Newton-Evans Research Company's

MARKET TRENDS DIGEST

for the Computer, Communications, and Controls Industries

Volume 20 WEB SITE: http://www.newton-evans.com Third Quarter 2003

Supplier User Groups Important for EMS/SCADA/DMS Procurement

In June 2003, Newton-Evans Research Company announced the publication of Volume I of its multivolume study of the U.S. and international electric utility markets for Energy Management Systems (EMS), Supervisory Control and Data Acquisition Systems (SCADA), and Distribution Management Systems (DMS). This report series represents the company's sixth in-house research program to determine EMS/SCADA/DMS attitudes, plans and activities among operations and engineering managers. Volume I comprises the North American Market Survey and Analysis. The remaining four volumes will be released over the next two months.

A total of 252 North American electrical utilities are represented in Volume I. This number consists of the following: 36 U.S. investor-owned utilities; 84 U.S. public power utilities; 107 U.S. rural electric cooperatives, 21 Canadian utilities; and, four anonymous responses.

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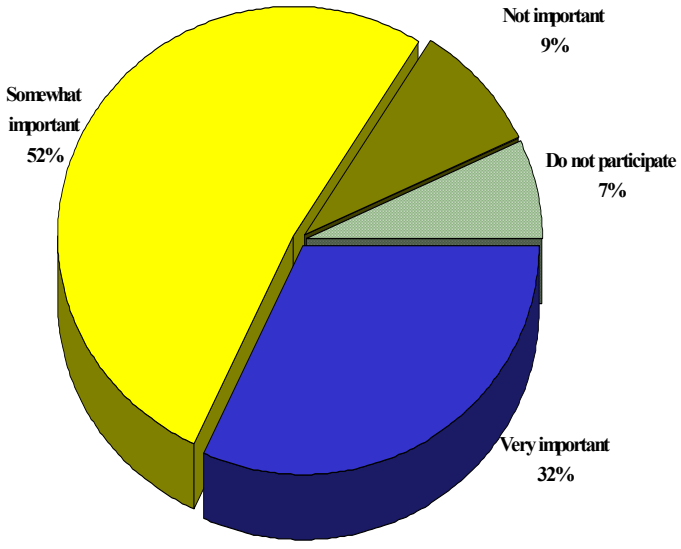
One topic discussed related to the importance of supplier user groups for upcoming EMS/SCADA/DMS procurements. Eighty-four percent of responding utilities indicated that user groups would be considered as very (32%) or somewhat (52%) important for their next EMS/SCADA/DMS purchase.

See Figure 1.

Investor-owned utilities and other public power agencies placed somewhat higher importance on the role of user groups than did municipals or cooperatives, but the vast majority of each subgroup placed some importance on the user group role.

Figure 1
Level of Importance of Supplier User Groups for Next EMS/SCADA/DMS Procurement



When viewing this information based on the utility's customer number, over 90 percent of utilities with more than one million customers considered supplier user groups to be valuable.

A topic not previously covered in Newton-Evans' EMS/SCADA/DMS report series discussed utilities' requirements for warranty and service agreements that they would prefer for the next EMS/SCADA/DMS system's field hardware procurements.

Buyers do want at least a one-year warranty, and a sizeable percentage (31% for central site hardware, 23% for remote site hardware, and 26% for applications software) want multiyear warranties.

At least two-thirds of the respondents indicated that service maintenance contracts ranging from one to three years are required or desirable in each of the three areas. Twenty percent expressed the need for contractual service agreements of at least five years for central site hardware and applications software.

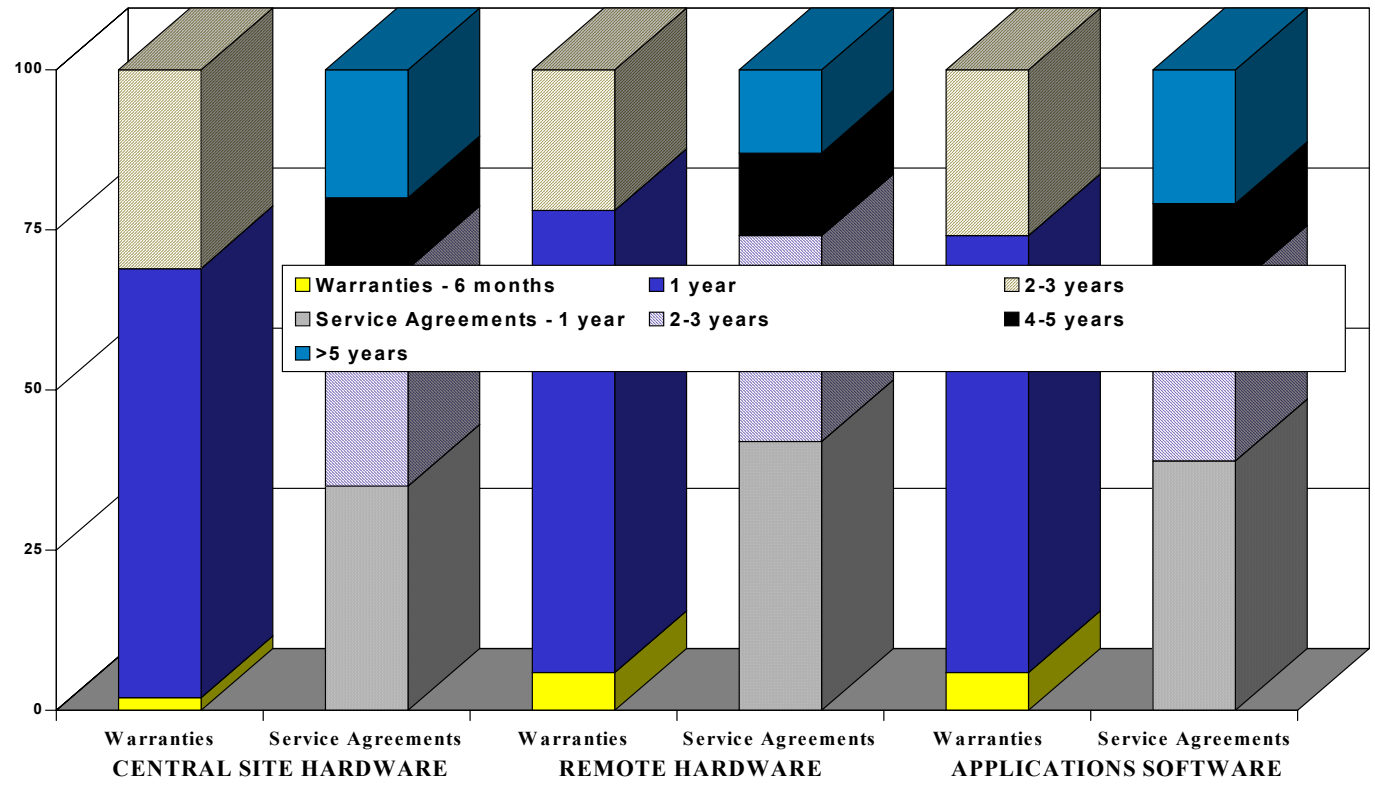
See Figure 2.

Investor-owned utilities were somewhat more likely to favor multiyear warranties and long-term contractual service agreements for central site hardware.

Cooperatives were more apt to favor longer term warranties and service agreements than were municipal respondents.

Most of the topics researched in the North American volume will also be discussed in Volume II - international utility study. For pricing and other information, please call Newton-Evans Research at 800-222-2856 or 410-465-7316.

Figure 2
Utility Requirements for Warranties for EMS/SCADA/DMS Systems



CIRED's International Conferences on Electricity Distribution Continue to Attract a Myriad of Attendees

by
Gerry George, UK Research Associate
Newton-Evans Research Company

CIRED, the major electricity distribution convention held every two years in different venues in Europe, took place in May 2003 in Barcelona, Spain. This three-day conference and exhibition gave the 1000 participants from approximately 57 countries a worldwide perspective of the best technology practices and management of electricity distribution systems.

The CIRED Technical Program started with a one-day program of six tutorials that were presented by an international team of distribution industry specialists, covering power quality, benchmarking of planning practices, distribution switchgear, distributed generation, distribution automation, and protection relays.

The conference was comprised of three interactive programs:
o ALPHA sessions - about 450 selected papers in the six main conference technical themes were reviewed and discussed. A synopsis follows.

o BETA Sessions – the BETA or Round Table half-day discussions .

o Special Interactive Forum - giving delegates a one-to-one discussion opportunity with the paper's author(s) at the hub of the conference facility.

ALPHA Sessions

- Network Components - this session was dedicated to all the key network components of the distribution system and the 73 papers from 21 countries selected for discussion were considered in seven blocks; switchgear, MV/LV substations, power electronics, MV transformers, OH lines, cables, and environmental matters.

- Power Quality & EMC - this broad based session attracted over 80 papers from 30 countries. The management of this session was arranged to devote equal time to the four key subject blocks as follows: - 1) electromagnetic interferences (EMI), electromagnetic field (EMF) & safety; 2) connection of disturbing installations (emission limits for harmonics, flicker or unbalance; filters or compensators) and monitoring methods; 3) voltage dips and disturbances in customers' installations; and 4) power quality in the competitive market (deregulation has led to unbundling of the industry separating energy supply from network operators or distribution network operators who have the responsibility for 'Quality of Supply').

- Operation, Network Control and Protection technical theme. This topic attracted papers from utilities, manufacturers and universities that took the opportunity to outline the importance and changing role of protection, data communication systems, dedicated fault protection schemes and new developments.

- Distributed Generation- Management and Utilization of Electricity - format for the session was arranged under four distinct topics - energy efficiency, storage, demand & metering; standards and generator issues; distributed generation – operation; and, distributed generation - planning.

- System Development - distribution utilities in meeting the demands of regulators are now faced with the need to cut costs while simultaneously maintaining or improving customer service standards. This theme was presented in the following main topics - assets management and maintenance strategies; network development; and, methods and tools –

- Management – Organization – Skills. This technical theme was included to put focus on the

challenge utilities in distributing electricity envisage as a result of the new market conditions. The session was arranged under four subjects - implementation and results from deregulation; organization and business; control and monitoring development of costs and competitiveness; and, IT-based tools now in use by utilities ranging from demand–side management (DSM) programs used for peak load reduction, load shape flexibility to load building programs, to the use of AM/FM-GIS systems to estimate distribution losses.

To strengthen the existing strong links with academics, the technical program included a special event organized to address two issues: - the lack of engineers graduating in electric power engineering, and the applied research issues.

CIRED 2005

The first CIRED organized by the 'Association des Ingénieurs sortis de l'Institut d'Electricité Montefiore (AIM) was held in Liège, Belgium in May 1971. Since the Electrical Research Association (ERA) and the Institution of Electrical Engineers (IEE) were organizing similar conferences, the two parties identified a need for international conferences on electricity distribution. Since 1971, under the name of CIRED, the conference has been held every two years, alternately organized by the AIM and the IEE. Until 1997, CIRED was held in Belgium and the United Kingdom, but as CIRED expanded from a European to a world-based organization, the last three conferences have been held in Nice, Amsterdam and Barcelona.

The IEE is already well advanced in planning for CIRED 2005, which will be held at the Lingotto Conference and Exhibition Center in Turin, Italy (June 6-9, 2005). For full details of the CIRED 2005 Conference, Exhibiting or Sponsorship Opportunities - Contact the IEE email: cired@iee.org.uk

Performance/Penalty Based Rate Structures - Mid 2003 Report Update

by Charles Lidard

In first quarter 2002, Newton-Evans Research completed a study of all 50 state and the DC public service commissions (PSCs) regarding the development of performance based rates (PBRs) and related incentives for U.S. electric utilities. This study has been updated and expanded, and is available under the title of *Performance Based Rates (PBRs) for U.S. Electric Utilities: A Mid-2003 Status Report.* Again all 51 PSCs have been surveyed. In June 2003, more than 35 U.S. investor-owned utilities also participated in the second segment of the report, providing their perspective of the impact of PBRs.

Topics covered in the 2003 utility PBR survey included the standards used to measure reliability performance, qualifications for performance-based rate incentives, values of penalty assessments, relationship between the development of PBRs and capital spending, and the relationship between the development of PBRs and O&M spending.

Investor-owned respondents with current or planned use of performance or penalty-based rates were asked to indicate the standards that are or will be used to measure reliability performance. Listed on the survey were: SAIFI (system average interruption frequency index), CAIDI (customer average interruption duration index) or system average interruption duration index (SAIDI), MAIFI (monetary average interruption frequency index), other standard guidelines, qualitative measures, and other criteria.

All of the responding utilities indicated that CAIDI/ SAIDI standards were used to measure reliability performance. Eighty-four percent of these utilities noted that SAIFI measures were taken into account. Only one of the respondents mentioned MAIFI standards. There were no mentions of qualitative measures.

For further information on this newly-released report, visit Newton-Evans' website at: www.newton-evans.com or call the company at 410-465-7316.

The Mediterranean Ring Project: A Researcher's Notes

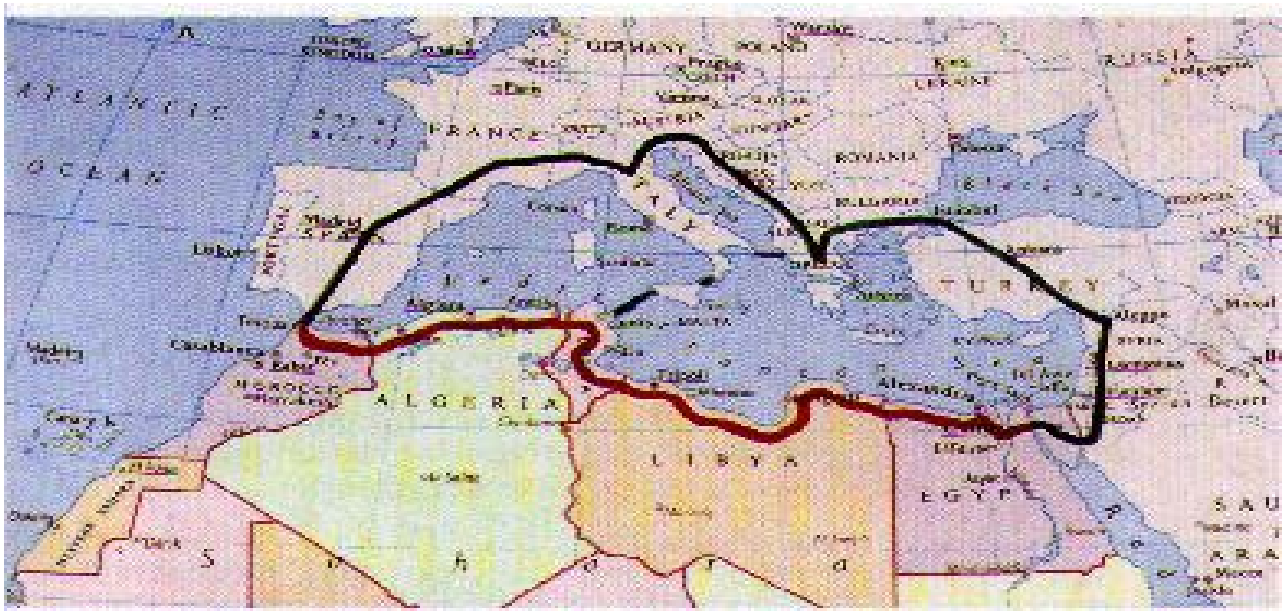
by
Charles Newton

It was a dark and stormy night at Dulles Airport, outside of Washington, as I boarded the flight to Paris, not sure of whether the "Med Ring" conference to be held in Rome on July 9, would be related to the release of the newest Harry Potter movie, or be based on Tolkien's "The Lord of the Rings." Nonetheless, I made my way, first to Paris, then on to Rome early on July 8 to attend an evening reception, hosted by ENEL, at one of the dozens of lovely historic villas in the city. The reception and conference participants included an international grouping of representatives from throughout Europe and the Mediterranean region, including the Maghreb and Mashreq countries.

Why bother telling our Market Trends Digest readers about this activity? Well, for starters, more than a billion dollars worth of T&D infrastructure spending has already been committed to the development of the South and Eastern Mediterranean grid. Very little of this amount has been spent with North American suppliers. At least another billion dollars will be spent over the next several years. Bilateral power exchanges between neighboring states in the region have been in place for some years. Now, the real promise of multilateral power exchanges has the foundation in place with which to be realized over the next decade. The search for additional electric energy resources, the desire for energy security, the load growth in the southern and eastern Mediterranean being among the highest in the world, all contribute to the desire among the region's nations to persevere toward the goal of an interconnected power grid – the so-called Mediterranean Ring or Med Ring, for short.

The concept of an interconnected electric power grid that girds or "rings" the Mediterranean region has been around at least since the 1960's. The concept involves linking electric power grids from Spain to Morocco through the remaining *Maghreb* or North African, Western Arab countries, on to Egypt and the *Mashreq*, or Eastern Arab countries, and back up to Turkey, and down to the Gulf Coast Countries (GCC). From Turkey the ring would then link back into the European grid via Greece or through the newly interconnected Eastern European country grids. See Figure 3 below.

Figure 3: Illustration of the Mediterranean Ring - Planned



The EU nations have taken the lead in assisting the Mediterranean region in its quest to be synchronously interconnected to the European grid. The objectives of such a huge system of electric power interconnections include these:

1) provide increased levels of energy security to participating nations;
2) Defer/ avoid new power plant construction by importing/exporting electric power;
3) Balance the load and the demand for electric power across the region;
4) Cut back on the primary electricity reserve requirements within each county.

The main goal of the Med Ring project, according to a report delivered at an earlier MED POWER 2002 conference is to *"...define a framework for coherent development of interconnections between the power systems of the Mediterranean basin*." In order for this goal to be accomplished, several tasks have to be undertaken. These include:

a) Detailed analysis of the behavior of the interconnected system as a whole;
b) Determination of the economically optimum energy exchanges between the countries;
c) Proposed solutions for improving the reliability of the interconnected system, and
d) The training of experts and operations personnel to operate the system and the resulting energy market.

According to the World Energy Council, the interconnection of the electrical grids of the Arab countries is one of the most effective means of increasing the efficiency and reliability of the electric supply and will directly lead to conservation of electricity, on the supply side. ➹

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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: www.newton-evans.com.

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The Med Ring region can roughly be separated into three distinct sub regions, as far as electric power activities and interconnections. The consultants on this project tend to separate the region into "power blocs" whereas this report assesses the sub regions more on the basis of cultural and geographic blocks. The blocks overlap in most respects.

a. North Africa - The Maghreb Countries

b. Middle East – The Mashreq Countries

c. The Gulf Cooperation Council Countries

Organizational Involvement in the Development of the Med Ring Project:

There are several international groups heavily involved in the development of the Med Ring interconnection project. Because of the implications of linking grids from one region to another region that have such different operational and technical characteristics, standards organizations, regional electrical associations, and even the European Union are necessarily involved parties to this development.

The reasons for such high levels of involvement in reviewing grid interconnections is because the stability of existing mature networks such as those in Western Europe is paramount to that highly electrified region. All new connections must be equally stable.

European networks are highly meshed; consist of high voltage lines, with high consumption and high density of consumers, and predictable load patterns. Grids in the Southern Mediterranean region are typically lower voltage grids, non-redundant, serving fewer loads, concentrated in highly urbanized areas and strung out through the countryside at lower voltages.

Information on a 30 page Newton-Evans study, *The Mediterranean Ring,* is available by calling the company at 410-465-7316.

Security Standards for Electric Market Participants

In July 2002, the Federal Energy Regulatory Commission (FERC) published a proposal for security standards for participants in the electric market. The standards are to become effective on January 1, 2004. Beginning in that year, and on the first of every succeeding year, each participant must file a self-certification signed by a company officer, indicating compliance with the standards set forth by FERC, and also identifying any areas of non-compliance.

According to FERC, the purpose of these standards is that wholesale electric grid operations are highly interdependent, and a failure of one part of the generation, transmission or grid management system can compromise the reliable operation of a major portion of the regional grid. Similarly, the whole electric market - as a network of economic transactions and interdependencies - relies on the continuing reliable operation of not only physical grid resources, but also the operational infrastructure of monitoring, dispatch and market software and systems. Because of this mutual vulnerability and interdependence, it is necessary to safeguard the electric grid and market resources and systems by establishing minimum standards for all market participants, to assure that a lack of security for one resource does not compromise security and risk grid and market failure for the market or grid as a whole.

A basic security program for electric grid and market resources shall cover governance, planning, prevention, operations, incident response, and business continuity.

In correlation to this, Chuck Newton participated in a SCADA Security Roundtable as part of Entelec 2003 held in April 2003. The Roundtable discussed, among many points, striking a balance between operational performance and the need for increased SCADA security for electric utilities and for gas and oil pipeline companies. Figures 3 and 4 are from a recently completed Newton-Evans survey of North American electric utilities.

Figure 3
Use of Approaches for Reducing Vulnerability on Operational Networks in the Utility

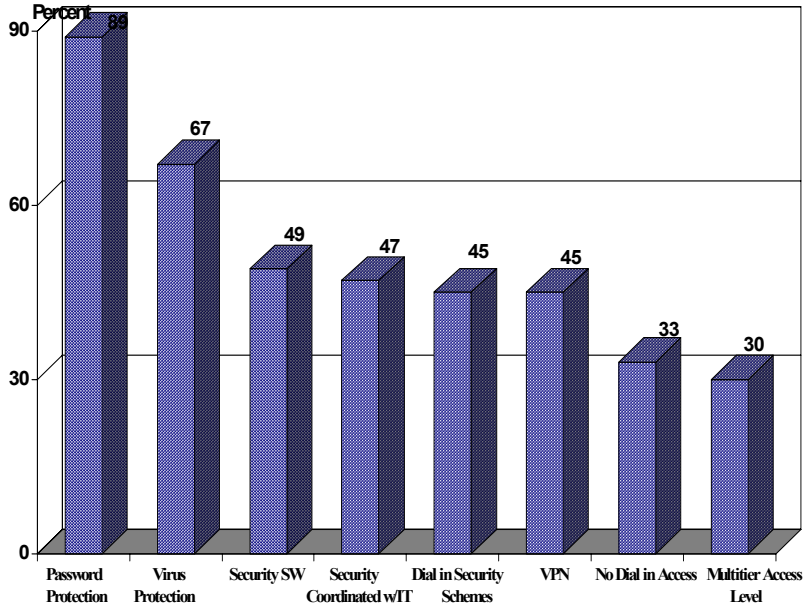
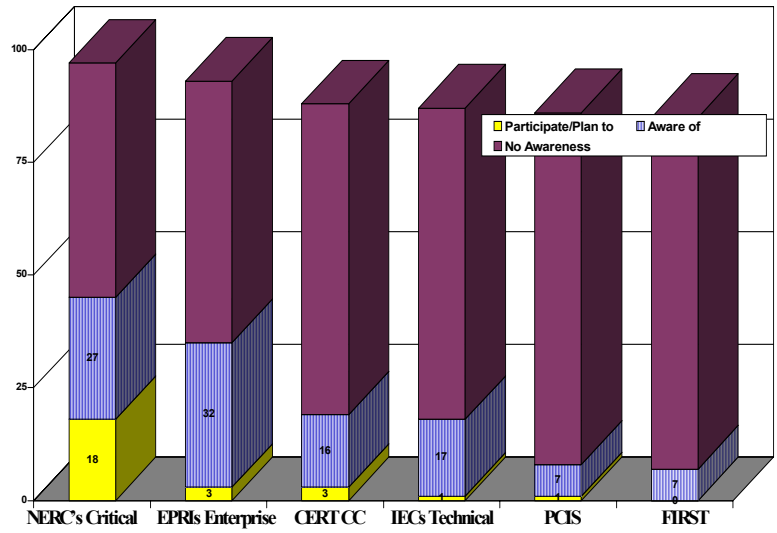


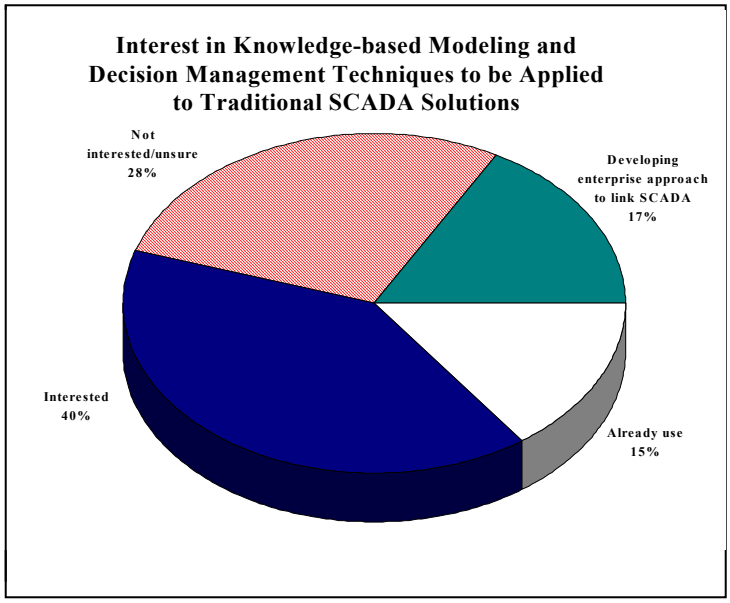
Figure 4
Utility Participation with Ongoing Cyber Security Initiatives



High Interest Level in Knowledge-Based Modeling and Decision Management Techniques Applied to Traditional SCADA Solutions

Preliminary results from Newton-Evans Research Company's latest study on the world market for SCADA in gas and oil pipeline operations and gas distribution utilities indicate that these companies already use or have an interest in the above mentioned techniques.

Respondents to this update of the Newton-Evans study from 2000 were asked to indicate any interest in technology such as knowledge-based modeling and decision management techniques which can be applied to traditional SCADA solutions to provide a more *"business driven"* control system which interfaces directly with all the other company management and IT systems.



Seventeen percent indicated that their company is developing an *"enterprise-wide"* approach to link SCADA with specific areas. Eighteen percent noted a very strong interest in this, while another 22 percent stated that they were somewhat interested. Ten percent were unsure, and only 18 percent did not show any interest. See Figure 5.

Survey respondents were also asked to denote the specific areas in which they have developed or are developing an enterprise-wide approach to link with SCADA. Five specific areas were mentioned - engineering, accounting, scheduling, modeling, and measurement. Participants could also mention other areas.

Nearly three-quarters of the respondents to this sub-question indicated measurement, while over 50 percent noted scheduling and modeling. Forty-nine percent noted engineering and accounting. Six respondents mentioned other areas, including forecasting, company network, billing, local measurement, and IT security.
See Figure 6.

Figure 6
Areas in Which an Enterprise-Wide Approach to Link SCADA Are Being Developed