2013 Itron Resourcefulness Index

A Report on the Current State of the Utility Industry

Itron

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Executive Summary

Historically, in the utility industry, it has been difficult to see beyond the meter, to get timely information about how consumers use electricity, water and natural gas services, when and where leaks and outages occur, or how infrastructure functions in a detailed and consistent way. That data gap has in turn created an information disconnect between consumers and their service providers, exacerbated by uncertainty about how government mandates for cleaner, greener energy or requirements for water metering and rate recovery will develop at a time of resource constraints.

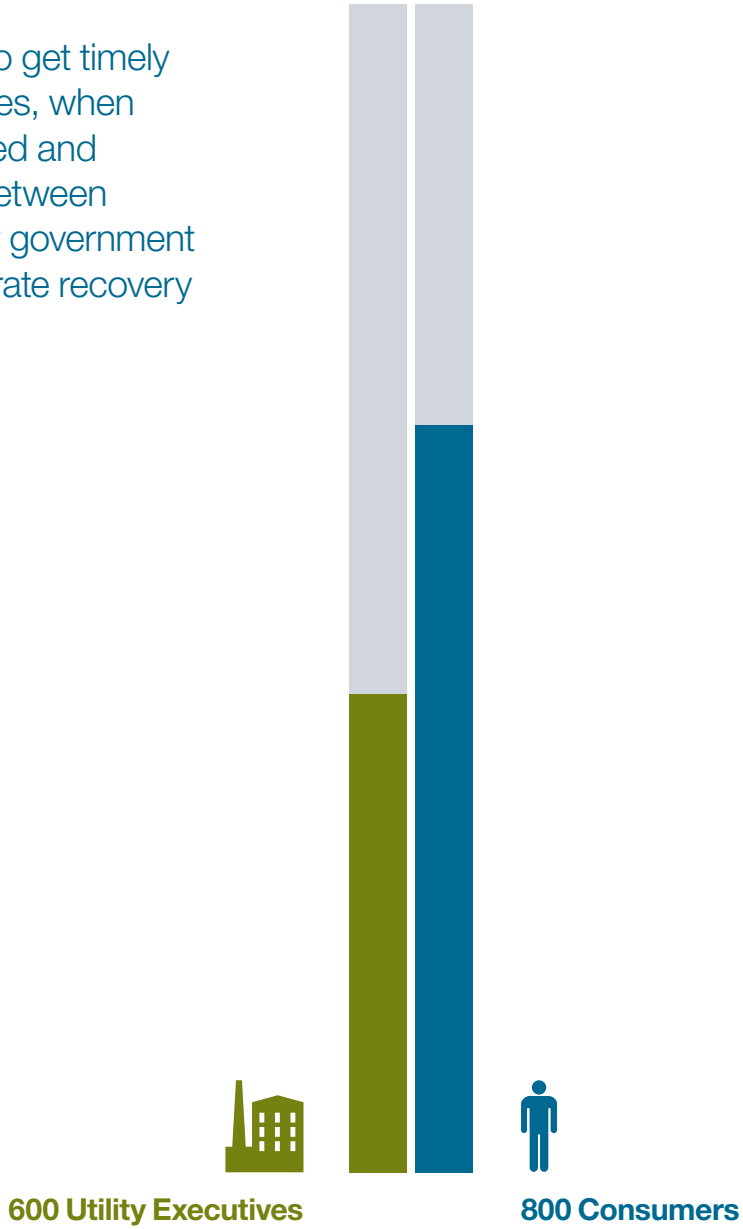
While arguing on behalf of improved energy, water and natural gas infrastructure has in the past often been predicated on what's lacking, including money, reliability, regulatory assurance and effective technology,the new issue for the sector has instead become how to manage a newfound abundance: an abundance of data.

The availability of huge volumes of data means markets, incentives and technology can turn scarcity into abundance through efficiency measures that take aim at the most pressing problems.

Quantifying the Situation, Shaping the Future of Energy and Water Use and Management

The Itron Resourcefulness Index, commissioned by Itron, surveyed top utility executives across gas, water and electricity as well as consumers around the globe to gauge how resourceful a broad range of utility executives and consumers think the industry is today, what their current challenges are, and what they see as the potential barriers in building a promising future for the sector. The questions asked of more than 800 consumers and 600 utility executives in 14 countries around the world form a picture of perceived resourcefulness of gas, water and electric utilities.

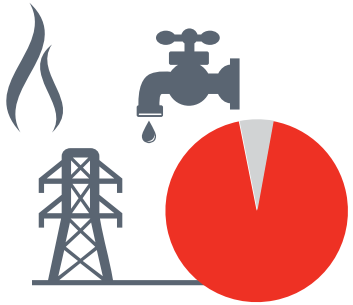
When aggregated into an Index of perceived resourcefulness, the survey findings paint a picture of the gaps between consumer and utility executives' perceptions of utility resourcefulness and variations in resourcefulness in regions around the world.



Diving deeper into the data behind the Index, key themes emerged.

Utility Leaders Agree that Transformation is Needed:

Despite the diversity of utility types surveyed common themes emerged, as did common approaches to solutions, implying utility companies can learn from each other and from early industry leaders. Across sectors and across the world, the need for transformation was universally acknowledged, with 94 percent of utility executives surveyed agreeing that transformation of operations was essential to improved efficiency.



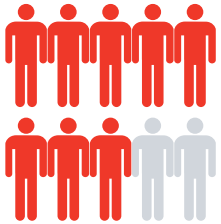
94% of utility executives surveyed agreed that transformation of operations was essential to improved efficiency

THE STATE OF THE INDUSTRY

	North America	Western Europe	Asia Pacific	Latin America	Africa
"Definitely needs to be transformed"	34%	40%	58%	47%	60%
"There is some need to be transformed"	59%	50%	40%	43%	33%

Consumers Want to Know More:

Transformation that consumers support is rooted in improved cost cutting and efficiency programs for them, and that efficiency is built on the transparency that consumers feel they lack today. Eight out of ten consumers say they do not receive enough information from their utilities today, and seven out of ten say they want to know more. Despite that clear call for transparency, nearly six out of ten executives say they would cut consumer education if budgets shrank.



8 out of 10

consumers say they do not receive enough information from their utilities today, and seven out of ten say they want to know more.

Current Consumer Engagement

Consumers want more information on cost cutting and efficiency programs

WHAT COMPANIES ARE DOING:

Utility Executives

Tips about energy efficiency practices

Information about energy efficiency programs and services

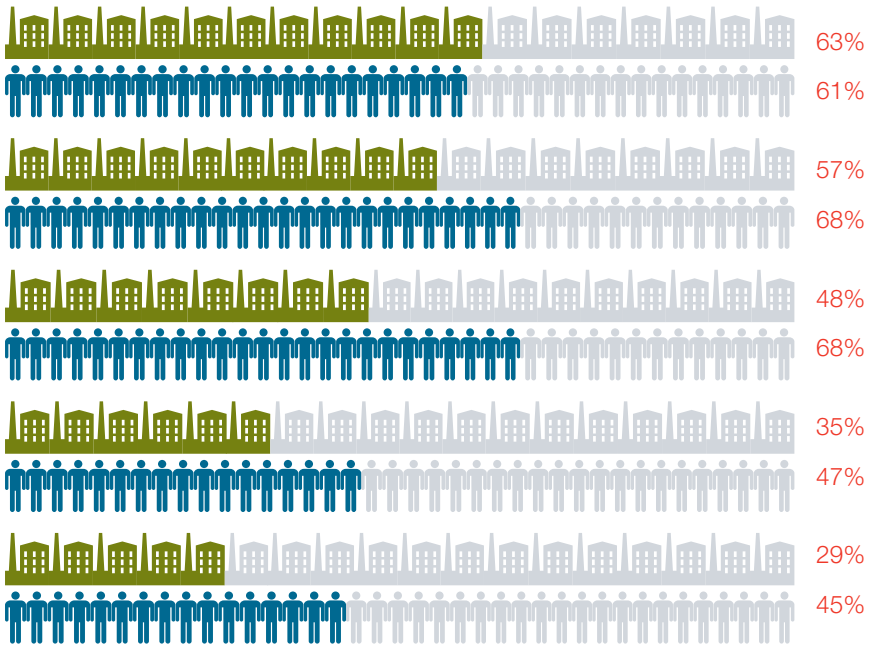
Information about cutting costs on utility bills

Information discussing the importance of leak detection

Information on where to obtain rebates

WHAT CONSUMERS SAY THEY NEED:

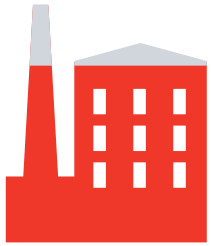
Opinion Elites



In what ways has your company informed consumers about how to better manage water/energy use?
What information do you need from utility providers to better manage your water and energy use?
How would you like utilities to provideyou with information about energy efficiency practices?

Utilities and Consumers Agree on Barriers to Transformation:

Just as many utility executives who press for needed transformation – 94% globally- also agree that government policy and uncertainty about coming regulations hinders infrastructure investment. Consumers agree with their water, natural gas and electricity providers on the confounding role of government policy or in some cases, lack of policy, in slowing infrastructure investment, ranking the impact of government regulation as a top challenge for the utility sector.



94% agree that government policy and uncertainty about coming regulations hinders infrastructure investment

Barriers to Infrastructure Investment

Government regulation is the biggest hurdle for Utility Executives

WHICH OF THE FOLLOWING DO YOU BELIEVE ARE BARRIERS TO INFRASTRUCTURE INVESTMENT?

Utility Executives

Do you believe there are barriers to infrastructure investment? If so, which of the following do you believe are the barriers?

Call for Technology-Driven Insight Grows Louder:

Of the more than half of utility executives who say that the very first thing they would do with more budget is spend it on technology, 68% would invest in IT services and 58% would invest in the monitoring technology that constitutes the "internet of things." Tellingly, only 46% of utility executives feel prepared to manage big data today, but 74% feel that big data insights are central to infrastructure modernization efforts. Their customers are even more concerned, with only two out of ten calling utilities "ready" to use big data today, though six out of ten believe big data drives utility operational efficiency.

Technology Drives Transformation

Utility executives and consumers have reached the conclusion that investment in technology is a key component in prompting meaningful sector transformation. If water, natural gas and electricity utilities' operational inefficiency is so obvious that 60% of utility executives and 70% of customers believe utility operation are not efficient, a picture emerges of a sector at an inflection point.

That inflection point has triggered widespread calls for transformation from within and outside utilities, with 70% of utility customers and 40% of utility executives noting that operational efficiency lowers satisfaction. The insights that create efficiency can only be driven by transparency, making technology that can provide that transparency the fundamental first step in transforming operational efficiency at the world's water, natural gas and electricity utilities.

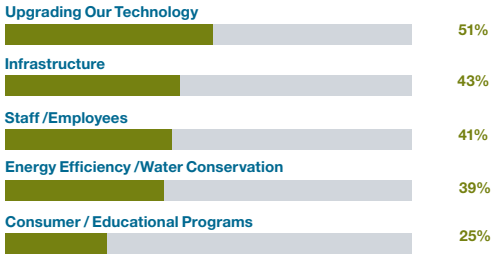
The informed future has arrived for utilities in the gas, water and electricity sectors. With increased technology adoption and an embrace of the full potential of Big Data, the utility sector has the opportunity to transform the twenty-first century economy with even greater leadership than it did the twentieth.

74% feel big data insights are central to infrastructure modernization efforts

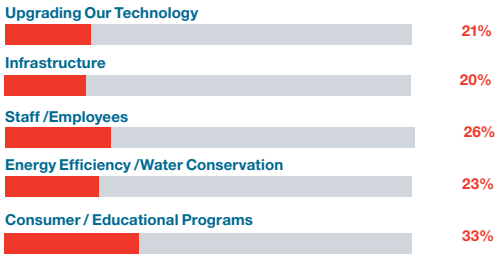
What Would You Invest/Reduce from Your Budget?

Utility Executives are most likely to upgrade (and least likely to reduce) in technology investment – particularly IT and IoT

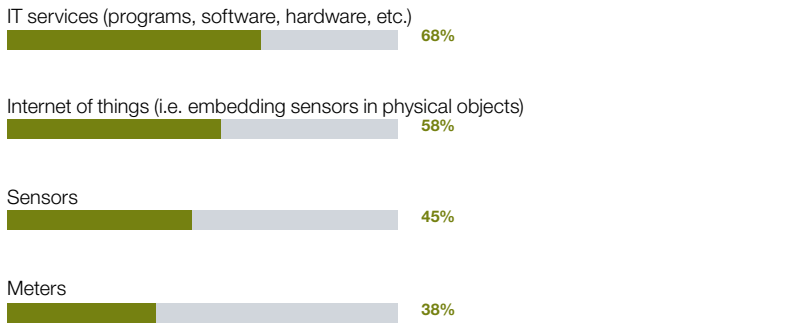
If Utility Executives had an extra 10% in their budget, what would they spend it on?



If Utility Executives had to deduct 10% from their budget, what would they reduce?



UTILITY EXECUTIVES LIKELY TO INVEST IN TECHOLOGY WOULD CHOOSE:



LETTER FROM DR. WEBBER

Water and energy are two of the most fundamental ingredients to modern civilization. We're generally aware that demands for both are increasing as the world's population grows in number and in affluence. What's woefully underappreciated, however, is the connection between the two and the risk that constraints in one of these precious commodities might soon cripple our use of the other.

Our energy system depends on water. About half of the water withdrawals each day in the United States are used just for cooling power plants, and the oil and gas industry uses hundreds of millions of gallons of water every day to improve oil and gas production. All told, we withdraw more water for the energy sector than for agriculture. Our water system also depends on energy. In communities around the world vast amounts of energy are used to transport water from water-rich areas to high-population, water-poor areas. In the United States, more than 12% of total annual energy use is to heat, treat and move water.

The interconnectedness of energy and water, and the increase in demand means that thoughtful management of both resources is more critical than ever. There's an important role for technology to solve these problems.

Technology is a great enabler, as it provides information we need to identify where and how we can make changes to better manage energy and water resources. More measurement devices, widespread control technologies, and smarter grids can help utilities, governments, and consumers make better decisions about how to manage and conserve energy and water. Thankfully, the connection of water and energy means that water conservation results in energy conservation and vice versa. But, it's difficult to conserve anything if we aren't measuring it in the first place.

We'll also solve energy and water management challenges through stakeholder engagement. There are 315 million stakeholders in the United States alone that make decisions every day about their own energy and water use. Giving them more information about their individual usage empowers them to make better decisions.

Information gathered through smarter energy and smarter water grids also provides critical information for corporate and governmental planners, which makes it easier for them to work together as partners. The solutions developed through metric-driven collaboration can help save resources and avoid prioritizing energy efficiency programs without considering the impact on water and vice versa.

We are all impacted by energy and water resources, so it's important that all stakeholders are a part of the solution. And, new technologies enable that engagement, turning all of us into problem-solvers.

The Itron Resourcefulness Index advances this conversation: as the first global barometer of utility industry resourcefulness across energy and water that's based on perceptions of utility leaders and consumers, it injects new information into the public dialog. Importantly, it's an insightful report that comes at a critical time for an industry that is actively navigating a turning point in its evolution. Over time, I anticipate that the Index will serve as a reference guide for utility leaders, consumers, governments, and analysts around the world who wish to track changes in resourcefulness and industry concerns. This is one more tool to help us all be more resourceful with energy and water resources. I found it revealing, and I hope you will, too.

Sincerely,

Dr. Michael Webber

INTRODUCTION FROM PHILIP MEZEY

Energy and water are often-forgotten as the core of the modern economy. Our industry serves as the source for human essentials like food and shelter and powers human progress and technology. Basic electricity, gas and water services fuel economies and support a prosperous society. Imagine the Internet of everything without a stable source of power or the growth of new or densely populated communities without reliable sources of water. Our modern economy would look much different. For our industry to continue serving as the backbone of an advancing and resource-hungry information economy, we must become more resourceful. This is why Itron embarked on researching the state of the industry around the world and produced the Resourcefulness Index to identify the key areas for utilities to achieve greater resourcefulness now and into the future.

The utility systems of today are modern marvels built during the first half of the twentieth century. This is an industry that met the pressures of increasing population and growing demand with large-scale infrastructure builds. But the utility systems of today are not the same ones needed to meet tomorrow's challenges. New demands are putting additional strain on aging gas, water, and electric infrastructure.

Today, utilities are pressured to integrate renewables at a large scale, while distributed generation systems are stressing the traditional utility model. Consumers are demanding both greater information and more competitive supply options to lower long-term costs. The utility model will need to evolve to address these new demands and better engage consumers.

We've started a shift to more data and more technology to solve these challenges. Smart meters have given electric, water and gas utilities a better sense of operational inefficiencies and a framework for using the data they collect to improve decision making across production, distribution and usage. Smarter grids and the data they provide are a solid starting point for becoming a more resourceful industry. But, we need to do more.

That's why we embarked on assessing the industry from both the utility executives' and consumers' points of view. Itron's Resourcefulness Index found near universal alignment of the need for transformation across gas, water, and electric utilities worldwide.

The Index data calls out four key imperatives related to our industry's transformation:

- Greater operational efficiency is needed
- Technology is key to this transformation
- Government is critical, but currently policy is perceived as a barrier to progress
- Consumers want information from utilities to use resources more efficiently

I'm pleased to present the first annual Resourcefulness Index as a benchmark for our industry. We are at a turning point to better manage finite resources, meet growing demand and engage consumers around the world. I believe technology can help us get there, but so will collaboration, greater connection across the industry and continued innovation. The Resourcefulness Index helps identify our challenges. We must work to together to solve them.

Sincerely,

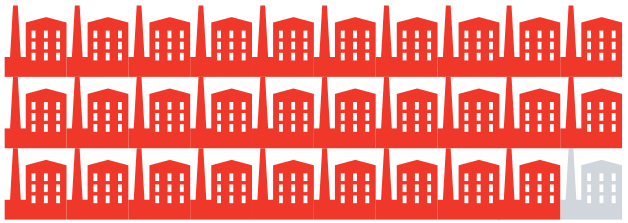
Philip Mezey

Report

Where we are today: The need for transformation and greater visibility

Historically, in the utility industry, it has been difficult to see beyond the meter, to get timely information about how consumers use energy, water and natural gas, when and where leaks and outages occur, or how infrastructure functions in a detailed and consistent way. That data gap has in turn created an information disconnect between consumers and their service providers, exacerbated by uncertainty about how government regulation for utilities will develop at a time of resource constraints.

The scale of the challenge in utility transformation is evident in the Resourcefulness Index findings. Nearly universally at 94%, utility executives think operations at their organizations need to be transformed. Across all 14 countries surveyed, utilities executives acknowledge the need for change in their industry.



94% of Utility Executives say the industry needs to be transformed

At the heart of that transformation is a focus on efficiency. Nearly 60% of utility executives and 70% of consumers think utilities are not running efficiently, meaning billions of dollars in waste each year as well as the worrying misuse of limited resources at the very time water, natural gas and electric infrastructure is coming under strain.

60% of Utility Executives

70% of Consumers

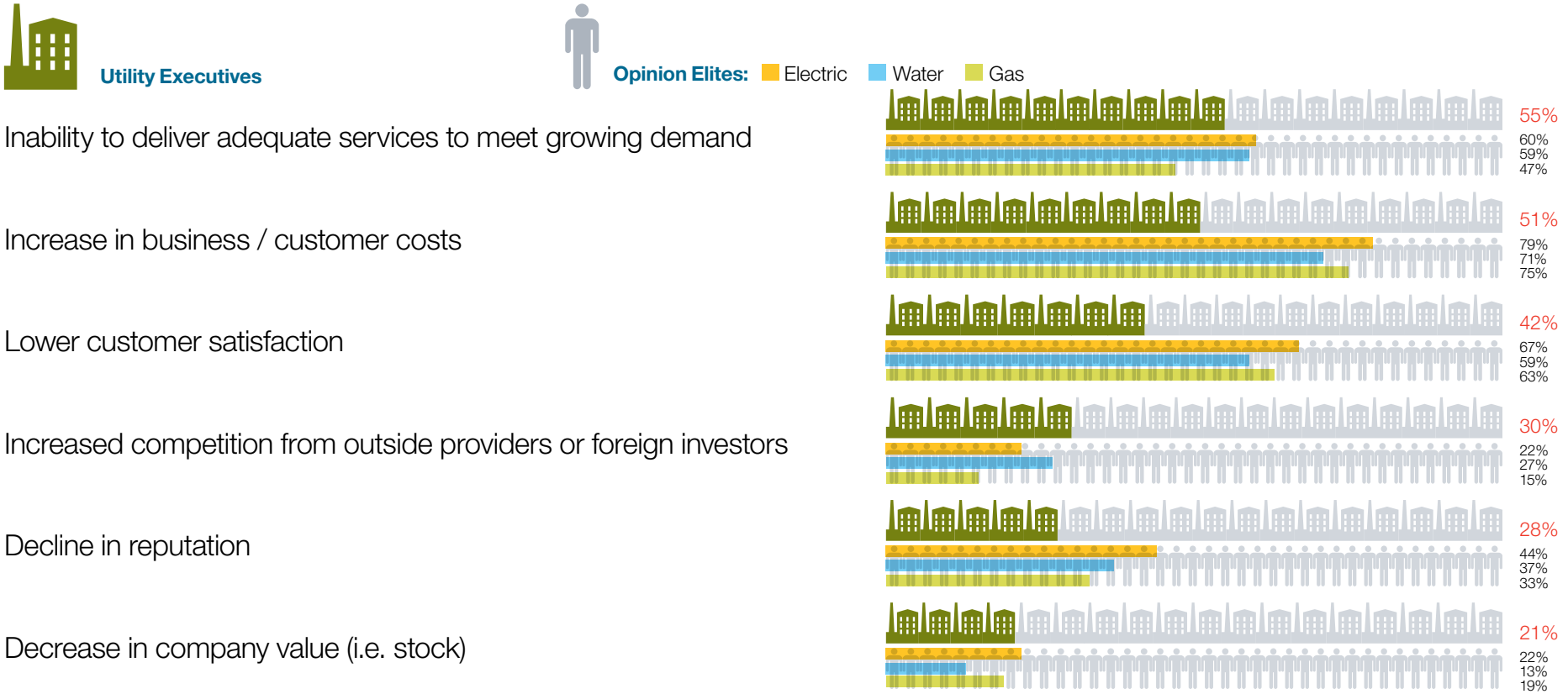
think utilities are not efficient

Demand is growing around the world for energy and water services, and the challenge of meeting that demand presents a worrying future for utilities. US utilities face the prospect of falling severely short on infrastructure investment, the American Society of Civil Engineers warned in early 2013. The group said only 60% of the investment funding required by 2020 could be in place, threatening "cascading" service failures if utilities are unable to act.

Consumers are often depicted as thinking rarely about their utility service, but service outages and restoration gaps and loss of treated water mean 70% of consumers and 40% of utility executives are worried about operational efficiencies decreasing consumer satisfaction. This is particularly true in Latin America and Western Europe where 76% of consumers noted concern about operational inefficiencies decreasing satisfaction.

Biggest Risks to Industry Inefficiency

An inability to meet growing demand could have the causal effect of increased customer costs and lower satisfaction



What do you think are the biggest risks to the utility industry if it continues to be inefficient?

Concern across Gas, Water and Electricity

In less than a decade the natural gas sector has gone from one of the most constrained to a production boom that has driven natural gas demand amid falling prices. The expansion of supply means the natural gas sector is facing the least urgency of the three major utility types.

Although only 13% of consumers feel they receive an adequate level of information from their gas utilities, they also agree with executives from those utilities in saying gas is the utility sector that least requires transformation.

While 42% of gas utility executives globally remain concerned about their ability to deliver adequate services to meet demand, this is substantially fewer than the six in ten executives concerned about adequate service delivery in the electric sector.

Natural gas is not an isolated utility sector. The same drilling technology that drives expanded use requires high volumes of water, and a rapidly expanding share of the nation's electricity is in turn generated by burning natural gas.

Water utilities are the most concerned of the three major utility groups about aging infrastructure, faced with aging existing systems and very high costs to replace them. Six out of ten water utilities executives said that infrastructure investment is the top concern, and almost the same number note they are "very concerned" about the lost revenue associated with leaking pipes

Water loss concerns run high across the globe. In the UK, leaky pipes were blamed in a report from The Independent newspaper for more than 3 billion liters of water loss each day, while in the US the American Society of Civil Engineers says 7 billion gallons of water is lost to leaking pipes in the United States each day.

Consumers are also concerned, with fewer than a third saying their water utility is efficient. That ranks water utilities higher than the other utilities in the Index, even at a time when only 16% of consumers polled are satisfied with the current level of information they receive from their water supplier.

Given concern about the cost of leaks, it is not surprising that 58% of water executives say they would prioritize investment in technology. More than half indicate that investment would be in meters, underlining the value of data flows and operational transparency when supply is tight, infrastructure costly and losses proliferating.

42%

of executives are concerned about ability to deliver adequate service

13%

of consumers say they get adequate information from utilities

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6 in 10 executives

executives say infrastructure investment is a top concern, 7 billion liters of water are lost each day in the US due to leaking pipes, nearly 60% of utility executives would prioritize technology investment if they had more budget

Case Study:

Technology-Driven Data Can Protect Precious Water Resources and Save Money.

Worldwide. More than 32 billion cubic meters of treated water physically leak from urban water supply systems, which is equivalent to over $18 billion of non-revenue water. An increasing number of water providers are realizing that deploying leak sensing technology across their distribution systems makes economic and environmental sense. Learn how the Town of Olds, Alberta Canada is using technology to meet its conservation goals:

To read the full case study click here >

While water utilities don't have the same issues as electric utilities, they too are interconnected for the consumer and for the economy. For the increasing proportion of the world's population living in cities, loss of power means loss of water as pumps in buildings go offline. For communities dependent on dammed rivers for their power supply, inefficient water use that drains rivers means reduced and less-efficient power production.

High-profile blackouts have brought the danger of underinvestment in electric infrastructure into the headlines. The prospect of the electric sector's inability to meet growing demand looms front of mind for both the consumers and utility executives surveyed, with customers stressing that they are seeking more information and transparency from their utilities on ways they can act to conserve energy and water and control their own costs.

Consumers believe the electric utility industry is the sector that most needs transforming to address concerns about increases in cost and decreasing customer satisfaction. Their accurate analysis of the electric utility is proven by the 62% of electric utility executives who admitted that meeting growing demand is their greatest concern.

Concerns about essential services among both electric consumers and electric utility executives are echoed in their perception that an inability to manage big data is a growing worry. Less than half of electric utility executives say their companies are prepared to manage big data today, and more than half say that their concerns about that big data gap is growing.

62%

of electric utility executives say meeting growing demand is their top concern

only 19%

of consumers are happy with the current amount of information they get from electric utilities

How We Think About the Problem: Consumer Engagement and Big Data

Analysis of the effectiveness of operations in providing electric, natural gas and water services has traditionally been built on a binary basis: that the utility systems work or they don't.

Consumers typically do not think about their utilities except when they lose service. Regulators have been encouraged to clear hugely inefficient capacity overbuilds and keep aged infrastructure online even as replacement and reinvestment efforts struggle. Utilities have focused on delivery over outdated systems in outdated ways because their compliance models fail to reward innovation and efficiency.

Even devices at the point of service have traditionally been built to prompt an on-off mentality. Equipped with a minimal amount of information, it has been difficult for utilities to give their customers choices and for customers to act in the ways they want. Consumers, therefore, are left struggling to find out how to better use electricity so they can control their usage and costs. While 66% of electric utilities say they provide energy saving tips, only a fifth of their customers say they receive sufficient information from electric utilities.

In every utility sector a gap between the consumers seeking increased information and their service providers over supply and efficiency concerns emerges. Concerns continue to mount, but prioritization, innovation and implementation of solutions have proved increasingly difficult without the tools to monitor, measure and thereby manage complicated and intertwined systems.

More than half of utility executives surveyed say the first thing they would do with a larger budget is increase their investment in technology. Of those, 68% would invest in IT services and 58% in the "internet of things."

The flow of information available for analysis from the internet of things is an important part of big data, and only 46% of utility executives believe they are well prepared to manage big data today.

But updating infrastructure and guaranteeing efficiency with the latest technology is a crucial byproduct of big data, because unless companies, regulators and customers can see and measure inefficiencies, how can they fix them?

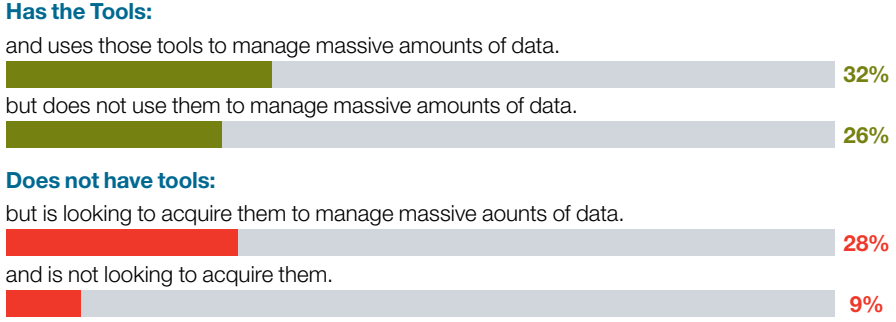
Unsurprisingly 74% of utility executives surveyed believe investing in tools to manage big data is critical to modernizing infrastructure.

When it comes to efficient infrastructure, choice is a byproduct of technology and consumers believe they are being denied the opportunity to improve efficiency by a lack of preparedness at utilities. While more than 60% of consumers believe big data will improve utility efficiency, only 20% - a far smaller number than inside the utility walls – think utilities are prepared to use big data today.

more than **60%**
of consumers believe big data will improve utility efficiency

only **20%**
of consumers think utilities are prepared to use big data today

MANAGING BIG DATA



Policy and Regulation:
Challenges and Consequences

Energy, water and gas utilities are some of the most heavily regulated companies and organizations in the world. Driven by everything from safety considerations to the centrality of reliable delivery to the global economy, governments have devised well-meant but often tangled regulation that has stymied sector innovation and investment that could in turn underpin more efficient operation and delivery of the world's electricity, gas and water.

More than nine out of ten – 94% - of utility executives believe that either current regulation or lack of clarity around regulation is a top barrier to investment in infrastructure, with executives in Latin America responding with highest level of concern. In the US, there are at least ten federal departments that have responsibilities for regulating energy, and each state has its own public utility commission with responsibility for water, natural gas and electricity while overlapping regional bodies for all three utility types also have a stake in the outcome of policies and implementation.

With so many organizations issuing regulations and enforcement actions each year, utility executives note that the resulting complication has emerged as a top challenge for their industry. More than half believe government regulation is responsible for delays in needed investment today.

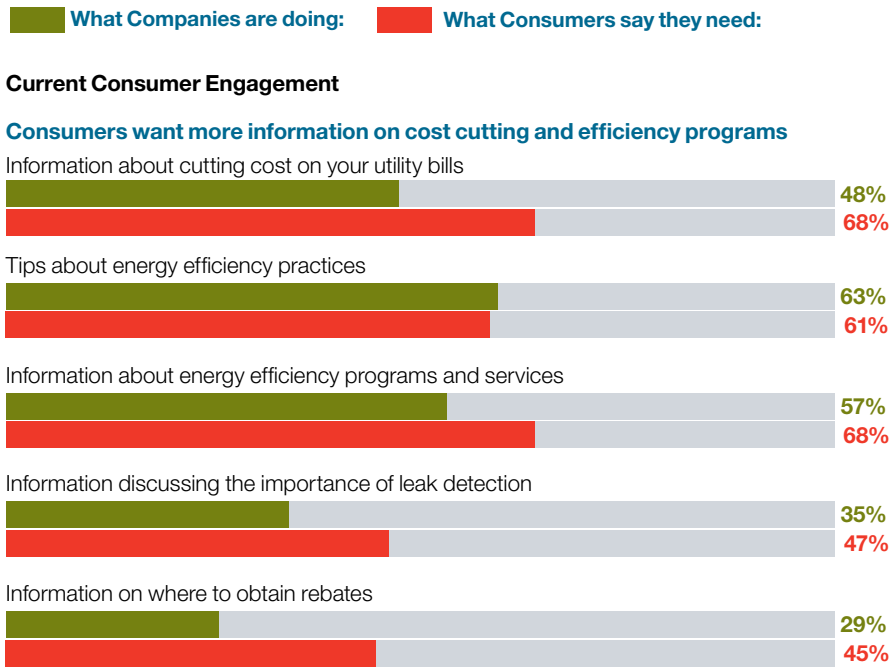
Consumers, dealing themselves with the impact of service reliability and affordability, have also been confounded by the complexity, opacity and unpredictability of government regulations. Our research showed that consumers around the world agreed with utility providers and ranked the impact of government regulation as a top challenge for the gas, water and electricity sectors.

Nearly seven out of ten consumers polled by Itron say they want more information about energy efficiency programs from utilities, while eight out of ten say they are not happy with the current level of information they get from utilities. Given the stagnant global economy and consumers' desire to conserve money and resources, it is not surprising that consumers also ranked "offering energy efficiency programs" as a top need that the utility industry is failing to meet.

The numbers from our survey paint a picture of a disconnected industry approach to consumer education, wherein consumers want more information and options but utility executives would cut educational programming if budgets shrunk.

94%

of utility executives believe that either current regulation or lack of clarity around regulation is a top barrier to investment in infrastructure



Utilities have a clear opportunity to engage with their consumers in ways that can drive greater efficiency and allow for clearer resource allocation and prioritization.

New technology enables unprecedented degrees of communication between consumers and utilities, and consumers are eager to begin that conversation.

Case Study:

Home Automation for Energy Efficiency – Successful Utility Consumer Engagement Programs at National Grid, San Diego Gas & Electric and CenterPoint Energy .

At National Grid, Itron and Ceiva are collaborating to bring consumer engagement, demand response and energy efficiency to the 15,000 homes over the next year that are a part of National Grid's smart grid pilot project in Worcester, MA. The project's innovative architecture leverages Cisco and Itron's IPv6 smart grid network to deliver multiple applications to consumers. Several devices, including Ceiva® HomeviewTM displays and SafePlugTM smart plugs, will be used behind the meter to deliver home energy management.

At San Diego Gas & Electric (SDG&E) customers have been able to purchase and install one of three home area network (HAN) devices. During the summer of 2012, approximately 500 in-home displays were deployed to customers. The customers with an in-home display saved more than twice as much energy as the average customer without technology during "Reduce Your Use" demand response events.

With a HAN device, customers can determine approximately how much energy various appliances in their home are using, such as a new energy-efficient TV or outdoor patio lights, by watching the kilowatts and estimated cost per hour go up or down on a small digital display.

At CenterPoint Energy has more than 8,000 HAN devices in its territory that are connected to customer's Itron smart meters. The meters support a full implementation of smart energy functionality through the Smart Meter Texas portal, including demand response, dynamic pricing, meter data presentment and messaging.

The Promise: Technology as a Solution

The utility sector is at an inflection point. Around the world, gas, water, and electric infrastructure is crumbling. In the US alone, we are still relying on the same electric grid that was first built 100 years ago, and many of the water and gas pipes laid decades ago are still being used. Meanwhile, the traditional utility business model is being challenged -- utilities are being democratized in a way we've not seen before. Renewables, distributed generation, and net-metering are all challenging utilities to rethink business models.

We can begin to address utility executives' and consumers' concerns need with technology and insights to empower consumers, utilities and regulators to prioritize, plan and implement change to solve pressing challenges.

Change begins with information. Collecting clear and measurable data gives objective, impersonal frames of reference to foster better decision-making about efficient delivery of electricity, gas and water. The next phase of the accountability and allocation revolution begun by big data is one where responses to resource scarcity are rooted in clear decision making, quantifiable process and efficient delivery.

The platforms technology provides to engage with consumers and deliver resources more efficiently are at the core of fulfilling the promise of an active utility sector leading the way.

Utilities believe that big data will solve many of their problems, ranging from improved forecasting to balanced utility distribution. While only 7% of utilities say they are "totally" ready to manage big data today, and 46% say they are somewhat ready (with 5% being "not at all" ready), over the next five years they expect a very different picture to emerge, especially in the Asia Pacific region as 81% of utility executives say they will invest in big data technologies.

In five years, more than a fifth of utility executives say they will be "totally" ready for big data management – still a small number compared to the scale of the problem and the size of the sector but more than double the number of utilities prepared today. They expect the number of utilities only "somewhat" ready for big data management to more than halve over the same period, slipping from 46% to 19% as big data preparedness climbs.

Utility executives surveyed said they expect things to get better when it comes to efficiency. But to build a bridge to a more efficient new future requires a map – and the map is provided by better and more detailed insight into operations that can only come from big data.

7%

of utilities say they are "totally" ready to manage big data today

46%

of utilities say they are say they are somewhat ready

How We Fulfill the Promise:
Future of the utility industry

Overcoming the challenge of transforming the utility sector means investing in the infrastructure needed to ensure resources are delivered and consumed as reliability and efficiently as possible, while also collaborating with government regulators and consumers to maintain affordability at the same time as enabling innovation that will ultimately provide consumers with the information and services they need and want. Our research uncovered a call for transformation and information.

The need to modernize infrastructure combined with the information gap and dropping satisfaction numbers, our survey clearly demonstrates utilities worldwide are facing the pressing challenge to meet growing demand for gas, water and electricity.

The key to closing the gaps between utility providers, government and consumers highlighted in this paper and clearly illustrated by the results of the Itron Resourcefulness Index is the prioritization of needed technology.

Utilities have been unable to increase their spending on technology, and that has in turn slowed their ability to achieve operational efficiency. Government policy has been overly complicated and a barrier to innovation in the sector, and that has slowed their ability to encourage the construction of new infrastructure and wide adoption of efficiency. Consumers have searched for information that technology provides and, seeing the slowness of utilities and government to provide that transparency, have marked down their satisfaction with both delivery of fundamental services.

There are clear paths to prioritizing technology now, so that data can inform and shape utility priorities with the direction and oversight of regulators, in turn engaging and activating consumers.

Utilities have the tools to begin gathering and using data to shape needed industry transformation. For many years the promises of mobility and Big Data seemed limited in scope and outrun by reality's limitations. Advances in the technology and broadened penetration of smart tracking and the internet of things has produced ever more detailed comprehension of how Big Data works and how to extract the signal to action from the noise of quantification.

the key to closing the gaps between utility providers, government and consumers is the prioritization of needed technology

Utilities are also increasingly engaging in conversations with consumers on a number of technology-driven platforms across a variety of functions, and finding ways to engage and activate those consumers on issues of energy efficiency is central to the success of generation mix adjustments and smart energy infrastructure deployment too.

Utilities have proven themselves able to use new and innovative communication techniques when interacting with customers, and have proven that with regulatory support consumer behavior can change. The use of Twitter during Hurricane Sandy to report power outages and for utilities to respond with information and guidance was widely cited as the Northeast recovered from that superstorm, and state policies have driven significant energy efficiency gains by encouraging informed usage. The US saved nearly 23 million MWh in 2013 because of state policies that drove utility investment and prompted consumer action, according to the American Council for an Energy-Efficient Economy.

Those same mechanisms for activating efficient consumption while maintaining insight-driven communication with consumers are set to be the driving force for individual action on gas, water and electricity efficiency. Increased transparency and real-time responsiveness are part of technology platform and smart meter deployment that can save utilities money, time, reputation risk from extended outages and ultimately potentially even expensive building of duplicative generation.

The informed future has arrived for utilities in the gas, water and electricity sectors. With increased technology adoption and an embrace of the full potential of Big Data, the utility sector has the opportunity to transform the twenty-first century economy with even greater leadership than it did the twentieth.

Case Study:

The Biggest Energy Saver - the Biggest Energy Saver Consumer Contest was created to spark development of new apps that will help consumers easily understand and use information to reduce their energy usage and potentially lower electric bills.

The Challenge: Sponsored by Grid 21, residential electricity consumers whose electricity is delivered by Oncor or CenterPoint Energy and who resided in the state of Texas were challenged to reduce their electric energy consumption and demonstrate the benefits of using smart meter data and tools. The Result: In spite of being the hottest summer on record in Texas, the Biggest Energy Saver contestants reduced their energy footprint and saved money using smart meter data. The average savings for the top 10 percent of contest participants during the contest period was 26 percent. During the contest period, the average home consumed 3,888 kWh per month while the top 10 percent of consumer contest participants used an average of 3,604 kWh per month.

The Interest: The contest generated interest from every state in the U.S. and more than 80 countries.

To read the full case study click here >

Appendix – Index Metrics

Introducing the Resourcefulness Index

We are pleased to present the 1st annual Resourcefulness Index. This Index – a first of its kind – measures the perception of issues critical to both consumers and utility executives. The Index focuses on the issues within the gas, water, and electric utility industries that hinder more resourceful service to the world's population.

The Index surveys eight key issues that prevent "operational perfection" in the industry. By identifying these issues – and their importance to consumers and utilities – Itron is focusing on the top concerns that prevent resourceful use of gas, water and electricity. Each issue is diagnosed independently across 14 participating countries and then aggregated to compile a single score for each country, region, and audience (consumers and utility executives).

We encourage others to utilize the Index to develop ideas for promoting greater utility resourcefulness worldwide. We hope the Index will spur conversations, encourage debate, and most of all help guide strategies for improved efficiencies and operations.

Constructing the Index

Itron, in partnership with Edelman, devised an index which takes 8 industry issues and determines the degree of concern for each topic. Each issue had a reply choice of:

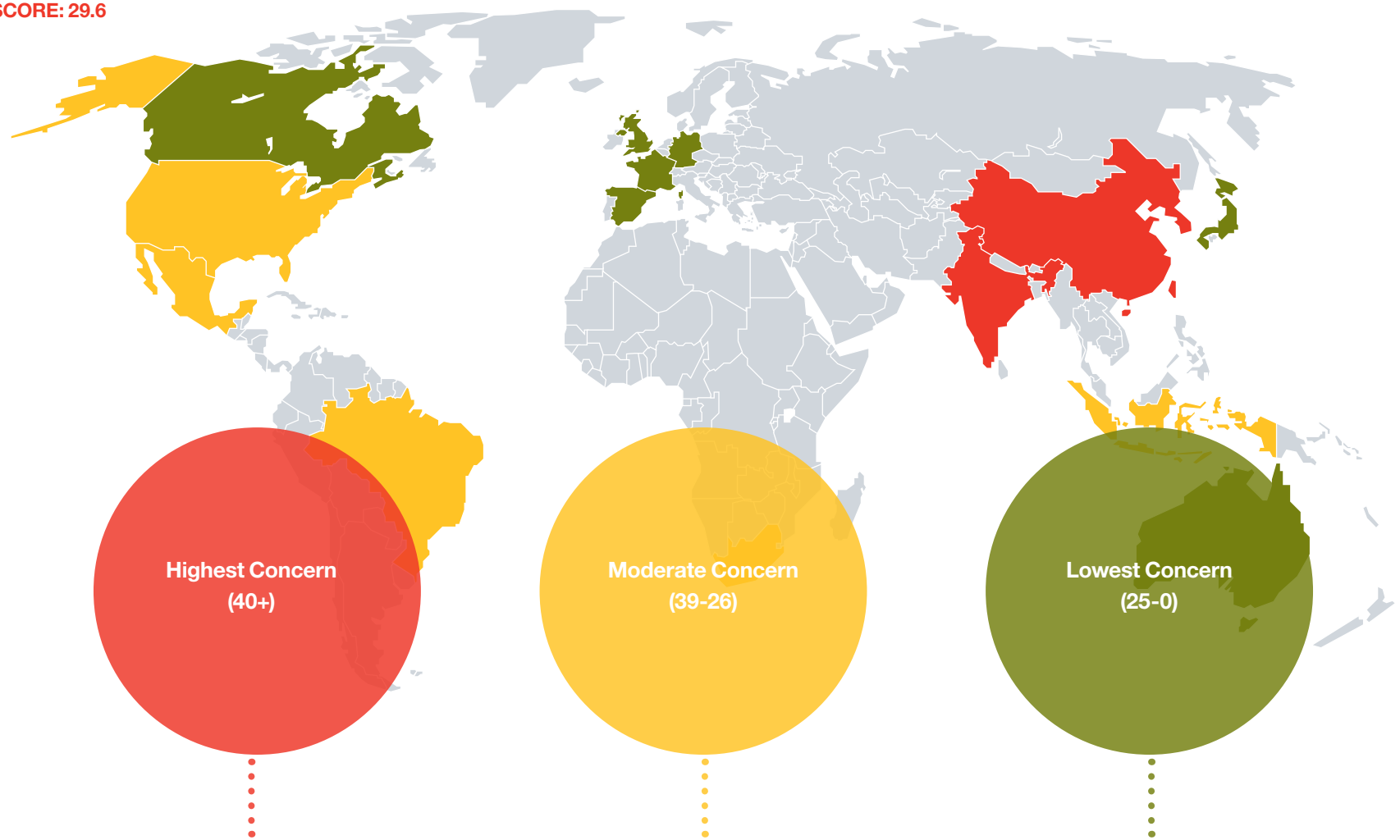
The index reflects the number of respondents who selected the issue as "It is an urgent concern" across the eight industry issues listed below. The scores on slides 4 and 5 were developed by averaging the percentage of respondents that noted "urgent concern" across all eight key issues.

1	New (or potentially new) **government regulations** on utility services
2	The low **rate of investment** in infrastructure
3	The **availability of resources** (such as, suitable groundwater or surface water, location of new sources of natural gas, finding new sources of electricity, etc.)
4	Minimizing lost revenue due to **operational inefficiencies**, specifically energy & resource waste (due to leaks, losses)
5	Supplying customers with **reliable utility services at steady prices**
6	The lack of **consumer information** about energy and water conservation
7	**Protecting private data** about customers
8	The current inability to effectively **use and manage complex data sets** ("big data")

Resourcefulness Index: Utility Executives

China and India top the list with the highest concern about utility resourcefulness

GLOBAL SCORE: 29.6



1. China – 54.3%

2. India – 40.6%

3. Brazil* – 38.5%

4. South Africa – 37.5%

5. Indonesia* – 32.6%

6. Mexico* – 27.1%

7. United States – 26.7%

8. United Kingdom – 22.4%

9. France – 21.6%

10. Australia – 20.4%

11. Canada – 19.2%

12. Spain – 17.8%

13. Germany* – 17.7%

14. Japan* – 17.2%

Composite score is an average of a country's level of "urgent concern" in all eight issues.

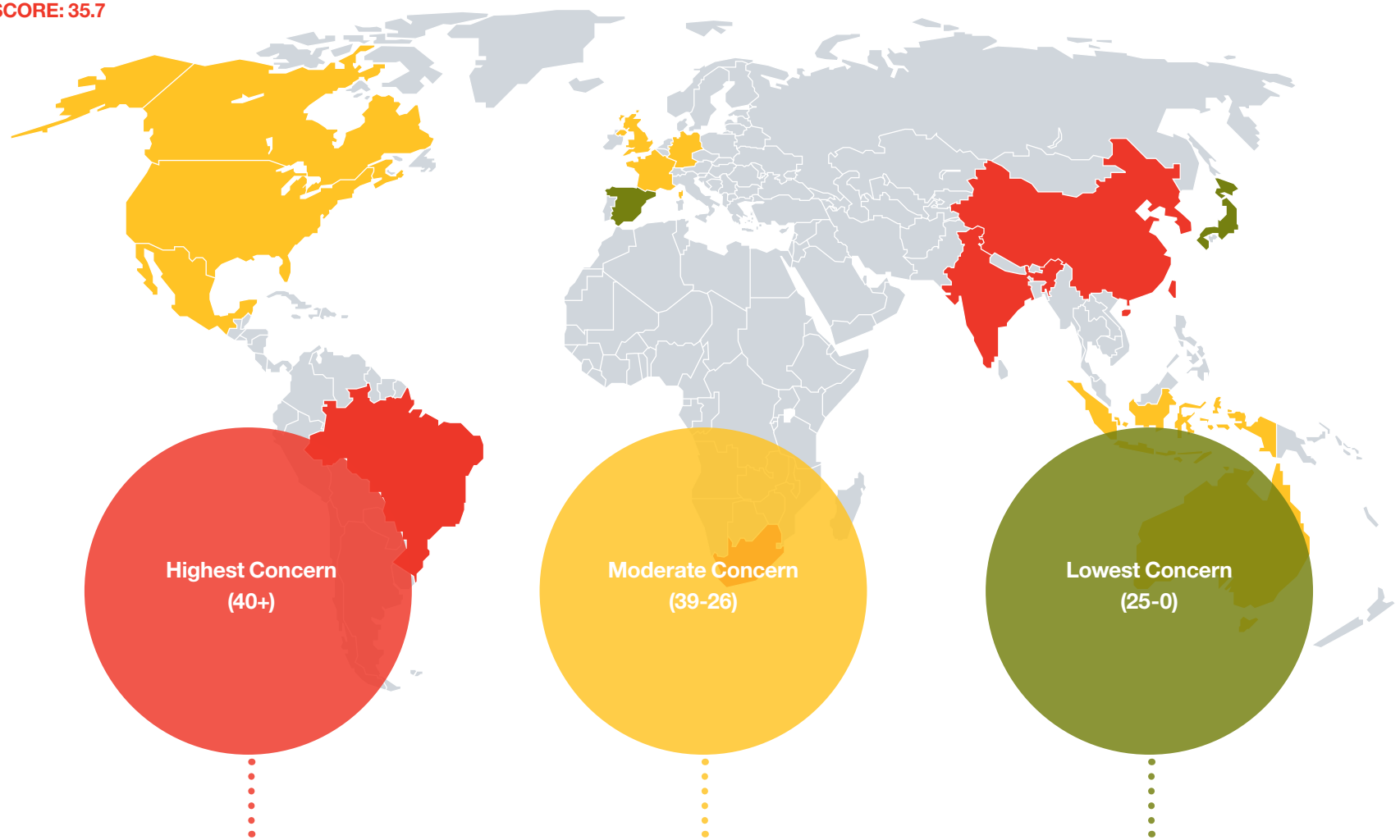
SHOWN: % Utility Executives

*Caution: Base size under 30

Resourcefulness Index: Consumers

China, India, South Africa, and Brazil top the list with the highest concern about utility resourcefulness

GLOBAL SCORE: 35.7



1. India – 63.6%
2. China – 52.8%
3. South Africa – 46.8%
4. Brazil – 41.3%

5. France – 36.8%
6. Mexico – 35.7%
7. Indonesia – 33.9%
8. Japan – 32.7%
9. Germany – 30.9%
10. United States – 30.3%
11. United Kingdom – 28.9%
12. Canada – 25.9%
13. Australia – 25.2%

14. Spain – 24.8%

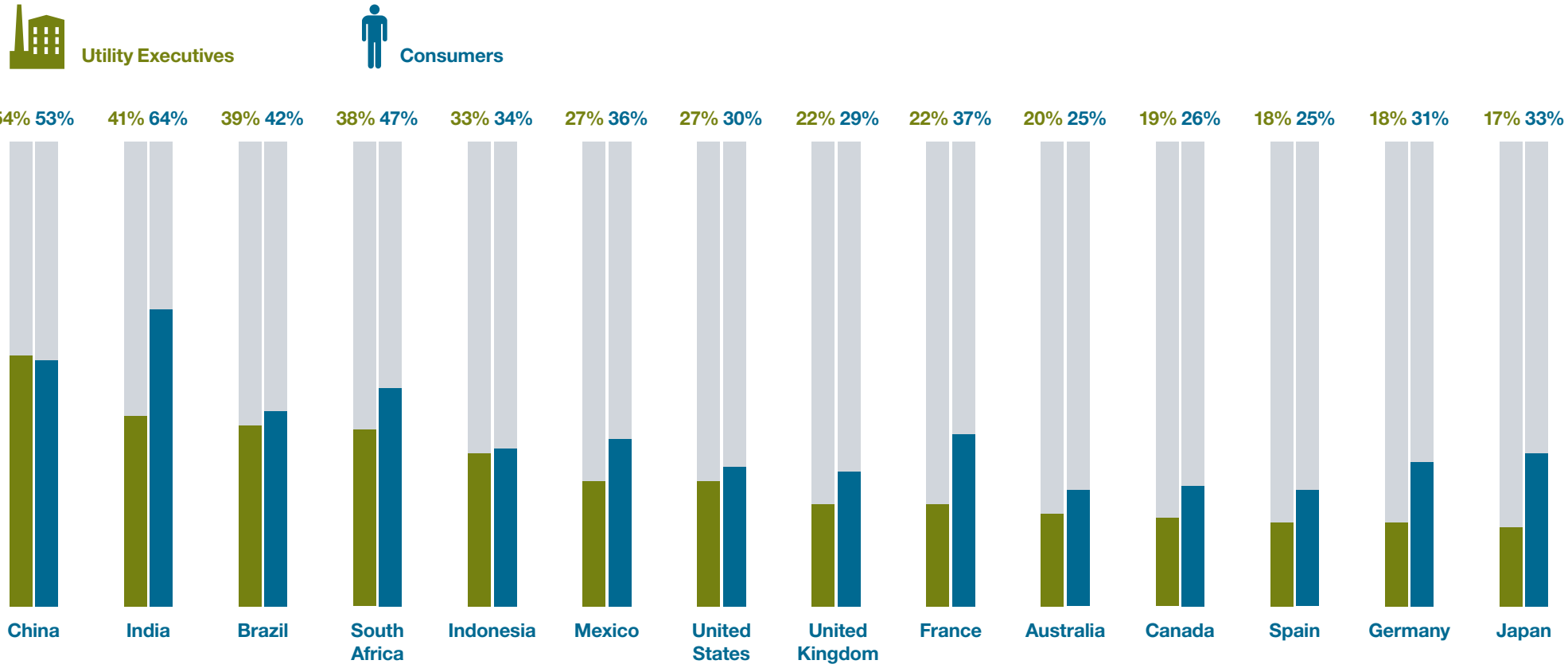
Composite score is an average of a country's level of "urgent concern" in all eight issues.

SHOWN: % Consumers

Country Ranking: Utility Executives vs. Consumers

Consumers are more concerned with the state of the industry, especially in India, France, Germany and Japan

- Highest concern 40+
- Moderate concern 39-26
- Lowest concern 25-0

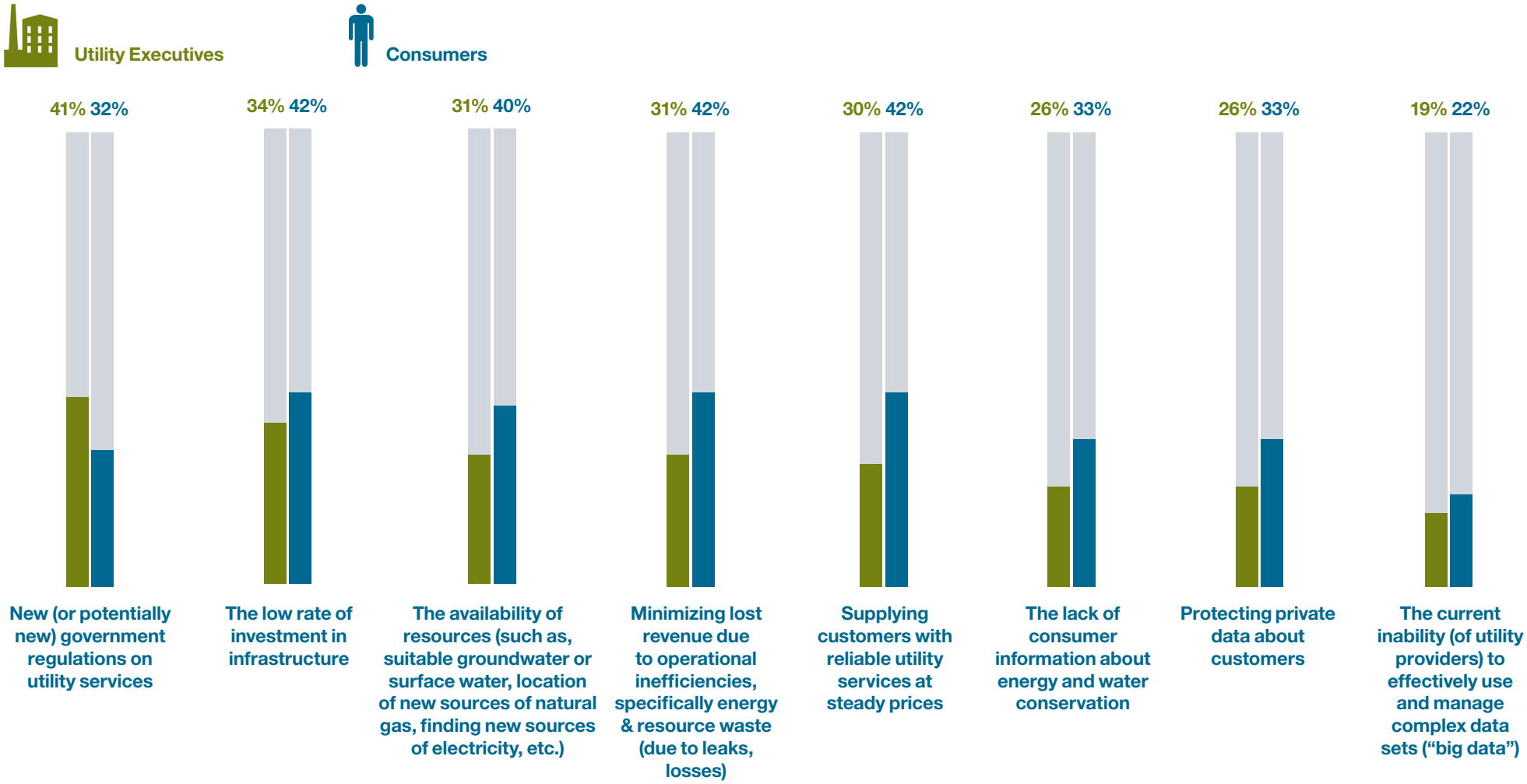


Composite score is an average of a country's level of "urgent concern" in all eight issues addressing the responsible use of gas, water and electricity. SHOWN: % Utility Executives and Consumers

Concern by Issue: Utility Executives vs. Consumers

Government regulations are the most concerning issue for executives, whereas consumers want to be assured of continued service at steady prices

- Highest concern 40+
- Moderate concern 39-26
- Lowest concern 25-0



Score is the audiences level of "urgent concern" for each issue. SHOWN: % Utility Executives (n=608) and Consumers n=840)