Global CAPEX and O&M Expenditure Outlook for Electric Power T&D Investments: 2011-2012

Funding Outlook for Smart Grid Development Based on First Quarter 2011 Survey Results

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SECTION I

This report is Newton-Evans Research Company's 4th survey-based study of planned capital expenditures and operations & Maintenance budgets related to worldwide smart grid and T&D spending. The 2011 survey was conducted in February and March, and out of hundreds of utilities contacted globally Newton-Evans received 108 responses from 28 countries. The survey results are the basis for the narrative summaries, charts and tables of information contained in this report. This report is a follow up to three previous studies on CAPEX and 0&M budgets published in December 2008, June 2009 and January 2010. The December 2008 report included survey data collected from 112 utility officials; the June 2009 and January 2010 surveys received 118 and 93 responses respectively. Findings from all of these earlier surveys are compared with this new round of findings throughout this report as applicable.

In addition to requesting information regarding capital investment and operations and maintenance budgets for 2011 and 2012, the newest survey also queried respondents on five possible rationales for budget changes: Regulatory Mandates, Smart Grid Initiatives, Government Stimulus Bills, Economic Outlook/Revenue Forecast, and Stimulus project completed/funding depleted. Information on planned capital and O&M expenditure ranges for T&D activities were solicited at the end of the survey.

The findings support a view marked by [SAMPLE] for electric power T&D CAPEX experienced in 2010 but [SAMPLE] for OPEX. We anticipate [SAMPLE] during 2011 and continuing into 2012.

The advanced economies of the world [SAMPLE] regarding their CAPEX budget outlooks. Among North American utilities there remain substantial differences in budget outlooks based upon the type of electric utility responding to the survey (investor-owned, public, and cooperative. Please see page 109 *"Final Viewpoint: Global Economic Outlook and the Findings of the Newton-Evans' CAPEX Study of Electric Power T&D Investment"* for additional economic insights and observations into the forecast for planned T&D investments.

The latest survey was directed to upper level managers and senior staff directly involved with transmission and distribution planning, as these officials were most likely to be involved in some or all aspects of formulating the T&D budget and planning for smart grid initiatives within the utility.

The 2011 Newton-Evans survey was designed to obtain information from a T&D operations and engineering perspective. Budget information requests were made for the following: SCADA, EMS and DMS Outlook, Substation Automation and Integration, Protection and Control, Distribution Automation, Transmission Infrastructure, Distribution Infrastructure and Automated Meter Reading and Advanced Metering Infrastructure.

Figures 1-1 and 1-2 provide the reader with information concerning the make-up of the utility respondent base for this survey. The representative sample for this new study did not vary by more than a few percentage points in any category when compared to the December 2008 study, the June 2009 study or the January 2010 study.



Figure 1-1. Sample Distribution by Type and Region of Utility

North America: Investor Owned, Municipal or Federal, Rural Coops & G&Ts, Canada International: Europe, Latin America, Asia Pacific, Middle East/Africa

Figure 1-2. Sample Distribution by Size of Utility (estimated number of customers/end users.)



Summary of 2009 and 2010 Outlook for EMS, SCADA and DMS

December 2008 Observations: For the summary control systems outlook, Figure 1-3 points out the findings that for the most part both capital budgets and O&M budgets will remain as approved in January 2008. O&M budgets for 2009 and 2010 were more likely than capital budgets to remain as originally developed a year ago. Importantly, just over a quarter of the respondents indicated 2010 CAPEX was going to (or had been) increased over the past year.

June 2009 Observations: In the previous study, only 14% of utilities had indicated an increase in 2009 CAPEX compared with 20% in the new survey. 2010 CAPEX plans went up as well to 28% of utilities planning an increase as of June 2009 compared to 23% reported in December of 2008.

January 2010 Observations: The outlook is much brighter relative to the findings reported in both earlier studies. 39% reported an increase expected in the 2010 CAPEX budget for control systems. Only 12% (11 utilities) reported a decrease in planned spending here. Currently, the outlook for 2011 is even more positive among these respondents. For O&M there is less of a change noted. While 28% anticipate increased budgets this year, 64% see the same level of spending and eight percent reported a decreased level of O&M spending.

April 2011 Observations: [SAMPLE]



Figure 1-3. Budget Outlook for EMS, SCADA and DMS Increase Decrease No Change

We wish to thank the following electric utilities from more than 35 countries who allowed their officials to participate in this survey:

North America

Canada	Enersource Hydro Mississauga	United
Canada	Horizon Utilities	United
Canada	London Hydro	United
Canada	Manitoba Hydro	United
Canada	Maritime Electric	United
Canada	PowerStream Inc.	United
Canada	Toronto Hydro	United
United States	Alcoa (TN)	United
United States	Anaheim Public Utilities	United
United States	Appalachian EC	United
United States	Burbank Water & Power	United
United States	Carroll EMC	United
United States	Chicopee Electric Light	United
United States	Citizens Electric Corporation	United
United States	Clark PUD	United
United States	Cleveland Public Power	United
United States	Cleveland Utilities (TN)	United
United States	Clinton Utilities Board	United
United States	Coldwater BPU	United
United States	Dairyland Power Coop	United
United States	Dakota Electric Association	United
United States	Delta EPA	United
United States	Dixie Electric Power Association	United
United States	DTE Energy	United
United States	East Kentucky Power Coop	United
United States	Empire District Electric Co	United
United States	Energy United EMC	United
United States	Exelon ComEd	United
United States	Farmers Electric Cooperative	United
United States	Hart EMC	United
United States	High Point North Carolina	United
United States	Huntsville Utilities	United
United States	Idaho Power	United
United States	Indianapolis Power & Light	United
United States	Intermountain Power Service	United
United States	Jackson EMC	United
United States	Lafayette Utilities System	United
*		
4		

Lumbee River EMC States States Mid Carolina ECI States MidAmerican Energy States Middle Tennessee EMC States Nashville Electric Service States North Little Rock States Northern Virginia Electric Coop States Ocala Electric States Oncor States **Orange & Rockland Otter Tail Power** States States Pacificorp Portland General Electric States States **Progress Energy Carolinas** States Progress Energy Florida States Public Service Co of NH States Public Service Electric & Gas (Pseg) States **Riverside Public Utilities** States **Roseville Electric** States Sacramento Muni. Utility District States Salem Electric States San Diego G&E States Seattle City Light States Silicon Valley Power States **Snohomish PUD** States South Texas EC States Southeastern Electric Southern California Edison States States Southwest Transmission Coop Springfield City Utilities (MO) States States Sumter ECI States **Tallahassee Electric** States United Illuminating States Wake Electric States Westar Energy States Western Farmers EC Withlacoochee River ECI States

International

Argentina Australia Australia Australia Brazil Cyprus Denmark Denmark Ecuador El Salvador El Salvador Finland Finland France Germany Greece Ireland Japan Malaysia New Zealand Philippines Portugal Portugal Puerto Rico Saudi Arabia South Africa South Africa Spain Switzerland Trinidad & Tobago United Kingdom United Kingdom Zambia Zimbabwe

Entidad Binacional Yacyretá **Country Energy ETSA Utilities** Power & Water Corporation **AES Eletropaulo Electricity Authority of Cyprus** SEAS-NVE DONG Energy Power Distribution Empresa Eléctrica Regional Guayas Los Rios (EMELGUR) Comision Ejecutiva Hidroelectrica del Rio Lempa Unidad de Transacciones Oulun Energia Tampereen Sähkölaitos **RTE France** LEW Verteilnetz Greece Public Power Corp ESB Networks Kansai Electric Power Co. Sarawak Energy WEL Networks Meralco EDP Distribuição Rede Eléctrica Nacional Puerto Rico EPA Saudi Electric Company Capetown Eskom Iberdrola Centralschweizerische Kraftwerke AG Trinidad & Tobago Electricity Commission Jersey Electricity SONI Ltd. Zesco Zimbabwe Electricity Supply Authority (ZESA)

Utility: [] Country:[] 1. Using 2010 as a baseline, please compare your expenditures in 2010 to your planned expenditures in 2011 and 2012 for the following categories: **CAPEX** = Capital Expenditure Budget, and **O & M** = Operations & Maintenance Budget.

	2011						2012						
	Incre	ase	Decrease		No Change		Increase		Decrease		No Change		
Automation	CAPEX	O&M	CAPEX	O&M	CAPEX	O&M	CAPEX	O&M	CAPEX	O&M	CAPEX	O&M	
SCADA/EMS/OMS Systems													
Substation Automation/Integration													
Protection and Control													
Distribution Automation													
AMR/AMI											P		
Infrastructure						Ű			4				
Transmission													
Distribution													
2. If your response is either an Increase or No Change in any of the above, is this due to:													
For 2011: Regulatory Mandates: Yes No Smart Grid Initiatives: Yes No Government Stimulus: Yes No													
For 2012: Regulatory Mandates: Yes No Smart Grid Initiatives: Yes No Government Stimulus: Yes No													
3a. If your response is a Capex Decrease in any of the categories, is this due to:													
Economic Outlook/Revenue Forecast: Yes No Stimulus project completed/funding depleted: Yes No													
3b. If your utility received government stimulus funds for smart grid projects, do you expect a significant decrease in capital expenditures in 2013? Yes No													
If yes, do you think your O&M expenditures will also be reduced in 2013? Yes No													
4. If your utility's CAPEX expenditures include Smart Grid Pilot Projects, please answer the following:													
a. Are you currently	self-fundi	ing a s	mart gric	l pilot p	oroject?	No	Yes						
b. Are there plans to	start a n	iew sm	art grid p	pilot pro	oject?	No	Yes-	→Year p	roject will s	start []		
c. Area of pilot focus: Distribution Automation Substation Automation Smart Meters Wide Area Protection Synchrophasors Demand Response Other (please specify): J													
5. Please provide an estimated forecast of planned 2011 expenditures (\$) for the following T&D categories:													
	1		E 4	CA		251		<u> </u>		0&N	1		
		<50m	51- 100n	n 25	50m 5	∠51- 500m	>500m	<25	26-50m	51- 125m	250m	>250r	
Total T&D Automation Total Transmission Infra Total Distribution Infrastr	structure ructure			[
OR Overall T&D Total				[
	THAN	IK YOL	J FOR Y	OUR H	IELP IN	THIS F	RESEAR	CH EF	FORT	-			