Newton-Evans Research Company's

Market Trends Digest

October 2011

NEWTON-EVANS RESEARCH COMPANY www.newton-evans.com

The Worldwide Study of the Protective Relay Marketplace in Electric Utilities: 2012-2014

In the 4th quarter of 2011, Newton-Evans plans to conduct their seventh global study on the world market for protective relays. The study will measure market sizes and contain projections on a world region basis for the next several years. The entire research program will define the product and market requirements which suppliers must meet in order to successfully participate in one or more of these diverse world market regions. The study will yield valuable 2012 market sizing estimates and projections for relay and relay controls suppliers.

Key Issues Addressed will include: Number of Protective Relays to be Purchased over the 2012-2014 Time Frame; Three-Year Budget Allocations for Protective Relays; Reasons for Using/Planning to Use Digital Relay Protection; Type of Relay Scheme Redundancy in Use/Planned for Use in Digital-Based Relaying Terminals; Three-Year Forecast of Planned Distribution Relay Purchases by Application; Purchasing Policies for Protective Relay Systems; Systems to Which Relay Data is Transmitted; Communications Requirements for Access to Relay Data; Average Percentage of Digital Relays in Installed Base and Planned for New and Retrofit Applications Purchases; Need for Future Installations Using Modern IED Relays Connected to a Digital System; External Assistance Needed for Various Relay-Related Activities; Ranking of Relay Manufacturers by Specific Attribute Categories; Need for Increasing Integrated Functionality in a Relay.

Field survey work will be conducted using a mix of primary research methods, including personal interviews, e-mail and follow-up telephone interviews by Newton-Evans staff. In addition to discussions with utility specialists, managers and influencers, Newton-Evans will conduct interviews with protective relay industry officials to gather management impressions about the size, scope, direction and trends in the relay business. Discussions and information exchanges with international suppliers will provide additional market insight.

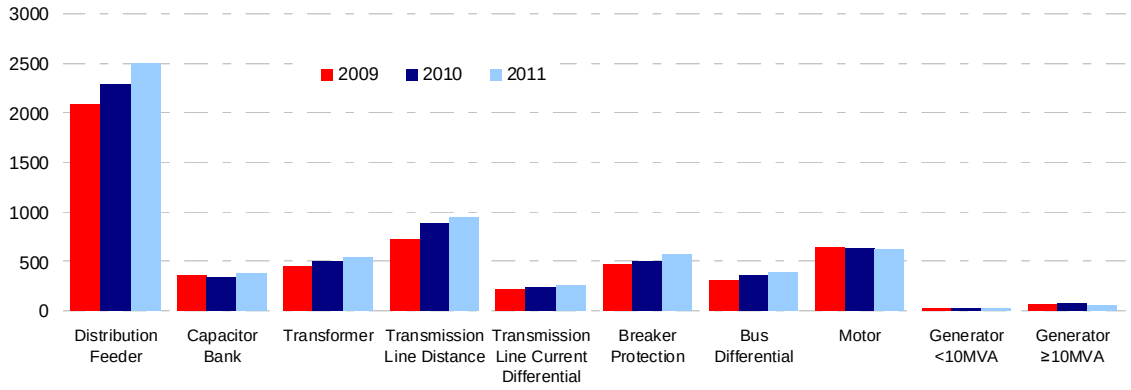
As a refresher, here are some findings from the North American Volume of the previous Newton-Evans study on this topic:

Number of units sold

In the 2009 survey, plans for procurement of protective relays increased over each of the previous study years. The outlook among the 2009 sample called for purchasing more than 15,000 units between 2009-2011.

In the 2006 survey, the North American utility respondents planned to purchase more than 13,300 relays between 2006-2008. This was a slightly higher amount (two percent or so) than reported in the prior study. IOUs accounted for 70% of the planned purchases, public power companies for 17% and cooperatives for 13%.

Number of Relay Systems to be Purchased (North America)



Capital Investments

Respondents to the 2009 survey were requested to indicate whether they would likely be increasing capital investment for relay test equipment, software and training, or whether they would be more likely to increase spending for third party relay testing services or neither, over the 2009-2011 periods.

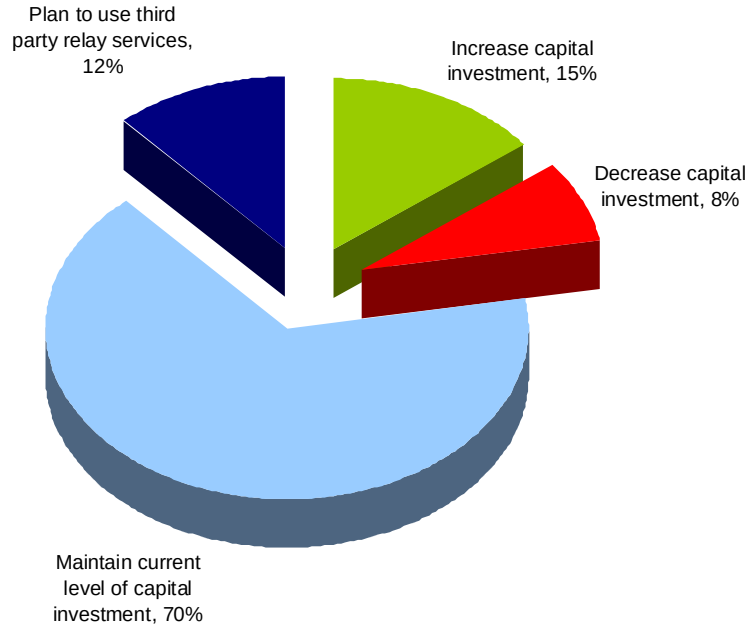
The 2009 findings indicated that 70% of the respondents planned to maintain their level of investment in relay test equipment. Fifteen percent planned to increase such investment, while only eight percent planned to decrease spending. Twelve percent planned to use third party relay testing services.

In the 2006 study, a total of 79 respondents (75%) indicated that they would be likely increasing their capital investment in relay test equipment, software and training. Nearly a quarter of the survey group indicated that they would be likely to rely more heavily on third party relay testing services. Only two respondents indicated that neither approach was likely, nor did they see a need to increase such spending.

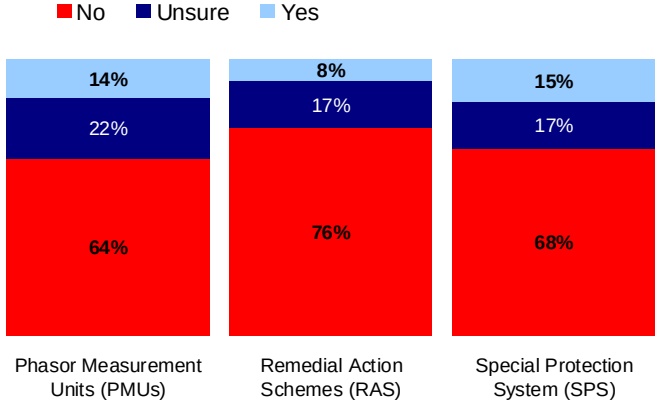
While about 15-18% of the U.S. utilities planned to increase capital spending for relay testing equipment, software and training, none of the Canadian respondents did so. The Canadian respondents each planned to maintain the same levels of investments for these items.

Note that nearly one quarter of the cooperatives in the study plan to use third party service firms to conduct relay resting.

Level of Capital Investment for Relay Testing Equipment, Software and Training (North America)



Does Your Utility Have Application Plans for WAMS? (North America)



The previous version of this study, "The Worldwide Study of the Protective Relay Marketplace in Electric Utilities: 2009-2011 " is available for purchase from *http://www.newton-evans.com/?page_id=7*

Global Study of Data Communications Usage Patterns & Plans in the Electric Power Industry

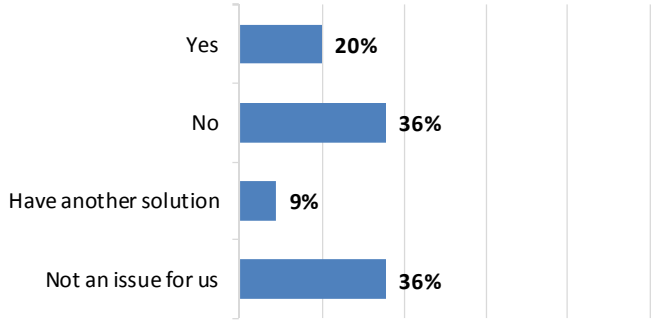
Interim Findings

This soon to be published report series will be based on a 4-page survey sent to hundreds of utilities around the world. Communications topics included on the survey look at network technology and protocols being deployed in: Advanced Metering Infrastructure, Distribution Automation, Distributed Energy Resources, Demand Response/Load Management, and Substation Automation. One question measures the level of agreement/disagreement for 11 different statements related to system design, SLA's, interoperability, synchrophasors, and other issues.

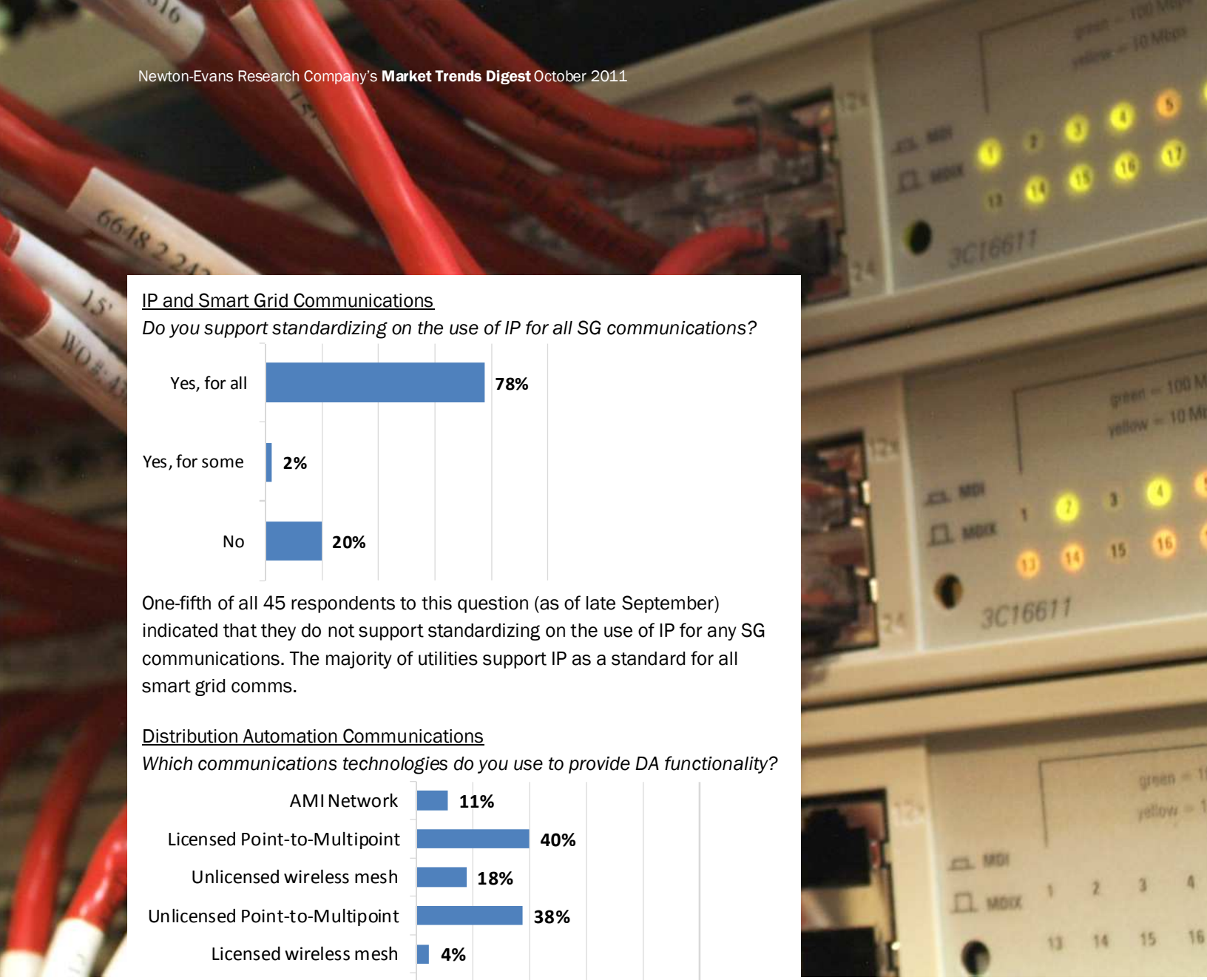
The following interim findings are based on the first 45 responses to the survey. These 45 include 9 IOUs, 9 Public Power Utilities, 17 Utility Cooperatives, 2 Canadian, 2 European, 4 Asia Pacific and 2 electric utilities from Latin America.

PLC/Wireless Communications

In rural and low density areas, are you forced to use PLC due to wireless coverage issues or do you have another solution?



Out of all 45 responses to this question so far (as of September 26, 2011), thirty-six percent said that it was "not an issue for us" (i.e. either the utility has no wireless coverage issues, or they do not serve rural, low density areas.) Another thirty-six percent answered "No," and twenty percent said "Yes." Nine percent responded that they had another solution besides using PLC.



IP and Smart Grid Communications

Do you support standardizing on the use of IP for all SG communications?

One-fifth of all 45 respondents to this question (as of late September) indicated that they do not support standardizing on the use of IP for any SG communications. The majority of utilities support IP as a standard for all smart grid comms.

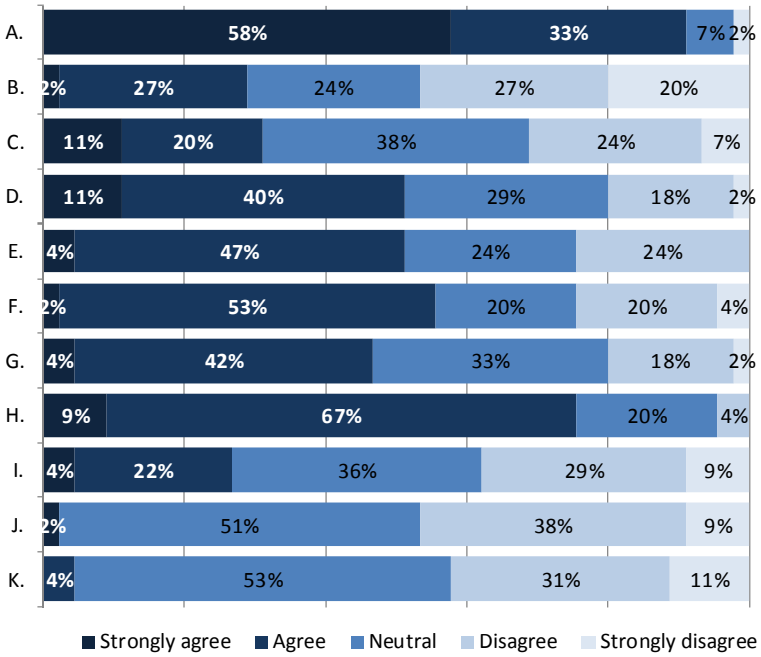
Distribution Automation Communications

Which communications technologies do you use to provide DA functionality?

Distribution Automation is a key part of smart grid. For DA, forty percent of utilities surveyed so far use licensed point-to-multipoint communications, and thirty-eight percent use unlicensed point-to-multipoint. Other technologies mentioned so far include Cellular, POTS, frame relay, Paging, GPRS, Fiber, Leased lines, Private fiber based Ethernet.

Responding utilities also provided input on the questions, "Which communication technologies do you use for DA backhaul?" and "Which DA communications network technology do you think will be dominant at your utility 3 years from now?" including reasons why a DA Backhaul technology is dominant at this time.

Level of Agreement/Disagreement on Comms Issues



A. Interoperability (defined as the ability of a system or product to work with other systems or products without special effort on the part of the Utility) is important to us

B. Service Level Agreements with commercial network providers are enough to assure sufficient priority of service during emergencies

C. With on-going changes as to where the industry is headed seeming to occur every couple years, our Utility is adopting a 'wait and see' attitude

D. We have experienced products that are supposedly standardized/open/interoperable which have not functioned as expected or promised by the vendor

E. Within the next 3 years, the vendor community will offer systems based on the capability of connecting any device to the communications system with a standard connection (USB, ethernet, etc.)

F. Effective system design and redundancy is a way to insulate a utility from technology changes and obsolescence

G. To limit the impact of changing technologies, installing a scalable RF mesh and IP backbone is a solution

H. Open protocols provide a degree of protection from premature obsolescence of products

I. Any upgrade in our communications technology would require a system-wide change out of meters, distribution devices, HANs, etc.

J. The use of synchrophasor technology will be a main driver in your SG communications requirements

K. Synchrophasors will be the catalyst for your utility to adopt IEC standard 61850

This study will be available for purchase on our website in late October.

http://www.newton-evans.com/?page_id=7

Excerpts from **The Worldwide Smart Grid Market in 2011:A Reality Check and Five Year Outlook Through 2015**

The following has been excerpted from the full study, available for purchase *http://www.newton-evans.com/?page_id=7*

Global Summary Narrative

At the global level, 2012 is likely to be the year in which the "basket" of smart-grid related expenditures will approach $10 billion for the first time. The value of internal utility spending for staff services to support smart grid procurements can account for as much as one third or more of a total smart grid project cost. For control systems in particular, there are significant staff resources applied in both the developmental and operational stages of an implementation. There are other costs not reported here such as the cost to construct and furnish an operations center, or the ongoing (O&M) costs of operating a utility private telecommunications network.

Is Smart Grid Really Anything New?

Overall, one must ask whether there is really any new spending for "smart grid" that would not have occurred if there had been no special name given to the inclusion of modern, digital technology to help monitor and control grid-related operations and activities and to measure electricity usage. The term "smart grid" is a relatively recent development, coined only five years ago. The development of multiple systems, subsystems, equipment and devices to effectively monitor, measure, control and protect the electricity grids around the world has been underway for the past half century or longer. Each generation of electrical equipment manufactured for electric power utilities and industrial companies has been more powerful, with smaller footprints, and has been designed to be increasingly intelligent. It seems to Newton-Evans that what is new here is the attempt to better integrate so many disparate operations and engineering activities and to provide a more intelligent and visual approach to information management, telecommunications planning and operations, as well as to the inclusion of physical and cyber security concerns that are also directly related to the foundation of an intelligent electricity grid system. In essence, smart grid is the set of enabling technology that will more easily and accurately inform management and staff by providing improved situational awareness through better visualization of real-time conditions.

Basic Smart Grid Components

Control Systems: The control systems market size estimates reported in the following pages are based on new awards for energy management, SCADA and distribution management systems residing in operational control centers. Excluded are substation-based control systems and field-based control subsystems.

Outage Management: The development of separately procured outage management systems (OMS) is now well-established. However, a significant share (35-50%) of annual OMS values is embedded in distribution management systems (DMS). The total values of OMS as stated in this volume reflect both awards for separate (unbundled) OMS procurements, and include estimates of the OMS portions of integrated DMS/OMS systems.

Substation Automation: This set of activities is comprised of three key components: automation program management involving the use of external engineering services, principally to assist with substation automation schema design and integration tasks; principal substation-based processing platforms and RTUs/gateways; and thirdly, all other intelligent electronic devices (IEDs) resident in high voltage and medium voltage substations, including apparatus monitoring devices. However, note that protective relays are excluded here and treated separately as Protection and Control.

Advanced Metering Infrastructure and Automated Meter Reading (AMI/AMR): This is perhaps the most externally visible portion of "smart grid" components, certainly to consumers in developed nations. Included in this portion of smart grid expenditures is the cost of the meter modules, the meter communications modules, third party installation services and associated software (meter data management systems).

Protection and Control: This component of smart grid activities includes all shipments of digital relays used in electrical infrastructure protection. Globally, the values of relay shipments are now well in excess of $2 billion, with the majority of unit shipment value made to electric utilities and electrical transport systems. Most of the remaining significant share is for industrial motor control.

Utility Telecommunications: Worldwide, several billion dollars are spent annually for utility telecommunications, including data and voice. In this report, we are attempting to include only the portions of telecommunications expenditures directly related to smart grid activities, including control systems, field automation of the distribution grid, and automated metering infrastructure. There are multiple tiers involved in utility communications systems design including the core backbone, the backhaul network, and

field area networks. In locations where automated metering programs are in place or under development, a fourth tier of neighborhood networks (NANs), home area networks (HANs) are involved. In a few years, perhaps personal area networks (PANs) could eventually become involved with still-embryonic developments such as home energy management systems (HEMS).

Distribution Automation: This set of smart grid activities can be summarized as the field components of a distribution grid's intelligent architecture, which components are typically monitored and controlled by a distribution management systems or extended distribution SCADA system. Three alternative approaches to DA control are in contention at this time. Some argue for "pole-top" control and data acquisition; others are bringing data back to a more powerful substation-based platform to process DA data. A plurality of utilities today is using a control-center-based approach to monitoring and control of field automation devices.

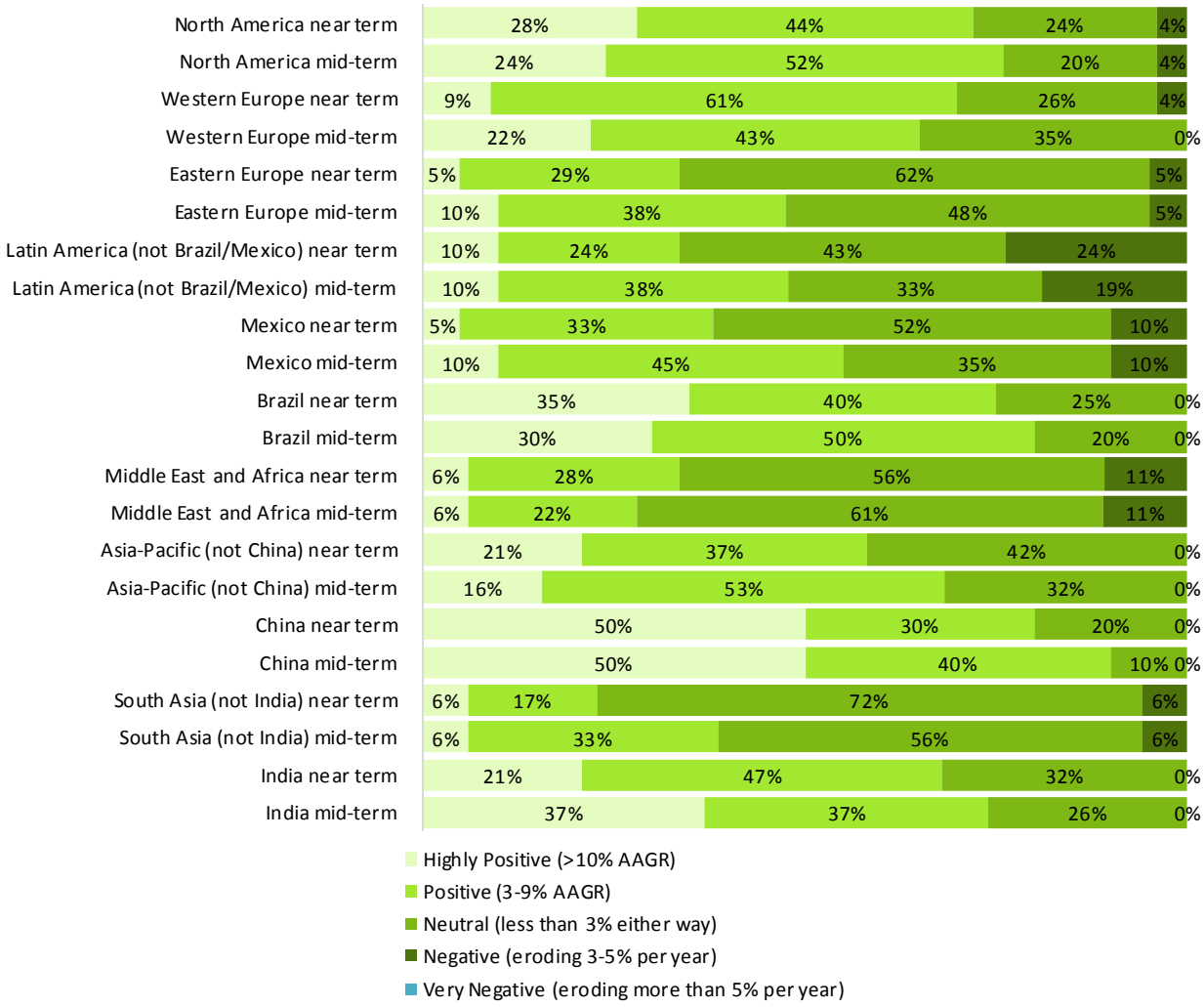
Summary Observations for World Regional Outlook

Vendors and manufacturers were requested to rank each world region (and four major developing nations) as to the outlook for the near term (2011-2012) and mid-term (2013-2015). Participants in this survey included global and regional leaders in electric power T&D equipment manufacturing for smart infrastructure, along with senior executives from systems integrators, software companies and consulting firms. Ranking alternatives included "highly positive" for smart grid developments, with highly positive meaning growth of 10% or more expected. "Positive" growth was in the range of 3-9%, while "neutral" was +/- 3%. "Negative" views were those indicating a market eroding at 3-5% and "very negative" views were those whose bleak outlook called for a smart grid market erosion of more than 5% per year.

The respondents indicated that China and Brazil provided the most "highly positive" near-term opportunities for smart grid investments, with India joining them as "highly positive" for the mid-term outlook. "Highly positive" together with "positive" outlooks combined were reported by more than one half of all industry respondents for North America, Western Europe, and Asia-Pacific (excluding China) for both near-term and mid-term. "Neutral" outlooks were significant for Eastern Europe, Latin America (other than Brazil and Mexico), Middle East/Africa, and South Asia (excluding India). "Negative" outlooks were limited for the most part, but were reported strongest (24% and 19%) for Latin America (other than Brazil and Mexico). None of the respondents assigned a ranking of "very negative" to any region or country for either the near-term or mid-term.

See the chart on the next page.

Outlook for utility smart grid investments over the near term (2011-2012) and mid-term (2013-2015) (Based on 30 survey respondents)



This study, "The Worldwide Smart Grid Market in 2011: A Reality Check and Five Year Outlook Through 2015 " is available for purchase from http://www.newton-evans.com or by phone: +1 410 465 7316 or toll free 800 222 2856. Please send email inquiries to Eric: mailto:eleivo@newton-evans.com

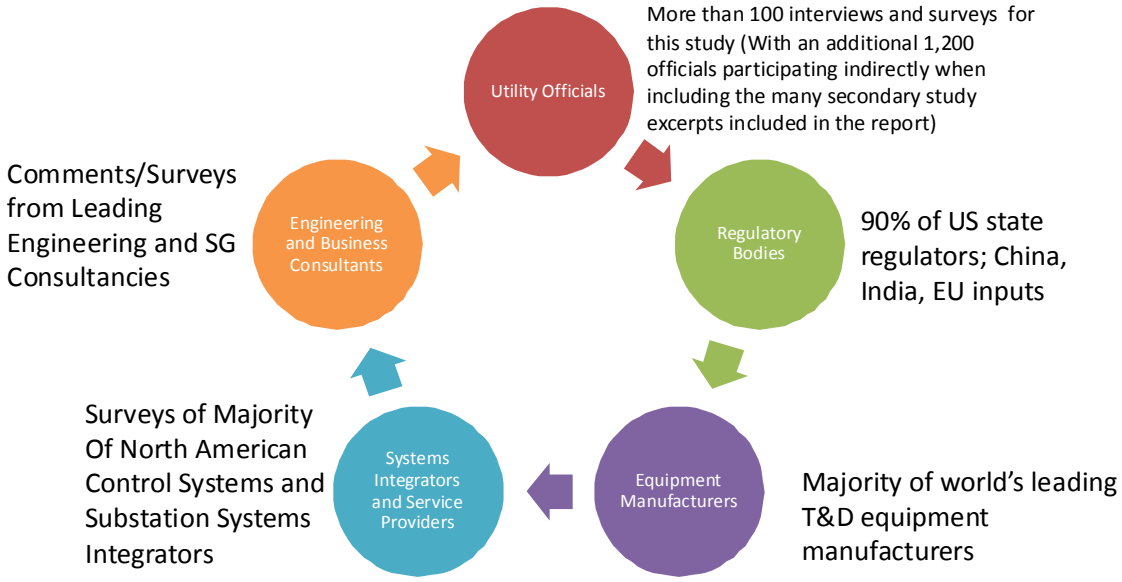
NEWTON-EVANS RESEARCH COMPANY Announces

Order Now!

The Worldwide Smart Grid Market in 2011: A Reality Check and Five Year Outlook Through 2015

This comprehensive, survey-based report takes a look at how Electric Utilities and Utility Commissions are using or anticipating smart grid technologies. The purpose of this study is to determine market trends and usage patterns for various smart grid technologies and initiatives using the "facts on the ground" such as the implementation of electricity pricing models, demand response programs, and current/future smart meter deployment.

Methodology:
This report is based on survey responses from 41 Public Utility Commissions in the United States, 112 survey responses from Electric Utilities in 31 countries, input from smart grid manufacturers and integrators, as well as extensive secondary research.



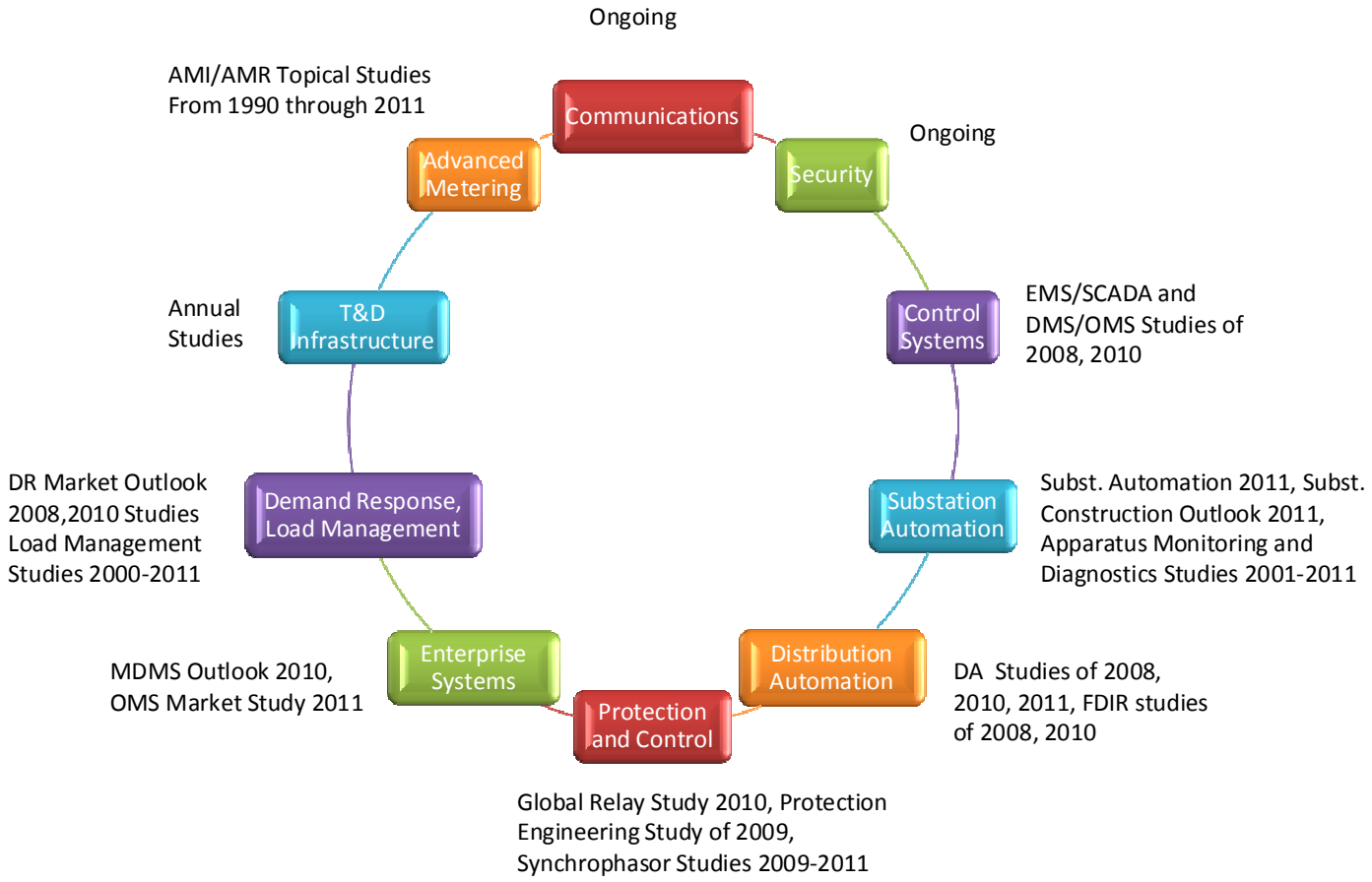
Policy/Public Service Commission topics covered include:

- What percentage of PUC's (public utility commissions) require utilities to provide dynamic pricing along with smart meters? Do PUC's anticipate a need for separate rate schedules for electric vehicles?
- Is Dynamic Pricing an integral part of smart meter implementation strategies?
- How many utilities have conducted a pilot program to determine customer acceptance of a Dynamic Pricing model?
- Have pricing models like Peak Time Rebate, Critical Peak or Time of Use been offered, or are they being considered in the near future?

Electric Utility topics covered include:

- Pilot programs for newer electricity pricing models
- Availability of new pricing models among different end users (residential, commercial, industrial…)
- Number of smart meters (two way communication) currently deployed and to be deployed by 2013
- Availability of demand response and load management programs
- Ranking of most efficient "smart meter initiatives"

What are the components of the Smart Grid and how do they fit together?



Sign Us Up!

To order this report, phone, fax 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, USA.

☐ *The Worldwide Smart Grid Market in 2011: A Reality Check and Five Year Outlook Through 2015*..... $3,750 (seat license)

**all reports delivered via email as .PDF documents. Please provide your email address and phone number below.*

Name: _____ Title: _____

Company: _____ E-Mail: _____

Address: _____

City: _____ State: _____ Zip/Postal Code: _____

Country: _____ Phone: _____ Fax: _____

☐ Check is enclosed ☐ P.O. # is: _____ ☐ VISA ☐ Mastercard ☐ AmEx ☐ Discover

Credit Card Number: _____ Exp. Date: _____

Name on Card: _____ Signature: _____

Or Contact Us:

Phone: 410-465-7316 Toll-Free: 800-222-2856 Fax: 410-750-7429 www.newton-evans.com info@newton-evans.com