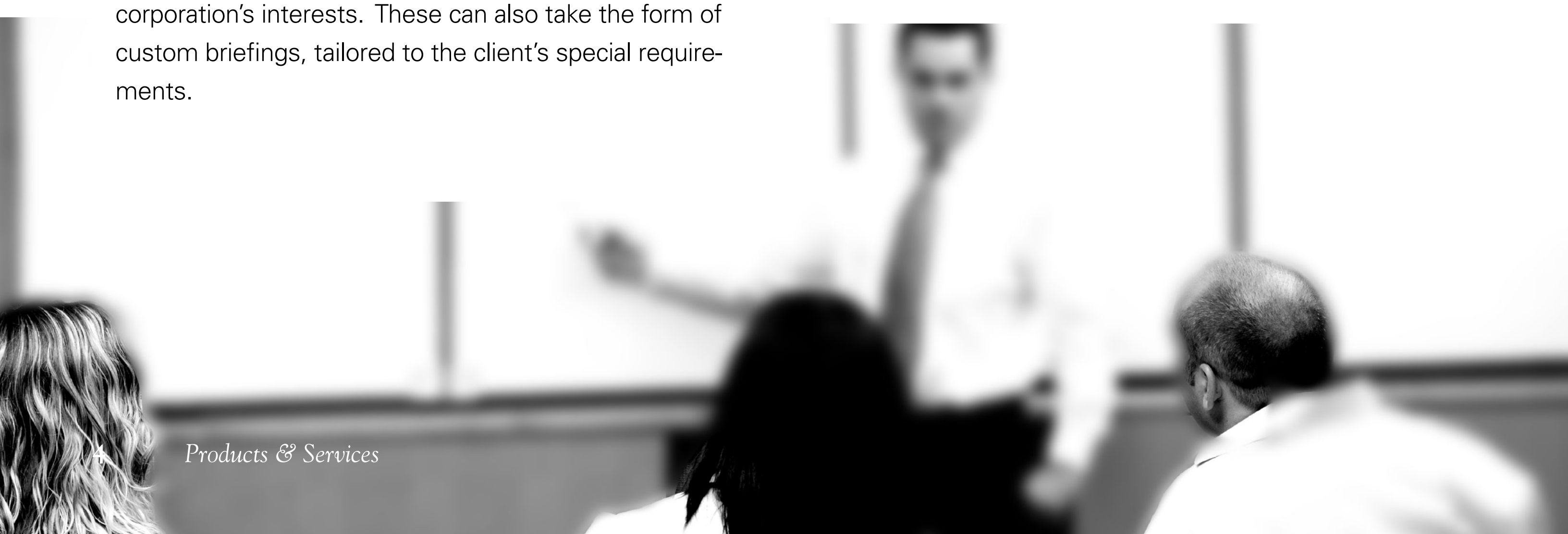
Project Outlook Research:

Starting in 2008, Newton-Evans is offering a service to supply information on new projects underway in the electricity and oil & gas industries for control systems and communications systems. Our in-house research team scours a host of bid/tender databases, as well as many industry journals, scooping out relevant and substantial new prospects for our Project Outlook clients. Each database will be updated monthly, and subscriptions can be purchased on an annual or semi-annual basis.

Industry Outlook for Control Systems – covers both the electricity and pipeline sectors. The database includes open tenders for SCADA, EMS, and DMS projects around the world for electricity and pipeline projects.

Industry Outlook for Communications Projects – also covers both the electricity and pipeline sectors. The database includes open tenders for communications projects. Pricing for the Project Outlook series is set at $2,400.00 per series for a 12-month subscription or $3,600 for both series.

For more information about our company, or any of our product offerings, please refer to our website, www.newton-evans.com, or call us directly at (800) 222-2856.



High Voltage Networks Around the World

By Elizabeth Forrest

During the fourth quarter of 2007, Newton-Evans undertook a study on the extra high voltage transformer and substation market throughout the entire world for one of our long-term clients. We used a combination of primary and secondary research, concentrating on the use of existing trade and technical literature, open source information available for many countries on the Internet, and from industry and trade directories that provided descriptive transmission information. The Newton-Evans staff also contacted more than 200 of the world's leading electric power transmission organizations.

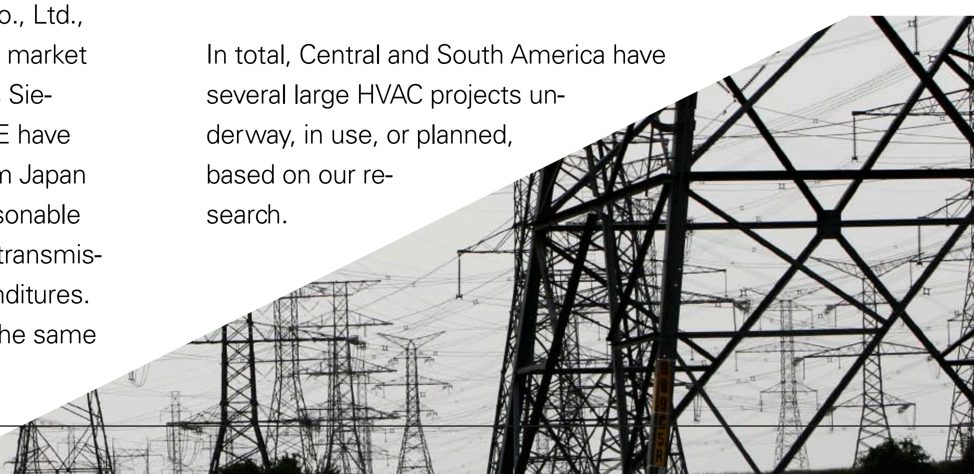
Extra high voltage (EHV) transmission is categorized as either Alternating Current (AC) or Direct Current (DC). For this study, we defined HVAC as voltage levels greater than 765kV, and HVDC as voltage levels above 500kV.
As emerging nations continue to develop at a rapid pace, so too, do their electricity needs. In the last edition of MTD (Third Quarter 2007) we discussed China's growing energy sector. They are one of the largest users of high voltage technology in the world. Other leaders include India, Russia, the United States, Brazil, South Korea, South Africa and Canada.

Asia – Pacific: China led the world according to the Newton-Evans' findings with market estimates that they have a number of HVDC projects and an even larger number of HVAC projects planned or underway. The Chinese utilities tend to prefer domestic manufacturers of extra high voltage equipment, such as ChinT Electric Co., Ltd., and Shenyang, rather than to rely on international market leaders. Nonetheless, Western suppliers such as Siemens and ABB and others including Areva and GE have established a foothold there. Asian suppliers from Japan and South Korea also continue to have some reasonable shares of the country's very large electric power transmission infrastructure equipment and systems expenditures. The rest of Asia (including India) collectively had the same number of EHV projects planned as does China. Our research uncovered nine high voltage transmission projects currently underway in India. Pakistan also has projects for EHV transmission lines and supporting substations in the planning stages. KEPCO (Korea Electric Power Co.) currently has in operation 755 km of transmission lines operating at 765 kV, with another 79 km under construction, and 520 km more in the planning stage.

Americas: In the US, there is only one utility involved to any extent with high voltage transmission, which is American Electric Power (AEP) Corp. AEP owns the largest transmission system in the USA, nearly 63,000km (39,000miles), which includes more 765 kV lines than the combined total of all other US transmission systems. AEP introduced 765 kV in 1969 and over the past four decades has accumulated a wealth of experience in designing, engineering, constructing and operating a 765 kV system. Within the first three years the AEP 765 kV network totalled some 1609 km (1000 miles).

In Canada, Hydro Quebec, BC Hydro and Manitoba Hydro make use of high voltage systems. BC Hydro has the largest 500kV DC system in North America. Hydro Quebec has an extensive 735 KV HVAC system, and Manitoba has been using HVDC systems for more than 35 years. Together, the USA and Canada have requirements for more than 20 additional HVAC transformers planned but no HVDC units planned at the 500kV level currently.

In total, Central and South America have several large HVAC projects underway, in use, or planned, based on our research.



Africa: South Africa's Eskom currently has 3 substations and 3 transmission lines operating at 765 kV.

As a continent, Africa would be a great candidate for EHV electric power transmission, as it still has vast territories greatly underserved, generating facilities (in place and planned) that are at great distances from the load centers, and a growing population. Our estimates indicate that the continent may be in the market for around 40 HVAC transformers and at least 7 HVDC units in the near future. While the world market for EHV transmission lines and equipment has not been all that substantial to date, there are a few world regions where the outlook may be set to change. Areas that are experiencing rapid economic development and population growth with large land mass and outlying sources of energy will definitely be candidates for EHV transmission lines and equipment in the future.

The annual global market for EHV power transformers in the range of 765kV AC and higher, and 500 kV DC and higher units, has likely never exceeded $150 million. However, when the cost of the transmission lines, towers and construction of related substations is included, the overall spending for EHV transmission projects has probably totalled in the range of $12-$15 billion cumulatively since the late 1970's.

The highest level of EHV spending may have been reached in the height of the former Soviet Union's EHV electric power construction period in the late 1970s and now again with the large number of Chinese projects underway. By 2007, most of the operating EHV grids around the world have been successfully working with equipment manufactured by ABB, Areva, Siemens, and Pauwels (among Western manufacturers) and by two or three suppliers each in early- adapter EHV transmission countries in the Asia-Pacific region, including South Korea (Hyosung and Hyundai), Japan (Mitsubishi and Japan AE), and more recently, joined by suppliers located in China (ChinT and Shenyang).

The view from here: A Deeper Look Into the Energy Independence and Security Act of 2007

By Charles W. Newton

We have all seen the headlines that appeared recently with the signing into legislation of the Energy Independence and Security Act of 2007. While many of us are still confronting the realities of the Energy Policy Act of 2005, this new legislation has an even more important impact on the electric power community.

The headlines that emerged from the enactment of the new legislation revolved around mandates for improvements in automobile mileage, more use of ethanol, efficient light bulbs and efficient buildings. That is all well and good and represents meaningful progress toward at least a measure of energy independence. However, little attention was given to Title Nineteen, hidden in the latter sections of the 300-plus page bill, signed into law in December, 2007. This new legislation includes some notable and progressive items including a statement of purposes for the Energy Independence Act as set forth in the preamble:

> *To move the United States toward greater energy independence and security, to increase the production of clean renewable fuels, to protect consumers, to increase the efficiency of products, buildings, and vehicles, to promote research on and deploy greenhouse gas capture and storage options, and to improve the energy performance of the Federal Government and for other purposes.*

The White House summarized the benefits of this bi-partisan legislation as follows:

- *Increasing the supply of alternative fuel sources by setting a mandatory Renewable Fuel Standard (RFS) requiring fuel producers to use at least 36 billion gallons of biofuels in 2022*
- *Reducing U.S. demand for oil by setting a national fuel economy standard of 35 miles per gallon by 2020 – which will increase fuel economy standards by 40 percent and save billions of gallons of fuel. The bill will require all general purpose lighting in Federal buildings to use Energy Star® products or products designated under the Energy Department's Federal Energy Management Program (FEMP) by the end of Fiscal Year 2013*
- *The bill will update the Energy Policy and Conservation Act to set new appliance efficiency standards that will save Americans money and energy*
- *The bill will establish an Office of High-Performance Green Buildings (OHPGB) in the U.S. General Services Administration*

Taken together, all of these measures could reduce projected CO2 emissions by billions of metric tons, according to the White House.

However, it takes wading through some 300 pages of the act's somewhat tedious – but comprehensive - text to get to the gist of what the enactment of this legislation will mean to the electric power industry, especially the T&D side of the industry in the United States. Title Nineteen is totally focused on the "Smart Grid." Section 1301 of Title Nineteen provides a national policy statement unlike anything we have seen before.


One Hundred Tenth Congress
of the
United States of America
FIRST SESSION

"It is the policy of the United States to support the modernization of the Nation's electricity transmission and distribution system to maintain a reliable and secure electricity infrastructure that can meet future demand growth and to achieve each of the following, which together characterize a Smart Grid:

(1) Increased use of digital information and controls technology to improve reliability, security, and efficiency of the electric grid.

(2) Dynamic optimization of grid operations and resources, with full cyber-security.

(3) Deployment and integration of distributed resources and generation, including renewable resources.

(4) Development and incorporation of demand response, demand-side resources, and energy-efficiency resources.

(5) Deployment of "smart" technologies (real-time, automated, interactive technologies that optimize the physical operation of appliances and consumer devices) for metering, communications concerning grid operations and status, and distribution automation.

(6) Integration of "smart" appliances and consumer devices.

(7) Deployment and integration of advanced electricity storage and peak-shaving technologies, including plug-in electric and hybrid electric vehicles, and thermal-storage air conditioning.

(8) Provision to consumers of timely information and control options.

(9) Development of standards for communication and interoperability of appliances and equipment connected to the electric grid, including the infrastructure serving the grid.

(10) Identification and lowering of unreasonable or unnecessary barriers to adoption of smart grid technologies, practices, and services.

Over the next few months, Newton-Evans analysts will review the remaining sections of Title Nineteen (the Smart Grid sections). For now, highlights from these sections include:

- Appointment of a smart grid advisory committee and smart grid task force comprised largely of technical representatives from the Department of Energy.
- The US government will rebate 20% of the cost to a utility of purchases made directly to support smart grid initiatives.

Rather than summarize the text in the remaining sections of Title Nineteen, it is more important for our community of readers to read the law as it is written.

In this edition of Market Trends Digest, we are including the text of Section 1302 of Title Nineteen, a section known as "The SMART GRID SYSTEM REPORT."

"The Secretary of Energy, acting through the Assistant Secretary of the Office of Electricity Delivery and Energy Reliability (referred to in this section as the "OEDER") and through the Smart Grid Task Force established in section 1303, shall, after consulting with any interested individual or entity as appropriate, no later than 1 year after enactment, and every 2 years thereafter, report to Congress concerning the status of smart grid deployments nationwide and any regulatory or government barriers to continued deployment."

"The report shall provide the current status and prospects of smart grid development, including information on technology penetration, communications network capabilities, costs, and obstacles. It may include recommendations for State and Federal policies or actions helpful to facilitate the transition to a smart grid. To the extent appropriate, it should take a regional perspective. In preparing this report, the Secretary shall solicit advice and contributions from the Smart Grid Advisory Committee created in section 1303; from other involved Federal agencies including but not limited to the Federal Energy Regulatory Commission ("Commission"), the National Institute of Standards and Technology ("Institute"), and the Department of Homeland Security; and from other stakeholder groups not already represented on the Smart Grid Advisory Committee."

In our next edition of Market Trends Digest (March 2008) we will summarize the intent and impact of the remaining sections of Title Nineteen.

Newest Worldwide Study of Electric Power SCADA and Energy Management Systems Now Underway

Study is Focused on Impact of Recent "Smart Grid" and Cyber Security Legislation Enacted by U.S. and Many Other Countries

Ellicott City, MD——January 10, 2008. Newton-Evans Research Company today formally commenced its tenth study of global trends and plans for electric power operational control systems, impacted today by a barrage of new legislation, compliance requirements, smart grid developments and information security concerns. The 2008 study will include findings from more than 200 North American power utilities and 100-plus international utilities from 50 or more countries. Together, the results are expected to provide insight from utilities serving more than one-third of the world's electricity consumers.

This international study of mission critical, real-time electric utility operational systems including energy management, supervisory control, and distribution network management will result in the publication of four volumes of research and planning information of importance to utilities, systems integrators and participants in smart grid developments.

A few of the highlights of the 2005-2007 study had included these observations:

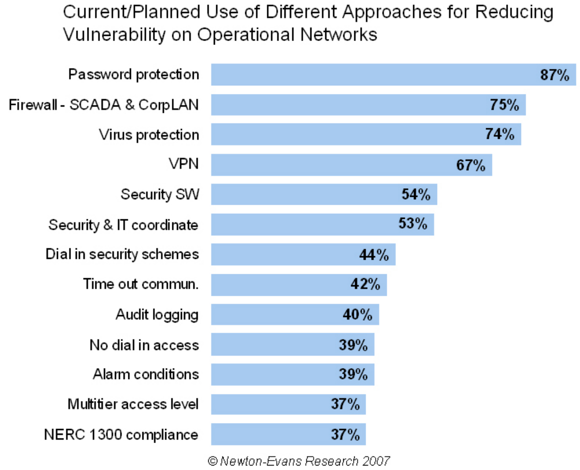
OUTAGE MANAGEMENT: About thirty percent of the international utilities surveyed in late 2005 had implemented a separate outage management system (OMS). About 25% of the group planned to implement OMS as a separate system from SCADA/EMS by year-end 2007. The largest international utilities were more likely to have already implemented an OMS than were their smaller counterparts. European and Asia-Pacific regional utilities were more likely to have implemented an OMS than were counterparts in other world regions. Newton-Evans anticipates a significant increase in OMS use to be reported in the 2008 study.

GENERATION MANAGEMENT: Generation management systems (GMS) were also experiencing an increased level of activity by year-end 2005, at least among those vertically integrated domestic North American utilities serving more than one half million customers. Most others (75%) were continuing to rely on automatic generation control (AGC) applications resident on their distribution SCADA systems for linking to power plant-based control systems (DCS's) or related power supply resources. Internationally, only a handful of participating utilities indicated use of, or plans for, a separate GMS.

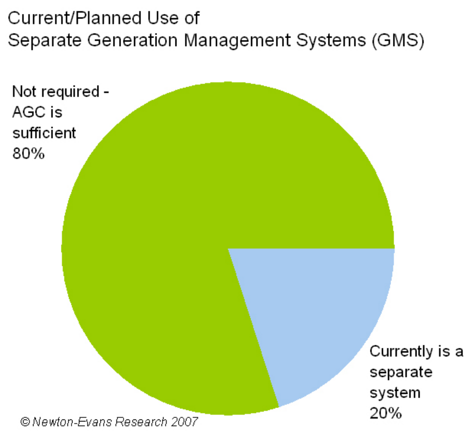
LINKAGES TO EXTERNAL SYSTEMS: Linkage to other utility enterprise systems continued to be on the increase on a global scale; despite cyber security concerns. For many sites, the key to remaining secure seemed to be either: (a) the restricted provision of non-real-time access via periodic downloads to authorized requestors or (b) indirect access to and from the control system via historian files. Newton-Evans anticipates some changes in priorities this year, with a likelihood that many U.S. utilities will be implementing a NERC compliance reporting system over the 2008-2010 period.

Earlybird subscribers to this study get 10% off by ordering online

OVERALL SPENDING OUTLOOK FOR CONTROL SYSTEMS: Overall spending for SCADA and EMS systems sold to the world community of electric utilities and independent transmission systems operators during January 2005-2007 reached more than $1.5 billion USD, based on Newton-Evans interim findings and data provided by major suppliers. With the more recent enactment of smart grid legislation and various compliance reporting requirements for security and reliability concerns occurring on an international basis, the research firm anticipates moderate growth in spending outlook for these and related power operations and engineering applications.



More information on the Newton-Evans Research series entitled: Worldwide Market Study of Energy Management Systems, SCADA and Distribution Management Systems in Electric Utilities: 2008-2010 is available from the company located at Suite 204, 10176 Baltimore National Pike, Ellicott City, Maryland 21042. Telephone: 800-222-2856 or 410-465-7316. E-mail information requests to eforrest@newton-evans.com or to eleivo@newton-evans.com.



Distributed Generation

Distributed Generation (Also referred to as DER - Distributed Energy Resources) is the production of electricity at or near the place of consumption. Examples of distributed generation applications include backup generators at hospitals, photovoltaic systems on residential rooftops, and CHP (combined heat and power) systems. Distributed energy resources can take advantage of any one or a number of fuel types and power sources such as steam, internal combustion turbines, microturbines, fuel cells, photovoltaic cells, wind-power, and biomass. Distributed Generation may be grid connected or isolated from the grid. Safely connecting DG to the electric grid is a major challenge, and perhaps the biggest barrier to widespread use of DG. According to a 2007 DOE study pursuant to section 1817 of the 2005 Energy Policy Act, *"There will need to be a concerted and cooperative effort for the numerous benefits of DG to be realized and for more DG to be deployed on the grid. This effort may require cooperation among electric system planners, operators, and industry groups; Federal, State, and local government agencies; equipment manufacturers; electricity consumers; and academic, research, and public interest organizations."*

Benefits of Distributed Generation

Potential Benefits for Utilities or other Energy Services Providers include the following:

- ❧ Less energy supply capacity required for equal or better service.
- ❧ Less energy distribution infrastructure capacity may be needed to provide equal or better service.
- ❧ New infrastructure capacity can be added incrementally, only when and as needed; or, DR resources can be more easily "redeployed."
- ❧ Local and/or systemwide utility service reliability may increase.
- ❧ Energy losses associated with transmission and distribution are reduced.
- ❧ Environmental impacts may be reduced.
- ❧ Excess heat from power generation may be recovered and sold.

Additionally, new products and services (relative to traditional utility offerings) may be provided, such a) premium quality power, b) "green" energy, c) thermal energy, and d) back-up power or high reliability electric service.

Potential DG Benefits for Energy End-users

- ❧ Reduced energy and demand bills and enhanced "bill management" flexibility.
- ❧ Service (level and types) can be adjusted/optimized with greater flexibility than with conventional alternatives.
- ❧ Excess heat from power generation may be recovered and sold or used to offset fuel costs.
- ❧ Potential for use of environmentally preferred energy technologies and resources.

Challenges for Distributed Generation

The continued restructuring of the electric power industry makes some of the benefits of widespread implementation of distributed generation uncertain. Another major challenge for proponents of DG is adherence to local government rules and regulations for reliability and safety. The use of DG in microgrids parallel to larger grids requires substantial protection to insure against damage to the larger grids.