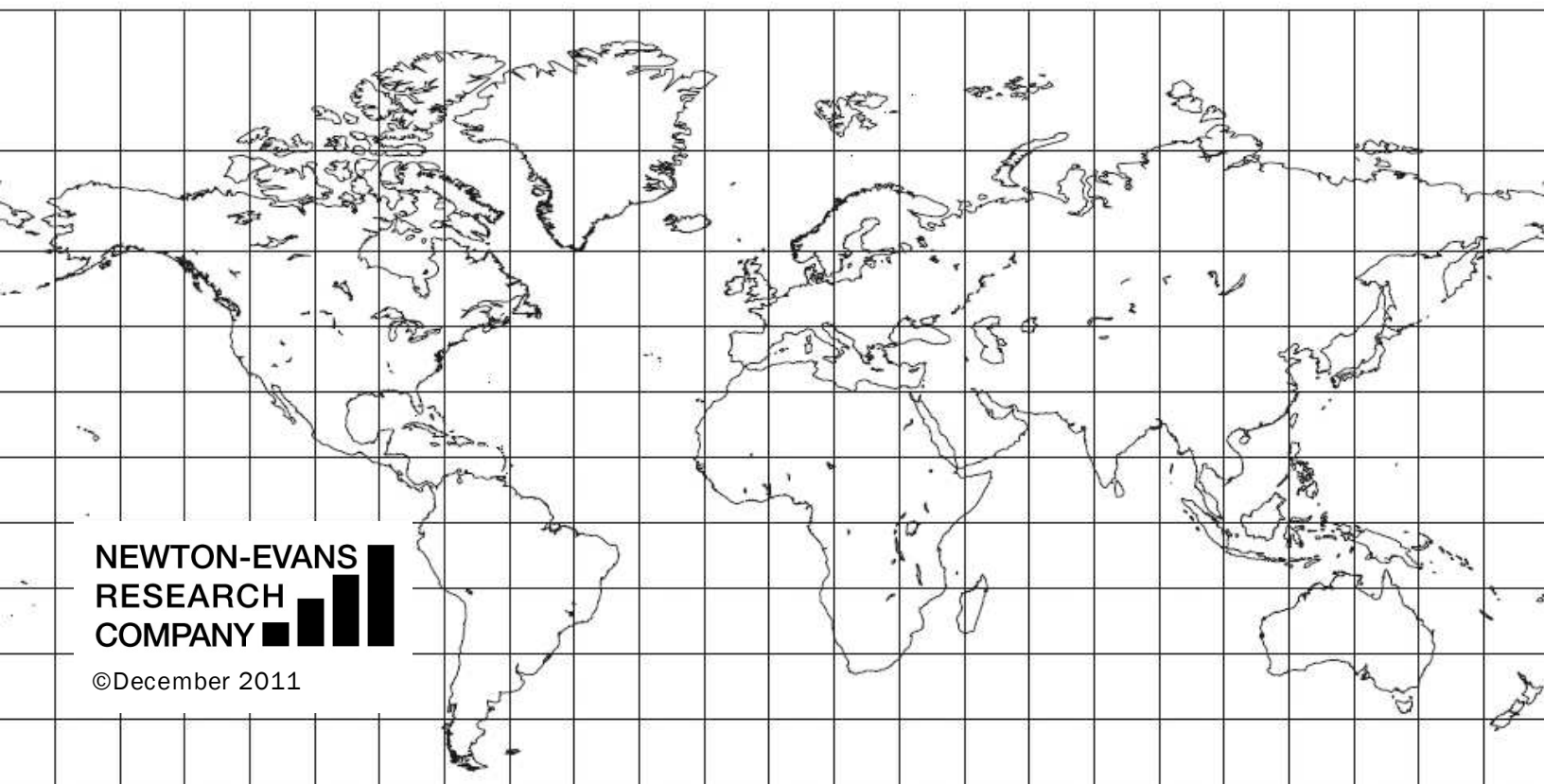


# **Global Study of Data Communications Usage Patterns and Plans in the Electric Power Industry: 2011-2015**

A Three-Volume Report Available from  
Newton-Evans Research Company



**NEWTON-EVANS  
RESEARCH  
COMPANY** 

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## **Overview**

In the 3<sup>rd</sup> and 4<sup>th</sup> quarters of 2011, Newton-Evans Research Company conducted field research in order to learn the key issues of importance to utility telecommunications planners and operations officials, and to better understand the relationships between the various communications “point solutions” implemented over the years. This report describes the true status of telecommunications in today’s electric utilities, looking at the differences among electric utilities by type, by region and by size. Expenditures for telecommunications in the world’s electric power utility community are discussed. Where are utilities likely to be looking for communications solutions that will provide an enabling platform to more cost-effectively move forward with smart grid initiatives?

## **Methodology**

The findings reported in this study are based on a global research survey sent out by Newton-Evans in autumn 2011. One hundred and two utility officials involved in Operations Planning and Design responded to the survey. These utilities combined serve over 153 million end use customers globally; 30 million in the U.S. alone.

Many of the survey questions were submitted by clients for the study series. Newton-Evans has conducted research studies of all aspects of grid instrumentation, automation and control systems for more than 30 years. Most studies contain significant insights into the use and plans of communications technologies, protocols and methodologies.

## **Topics**

The survey-based findings in **Volume 1** discuss the following:

- customer-site residential/commercial application needs
- connecting smart meters to the communications network
- use of PLC in rural areas due to wireless coverage issues
- PLC and wireless mesh networks vs. broadband communications and next-generation cellular technologies such as LTE, WiFi or WiMAX
- backhaul information communications for AMI
- real-time pricing and HAN (Home Area Network) information
- standardizing on the use of IP for SG communications
- communications technologies currently used for DA functionality, DA backhaul, SCADA
- communications network technologies being considered for DER, Demand Response, and Load Management
- use of commercial networks to supplement utility-owned networks
- interoperability, standardization, SLA's, early adoption and open protocols vs. the risk of technology obsolescence, synchrophasors

**Volume 2** includes product information on these leading communications solutions providers: Aclara, Ambient, Amperion, Arcadian Networks, Cooper Power Systems, Current Technologies Inc., Datamatic, Echelon, Elster, Freewave, GE MDS, HughesNet, iDirect, Itron, Landis & Gyr, LBiSat, Sensus, Silver Spring Networks, SmartSynch, Tantalus, Trilliant, Z-Wave.

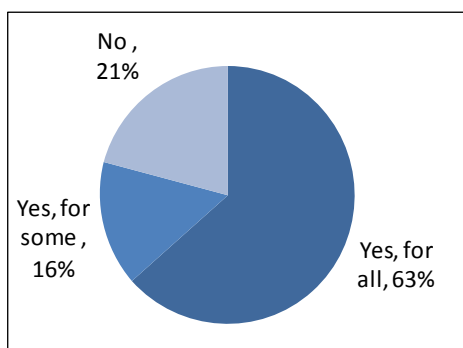
Also included in Volume 2 are almost 100 pages of recent communications infrastructure projects from electric, water, gas and oil pipeline utilities around the world – which vendors and technologies were chosen, and why?

**Volume 3** sizes the market for electric power and telecommunications from the perspective of the \$80 trillion world economy down to the level of turnkey projects at the energy industry level. This is also broken out into separate pieces of the pie for internet; equipment and software; transport services; and support services. Market shares for wireless and wireline technologies are estimated for 2014. Includes these sections:

- Market Overview
- Communications Usage Patterns, Trends, and Strategies
- Substation & SCADA Communications
- Synopsis of Other Related Newton-Evans Studies

## **Volume 1 (159 pages) Table of Contents**

7	Introduction
9	Survey Findings
9	1. For your customer-site residential/commercial application needs, what technology do/will you employ?
12	2. How do you plan to connect your smart meters to your datacomm network?
13	3. In rural and low density areas are you forced to use PLC due to wireless coverage issues or do you have another solution?
16	4. Do you expect to replace current PLC and/or wireless mesh networks with broadband communications or next-generation cellular technologies such as LTE, WiFi or WiMAX?
17	5. For your AMI network, which do you currently use for backhaul information?
18	6. Do/will you require your AMI network to backhaul real-time pricing and/or other HAN (Home Area Network) information?
19	7. Do you support standardizing on the use of the internet protocol (IP) for all Smart Grid (SG) communications?
21	8. Which communications technologies do you use to provide DA functionality?
22	9A. Which one of these DA communications technologies has the dominant use at your utility?
23	9B. Reasons why a DA communications technology is dominant at this time
24	10. Which communication technologies do you use for DA backhaul?
25	11. Which one of these DA backhaul communication technologies has the dominant use at your utility?
26	11B. Reasons why a DA Backhaul technology is dominant at this time
28	12. Which DA communications network technology do you think will be dominant at your utility 3 years from now?
29	13. Have you already, or do you plan to migrate the existing feeder automation communications network to a newer wireless technology that allows for functionality like higher bandwidth, IP enabled radios and WiMax?
30	14. If you have plans to migrate the existing feeder automation communications network (or you have already), which wireless technology do/will you use?
31	15. Which communications network technologies are you using/considering to support the integration of Distributed Energy Resources into the grid?
32	16A. Are you using/considering communications technologies for your Demand Response/Load Management programs?
33	16B. Which communications network technologies are you using/considering for your Demand Response/Load Management programs?
34	17. Which communications technologies do you use to meet the needs of your SCADA system?
35	18. From the list above, which SCADA communications technology has the dominant use NOW at your utility and which do you expect to be dominant 3 years from now?
45	19A-K. Please indicate your level of agreement/disagreement with the following statements:
49	20. What are some of the key datacomm issues facing your utility?
59	21. What do vendors need to do to address these issues?
68	22. Do you use commercial networks to supplement your communications network needs?
69	23. Do the commercial networks provide sufficient backup capacity needs to support your operation in an emergency?
70	24. How is your utility dealing with spectrum availability issues?
79	Survey Cont'd. (Detail Tables)
154	List of Participating Utilities
156	Questionnaire



**Do you support standardizing on the use of the internet protocol (IP) for all Smart Grid (SG) communications?**

## **Volume 2 (145 pages) Table of Contents**

4 Introduction

### **Part 1: Utility Communications Solutions Vendors**

5	Aclara
7	Ambient
8	Amperion
10	Arcadian Networks
11	Cooper Power Systems
13	Current Technologies Inc.
15	Datamatic
17	Echelon
19	Elster
20	Freewave
22	GE MDS
23	HughesNet
24	iDirect
26	Itron
27	Landis & Gyr
28	LBiSat
30	Sensus
32	Silver Spring Networks
34	SmartSynch
36	Tantalus
38	Trilliant
40	Z-Wave

### **Part 2: Recent Utility Communications Projects**

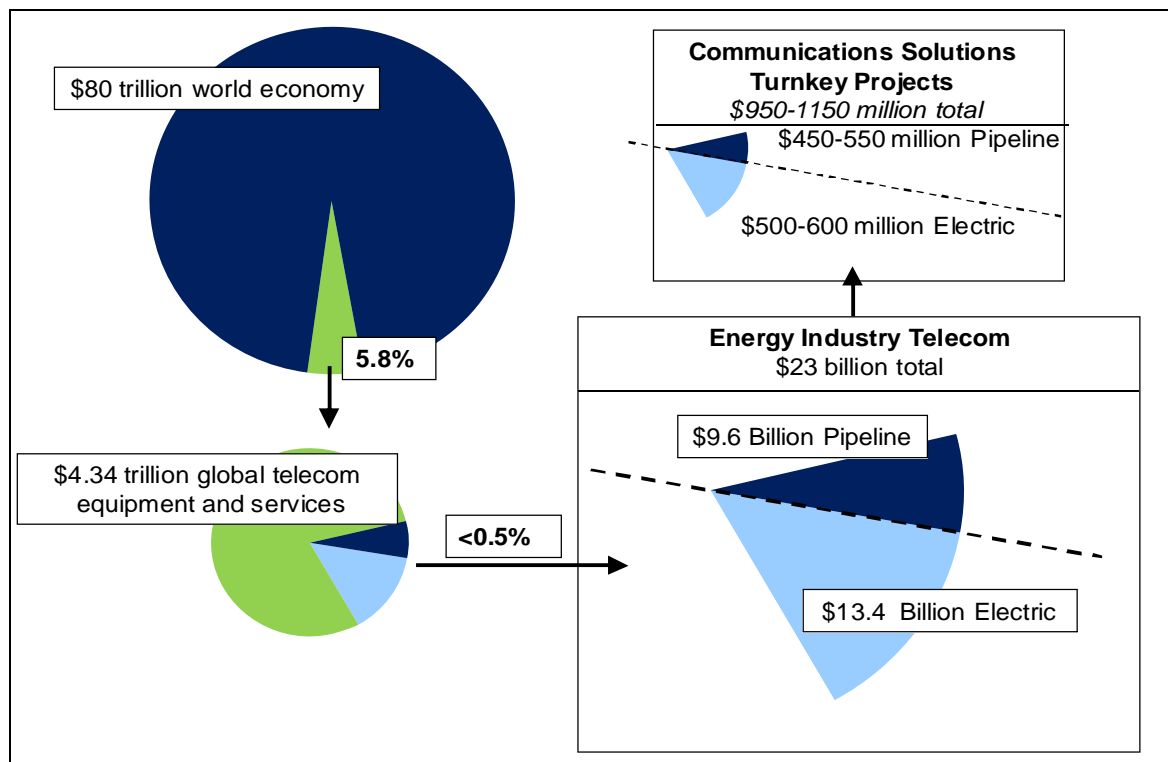
*Projects are organized by type of utility according to what services are provided, and then sorted alphabetically: first by Country, then by Company.*

41	Electric
100	Electric and Gas
105	Electric, Water, Gas
109	Gas
110	Industrial
111	Oil
113	Oil and Gas
117	Water
132	Water and Electric

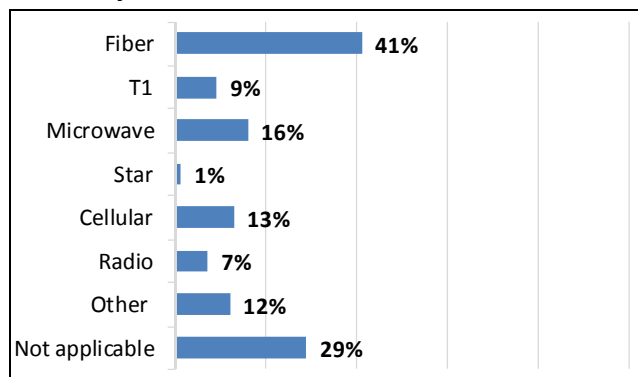
## **Volume 3 (55 pages) Table of Contents**

4	Introduction
9	Market Overview
18	Communications Usage Patterns, Trends, and Strategies
32	Substation & SCADA Communications
48	Synopsis of Other Related Newton-Evans Studies

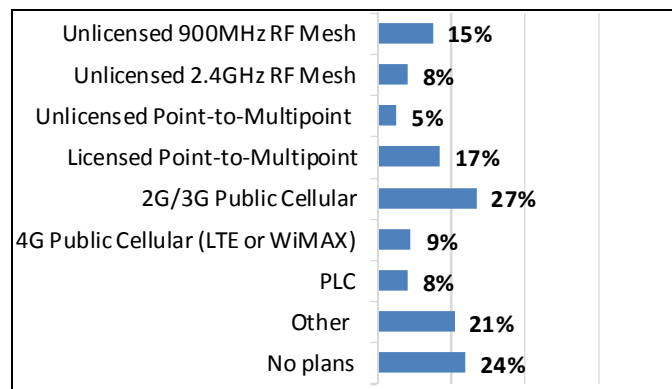
## **2011 Global Economy – Where Did Communications Fit In?**



**For your AMI network, which methods do you currently use for backhaul information?**



**How do you plan to connect your smart meters to your datacomm network?**



**Ordering Information**

To order the Newton-Evans report, "Global Study of Data Communications Usage Patterns and Plans in the Electric Power Industry: 2011-2015," Email order form to [info@newton-evans.com](mailto:info@newton-evans.com) or fax it to +1 410 750 7429. Please call 800 222 2856 or +1 410 465 7316 to confirm. *Reports will be provided by PDF and sent via email, so be sure to include a correct email address.*

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