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Utilities preparing for growth

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Navigating disruption by linking capabilities and performance

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Executive summary

U.S. utility companies confront an array of difficult challenges that will make their industry more complex and bring on more disruptions with each coming year. From low demand growth and increased regulatory pressure to emerging technologies, reliability issues, and new generation decisions, these thorny problems must be addressed with new approaches — something that many utilities are simply not prepared for. Breaking away from old business models is essential for utilities to find pathways for profitable growth in a more competitive environment than the industry has ever experienced before.

An approach that we call *Fit for Growth** offers a solution. This strategic model provides a series of steps that a utility can take to coherently address significant questions about generation mix, the use of distributed generation, the optimal structure for owning assets, and innovative opportunities for better returns. Once a *Fit for Growth* program is embedded in an organization on a strategic level, a tactical road map for performance improvement can be implemented that involves developing fresh capabilities, applying intelligent cost discipline, and establishing a targeted growth plan that smartly balances capital investment with realistic returns.

An industry in flux

A recent survey of 73 energy company executives conducted by PwC offers evidence of the profound challenges that utilities are facing to their growth and profitability, if not to their survival. A whopping 57 percent of global respondents said current market models are already broken and the need for new approaches to deal with a rapidly altering and volatile business landscape is urgent.

Perhaps this picture is nowhere clearer than in the U.S., where industry upheaval is coming from a variety of sources — energy demand, regulators, network investment requirements, consumers, new rivals and technologies, and a shifting energy mix. For utilities, each of the obstacles represents a separate trend that they cannot ignore — and must address with innovation, creativity, strategic decision making, and well-chosen investments. These challenges can be broken down into five categories (*see Exhibit 1, next page*):

- ***Low demand growth:*** The outlook for power demand is extremely flat to sluggish. The Energy Information Administration (EIA) projects an average annual growth rate of 0.8 percent from 2013 to 2040, while the American Council for an Energy-Efficient Economy forecasts no growth at all. It's fairly safe to say there will not be enough increase in demand to drive future earnings growth.

- ***Regulatory pressures:*** According to the PwC Power and Utilities Survey, "unpredictable regulations and policies" are the primary risk to the utilities industry. Allowed return on equity (ROE) has been consistently dropping throughout the industry since the 1980s, although the need for capital investment is as stark as ever, creating tremendous tension. And though regulators maintain close scrutiny over rates, they are freely encouraging the development of renewables and greater customer access to the grid, distribution channels, and equipment through emerging technologies.

  For example, New York has recently launched Reforming the Energy Vision (REV), an initiative that seeks to improve consumer choice and affordability, in part by overhauling regulatory structures

Exhibit 1

Five trends that challenge the utilities industry

Trend	Example	Key drivers	Threats
Low demand growth		– Low population and GDP growth – Energy efficiency – Limited sources of new demand	– Flat or declining utility sales
Regulatory pressures		– Focus on retail electricity prices – Emphasis on green technologies – Support for more customer control	– Failed rate cases – Lower ROEs – Support for customer disintermediation
Reliability challenges	Transmission investment	– Aging infrastructure – Growth in renewables	– Lack of transmission investment – Competitive process in recovery time objectives
	Distribution investment	– Aging infrastructure – Smart grid technology	– Unproved smart grid benefits – Lower customer satisfaction
	Physical security and cybersecurity	– Increasing emphasis on grid security – Prevalence of cyber threats	– Reliability interruptions – Reputational risk (if unaddressed)
Shifting generation mix	Natural gas growth	– Abundant and cheap domestic natural gas	– Stranded costs for other fuel sources
	Coal and nuclear retirements	– Relative economics of natural gas – Aging assets – Environmental mandates (coal) – Siting requirements (nuclear)	– Ability to meet demand requirements – Stranded costs
	Renewables growth	– Renewable portfolio standard mandates – Technology improvements	– Losing share of generation capital base – Grid reliability
Emerging technologies	Distributed generation	– Cost reduction – Tax and production incentives – Third-party financing/ownership	– Decreasing utility sales – Support of microgrids and customer disintermediation
	Storage	– Technology improvement – Growth in distributed generation (DG) – Regulatory mandates	– Decreasing utility sales – Support of microgrids and customer disintermediation
	Microgrids	– DG and storage adoption – Technology improvements	– Customer disintermediation
	Electric vehicles	– Relative economics compared with conventional vehicles – Technology improvements – Infrastructure availability – Federal and state incentives	– Added complexity in grid operations – Use as behind-the-meter generation

Source: Strategy& analysis

relating to energy use, renewables adoption, and distributed energy resources. Among other things, the state is examining the role of distribution utilities in enabling the deployment of distributed energy systems. The outcome of this assessment will likely be less than favorable to the traditional model. From New York's REV to the Federal Energy Regulatory Commission (FERC) Order 1000, which opens transmission projects to a competitive bid and build process, regulations are likely to require more competition in many parts of the value chain, thereby thwarting any utilities that hope to hold on to their existing monopoly business models.

- ***Reliability challenges:*** Slower demand growth could not be coming at a worse time. Even as cash flow shrinks, utilities must weigh significant capital investments in transmission and distribution lines to maintain reliability, update outmoded systems, and address 21st-century concerns like cybersecurity. Approximately 30 percent of transmission infrastructure is at or near the end of its useful life, and forecasts for average annual transmission capital expenditures in the next decade range from US$12 billion to $15 billion.

- ***Shifting generation mix:*** Electricity generation assets are in the midst of massive change. Prompted by new environmental regulations and incentives for renewables, utilities are now grappling with how to supply reliable power cleanly and economically. According to the EIA, generation from renewable resources has increased more than 14 percent annually since 2009, while coal generation has decreased 2 percent per year during the same period. Meanwhile, natural gas has replaced coal as the largest source of power generation in the United States. Such a large influx of new asset types not only raises concerns about grid reliability but also compels utilities to address stranded costs and system planning issues.

- ***Emerging technologies:*** A host of new technologies — including ways to supply energy for electric vehicles (EVs) — will radically alter the delivery and storage of power in the years ahead. Viewed broadly, the greatest threat for utilities will come from distributed generation and storage, in which traditional centralized power company activities are essentially decentralized to more local facilities or individual homes. Thirty-six percent of respondents to our survey said they anticipate about 10 to 20 percent of home electricity demand to be served through distributed generation by 2020. Adoption will be significantly higher in states with the right mix of solar resources, incentives, and market structure such as California, Arizona, and Texas. Moreover, in another survey of utility executives, conducted by the trade publication Utility Dive, 56 percent of respondents said they "see an opportunity" for distributed energy resources (DER) but "aren't sure how to build a business around DER."

Fit for Growth

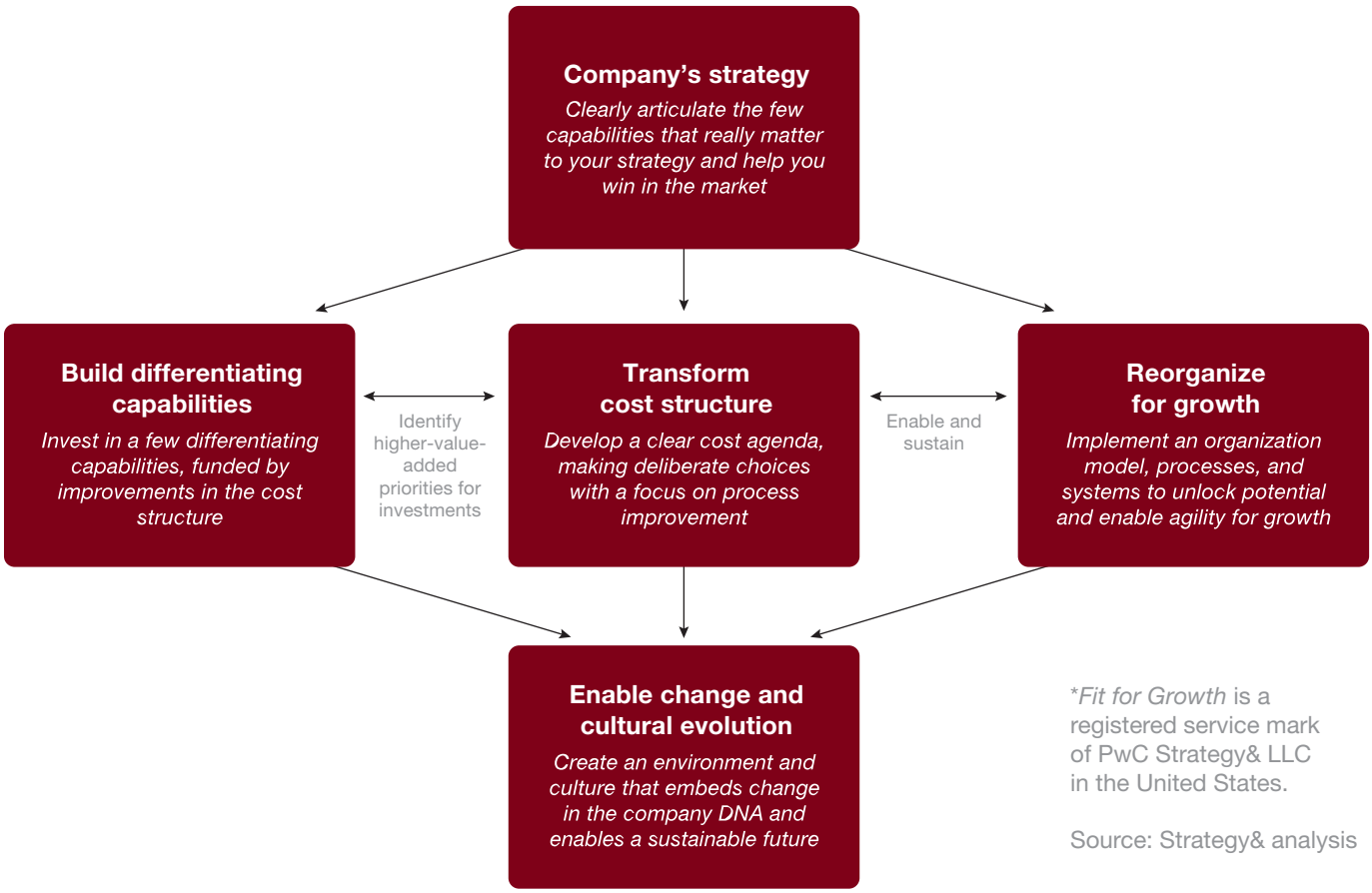
Given the enormous industry hurdles and instability that utilities must navigate, it's little surprise that confusion and pessimism prevail among power companies these days. The problem is that many are relying on outdated strategies to deal with an array of very new problems. In the current environment, utilities must adopt a more relevant approach to succeed. In our view, that approach could best be designed through a methodology that we call *Fit for Growth* — a series of levers that has the potential to transform many of the threats that utilities face into real opportunities.

Simply put, a *Fit for Growth* program is a methodical and coordinated approach for investing in a set of capabilities that is targeted directly at achieving strategic objectives while maintaining cost discipline that fosters, rather than impedes, growth opportunities. It is an encompassing strategy that spans capabilities, cost optimization, growth planning, market presence, corporate culture, and operating models (*see Exhibit 2, next page*).

A *Fit for Growth* transformation is fundamentally different from how utilities traditionally approach performance improvement efforts — and is primarily focused on realizing these critical goals:

- ***Setting clear priorities:*** Before deciding on essential capabilities and cost structure, a utility must determine its place in the power market and address several strategic questions, including the following:
  - What is our desired generation mix in the face of new technologies, commodity prices, and regulatory pressures?
  - How do we approach increasing amounts of distributed generation?
  - What is the optimal structure for owning generation assets (e.g., yieldco, regulated entity)?

Exhibit 2
Fit for Growth* **framework**



**Fit for Growth* is a registered service mark of PwC Strategy& LLC in the United States.*

Source: Strategy& analysis

Answering these questions requires "pressure testing" the potential strategy against a number of factors, including market configuration, most recent rate case results, and energy and fuel supply mix. Setting clear priorities often involves developing potential industry scenarios, evaluating responses in each of those scenarios, determining the likelihood of a given scenario, and creating a dynamic strategy to address the likely scenarios.

- ***Optimizing cost management:*** When companies are under pressure to meet financial targets, they frequently take cost actions — a reactive approach that will almost certainly stifle long-term growth. By contrast, a *Fit for Growth* strategy promotes "preventive

maintenance" to continually ensure a lean cost structure that supports market strategies, even when times are good and earnings appear to be secure. For the utilities industry, potential threats to the cost structure are evident in many of the challenges power companies face. For example, approximately 80 percent of operations and maintenance (O&M) costs are in operational activities (generation, transmission, and distribution), while only about 20 percent go into administrative and general costs (according to FERC Form 1). Many utilities pursue performance improvement programs in administrative and general areas. It would be more viable to look to operational aspects of the business to drive performance and profitability.

- ***Reorganizing for growth:*** Positioning the company's operating model to enable growth requires focus on several discrete areas within the organization, including reimagining the operating model, identifying required capabilities, enhancing performance management, readjusting the culture, and fostering senior leadership accountability.

  - ***Reimagining the operating model:*** Often, companies make the mistake of changing their processes, systems, or financial structure without an associated change in the operating model. But this is a backward approach. Altering the operating model is an important first step to take before making "downstream" changes to processes and technologies. For example, a utility whose profit margins were suffering because of bloated and bureaucratic processes that were hindering its ability to gain from shifts in marketplace demand recently streamlined successfully. To do this right, the utility first changed its operating model to a hybrid approach that blended the best aspects of decentralization with the benefits of centralizing key corporate functions — and then used this model as the foundation for the analysis and assessment of opportunities to improve processes.

  - ***Identifying required capabilities:*** A utility's priorities — also called its way to play — will illuminate the capabilities that the organization must have, develop, or acquire to implement its market strategy. In many companies, strategic planning and cost decisions are approached separately, instead of as a set of trade-offs. The familiar "slash and burn" cost-cutting method chokes investment in capabilities that are essential to drive growth strategies and sustain performance improvement. In *Fit for Growth* transformations, funding for necessary capabilities is not endangered by cost controls but rather is derived from minimizing business inefficiencies, reducing expenditures on low-priority projects given the new energy landscape, or eliminating investments not linked to an emerging growth opportunity.

– ***Enhancing performance management:*** Improvement efforts are often analyzed in a vacuum within the company's four walls and ignore industry and cross-industry best practices. A more effective approach would evaluate necessary capabilities against the most valuable metrics and align performance from the top of the organization to the front lines. For example, building an industry-leading data and analytics capability requires going beyond merely attempting to equal the performance of other power companies to achieving the results of companies in industries that stand out in their use of databases and knowledge management, such as financial services and retail.

– ***Readjusting the culture:*** Successful transformation and performance improvement efforts with lasting results depend on a culture in which employees at all levels, but particularly on the front lines of utility operations, are actively engaged in meeting company-wide performance improvement goals. In practice this means that key decision rights, incentives, and internal motivational mechanisms must be aligned to appropriately empower employees to facilitate critical organizational changes and goals. Effective cultural transformations utilize "pride builders" to push change to the front lines where the work is done and don't simply rely on traditional change management tools and mechanisms to achieve sustainable change.

– ***Fostering senior leadership accountability:*** Various parts of the organization see performance improvement differently. Finance views it as an opportunity to meet metrics, operations hopes to streamline processes, human resources wants to influence behaviors, and so on. Such siloed responses are a recipe for failure. The *Fit for Growth* methodology uses several tools to align management objectives so that improvement is driven in consistent and connected ways across various functional areas. Using *Fit for Growth* management creates consensus around three critical aspects of the business: a specific growth strategy, a set of key capabilities required to execute against that strategy, and the right operating model to achieve strategic and operational objectives. Those three elements inform where (and why) performance improvements are needed and how they can be implemented.

Diligence and discipline are required to adopt and sustain these operational and cultural levers in an organization, especially a utility facing serious disruption and challenges to its business model. Yet these levers are the critical foundation that enables a utility to take advantage of opportunities the market offers and to overcome obstacles. Once the *Fit for Growth* method is interwoven in an organization at a

strategic level, a tactical road map for performance improvement can be implemented involving four interconnected steps:

- Developing fresh capabilities
- Applying intelligent cost discipline
- Establishing a targeted growth plan that smartly balances capital investment with realistic returns
- Leveraging leadership and culture to sustain results

Keys to executing a Fit for Growth strategy

Successfully executing a *Fit for Growth* initiative requires focus and coordination throughout the organization. Six elements are particularly important for companies to focus on. Each element is equally important during one of the two key stages of the project: planning and execution (*see Exhibit A, next page*).

1. ***Plan up front:*** Effective planning is imperative for project success. The more details that can be provided before a project starts — including tactical approach, company support requirements, communications and employee engagement protocols, and decision rights — the higher likelihood of success. Failure to think through these topics can lead to project delays, confusion on approach and outcomes, cost overruns, and, most important, the lack of a clear path forward.

2. ***Ensure program accountability:*** Securing proper controls and authority levels within the project management office (PMO) are critical for adapting to and confronting issues as they come up. Often an organization will make the mistake of holding the PMO accountable for execution, without giving it the critical authority to make decisions as needs arise.

3. ***Obtain strong executive support:*** Executive sponsors must remain actively engaged in the project and show their support for proposed initiatives as the project progresses. Without executive support, proposed changes will fall flat and the project team will likely become skeptical that real change can be achieved.

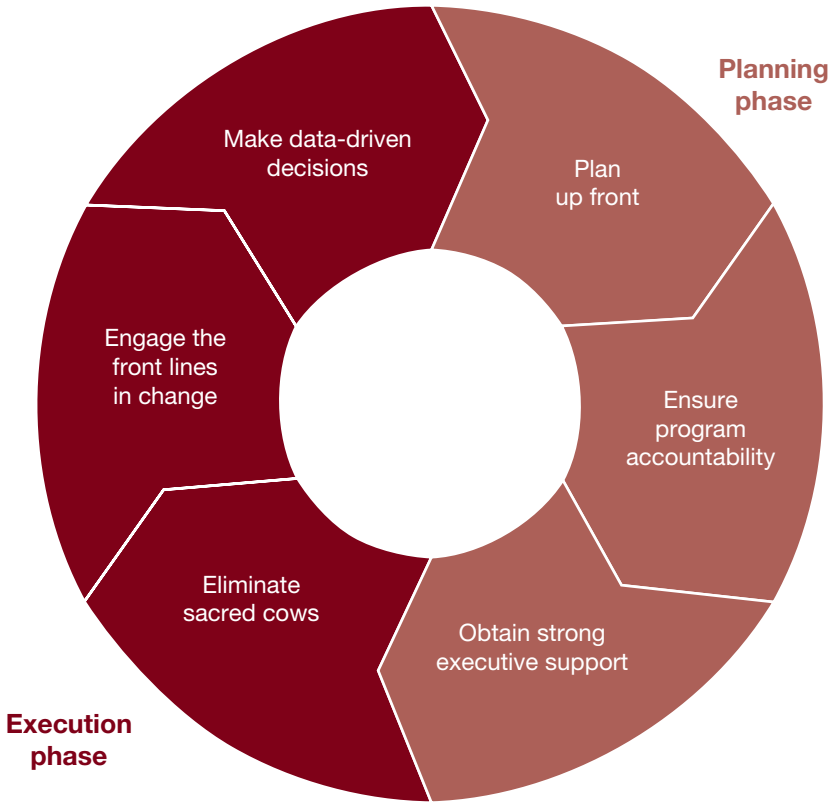
4. ***Eliminate sacred cows:*** When implementing widespread change, all areas of the organization must be under the microscope and company politics must be put aside. In many cases, certain areas of the business are treated as "untouchable" — for example, operations because of complexity, or support functions due to their small size — but this stymies creativity and limits the effectiveness of the process. Similarly, work streams must be viewed as equal. If project budgets are limited but one work stream is allowed egregious cost overruns, the overall outcome of the project can be affected negatively.

(Continues)

5. ***Engage the front lines in change:*** Change management is a frequently overlooked element of major programs because it is often associated with ineffective textbook methodologies and approaches. In our view, proactively managing change by fully involving the front line in formal and informal ways helps to build buy-in for the program and sustains the new organizational model even as it continues to evolve.

6. ***Make data-driven decisions:*** Data provides the necessary support for making crucial decisions and sets a baseline from which to make an educated decision. It also creates an environment of equality in decision making; if the data doesn't support a proposed decision, then the decision won't get made regardless of who proposed it.

Exhibit A
Keys to executing *Fit for Growth*



Source: Strategy& analysis

Developing fresh capabilities

In previous decades, building capabilities in utilities mirrored the traditional monopoly business model and its associated market conditions — greater regulatory certainty, growth through acquisition, stable capital investment cycles, and centralized technology deployment. However, many of the new growth areas in the power industry today demand an entirely different set of capabilities built primarily around volatile market dynamics. To address the sector's critical trends, utilities must consider developing eight distinct capabilities (*see Exhibit 3, next page*):

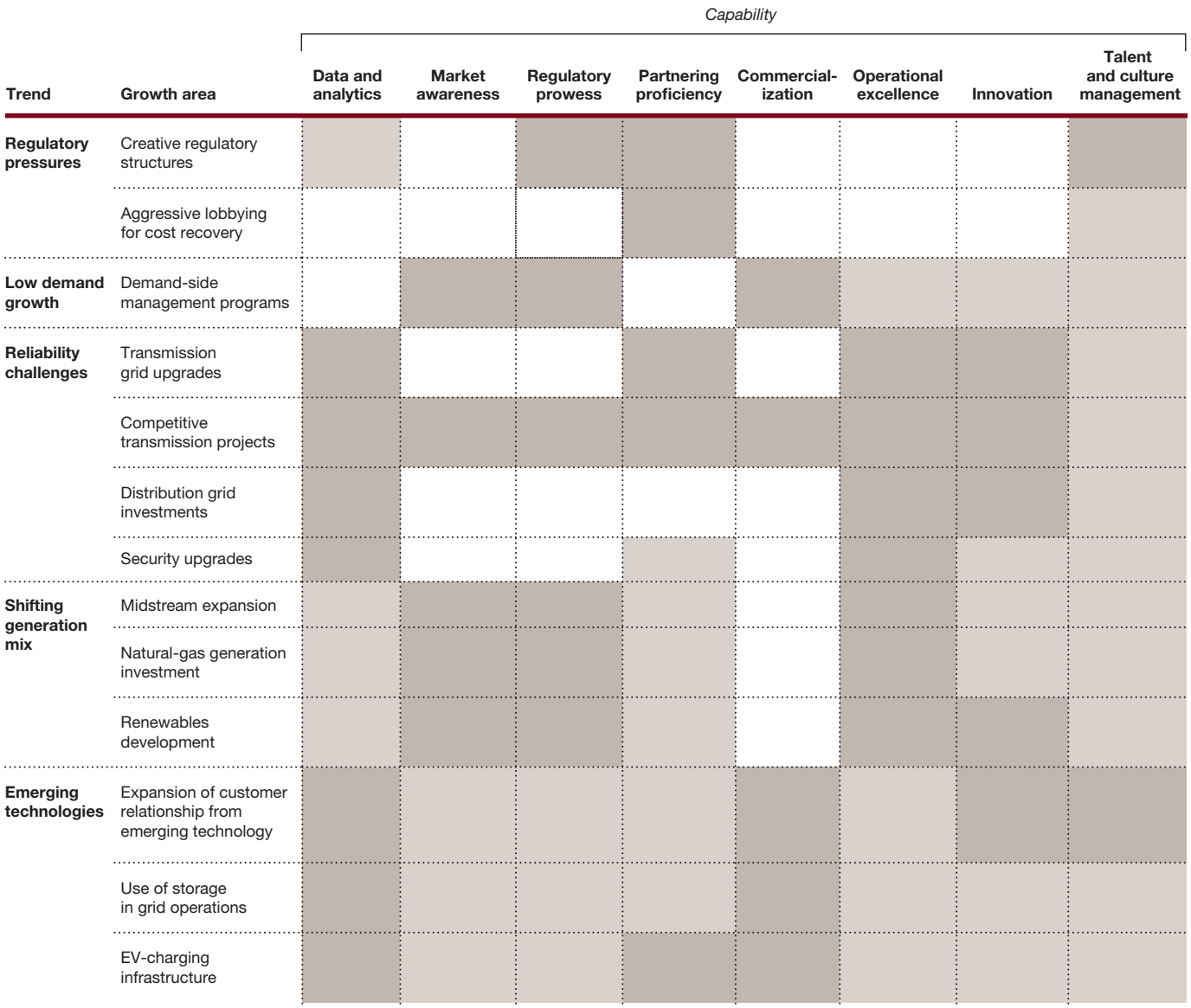
- ***Data and analytics: Leverage robust information and information-related processes to provide predictive insights that improve management decision making.*** For example, these capabilities can help utilities effectively balance and justify investments in distributed generation, additional storage, or grid reliability to widen capacity. Additionally, enhanced analytics enable utilities to better evaluate the market and assess the need and demand for new transmission investment. Finally, data and analytics can be used for customer segmentation, allowing utilities to send targeted marketing and performance communications to customers.

- ***Market awareness: Develop understanding of the competitive landscape and the ability to identify potential market opportunities for current or new products and services.*** This capability lets utilities understand new threats to their business (such as rooftop solar providers) and cast their sights outside the utility industry for potential growth opportunities. Building a robust market-scanning capability requires cooperation among regulatory, financial planning, and operations functions to inform decision makers of issues and opportunities affecting the utility's strategies.

- ***Regulatory prowess: Navigate the current regulatory environment and shape future regulations.*** For example, multiple state utility commissions are currently reviewing and taking steps to alter their net metering policies, which control the billing mechanisms that credit solar energy system owners for the electricity they add to the

Exhibit 3

Capabilities to answer the challenges



Source: Strategy& analysis

grid. The outcome of the commissions' analyses can have a significant impact on regional utility profitability (especially in states like California, Arizona, and Nevada). Utilities that have the capability to formulate specific and realistic recommendations for net metering are better able to influence policymaker decisions in their favor.

- ***Partnering proficiency: Develop the ability to partner with companies across the utilities ecosystem to drive outcomes not possible through internal efforts while capturing maximum value created by the partnership.*** Utilities can leverage new business models, such as joint ventures, to share risk and expand outside their service territories. The three-year-old FERC Order 1000 — which essentially compels utilities to participate in regional grid planning programs on an equal footing with large and small providers of all types of energy, and also eliminates some of the advantages that power companies had in their local areas — is seen as a threat to incumbent utilities' capital base expansion programs in the short run. However, as regional transmission organizations mature in their ability to provide a competitive marketplace for transmission projects, and utilities develop the skills to form advantageous cooperative ventures and relationships with other companies, huge advantages could be in store for power companies that successfully bid and execute projects outside their territory and defend projects within their territory.

- ***Commercialization: Develop differentiating market value propositions, and craft proposals that enhance the likelihood of success in competitive situations.*** The potential to expand into services such as ownership, maintenance, and financing of distributed generation should be viewed as an exciting opportunity for utilities with the right commercial capabilities. However, to offer these services, utilities must navigate complex regulatory restrictions, invest in customer-centric capabilities such as improved sales and marketing campaigns, and leverage lower customer acquisition costs to defend against new entrants.

- ***Operational excellence: Use all available information, tools, and technologies to manage costs, which will provide opportunities to invest in additional capabilities.*** Utilities that develop needed capabilities and adopt a culture of continuous improvement will achieve efficiencies that will ultimately allow them to exceed both near- and long-term financial targets.

- ***Innovation: Nurture an innovation environment that supports new approaches to power transmission and distribution developed in a decentralized, bottom-up organizational structure.***

These advances should be aimed at distinguishing utilities from their rivals, especially in competitive bidding situations, and should challenge the perception that power companies are indifferent to new ideas, which is an obsolete notion from the era when profits flowed freely to monolithic monopolies for whom the lack of creativity was not a shortcoming. In addition, innovation is a critical component of a renewables development program, particularly since the technologies propelling solar, wind, geothermal, and other similar energy approaches are still in flux, leaving ample room for experimentation and potential growth from nascent concepts.

- ***Talent and culture management: Identify, develop, and retain talent aligned with strategic priorities, and develop a culture rooted in the critical behaviors required to succeed.*** The entire organization should be able to understand and have the opportunity to embrace the company's culture as a foundational blueprint for enterprise and individual performance improvement.

Utilities either have overlooked these capabilities, given their lack of importance in the traditional utility model, or have underestimated the need to directly connect these capabilities to the organization's growth strategies. The lack of focus and sustained investment in these capabilities is a significant barrier for the traditional utility to overcome, especially as new entrants continue to introduce innovation and creative business models into the sector. Depending on the growth opportunity and the importance of this trend to a utility's business strategy and operating model, these capabilities may be "differentiating" — that is, designed to build a sustainable advantage over the competition — or "table stakes," which are required merely to survive in current market dynamics.

Applying intelligent cost discipline

The second step in the *Fit for Growth* approach is implementing cost discipline. Under this category are three strategic elements:

- ***Cost management:*** Providing adequate governance and controls over the incurrence of costs (e.g., implementing an effective integrated planning and budgeting process)
- ***Cost avoidance:*** Deferring or avoiding costs through alternative investments or use of resources (e.g., deferring major technology investments)
- ***Cost reduction:*** Reducing or eliminating costs as a result of increasing the efficiency and effectiveness of resources (e.g., streamlining organizational structure or streamlining accounting processes)

Cost structures should reflect both business criticality and efficiency.

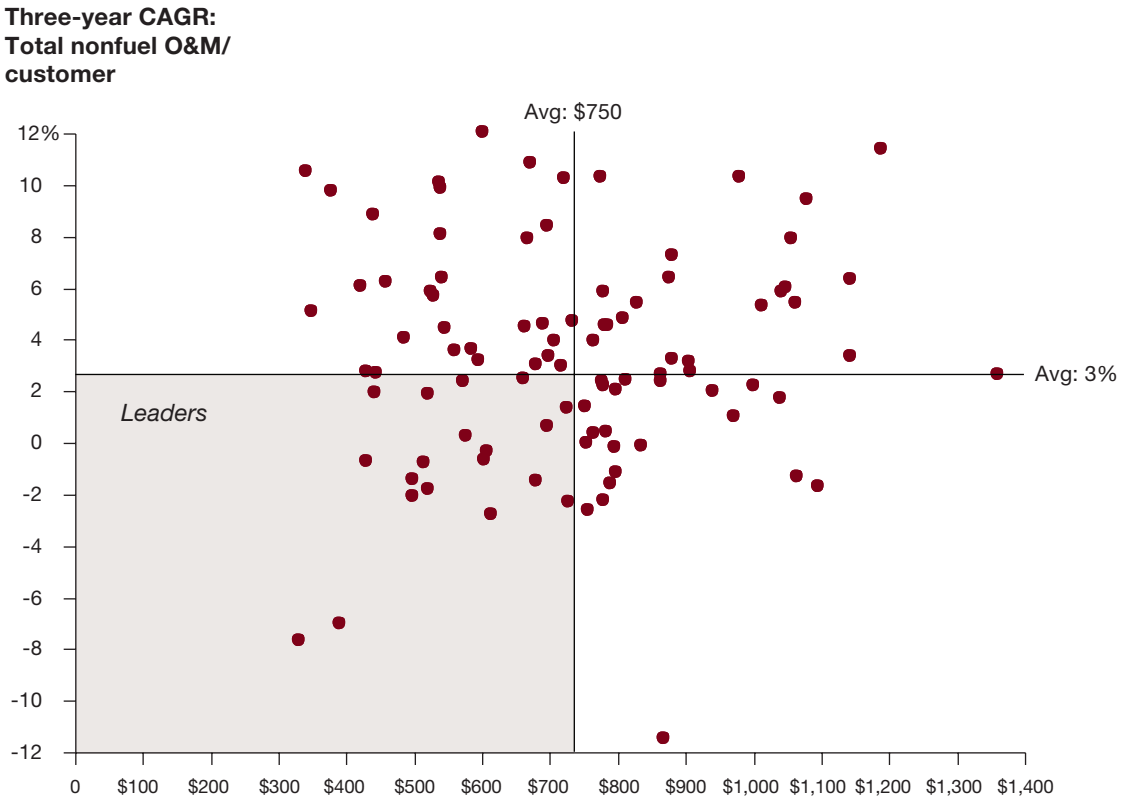
Ultimately cost structures should be aligned to reflect both business criticality and efficiency, but not at the expense of investing in new critical projects and capabilities. In fact, in the best-case scenario, companies will use cost reduction not to directly boost the bottom line in the short term but for essential investments in the business and its skill sets that ultimately will drive increased profits over a long period of time.

Data is a powerful tool to understand performance differences. Benchmarking can help measure whether an operating company is meeting industry standards for operations and maintenance costs and cost growth (*see Exhibit 4, next page*). This exercise does not provide absolute answers, but it identifies where additional efficiencies may be found. Context is critical when evaluating benchmarking results, as the efficacy of any opportunity depends on a number of specific factors such as the geography, customer mix, workforce, and other service area considerations of each individual utility.

Beyond *data and analytics,* investments in other capabilities can also help support cost management. For example, *partnering proficiency* could allow utilities to potentially contract out functions that can be handled by third parties more cost-effectively and at higher levels

Exhibit 4

Cost performance by operating company



Source: FERC Form 1

of service or quality. *Market awareness* can help utilities deftly time investment in market initiatives to ensure that capital is spent as efficiently as possible. And *talent and culture management* can empower the workforce to seek and execute continuous performance improvement, which is critical to optimizing cost structures, and can ensure that employees involved in cost oversight are the most skilled for these positions.

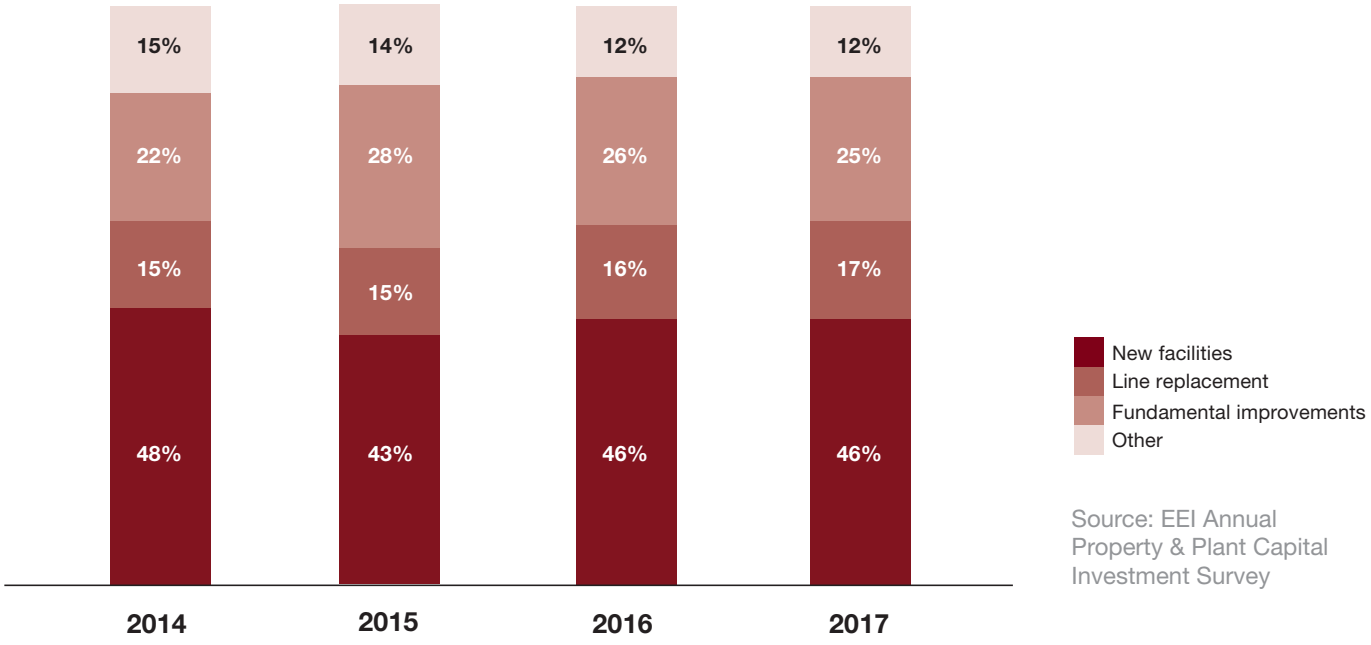
Establishing a targeted growth plan

The third pillar of a *Fit for Growth* program is establishing a targeted growth plan that smartly balances capital investment with realistic returns. Because utilities have restricted amounts of capital to deploy, they must balance any investments across three areas: asset replacement, reliability improvements, and new sources of earnings.

- ***Asset replacement:*** Utilities must spend considerable capital to replace aging infrastructure, modernize the grid, and integrate new renewable sources of generation. According to the 2015 Edison Electric Institute (EEI) Annual Property & Plant Capital Investment Survey, 17 percent of utility planned investment will be targeted toward line replacement in 2017 (*see Exhibit 5, next page*). Upgrading and swapping out old assets for new ones along with high reliability standards provide a solid base for growth.
- ***Reliability improvements:*** Improving reliability offers a pathway for a utility to increase its allowed return, as projects that show gains in the dependability of power distribution to customers are generally received favorably by regulators. Identifying these projects — particularly those that provide much-needed grid congestion relief — is essential for utilities seeking low-risk efforts that amplify earnings and maximize returns.
- ***New sources of earnings:*** Average allowed returns on equity for electric utilities has declined to 9.91 percent in 2014 from 10.36 percent in 2006 as customer dissatisfaction with service levels and tighter scrutiny of utility rate structures have constrained growth opportunities for power companies. In addition, traditional investment costs are rising, making profitability even more challenging. Consequently, utility companies should explore the possibility of new types of ventures to generate earnings, most likely in adjacent parts of the utility value chain. Options include unregulated models (for instance, retail solar provider and home security); microgrids — that is, grids that can disconnect from the traditional grid, operating autonomously to suit demand conditions — or similar disruptive technologies; or gaining exposure to natural resources by, for example, acquiring a midstream fuel provider.

Exhibit 5

Capital spending trends (as percentage of budget)



Source: EEI Annual Property & Plant Capital Investment Survey

Leveraging leadership and culture

Leadership and an approach to managing transformation rooted in an understanding of organizational culture are paramount to success. Even the most robust and thoughtful strategic implementation will struggle to gain traction and acceptance in the organization without clear and consistent ownership, buy-in, and direction from senior management making leadership alignment a critical step. Senior leaders across areas and business units must have a common understanding of the purpose and desired outcomes of the transformation, as well as an understanding of the role they each play in driving to success.

Leaders must also clearly understand the organizational culture in which they work, to identify both how the culture might need to evolve to support the strategic transformation and how they can leverage the existing culture strengths to build organizational support.

A recent survey done by the Katzenbach Center highlighted this challenge, as most executives feel the top barriers to transformation are competing priorities and organizational skepticism and fatigue. These are barriers that can be overcome only by aligned leadership and a culturally integrated approach to transformation.

Conclusion: Available opportunities

Many utilities have been paralyzed by the changes in their industry and have found shifting the strategic approach and operational models of their organizations to be a difficult effort, like turning a battleship. But the power industry is evolving so fast now, and regulators are altering the rules so quickly, that profits and returns on assets are under severe pressure for traditional utilities. Consequently, a somewhat radical overhaul of these businesses is called for — an approach that combines new capabilities with smarter cost management and a disciplined strategic growth plan.

Utilities are still in a position to take advantage of unique opportunities that changes in the industry offer. But power companies that choose anything less than a substantial strategic makeover built on a credible and coherent growth plan may find themselves in a few years unable to catch up to where the industry has gone.

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