

MARKET TRENDS DIGEST

for the Computer, Communications, and Controls Industries

Volume 24

WEB SITE: <http://www.newton-evans.com>

First Quarter 2005

- 2005 -

**Wishing you peace and prosperity
in the
New Year**

Summary of 2004 and Newton-Evans' Plans for 2005

With the close of 2004, Newton-Evans Research Company completed its 26th year of providing client-exclusive and multiclient marketing research studies for the electric power industry and other energy-related industries, focusing on examining the use of protection and control systems, information systems, data communications, and infrastructure equipment and products.

In 2004, the company published several multiclient reports including:

o The Mediterranean Ring Project: Status & Plans

o LONWorks: General Usage Patterns and Market Perspectives for the Energy Industry
o Newton-Evans ended 2004 with a flurry of multiclient reports for our five-volume series on the Protective Relay Market in the world's electric power industry.

TABLE OF CONTENTS

Capacitor Usage to Include Voltage Support. 3
China – on the Move in Electric Power Equipment
Manufacturing & Systems Integration. 5
Security Enhancement for Remote Access 7

During 2004, Newton-Evans conducted domestic and international proprietary studies for numerous major suppliers/manufacturers. ABB, Advanced Control Systems (ACS), Areva T&D, Centerpoint Energy, Doble Engineering, General Electric Power Systems Group, Hitachi, Kema Consulting, Microsol, Schweitzer Engineering Laboratories (SEL), Science Applications International Corporation (SAIC), Siemens Power T&D, and TM T&D Corporation are some of the companies for whom Newton-Evans provided marketing research, market planning, and consulting services.

Several of our recent clients are Asian companies that have joined an ever-increasing group of international clients looking to us for quantitative market measurement and analysis as well as product planning guidance in all areas of infrastructure equipment and automation related activities affecting electric power, gas/oil and water distribution industries around the world.

Topics were varied and encompassed the following:

- o transformer asset management;
- o the market outlook for the outsourcing of IT infrastructure operations among North American RTO/ISO organizations;
- o Protective relay usage patterns within TOP 50 power utilities;
- o U.S. utility market outlook for reclosers and associated controls;
- o North American transmission and distribution market (overall size, size by type of equipment, size by products/systems/services, T&D equipment expenditures, T&D expenditures by segment, and T&D market shares of suppliers);
- o HV/MV capacitor market analysis for Western, Central and Eastern Europe;
- o back-up control systems activities and plans;
- o substation automation opportunity analysis.

Research is continuing into 2005 for a Newton-Evans client on an international study of cyber security practices and trends in the international electric power industry.

Feature articles were published in trade and professional journals in 2004, and several of these

- are posted and available for viewing on our company web site. Articles appeared in
- o Energy Pulse magazine – “SCADA in the Energy Industry: A Janus View”
 - o Electric Light and Power magazine – “Worldwide Market Study of SCADA/EMS/DMS”
 - o Remote Site and Equipment Management magazine – “Worldwide Market Study of EMS, SCADA, and DMS”
 - o Electric Light and Power magazine – “Protective Relay Usage Trends.”

Newton-Evans staff was present at a number of trade shows in 2004. Loretta Smolenski traveled to Chicago in March for the wind industry’s Global WINDPOWER 2004 Conference. Newton-Evans has tentative plans to conduct a study of control systems for wind power in the second half of 2005.

Charles Lidard, Senior Research Associate, attended Electric Power’s sixth Annual Conference, held in Baltimore, Maryland in June. Charley made new contacts with several key manufacturers of distribution and power equipment, and also renewed relationships with industry publishers in attendance.

In December 2004, Michael Newton attended the Power-Gen International conference in Orlando, Florida. Two presentations of great interest to our company were “The Transmission Grid – Risks and Opportunities,” and “Wind Energy: Industry and Issues Update.” The second presentation was a popular discussion topic at Power-Gen, as there was standing room only. With significant conventional energy price increases in 2004, it was logically a modern alternative in which many were interested. The presenters provided the basics of wind energy, from information on how a turbine generates to the way a utility utilizes the energy.

Over the year, Chuck Newton participated in conferences, including: CIGRE in Paris; CEPSE in Shanghai, and T&D World Expo in Indianapolis.

Customer briefings were held in Sweden, Germany, France, Italy, Switzerland, Ireland, and China.

Newton-Evans Research enters 2005 on a high note. We will begin the year by undertaking three

of our flagship studies: EMS/SCADA in the Global Electric Power Industry; Substation Automation in the Global Electric Power Industry; and SCADA Systems in the Global Oil/Gas Pipeline Industry. Client inputs for topics to be included in the research program are welcomed during January and first part of February. During the second half of the year, the company will attempt to schedule a control technology study of wind energy farms.

Private client studies about to be launched include: research into the North American market for MV equipment, Asian control systems usage patterns, and an additional study of cyber security issues for control systems.

Our research associates located around the world once again are ready to assist in the data collection aspects of our field work, with multiple languages used to conduct surveys and gather research information in many world regions.

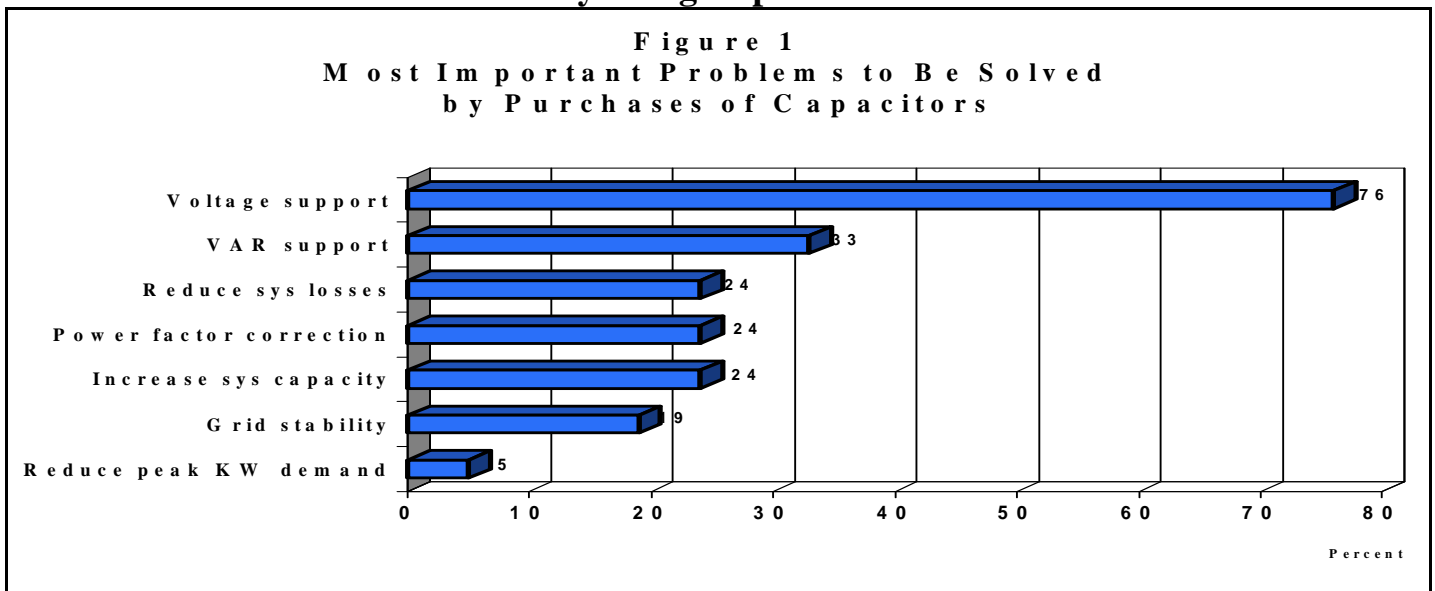
During 2005, one or more Newton-Evans staff and affiliates will be participating in several North American and international energy related conferences. The conferences will begin with Distributech 2005, and include first half year conferences such as TechAdvantage (San Diego), Canadian Utilities Conference (Montreal), Power

Gen Renewables (Las Vegas), GITA (Denver), ENTELEC 2005 (New Orleans), APPA (Memphis), NRECA (San Antonio), UTC Telecom (Long Beach), CIRED (Turin, Italy), EEI Conference (Las Vegas) and the IEEE PES Conference (San Francisco). That's a lot of travel in the first six months!

The company has renewed its memberships in several vital professional organizations serving the world's energy community directly or indirectly. Among these organizations are: IEEE PES; AWWA, ENTELEC, UTC, and GITA. Newton-Evans also is a long-term member of the Council of American Survey Research Organizations and Chuck Newton is an executive member of the American Marketing Association.

Our company's noted survey incentive donation program has contributed thousands of dollars to US charities such as Santa Claus Anonymous, Special Operations Warrior Foundation and local food banks. International charities receiving contributions during 2004 included Habitat for Humanity, Water for People, UNICEF and the International Red Cross, with much of the totals designated by utilities and respondents participating in our survey programs. During 2005, one objective will be to generate and provide significant funds to the South Asian tsunami disaster relief efforts.

Voltage Support – Most Important Problem to be Solved by Using Capacitors



In the fourth quarter of 2004, Newton-Evans completed a study on the medium and high voltage capacitor market in Western, Central and Eastern Europe. Two topics encompassed in the study included the reasons for purchasing capacitors and the use of dynamic VAR compensation.

On the survey, respondents were asked “*Your company purchases capacitors to solve which of the following problems? Check the two most important.*” The seven problems listed as possible answers were: voltage support; VAR support; grid stability; reduction of peak KW demand; increase in system capacity; power factor correction; and, reduction of system losses.

The most important problem to be solved by using capacitors as stated by study respondents throughout Europe was that of voltage support, cited by 76 percent of the group. VAR support was mentioned by one-third of the company officials. Reduction of system losses, increased system

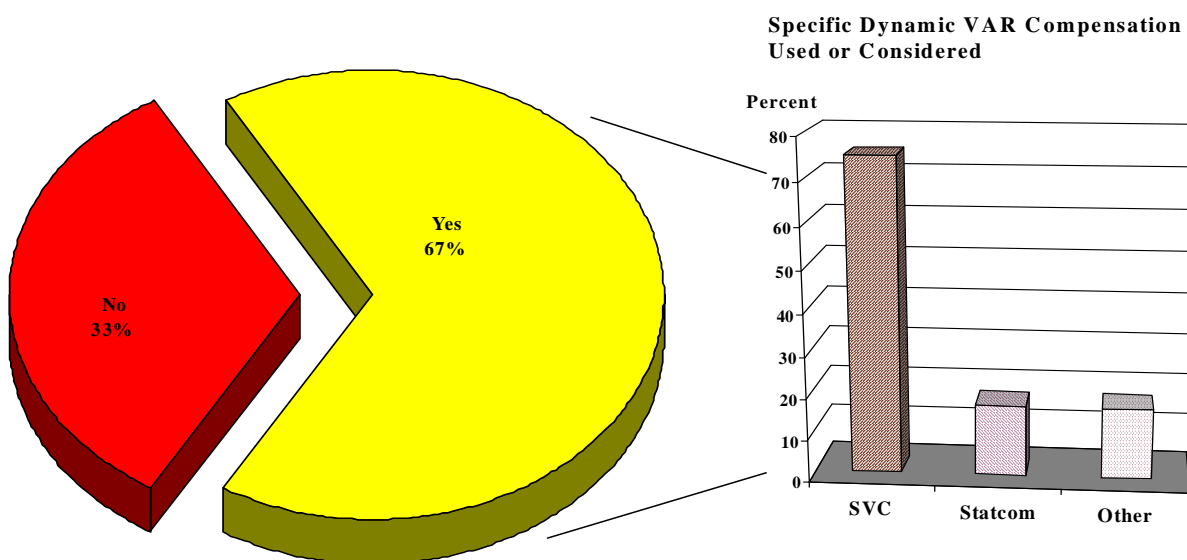
capacity, and power factor correction were cited by 24 percent of the group. Nineteen percent noted grid stability and only one stated a reduction in peak KW demand as a solution brought about by use of capacitors.

See Figure 1.

Respondents were requested to indicate if their company ever used or considered using dynamic VAR compensation, or DVAR. Two-thirds of the respondents to the research study indicated that they do use or have considered using DVAR compensation methods in their grid.

Those respondents noting use or consideration of DVAR compensation were then asked to indicate whether Statcom or SVC was used. Seventy-five percent of this responding subgroup specified use of SVC technology, and 17 percent are using or have considered using Statcom technology. Two companies were unsure. See Figure 2.

Figure 2
Use or Considered Use of
Dynamic VAR Compensation



Chuck's Automation Perspectives:

China . . . on the Move in Electric Power Equipment Manufacturing and Systems Integration

The phenomenal development of the electric power industry in China has occurred over the last decade due to the rapid pace of industrialization and the resulting pressures placed on the country's electric energy resources to keep up with the demand for electricity among industrial, commercial and residential customers in this vast country.

The situation is one in which the global electric power industrial giants, including ABB, Siemens, GE Energy, Areva T&D, and next tier players such as Schneider Electric, Cooper Power, and Alstom Power have a leadership position in some areas of operational systems and equipment, but most have found it necessary to develop joint ventures to participate effectively in the infrastructure equipment business. There is no doubt that the West has contributed mightily to the country's rapid development, as has the role of privatization of former state-owned assets and resources.

While the Western companies serving the Chinese T&D and IT markets are spending a lot of energy and investing significant capital to ensure profitable ventures over the next ten years of anticipated growth in the electric power sector within China, many Chinese companies themselves are starting to look outward, and are becoming internationally competitive firms in their own right.

To a company, the Western firms that have been in China for a decade or longer are held in high regard by the Chinese power community. Almost all of these firms win some significant share of energy expenditures each year. These firms have been held to high standards on compliance to their signed contracts, recognized for the quality of their equipment and systems, and have delivered on their commitments.

None of these Western companies have been reprimanded for poor performance, according to our discussions with Chinese officials held during the recent CEPSI meetings in Shanghai.

Today, there are more than 100 Western supplied EMS and SCADA systems in the electric power community of China, monitoring and controlling the flow of electricity in most provinces, many large cities and enabling the interoperability of the various regional power grids as well. More than \$500 million of control systems awards in the electric power field have been given to Western suppliers since 1990.

North American firms (including North American operations of other Western companies) have shipped systems worth more than one half of this total. Companies ranging from OSI of Minneapolis, to SNC Lavalin in Montreal and Telvent in Houston, to ABB's former Systems Control business in Santa Clara (and successor EMS/SCADA operations in Houston), to Siemens PT&D in Minneapolis, are each represented by multiple large system installations in the People's Republic.

In the power generation control department, distributed control systems (DCS) from Siemens, ABB, Foxboro, Honeywell, and Emerson-Westinghouse are found in scores of plants.

As early as 1990, ABB Systems Control and ABB Houston (then Ferranti Controls) and the Minneapolis operations of Siemens PT&D (then EMPROS) were playing host to Chinese engineering and operations personnel assigned to work on site in U.S. facilities during the weeks leading up to the factory acceptance testing periods.

By the end of the twentieth century, interesting developments in the Chinese manufacturing and systems integration community began to occur, and Chinese companies themselves began rigorous attempts to develop commercial grades of "world-class" technology systems for the electric power industry at home and abroad.

Led initially during the 1990s by the prestigious research institutes such as Nanjing Automation

Research Institute (NARI) and China Electric Power Research Institute and followed soon by an equally progressive group of smaller regional research institutes associated with power engineering universities, typified by the Northeast China Institute of Electric Power Engineering, many Chinese power engineers became involved with these technological and systems development firms and chose careers with the supplier side rather than with the Chinese utility organizations.

By the turn of this new century, the “grey market” comprised of quasi-commercial, quasi-governmental organizations had been supplemented by purely commercial “start-up” ventures such as Yantai Dongfang, XJ Systems, and Beijing Sunway Force Control of Technology Company. These and other Chinese companies are committed to pursuit of new business at home and abroad.

Together, these Chinese companies and research institutes have supplied EMS, SCADA and related systems to several hundreds of control center installations throughout each region of China.

In December 2004, Chinese firms Beijing Degao (valves and fittings) and Shanghai Autork Digital (electric valve actuators) exhibited their products at the PowerGen International Conference and Expo in Orlando. In January, Yantai Dongfang will be exhibiting its line of electric power and industrial control systems and wares at Distributech 2005 in San Diego. Note that Yantai Dongfang, established in 1994, has installed more than 420 power system dispatch centers throughout China based on the company’s DF8000 SCADA/EMS.

The Beijing Accuenergy Technologies Company will be displaying its full line of advanced power meters. This company did not even exist until 1998, and is now manufacturing and supplying advanced power meters throughout China and has opened a US office as well.

Western firms serving the electric power industry that have enjoyed the most success in China in recent years are those that arrived early, invested heavily in the country with joint ventures, established medium to large scale production

facilities, and staffed their operations with combined Western and Chinese personnel. ABB, Siemens, GE, as well as Schneider, Areva, Cooper, and others, are good examples. ABB has 7000 employees and revenues of about \$2.1 billion in China, and is looking to grow at about 20%/year. Siemens has 4 joint ventures, 21,000 employees and revenues of \$3.6 billion annually in China. GE has 36 subsidiary operations and 12,000 employees. The company has stated its revenue objective this year at \$5 billion. These three companies have been operating in China for more than 100 years.

Japanese firms are equally adept at joint ventures with their Chinese partners. Nissin Corporation known for its line of T&D capacitors, has established the successful Nissin-Wuxi partnership. Toshiba, Mitsubishi and Hitachi are involved in Chinese infrastructure programs, especially on the power generation side of the industry.

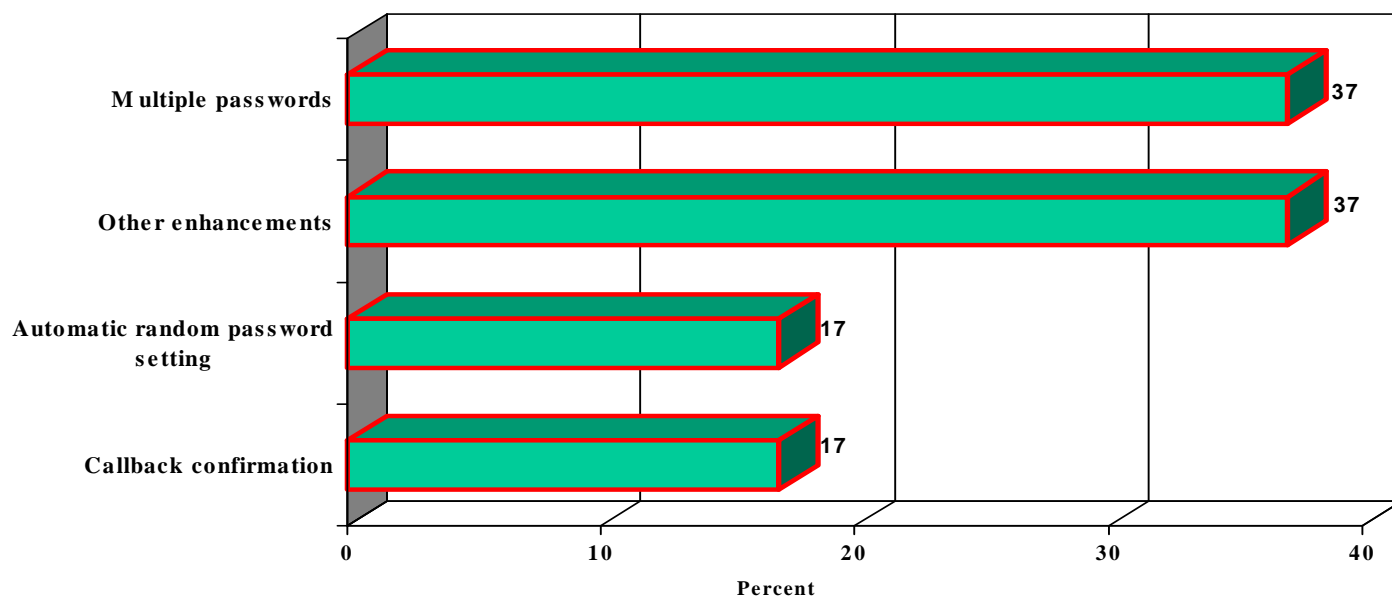
There is good reason for these large firms to be involved. While power industry equipment and services sales levels have lagged in the industrialized Western countries, the developing nations, led by China, have been heavily investing in electric power infrastructure activities. China is thus where many of today’s most challenging and largest world regional market opportunities are to be found.

While the power equipment and systems sales opportunities in the Western nations are today predominantly retrofit and replacement opportunities, in Asia, and especially in China, the opportunities are for new construction, and first-time implementations of advanced technologies from commercial suppliers.

 MARKET TRENDS DIGEST (ISSN 0891-037).
 Newton-Evans Research Company, Inc. publishes *MTD* for the applied technology industries, utilities, and energy companies. Editor: Loretta Smolenski. For further information, phone or write to Newton-Evans Research Company, 10176 Baltimore National Pike, Suite 204, Ellicott City, MD 21042. Telephone (410) 465-7316. E-mail us at lsmolenski@newton-evans.com. Please visit our website at <http://www.newton-evans.com>.

**Multiple Passwords – Security Enhancement Being Used by
One-Third of Responding Utilities
For Remote Access Authorization**

**Figure 3
Enhancement to Security of Remote Access to
Digital Relays**



During the fourth quarter 2004, Newton-Evans Research completed a four month research study and survey of protective relay usage patterns in the international electric power business. The international utilities participating in this survey represented countries with approximately 1.5 billion residents. In several instances, the respondent utilities represented all electricity end-users within their countries for at least some aspect of power generation, transmission, or delivery.

Several survey questions were directed primarily to digital relays. Respondents were requested to indicate what methods were being used by the utility to enhance relay security for remote accessibility. Five alternative responses were listed on the survey form, including:

- o multiple passwords
- o automatic random password setting
- o callback confirmation
- o “other” approach and,
- o “not allowed/no use” of remote access.

More than one-third of these utility officials indicated that “multiple passwords” was one security enhancement being used for remote access authorization. About the same percentage wrote in replies to this question. Replies ranged from “closed (private) telephone network” to “secured lines and passwords” to “proprietary communications (used).”

One in five respondents indicated that remote access is simply not allowed. Seventeen percent

stated that automatic random password settings are in place, and the same percentage cited use of callback confirmation prior to being authorized to reset or access digital relays.

When reviewing this information based on geographic location, Latin American respondents were much more likely to use multiple passwords than any of the other groupings (83 percent as compared to 36 percent of the European officials and 20 percent of the Asian Pacific officials.

See Figure 3.

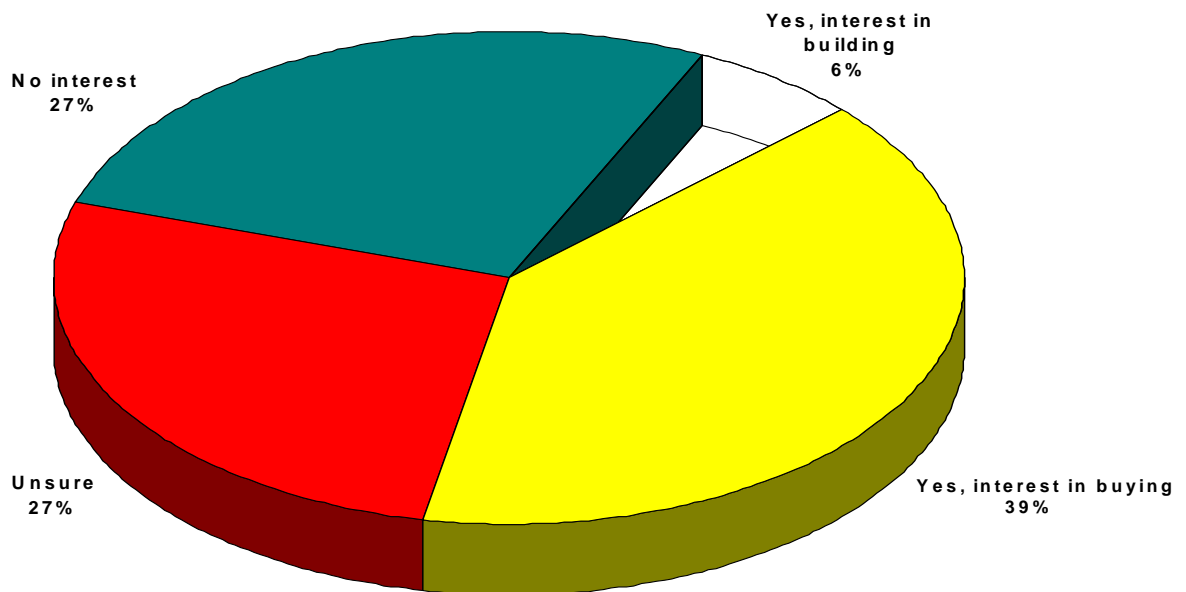
Respondents were also asked “Does your utility have an interest in building and/or buying digital relays with an included integral satellite clock receiver.” Nearly 40 percent of the officials answering this question indicated that they were interested in buying relays with integral satellite clock receivers. Just over one quarter cited that they were uncertain on this, and another one quarter

simply had no interest in such an integral satellite clock receiver. Only six percent noted having an interest in building such a unit.

Europe, Latin America and Asia Pacific based respondents were more likely to have an interest in building or buying units with integral satellite clock receivers than did their counterparts in the Middle East-African region. Three-quarters of this Middle East-African group were unsure on this subject. See Figure 4.

This international report is the second volume of a five volume series of reports on protective relays. Volume I, the North American Market, was released earlier in 2004. Volume III, the Executive Summary, which is a synthesis of the North American and international volumes, was published in December 2004. The next MTD will include selections from Volume III. Volume IV, relay vendor profiles, was published in third quarter 2004. The final volume, Market Assessment and Forecast, was recently published.

Figure 4
Interest in Building and/or Buying Digital Relays with an Included Integral Satellite Clock Receiver



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Newton-Evans Research Company
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The World Market Study of SCADA, Energy Management Systems and Distribution Management Systems in Electric Utilities: 2005-2007

Newton-Evans Research Company is conducting its seventh major, in-depth international research program studying supervisory control and data acquisition (SCADA) systems, energy management systems (EMS), and distribution management systems (DMS) during the first and second quarters of 2005. This five volume series will measure current market sizes and offer projections, on a world region basis, through the year 2007.

This new series will provide an appraisal of central and remote site hardware and applications software requirements that electric utilities will be requesting during their next round of procurements for these systems during the forecast period. The research program will focus on defining the broader product and market requirements that suppliers must meet in order to successfully participate in the SCADA/EMS/DMS programs within the electric utility community worldwide. The world regions in this research program include the North American, European, Latin American, Mideast, Mediterranean, African and Asia Pacific markets.

Become a sponsor – order now and **save 20%** off list pricing (noted below) through February 15th. After that date, a 10% discount will be in effect until the reports are published. Sponsors can also participate in the formulation of the new user survey questionnaire.

Ordering Information

To order *The World Market Survey of SCADA, Energy Management Systems and Distribution Management Systems in Electric Utilities: 2005-2007* at the discounted rate, phone, fax, e-mail or mail this form with a check (U.S. dollars), purchase order number or credit card information to Newton-Evans Research Company, Inc., 10176 Baltimore National Pike, Suite 204, Ellicott City, Maryland 21042. If you are in need of further information, please contact our office.

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*The World Market for
SCADA Systems in
Gas & Oil Pipeline Operations and
Gas Distribution Utilities: 2005-2007*

In recent years, Newton-Evans Research Company has conducted several research programs providing a clear view of the international market for supervisory control and data acquisition (SCADA) systems among electric, water and gas utilities, and gas and oil pipeline companies. This study is Newton-Evans' third *worldwide* study of gas and oil pipeline operations and gas distribution utilities.

This new series will provide an in-depth evaluation of the central and remote site hardware, applications software and communications services that oil and gas pipeline operations and distribution utilities will be requesting during their next round of procurements for SCADA systems.

The research study will result in a comprehensive and informative series of reports on control systems usage patterns and plans of pipeline operations and gas distribution utilities worldwide. Current market sizes will be assessed and projections, on a world-region basis, for the next several years will be offered. A separate report profiling more than 50 suppliers of oil/gas pipeline SCADA-related systems, software and services will also be available.

Sponsors will have an opportunity to submit requests on additional topics and questions for possible inclusion in the final 2005-2007 survey format. After February 15th, a prepublication discount of 10% will be offered.

Ordering Information

To receive *The World Market for Supervisory Control and Data Acquisition Systems in Gas and Oil Pipeline Operations and Gas Distribution Utilities: 2005-2007* at the 20% discount rate for prepaid orders, you may phone, fax, e-mail or mail this form with a check (U.S. dollars) or purchase order number to Newton-Evans Research Company, Inc., 10176 Baltimore National Pike, Suite 204, Ellicott City, Maryland 21042

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The Worldwide Market for Substation Automation and Integration Programs in Electric Utilities: 2005-2007

**Prepayment
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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 the first and second quarters of 2005, Newton-Evans Research is reexamining the world market for substation automation and integration programs for the 2005-2007 timeframe. Publication of the series will begin in third quarter 2005.

This new 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. This new round of research 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.

Report sponsorship is available until February 15th. Sponsors receive a **20% discount** off the listed prices for prepayment, as well as the opportunity to suggest topics for possible inclusion in the upcoming substation automation survey. After February 15th, the series will be available at a 10% prepublication discount.

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