

# ***Sierra Energy Group:***

## ***The 2008 CIO Report***

### ***'Tipping points'***

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***Gene Zimon: 'I believe we have reached the 'tipping point' on all these environmental and global warming issues.'***

***The Tipping Point: How Little Things Can Make a Big Difference (ISBN 0-316-31696-2) is a book by Malcolm Gladwell, first published by Little Brown in 2000.***

***Tipping point is a sociological term that refers to the moment when something unusual becomes common. The book seeks to explain "social epidemics", or sudden and often chaotic changes from one state to another.***

## **The potential 'Tipping' of an optimist to a pessimist:**

**The global warming assault on coal—50% of U.S. electrical generation—coal plants being cancelled right and left—Florida, Texas, Kansas, California—under attack everywhere.**

### **The supply problem:**

- **Natural gas, expensive, volatile supply, only 5 of 45 needed LNG terminals built—much resistance**
- **Nuclear—slow, much resistance, only 2 applications pending**
- **Hydro—no new dams allowed—the Snail Darter syndrome**
- **Green—slow and expensive currently less than 3% of total supply. Barring major breakthrough 'a magic cube' it won't be ready in time.**

### **Scary reading: NERC's 2007 Long-term Reliability Assessment 2007-2016**

- **Long-term Capacity Margins are Still Inadequate**
- **Integration of Wind, Solar, and Nuclear Resources Require Special Considerations in Planning, Design, and Operation**
- **High Reliance on Natural Gas in Some Areas of the U.S. Must Be Properly Managed to Reduce the Risk of Supply & Delivery Interruptions**
- **Transmission Situation Improves, but More Still Required**
- **Aging Workforce Still a Growing Challenge**

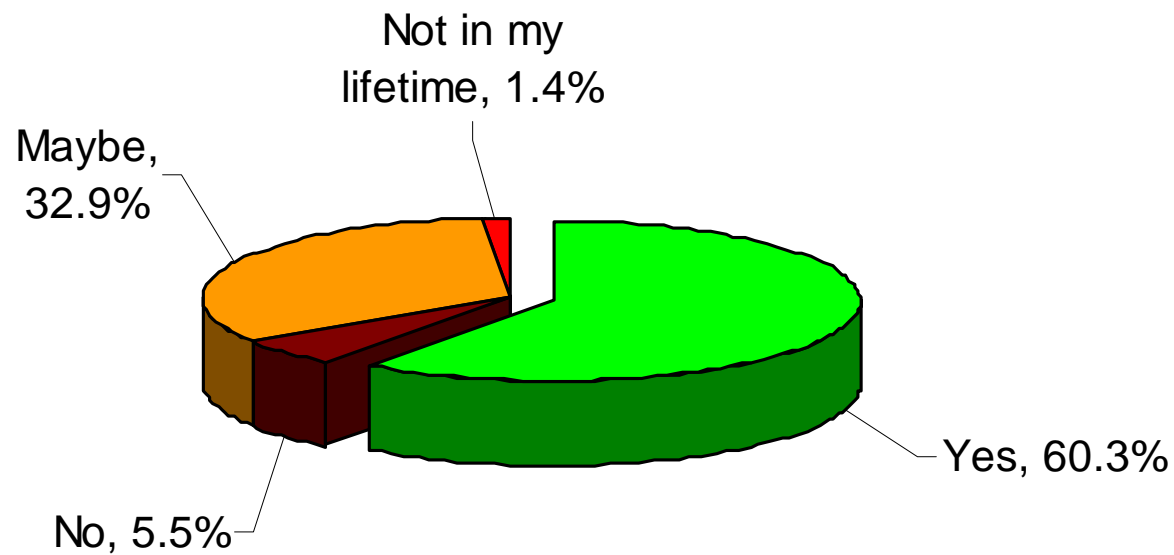
## The 2008 \$64 thousand question for utility CIOs:

*Utilities are under increasing pressure from politicians and regulators to install "smart meters" embrace "demand response systems" and deal with "Global Warming." In your opinion is it going to be possible for utilities to meet all these demands at a cost that prevents bankruptcy?*

The answers:

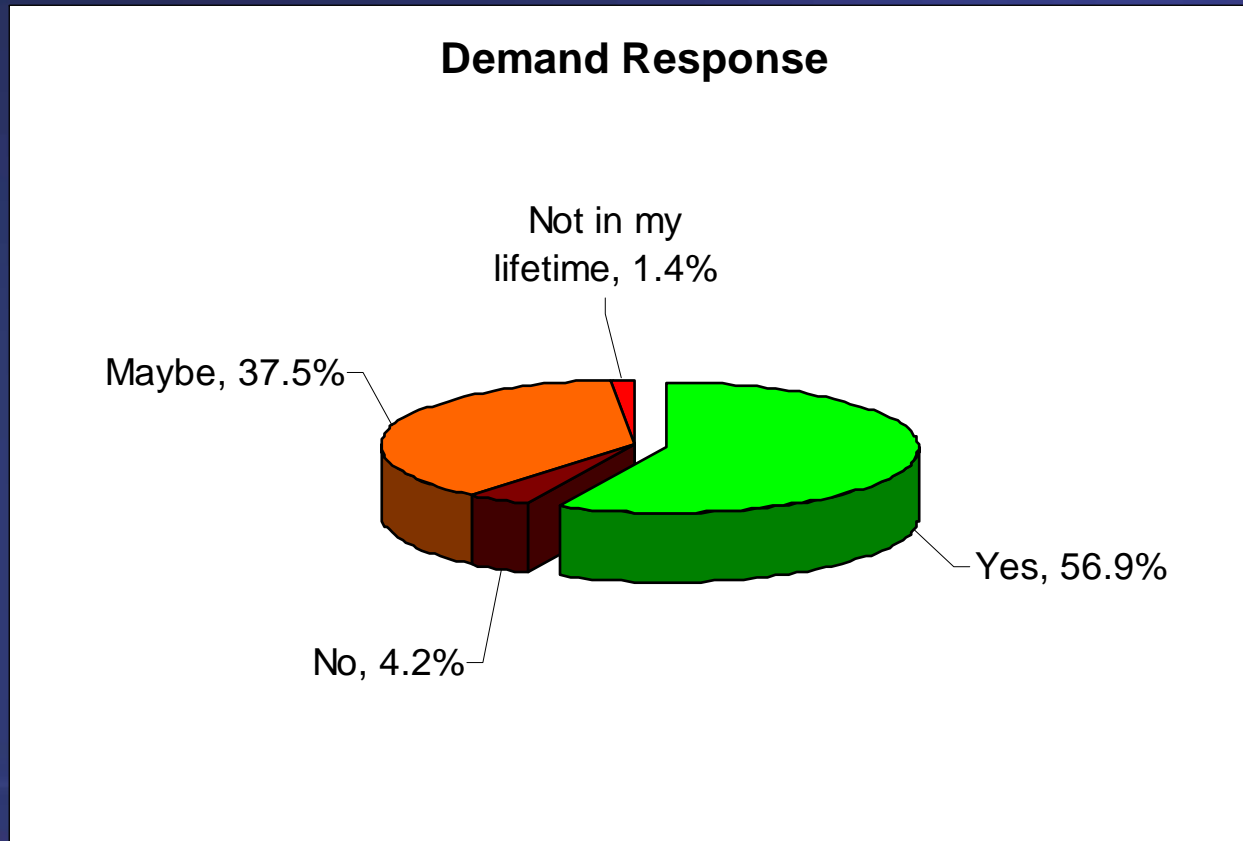
**AMI tipped from 'no-economical-business case' to probably required to enable demand response.**

### Smart Meters



### The CIO View

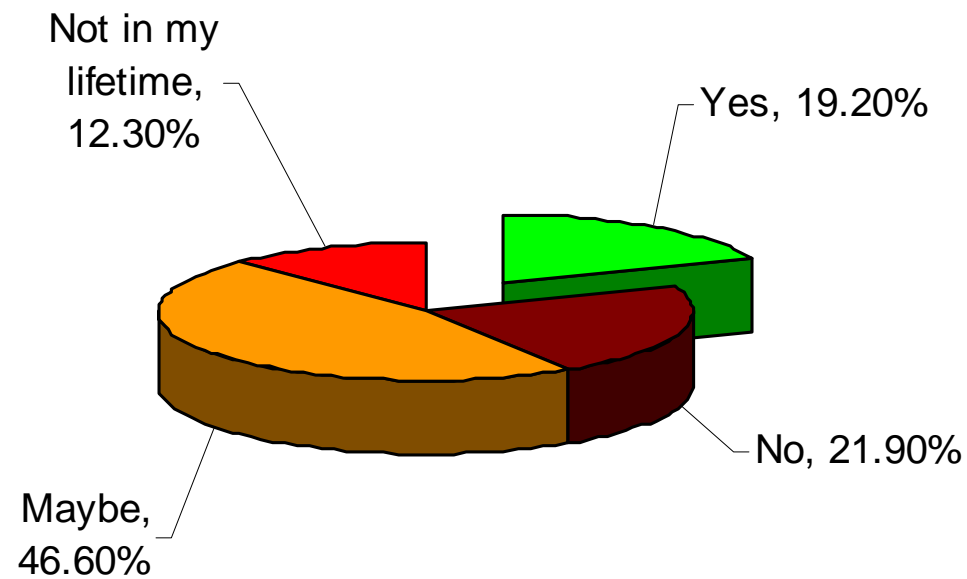
**Demand Response tipped from Demand Side Management (DSM)—deemed impractical in the 1990s—to being required by legislation/regulation/lack of generation.**



**The CIO View**

**Unproven scientifically, but way past the 'tipping point' politically and in the commercial media.**

### Global Warming

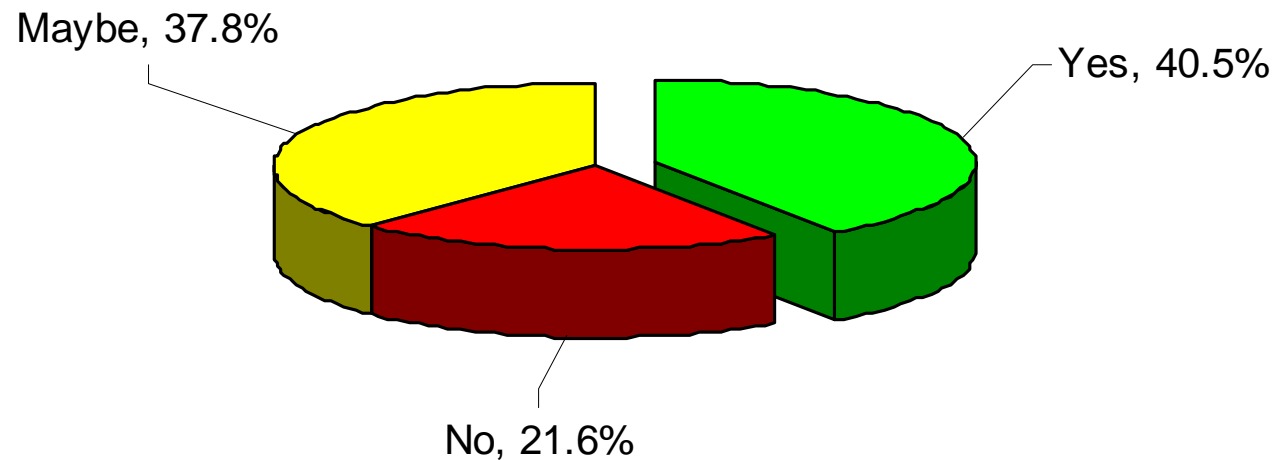


### The CIO View

Utilities currently face a raft of major problems. Please rank the following issues on a scale of 1 to 5.	Of least concern				I'm worried to death about this one	Rating Average
	1	2	3	4	5	
Rebuilding the aged and marginally stable grids	2.7%	13.7%	26.0%	<b>42.5%</b>	15.1%	3.53
Keeping enough field workers to keep the grid working	2.7%	12.2%	<b>39.2%</b>	32.4%	13.5%	3.42
Mandated "green energy" percentages such as 20% in 15 years or 15% in 20 years	2.7%	16.4%	<b>35.6%</b>	34.2%	11.0%	3.34
Keeping enough good people to meet the demand for IT	2.7%	18.9%	31.1%	<b>36.5%</b>	10.8%	3.34
Looming electricity supply/demand disconnect	5.5%	17.8%	<b>35.6%</b>	26.0%	15.1%	3.27
Dealing with the traditional utility "silo" culture	8.2%	12.3%	34.2%	<b>37.0%</b>	8.2%	3.25
Converting tons of "data" into usable "information"	4.1%	23.0%	<b>32.4%</b>	27.0%	13.5%	3.23
Keeping the IT architecture flexible and up-to-date	2.7%	21.6%	35.1%	<b>36.5%</b>	4.1%	3.18
Staying abreast of regulatory developments	7.0%	15.5%	<b>36.6%</b>	35.2%	5.6%	3.17
NERC-CIP and other security issues	5.4%	20.3%	<b>39.2%</b>	23.0%	12.2%	3.16
Updating our aged IT infrastructure	6.8%	27.4%	<b>31.5%</b>	23.3%	11.0%	3.04
Getting "smart-grid" elements integrated with "enterprise systems"	4.1%	17.6%	<b>51.4%</b>	24.3%	2.7%	3.04
Getting real-time operational information to executives	9.7%	26.4%	26.4%	<b>29.2%</b>	8.3%	3.00
Getting real-time business information to executives	6.8%	25.7%	<b>33.8%</b>	29.7%	4.1%	2.99
Staying abreast of IT developments	10.8%	27.0%	<b>36.5%</b>	20.3%	5.4%	2.82

## Not the only pessimist in the group

**Will your utility be able to automate rapidly enough to deal with all the current issues that demand more complex automation?**

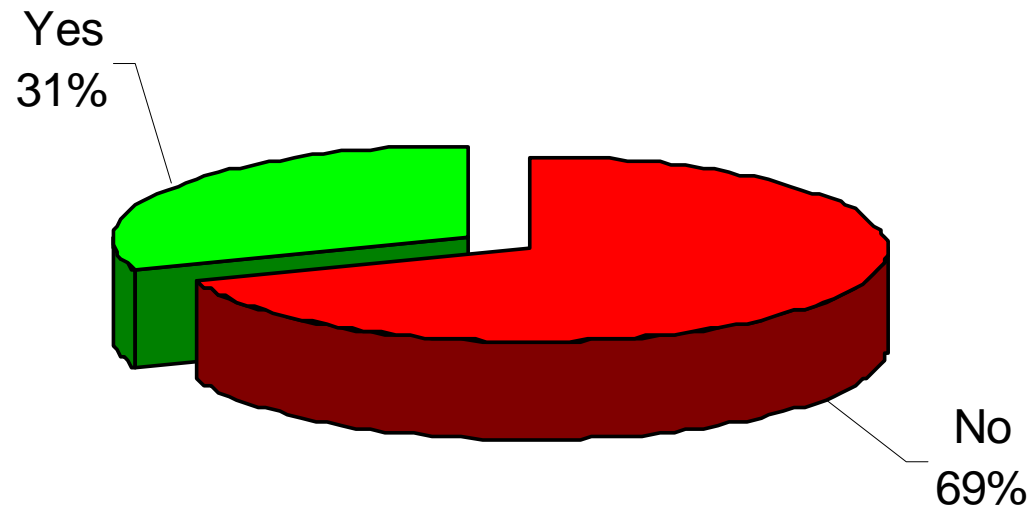


Please rank the following as to what you consider your most important corporate priorities:

	Least important 1	2	3	4	Most important 5	Rating Average
Productivity	0.0% (0)	9.6% (5)	21.2% (11)	<b>42.3% (22)</b>	26.9% (14)	3.87
Customer service	3.8% (2)	7.7% (4)	25.0% (13)	<b>32.7% (17)</b>	30.8% (16)	3.79
Dealing with the aging infrastructure	2.0% (1)	13.7% (7)	19.6% (10)	<b>33.3% (17)</b>	31.4% (16)	3.78
Increasing revenue	0.0% (0)	7.7% (4)	<b>34.6% (18)</b>	30.8% (16)	26.9% (14)	3.77
Regulatory Issues	5.8% (3)	9.6% (5)	13.5% (7)	<b>50.0% (26)</b>	21.2% (11)	3.71
Dealing with the aging workforce	5.8% (3)	15.4% (8)	19.2% (10)	<b>30.8% (16)</b>	28.8% (15)	3.62
Security	3.8% (2)	7.7% (4)	<b>34.6% (18)</b>	32.7% (17)	21.2% (11)	3.60
Cost cutting	5.8% (3)	21.2% (11)	<b>28.8% (15)</b>	26.9% (14)	17.3% (9)	3.29
Conservation/alternative energy issues	5.8% (3)	19.2% (10)	<b>38.5% (20)</b>	19.2% (10)	17.3% (9)	3.23
Keeping customers	9.6% (5)	<b>30.8% (16)</b>	23.1% (12)	15.4% (8)	21.2% (11)	3.08
Generation constraint	9.6% (5)	26.9% (14)	<b>32.7% (17)</b>	15.4% (8)	15.4% (8)	3.00
Service territory growth/change (including mergers)	15.4% (8)	21.2% (11)	<b>30.8% (16)</b>	23.1% (12)	9.6% (5)	2.90
Competition	17.3% (9)	<b>36.5% (19)</b>	21.2% (11)	13.5% (7)	11.5% (6)	2.65

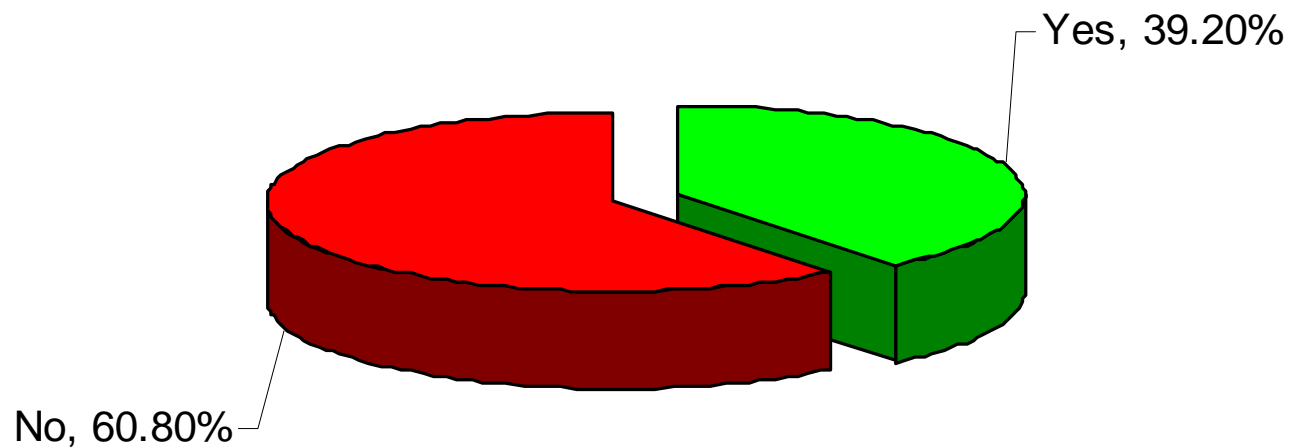
## The major proposed solution from the IT perspective:

**Has your utility developed a plan or outline for the Intelligent Enterprise of the future?**



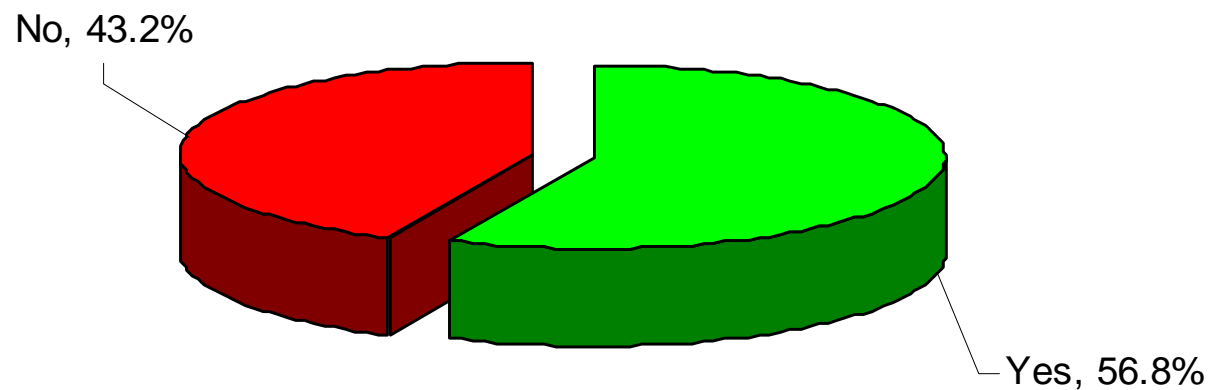
# A major indicator of utilities preparation for Intelligent Enterprises

Is EMS/DMS/SCADA/DA part of your group's responsibility?



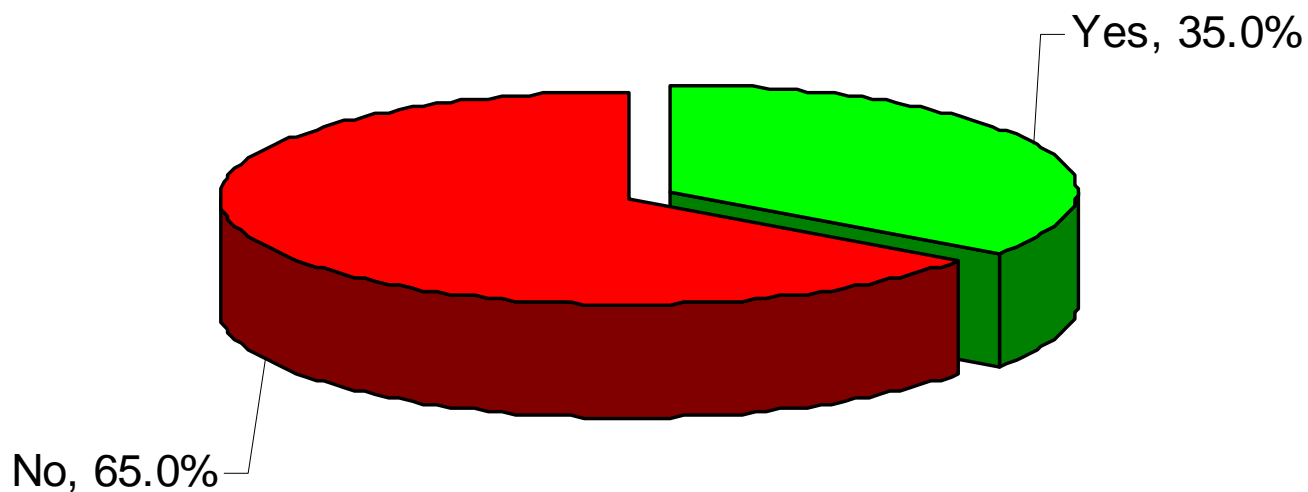
# The consequences for IT of dealing with the 'Brave New World'

**If EMS/DMS/SCADA/DA is part of your group's responsibility, is this creating an expectation of greater integration of real-time information with other systems?**



## Who is playing catch-up? How fast?

If EMS/DMS/SCADA/DA is not part of your group's responsibility, is this something that is being considered?



## More questions than answers

Tipping from current state to chaotic? The numbers don't look very good right now.

Utility CIOs are normally optimistic, not especially so this year

A lot of things out of IT's control—supply shortfall probably No. 1 in five years

The IUE and Smart Grid concepts past the tipping point, but still a very long way to go to generate the kind of efficiencies needed

Americans are going to have to get used to less electricity. Some of the issues have an Orwellian cast to them:

*“It was no use trying the lift (elevator). Even at the best of times, it was seldom working, and at present, the electric current was cut off during daylight hours. It was part of the economy drive in preparation for Hate Week.”—1984, George Orwell.*

Challenging times are ahead

Americans, and utility CIOs are good at challenges

Fasten your seatbelts, it's going to be a bumpy ride

# Thank You!