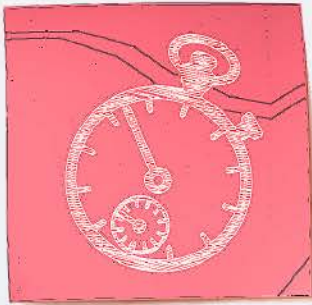


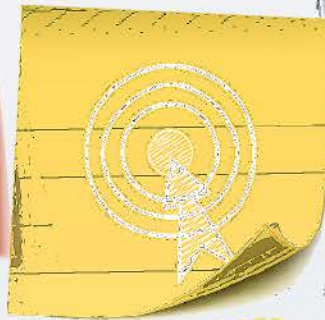


PROJECT MANAGEMENT OFFICE

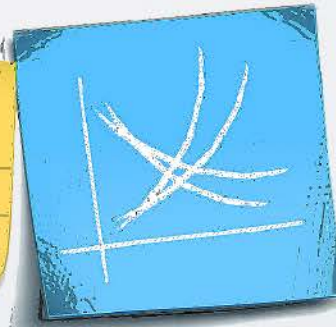
UTILITIES RISING TO THE CHALLENGES
OF INCREASED CAPITAL PROJECT WORK



TIME



\$ BUDGET



RESOURCES



SCOPE



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PMO

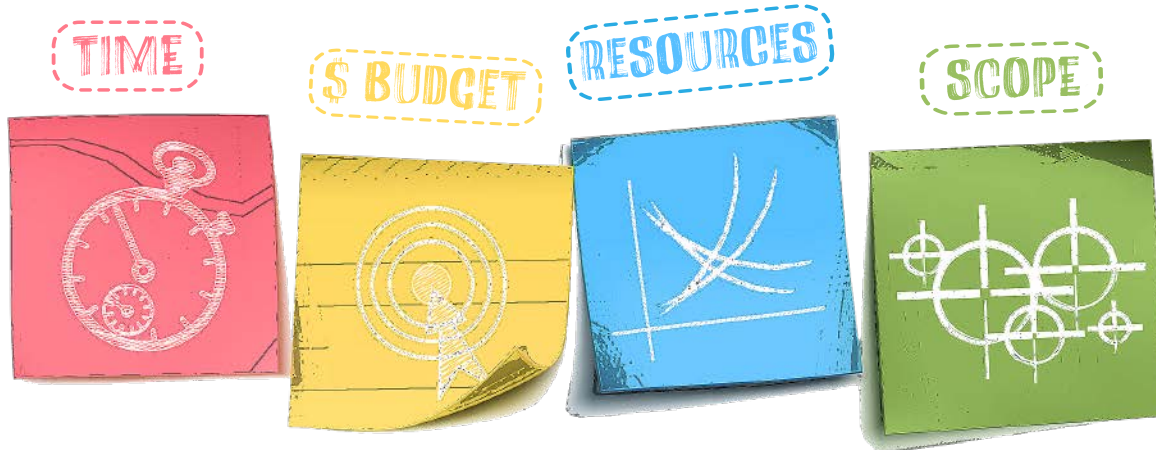
UTILITIES RISING TO THE CHALLENGES OF INCREASED CAPITAL PROJECT WORK

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INTRODUCTION

Utilities are facing increasing pressure to undertake a greater amount of capital projects. Many are dealing with aging infrastructure that requires significant upgrades or replacements, including everything from power lines and water pipes to gas distribution networks. For example, the American Water Works Association estimates that \$1 trillion will be needed over the next 25 years to repair and upgrade water infrastructure, while many of the nation's 3,300 electric and 1,200 gas utilities are dealing with infrastructure that was built decades ago. The rise in number of extreme weather events—2023 was a historic year of U.S. billion-dollar climate disasters, according to NOAA—has increased the importance of strengthening assets or making them more resilient. Meeting sustainability goals is a priority, and there is an increased emphasis on incorporating renewable energy sources to make headway toward net zero emissions. In fact, a 2022 report by the Edison Electric Institute indicated that more than 80% of IOUs in the U.S. have committed to significant carbon reduction goals, with many targeting net zero by 2050. In addition, new smart technologies need to be implemented to ensure systems are monitored in real-time to predict failures, optimize operations, and improve overall system management.

PART ONE of this report—which is based on both primary market research (including a survey of 59 utilities of all types and sizes across the United States and Canada as well as a number of personal, in-depth interviews) and secondary market research—illuminates the trends behind the increasing number of capital projects that need to be completed and current priorities of utilities surveyed. Capital budgets, which fortunately are increasing as well, are also discussed. With larger capital budgets being approved, utilities are feeling pressure in terms of intensified scrutiny from regulators or governing bodies.

With greater amounts of work and increasing scrutiny come a bevy of challenges for utilities. **PART TWO** of the report details some of the rough seas utilities are navigating when it comes to handling these capital projects: limited staff, budgets that don't stretch far enough, and constrained supply chains. Utilities tell us there are also challenges around corporate culture, the prioritization of projects, and the inefficient management of capital spending.

There are pathways to success. Given the hurdles utilities face, rising to meet these challenges is difficult but doable. In **PART THREE**, the report highlights how utilities are strategizing around long-term planning, collaborating with other entities to get work done, and looking to outside resources to augment their workforces. Project management is getting more sophisticated at utilities as they realize the importance of leveraging the expertise and resources of specialized personnel or external resources that can provide improved efficiency, scalability, and cost-effectiveness in managing projects. Outsourcing can provide deep expertise, refined processes, and greater fiscal responsibility, all at a heightened pace, especially as money is flowing in from government grants and other funding sources.

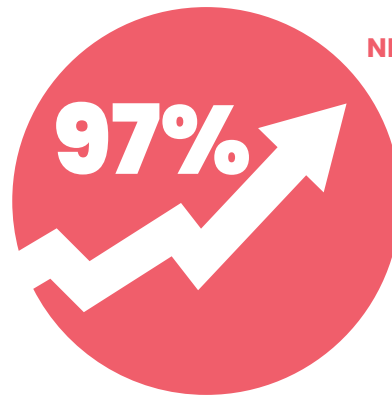


PART ONE

UTILITIES ARE CHALLENGED BY MORE WORK, HANDLING LARGER CAPITAL BUDGETS, FACING GREATER SCRUTINY

UTILITIES OVERWHELMINGLY REPORT THAT AN INCREASING AMOUNT OF WORK NEEDS TO GET DONE.

TMG surveyed 59 utilities of all types and sizes throughout the U.S. and Canada about their capital projects and the volume of work they need to accomplish. Only two of the 59 respondents said the amount of work that needs to be done is not increasing. That means 97% of survey respondents are seeing an increasing amount of capital projects that need to be completed.



WORK THAT NEEDS TO BE DONE INCREASING

WORK THAT NEEDS TO BE DONE NOT INCREASING



3%

- What is causing the need for all these projects? **UPGRADING OR EXPANDING INFRASTRUCTURE** is the No. 1 source of increasing capital projects for utilities. TMG’s survey respondents have several other pressing issues weighing on them at the same time, as shown in the graph below.
- **PHYSICAL AND CYBER SECURITY** are critically and increasingly important for utilities as well and have become an issue of national security. Utility assets are essential for the functioning of society, and any disruption can have significant consequences. Since utilities increasingly rely on digital systems and networks to control and monitor operations, there are more avenues for “attacks” to take down a system. NERC’s Critical Infrastructure Protection (CIP) in the U.S. and similar regulations in other countries can result in significant penalties if requirements are not met. Downtime, repairs, and legal liabilities from an attack on a utility’s physical or cyberinfrastructure can lead to massive financial losses as well as loss of customer trust. Unfortunately, the threat landscape is constantly evolving, and utilities must continuously update and improve their physical and cyber security measures to ensure resilience against these challenges.
- The number and dollar amount of **GOVERNMENT GRANTS AND FUNDING** sources for utility projects have increased over the past several years as well. The Infrastructure Investment and Jobs Act (IIJA) has allocated \$65 billion to upgrade and modernize the nation’s electric grid and another \$73 billion for clean energy investments, while the Department of Energy (DOE) has announced up to \$10.5 billion in grants through the Grid Resilience and Innovation Partnership (GRIP) program to help utilities enhance grid resilience, deploy smart grid technologies, and harden their systems. As the money flows out to utilities, the resulting increase in infrastructure projects that must be completed has the potential to become overwhelming.

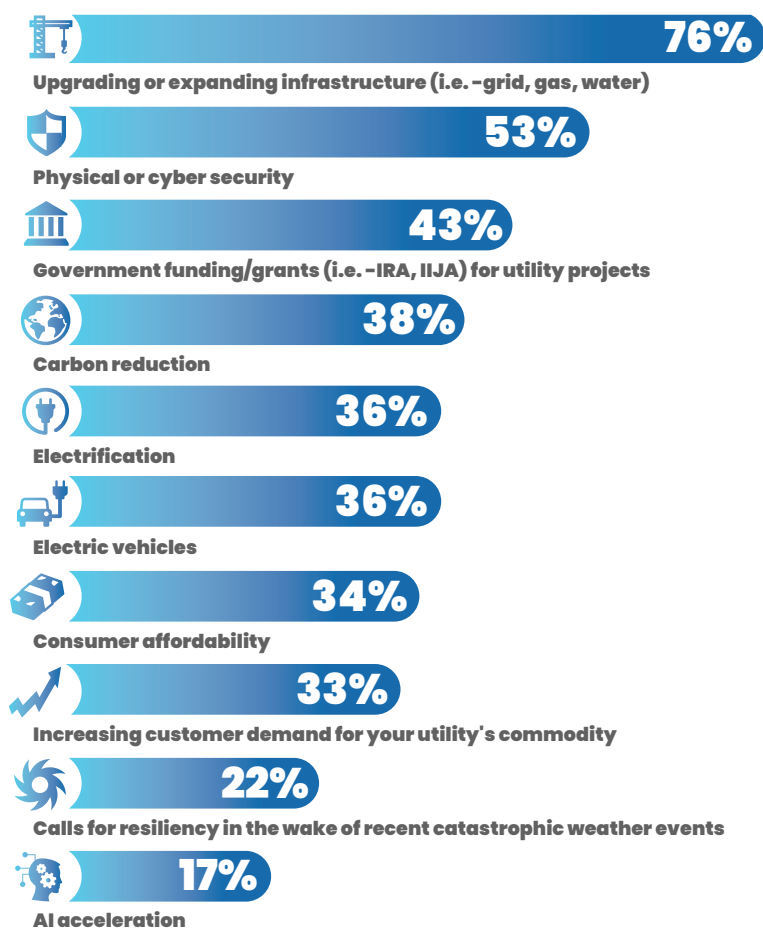


“Most companies awarded grant money will not be quite ready to do all the work required when they get the grant,” a grid modernization engineer at a large Northwest municipal utility told TMG in an interview. “They will need help from organizations with the right expertise that have a deep understanding of the critical paths required for the projects.”



WHICH OF THE FOLLOWING MACROTRENDS ARE INCREASING THE AMOUNT OF WORK THAT YOUR UTILITY NEEDS TO GET DONE?

 % of Respondents saying the trend impacts their utility
 (multiple responses allowed)



Other issues are driving new capital projects as well and include:

- 

CARBON REDUCTION: For a variety of reasons, utilities are making large capital investments in cleaner technologies, emissions reductions, and more efficient systems. Pressure to do so may come from internal sources such as their own boards or shareholders or from external sources such as customers, environmental groups, or government entities.
- 

TECHNOLOGICAL ADVANCEMENTS: The shift towards renewable energy, electrification and electric vehicles (EVs), smart grids, and advanced metering infrastructure (AMI) requires significant capital investment. Utilities are investing in digital technologies to improve efficiency, security, and customer service.
- 

GROWTH IN DEMAND: A combination of economic, technological, environmental, and social changes are driving an increase in electric demand. Electrification of transportation, buildings, and industry; the growth of cloud computing, artificial intelligence, and digital infrastructure; and the impacts of climate change are adding significantly to overall demand. (Astoundingly, at 2.9 watt-hours per ChatGPT request, AI queries are estimated to require ten times the electricity of traditional Google queries, which use about 0.3 watt-hours each.)
- 

CLIMATE CHANGE AND RESILIENCE: The need to make utility systems more resilient to extreme weather events and climate change impacts is driving capital projects. This includes hardening infrastructure, building redundancies, and investing in renewable energy sources. Modern customers expect reliable, high-quality service with minimal interruptions. Utilities must continuously invest in their infrastructure to meet these expectations. It's not just extreme weather events like hurricanes or ice storms. Climate change has also led to load growth that requires additional infrastructure, especially among utilities that are facing hotter summers and experiencing double peaks (summer and winter) in areas that historically faced a single peak, such as the Northwest.



WHAT ARE THE DIFFERENCES AMONG UTILITY TYPES & SIZES

There are a few differences in the types of issues faced by different types of utilities.

- **INVESTOR-OWNED UTILITIES** report being more impacted than other ownership structures (government, or Cooperatively-owned) by two issues: the need for **carbon reduction** and **calls for resiliency** in the wake of recent catastrophic weather events.
- **MUNICIPAL UTILITIES** are seeing more impacts from **increasing demand** and **availability of government grants/funding**.
- The **LARGEST UTILITIES** (more and a 1 million customers) report that **environmental issues** and **AI Acceleration** are impacting the among of work that needs to be done.
- **SMALLER UTILITIES** are seeing greater impacts from the need **consumer affordability** and **increasing demand**.



“Our summers are getting hotter, and our customers are using more air conditioning,” said an engineer at a utility now experiencing double peaks. “We are seeing multiple heat events each summer where we used to only get one a year. We’re having to put in more generation, replace transformers, and harden the grid.”

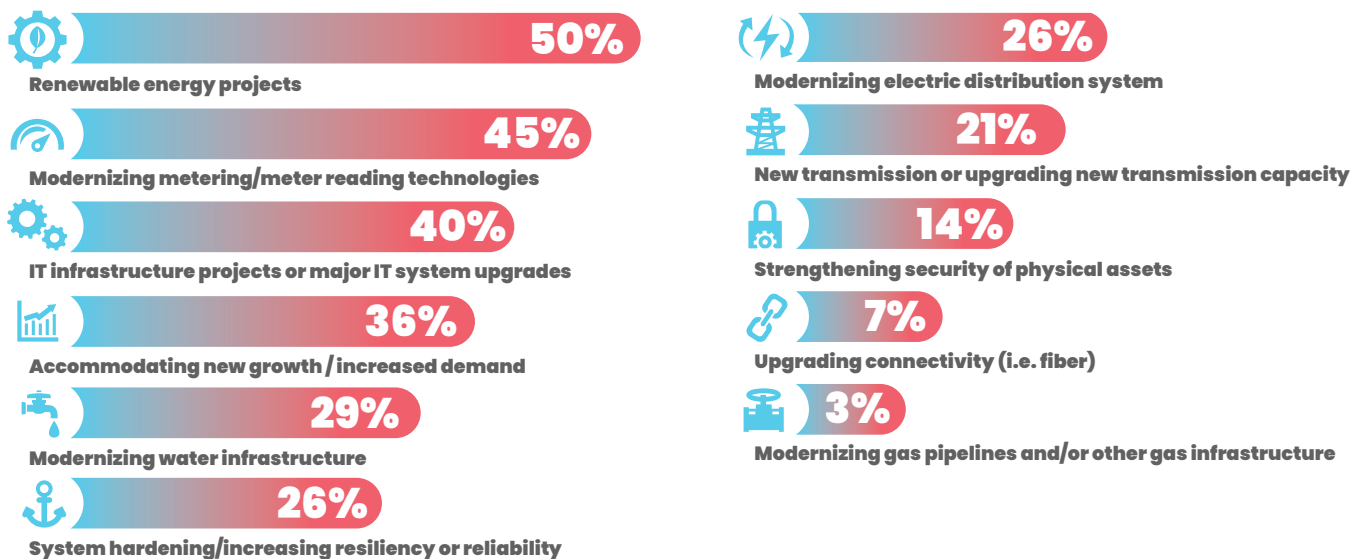
These factors combine to create a situation where utilities are increasingly tasked with managing and funding multiple capital-intensive projects simultaneously.

PRIORITY AREAS FOR INVESTMENT INCLUDE RENEWABLE ENERGY, MODERNIZING METERING

While there are a lot of reasons or macro trends for the increasing amount of work, the top types of projects currently taking center stage are renewable energy and metering modernization.



WHAT ARE YOUR UTILITY’S TOP 3 PRIORITY INVESTMENTS IN YOUR FORWARD-LOOKING CAPITAL SPENDING PLAN?



Major IT system upgrades, accommodating new growth, and system hardening are also top priorities of survey respondents right now.

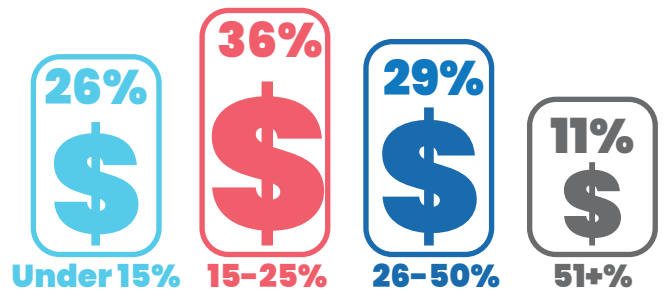
THERE IS GOOD NEWS...

In order to complete these projects, capital investment is growing, and utilities are getting most of what they are requesting from regulators.



ESTIMATE THE PERCENTAGE OF GROWTH OF YOUR UTILITY'S CAPITAL INVESTMENT COMPARED TO 3 YEARS AGO.

More than 75% of utility respondents report capital investment 15%-plus higher than three years ago, with 40% reporting capital investment at least 25% higher. More than 10% see capital investment at least 50% higher than three years ago.



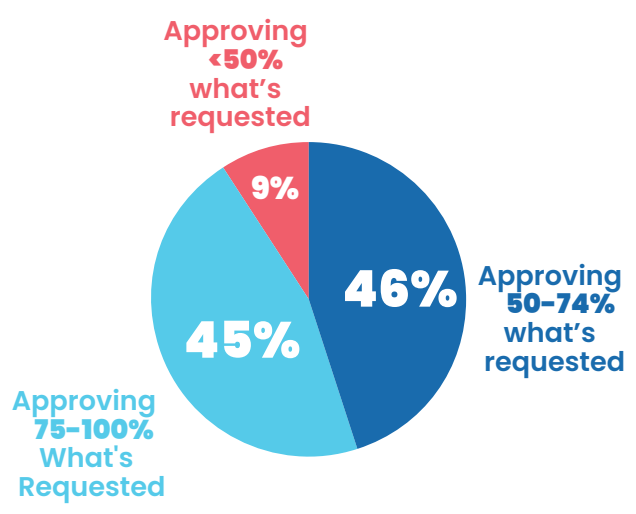
Regulators or governing agencies seem to be on the same page regarding the need for these projects and are approving most of the capital project dollars utilities are requesting. Only 9% of respondents say regulators are approving less than half of requested capital dollars, while 46% see anywhere from 75% to 100% approved.



"NERC's Critical Infrastructure Protection (CIP) is going to drive a lot of our budget and will give us a roadmap to align resources on how to support those projects," said a leader at a municipal utility in Colorado that has been looking to expand capital investment for a while. *"Ratepayers are going to see 8-10% increases for the next five years."*



ARE REGULATORS OR GOVERNING AGENCIES APPROVING THE CAPITAL DOLLARS REQUESTED BY YOUR UTILITY TO MEET THE NEED FOR INCREASING CAPACITY, CLEANER ENERGY, AND IMPROVED RESILIENCY/RELIABILITY? (N=33)



...AND SOME MAYBE NOT-SO-GOOD NEWS

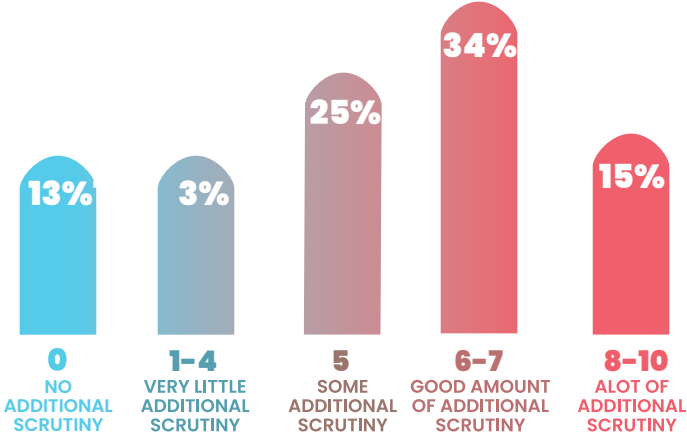
However, with greater funding and more capital projects comes additional scrutiny, survey respondents report. And the amount of additional scrutiny utilities report is noteworthy—an average of 5.3 on a scale of 0 (no additional scrutiny) to 10 (a great deal of additional scrutiny) with almost half (49%) of utilities scoring the amount of additional scrutiny a 6 through 10.

Interestingly, those utilities that were approved for 75% to 100% of what they asked for report seeing less scrutiny than utilities that only received 50% to 75% of what they requested. Governing agencies or regulatory bodies that are approving less are scrutinizing more, according to survey respondents.

In addition, the utilities that report greater growth in capital budgets also report greater scrutiny. These are more likely to include the larger investor-owned utilities (IOUs), while smaller utilities with less growth in capital budgets are reporting less regulatory scrutiny.



ON A SCALE OF 0 TO 10, HOW MUCH OF AN INCREASE IN REGULATORY/GOVERNMENT PRESSURE OR SCRUTINY TO DEMONSTRATE THE EFFECTIVENESS OF MAJOR CAPITAL PROJECTS ARE YOU SEEING?



“More regulations are being put into place,” an enterprise data governance specialist at a large electric and gas utility explained. *“We are having to accommodate significant new environmental issues and regulations, some of which arise in the middle of a big project. They can delay capital projects significantly.”*



PART TWO

UTILITIES ARE STRUGGLING TO EFFICIENTLY COMPLETE ALL THIS WORK

There is work to be done, and, as we found out from survey respondents, a lot of it. Despite all the attention that budgets get, only 7% of respondents mention budget management as their utility's biggest pain point. Fortunately, budgets are growing, and regulators or governing bodies are approving most of what utilities say they need in rate cases or other requests. This is not to say that resources are not constrained. They are.

CONSTRAINED RESOURCES ARE PLAGUING MANY RESPONDENTS

At the same time, all this new work is impending, constrained resources are plaguing a large number of utilities. The aging workforce and hiring challenges have led to a retirement wave and labor shortages, which have been exacerbated by competition from other industries, making it more difficult for utilities to attract and retain talent. In addition, several utilities report hiring freezes and having to work leaner. Almost half the utility respondents report human resources constraints being somewhat or significantly higher than they were even three years ago, at the height of COVID-19.



"With about 5,000 employees and well over half a million customers, it feels we are far too lean. We've had a hiring freeze for many years and are now assessing our needs and hiring again, but it's difficult to get everything done," a utility professional told TMG in an interview.

Capital demands are straining financial resources, especially for those utilities that are facing limited access to funding. Regulatory requirements that necessitate costly investments in compliance, environmental protection, and safety are further straining financial resources while revenue pressures are reducing funds available for necessary investments. More than half the utility respondents report financial constraints being somewhat or significantly higher than they were three years ago.

The world is more than four years post-Covid, yet supply chain disruptions are still leading to shortages of critical materials and equipment needed for utility projects. In addition, rising costs for raw materials such as copper and steel—and increased technological complexity that requires specialized resources—have contributed further to supply chain disruptions. Almost half the survey respondents say supply chains are similarly constrained compared to three years ago (2021), but 39% are seeing even higher levels of constrained resources when it comes to supply chains.

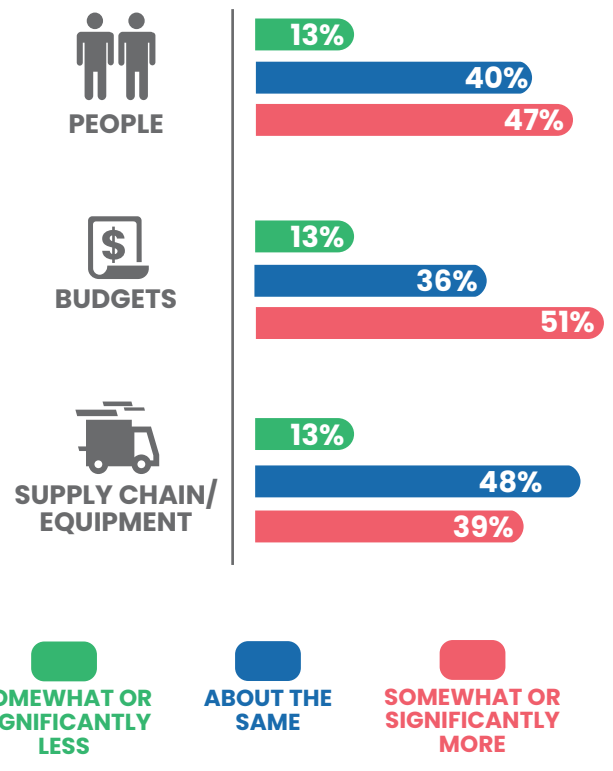


"Transformer costs are crazy; they've gone up six times with significant delays," the deputy director of a municipal utility in the Mountain region said. "We're trying to work with the vendor on a water module project (as well). Deadlines were never met and I'm having to put resources to people reading meters which adds up to hours of work."

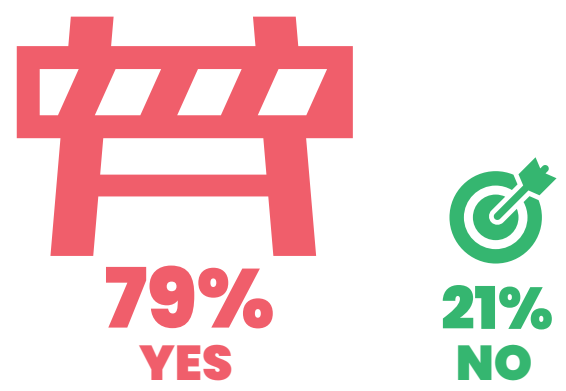


TO WHAT EXTENT IS YOUR UTILITY EXPERIENCING CONSTRAINED RESOURCES NOW COMPARED TO THREE YEARS AGO IN THE AREAS OF PEOPLE, BUDGETS, AND SUPPLY CHAIN/EQUIPMENT?

The constraints are having an unfortunate impact on utilities: Survey respondents are reporting a gap between the work that needs to get done and their utility's capacity or capabilities. When asked to identify the key type(s) of projects where this gap exists, 11 respondents mentioned infrastructure-based projects such as expansions and upgrades, grid modernization, new power plants, while eight respondents said IT and AMI projects are suffering the most. Renewable projects were mentioned by three respondents.



IS THERE A GAP BETWEEN THE CAPACITY/CAPABILITIES OF YOUR UTILITY AND THE AMOUNT OF WORK THAT NEEDS TO GET DONE ON VARIOUS PROJECTS?



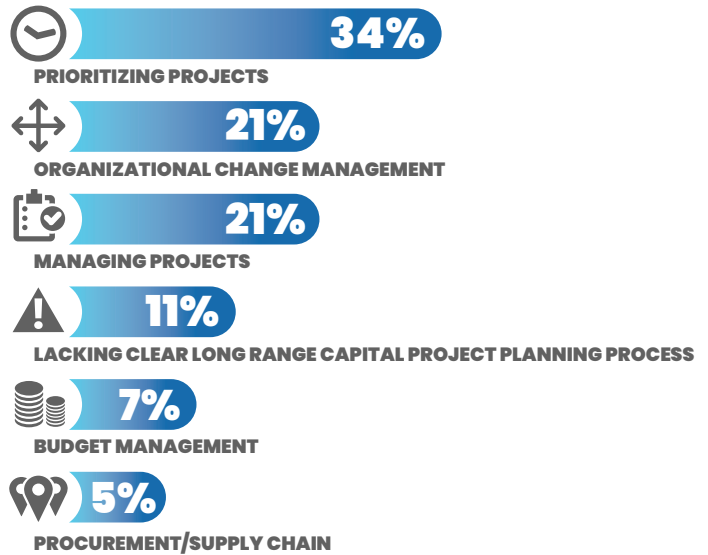
"Budgeting is just not very scientific, especially on newer technologies where we don't have any history," a grid modernization engineer said. "Sometimes we feel like we are flying by the seat of our pants because we just don't have the background on how to manage a project for a technology we've never implemented before."

PRIORITIZING PROJECTS IS THE BIGGEST SINGLE PAIN POINT

The biggest single pain point comes in how to prioritize projects. Utilities often face competing priorities, such as maintaining existing infrastructure, investing in new technologies, and meeting regulatory requirements. Limited resources make it challenging to address all these needs simultaneously, forcing difficult decisions about where to allocate funding and personnel.



WHAT IS THE BIGGEST SINGLE PAIN POINT IN IMPLEMENTING A NEW CAPITAL PROJECT?



Efficiently managing capital spend ensures the utility maximizes the value of its investments and that capital is allocated to the highest priority projects. Some strategies utilities can use for prioritizing projects are discussed in PART THREE: COPING MECHANISMS.

Because a culture that is open to change and innovation can more easily adapt to the dynamic nature of large projects, change management becomes an important issue. This includes being receptive to new ideas, technologies, and methodologies that can improve project outcomes. Effective change management is often a product of a culture that values flexibility and resilience. In such environments, teams are more likely to embrace necessary changes without resistance, minimizing disruptions to the project.



“What we’re finding with all these projects we’re working on - with no PMO, no change management office, no strategy, no consistency with projects - things are all over the map. The organization needs consistency with governance and the same steps for each project,” said an executive at a small electric and water utility.

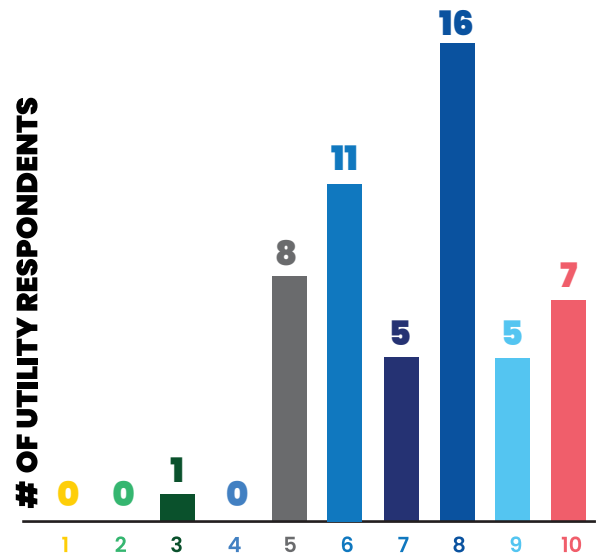


UTILITIES GIVE THEMSELVES A "7" FOR EFFICIENTLY MANAGING CAPITAL SPEND



ON A SCALE OF 1 TO 10, WHAT SCORE WOULD YOU GIVE YOUR UTILITY FOR EFFICIENTLY MANAGING CAPITAL SPEND?

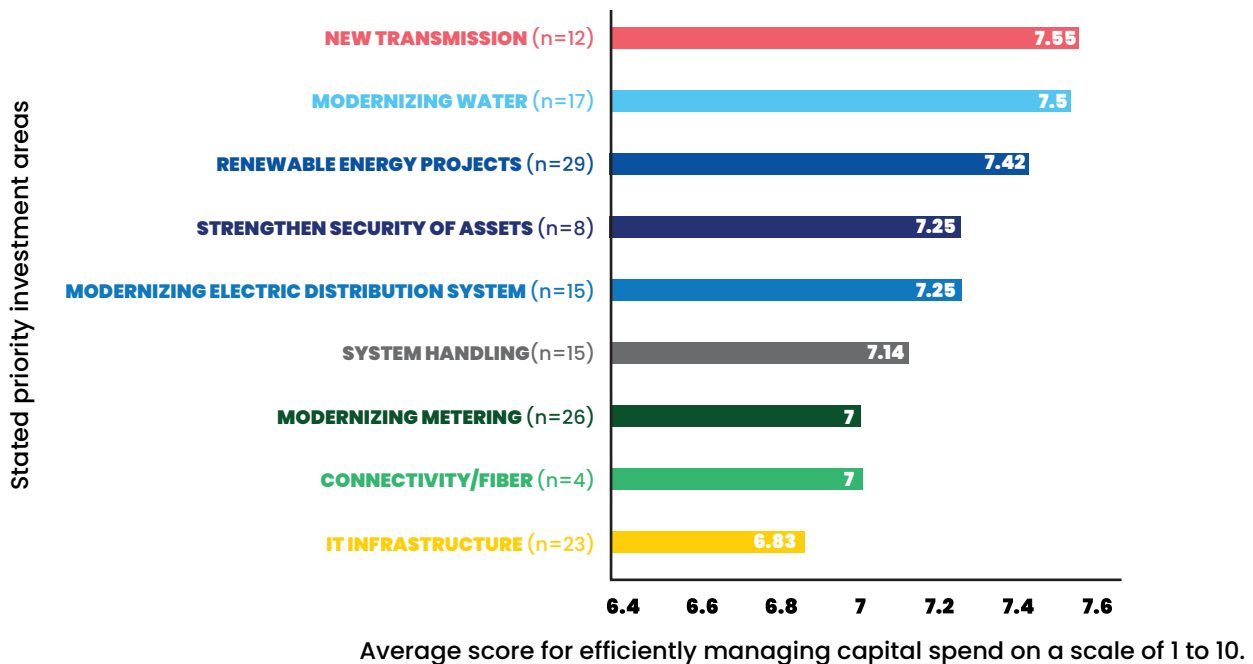
Giving themselves an average score is 7.3 for efficiently managing capital spend, utility survey respondents appear to understand there is room for improvement.



Despite careful planning, utilities sometimes experience cost overruns and delays in capital projects. Factors such as unforeseen site conditions, changes in scope, and supply chain disruptions can lead to increased costs and extended timelines. Navigating the complex regulatory environment can slow the approval and execution of capital projects. Regulatory delays can lead to increased costs and create uncertainty in capital planning. The rapid pace of technological change in areas like renewable energy, smart grids, and energy storage can make it challenging for utilities to manage capital spend effectively.

IT INFRASTRUCTURE PROJECTS NOTORIOUSLY DIFFICULT TO MANAGE

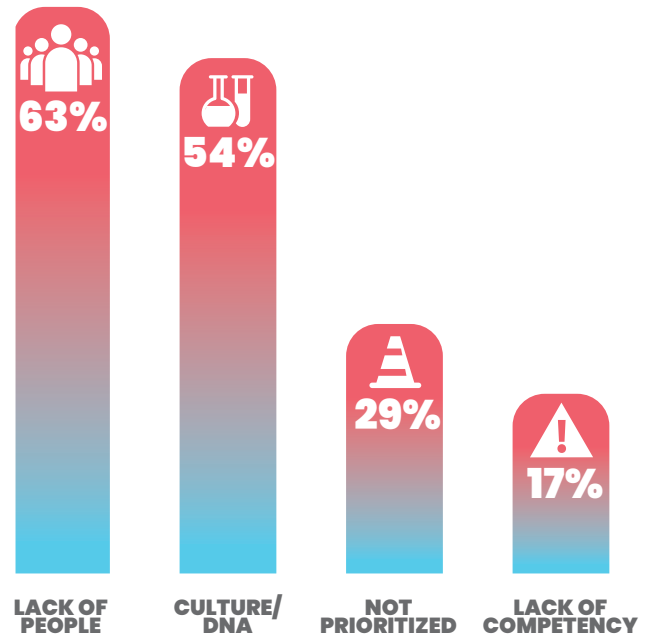
When TMG researchers cross-tabulated the scores utilities gave themselves for efficiency in managing capital spend against the types of projects they are prioritizing, new transmission projects bubbled to the top as being most efficiently managed. On the other hand, IT infrastructure projects seem to be suffering the most. New IT systems often must be integrated with existing infrastructure, which can lead to unforeseen complications, compatibility issues, and increases project scope.





RESPONDENTS RANKING THEMSELVES A 7 OR BELOW ON “DO YOU BELIEVE YOUR UTILITY IS EFFICIENTLY MANAGING CAPITAL SPEND?” WERE ASKED “WHY NOT?”

As mentioned earlier, utilities often face constrained resources, including financial, human, and material resources. These constraints can make it difficult to manage multiple capital projects simultaneously, leading to potential inefficiencies. Respondents echo this sentiment, saying a lack of people is the most common reason for inefficient management of capital spend. However, more than half of respondents cite company culture or DNA as an issue.



“Matching planning with actual spend, prioritizing, and adhering to a timeline are the most challenging aspects of managing capital spend,” a utility professional from a Canadian Crown Corp. said. “Having the right technical expertise in place is also a challenge.”

Company culture plays a critical role in the success of large projects, influencing everything from team collaboration and communication to decision-making and problem-solving. When company culture is aligned with the goals of the project, team members are more likely to be motivated and committed to the project’s success. A strong culture fosters a shared understanding of the project’s purpose and how it contributes to the organization’s broader mission and ensures that decisions made during the project are consistent with the company’s values and long-term objectives, leading to more cohesive and strategic outcomes. The ability to set a clear vision and direction for the project and align the team with the project’s goals—as well as motivate team members to achieve them—requires collaboration and engagement that starts at the top with visionary leadership.

Company culture is not just a background factor but a foundational element that can significantly influence the success of large projects. A strong, positive culture aligns teams, fosters collaboration, enhances communication, and drives the project towards achieving its objectives. Conversely, a misaligned or negative culture can lead to inefficiencies, conflicts, and, ultimately, project failure.



“Even the role and value of a PMO (project management office) within a utility depends on company culture,” a utility professional said in an interview with TMG. “Who is providing leadership on a project, and who is tapped, if anyone, to provide support.”



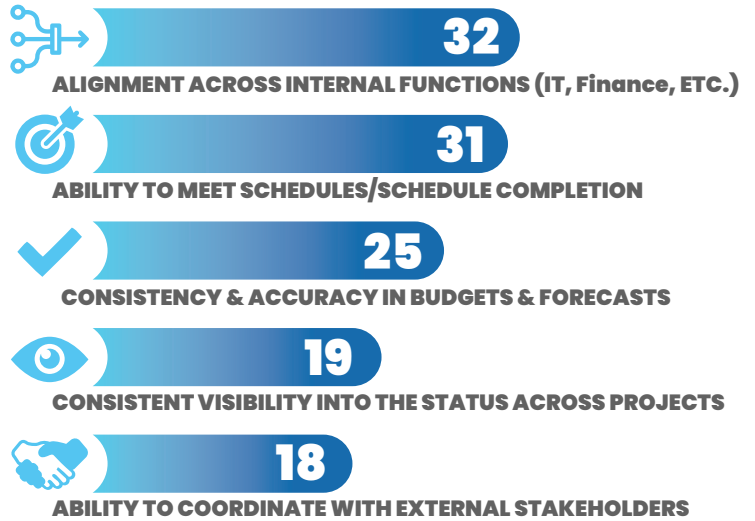
SILO MENTALITY CAUSES PROJECTS TO STRUGGLE

Utilities don't give themselves top-box scores when it comes to managing capital projects. Where are they dissatisfied with their own performance? Many utilities mention the lack of alignment across internal functions—in other words, silos within the organization that slow project progress.



WHAT ARE THE TOP 3 AREAS IN WHICH YOU ARE LEAST SATISFIED WITH YOUR UTILITY'S CAPITAL PROJECT MANAGEMENT?

One of the most difficult aspects of keeping a large capital project on schedule and budget is the fact that they rely on so many different business and support areas—which are typically siloed inside the utility—to work together. In a company with a strong culture of collaboration, departmental silos are less likely to hinder project progress. Teams work together more effectively, leading to better problem-solving and innovation.



“Different groups need to speak the same language, move things down the road at the same time. This is the one of the biggest challenges at my utility,” said an enterprise data governance specialist at a large electric and gas utility while discussing the topics of silos. *“Finding the right project management methodology for doing that is challenging. What we need is the right system integrator to identify the roadmap and communicate with all the right groups, for example, those that are not even aware of the project but will impacted. Considering all the downstream impacts is a challenge.”*

Survey respondents are also dissatisfied with the ways their utilities meet schedules, budget and forecast, and provide visibility into project statuses.



PART THREE

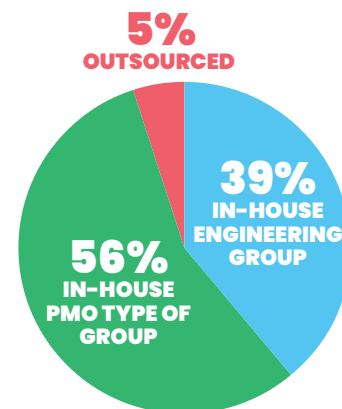
FACING CHALLENGES HEAD ON & WINNING

A project management office (PMO) uses a detailed and tested strategy for making sure schedules are met, budget forecasts are accurate, capital spend is kept on track, silos are broken down, and visibility into projects is transparent—in other words, it has the ability to take on all the challenges and dissatisfiers examined in PART TWO of the report. Other areas in which PMOs can add effectiveness include the use of data analytics and digital tools to improve decision-making and project outcomes, the use of enhanced project controls such as real-time monitoring of project performance and costs to help identify issues before they escalate, and improved engagement of stakeholders to ensure projects align with community needs and regulatory expectations.

UTILITIES ARE DEVELOPING SOPHISTICATED PMOs

While about 40% of utilities still use in-house engineering groups to manage capital project implementation (as well as maintenance and upgrades), 60% have either developed an in-house PMO or turned to an outsourced PMO company. Smaller utilities are more likely to use an in-house engineering group to manage large capital projects, while mid-size utilities are more likely to have an in-house PMO. The largest utilities have in-house PMOs and are also typically the ones to use an outsourced PMO.

MOST UTILITIES USE IN-HOUSE PROJECT MANAGEMENT TEAMS TO MANAGE CAPITAL PROJECT IMPLEMENTATION



A PMO—whether in-house or outsourced—provides a number of services that solve many of the hurdles faced by utilities and discussed in PARTS ONE and TWO above, for example:



PROJECT GOVERNANCE: Establishing standards, methodologies, and processes for project management across the organization. This includes defining project management frameworks, templates, and tools to ensure consistency and quality.



RESOURCE & BUDGET MANAGEMENT: Managing the allocation and utilization of resources across various projects. This can include staffing, budgeting, and ensuring that the right skills are available for the projects. This involves detailed financial tracking and forecasting as well as optimization of resource allocation.



PROJECT OVERSIGHT & MONITORING: Tracking the progress of projects to ensure they are on schedule, within budget, and meeting their objectives. The PMO offers insights or recommendations to keep projects on track.




RISK MANAGEMENT: Identifying potential risks across projects and developing strategies to mitigate them. This includes creating risk management plans and monitoring risks throughout the project lifecycle.


- 
PERFORMANCE MEASUREMENT AND REPORTING: Collecting data on project performance, such as key performance indicators (KPIs), and generating reports for senior management. This helps in making informed decisions about project prioritization and resource allocation.

- 
STAKEHOLDER MANAGEMENT AND COMMUNICATIONS: Maintaining transparent communication with stakeholders, including government agencies, communities and their leaders, investors, customers, and the public, about capital spending plans, progress, and outcomes to build trust and ensure alignment with organizational and local/community goals.

- 
REGULATORY COMPLIANCE AND REPORTING: Ensuring that all projects comply with local, state, and federal regulations. This includes managing the documentation and reporting required for regulatory bodies and monitoring and ensuring that all projects meet environmental and safety standards, reducing the risk of penalties.

- 
PROJECT SUPPORT AND TRAINING: Providing support to project managers and teams, offering training and guidance on project management best practices.

- 
CHANGE MANAGEMENT: Managing the implementation of changes within projects or across the organization, ensuring that changes are effectively communicated and integrated without disrupting project timelines.

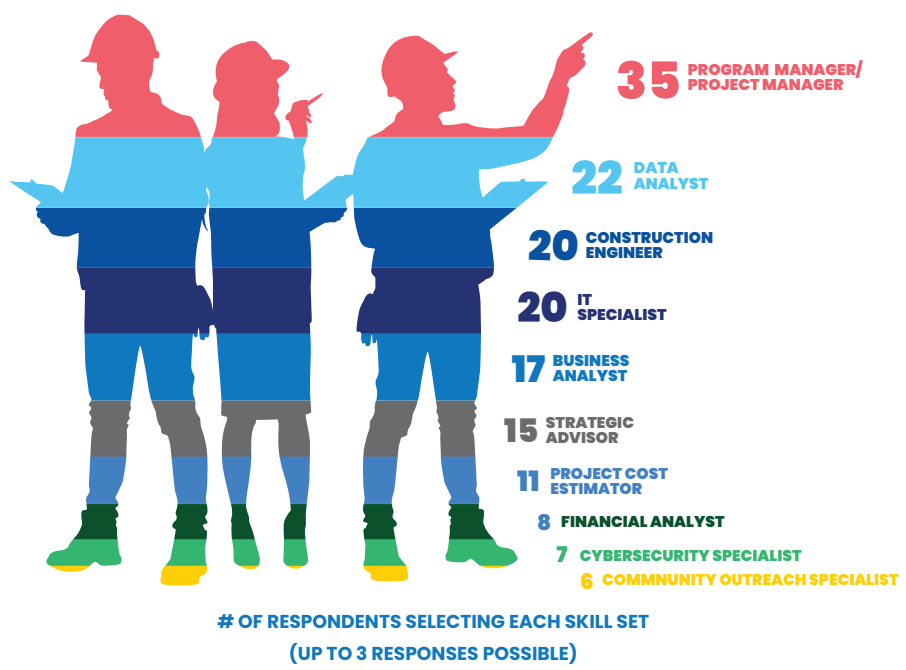
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BENEFITS REALIZATION: Ensuring that projects deliver their intended business value by tracking benefits realization and assessing whether project outcomes align with the strategic goals of the organization.

Because a PMO has so many varied responsibilities, it needs to rely on a wide range of skill sets. However, utilities simply don't have all the expertise; as it was stated earlier in the report, 79% of utilities report experiencing a gap between the work that needs to be done and their capacity or capabilities. Surprisingly, even though many of them (56%) have PMOs, the majority of survey respondents said the top skill set needed to augment execution of capital projects is a program or project manager.



WHAT ARE THE TOP 3 SKILL SETS THAT WOULD BE MOST BENEFICIAL TO AUGMENT THE EXECUTION OF YOUR UTILITY'S CAPITAL PROJECTS?

Data analysts, construction engineers, IT specialists, business analysts, and even community outreach consultants are other professionals that utilities would like to be able to lean on more.





An electric utility in the Northwest calls its long-standing PMO the Project Delivery Group. The group consists of both engineers and non-technical personnel of various backgrounds who *“lean on engineers for technical expertise,”* an engineer reported. *“There’s always a SME (subject matter expert) paired with a project coordinator. The SME does the designs, the coordinators arrange the resources.”*

PROJECT MANAGEMENT METHODOLOGIES

There are several project management methodologies that utilities use to plan, execute, and complete projects effectively. Each methodology has its own approach, tools, and techniques suited to different types of projects and organizational cultures. It’s also important to standardize procedures, assessments, implementation and testing, and deployment approaches. Some of the most widely used project management methodologies are:

- **CRITICAL PATH METHOD (CPM)** is a step-by-step project management technique used to identify the longest sequence of dependent tasks (the critical path) that must be completed for the project to be finished on time. It helps project managers prioritize tasks and allocate resources effectively and is best for projects with complex task dependencies and tight deadlines, such as construction and engineering projects.
- **THE WATERFALL METHODOLOGY** is a linear, sequential approach where each phase of the project must be completed before moving on to the next. It typically involves stages such as requirements gathering, design, implementation, testing, deployment, and maintenance. With an emphasis on thorough planning and documentation upfront, it’s best for projects with stable requirements, such as construction or manufacturing.
- **AGILE** is an iterative and incremental approach to project management that focuses on flexibility, collaboration, and customer feedback. Agile projects are divided into small iterations or sprints with continuous testing and adaptation. It’s best for software development, product development, and projects with rapidly changing requirements.
- **KANBAN** is a visual project management methodology that focuses on optimizing workflow and reducing bottlenecks. It uses a Kanban board to visualize tasks and their progress through different stages. It’s best for teams seeking to improve workflow and efficiency, often used in manufacturing, IT operations, and software development.
- **LEAN PROJECT MANAGEMENT** focuses on maximizing value by eliminating waste and optimizing processes. It originated from Lean manufacturing principles but has been adapted to other industries. It emphasizes continuous improvement (Kaizen) and reduces waste by optimizing processes and removing non-value-added activities.
- **PRINCE2** (Projects IN Controlled Environments) is a structured project management methodology that provides a detailed framework for managing projects from start to finish. It is process-driven and emphasizes clearly defined roles and responsibilities. It focuses on dividing projects into manageable stages with specific processes, emphasizing documentation, planning, and control throughout the project.



- **SIX SIGMA** is a data-driven methodology focused on improving quality by identifying and removing defects and minimizing variability in processes. It uses statistical analysis to guide decision-making and is typically used for projects focused on quality improvement.
- **HYBRID METHODOLOGIES** combine elements of different project management frameworks to create a customized approach that fits the specific needs of the project or organization by applying the most suitable practices and techniques from multiple methodologies.



WHAT MAKES A GOOD PROJECT MANAGER?

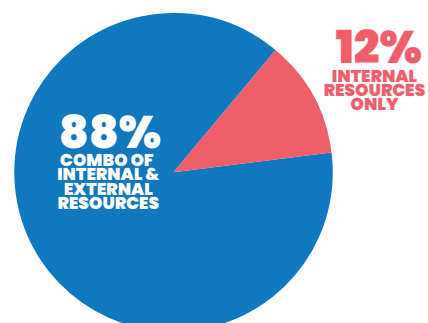
To effectively lead and deliver complex initiatives, a good project manager for a large technical project needs a combination of skills, knowledge, and personal attributes, including:

- ✓ Technical understanding and the ability to bridge gaps between technical and non-technical stakeholders
- ✓ Leadership, ability to set a clear vision and direction for the project, to lead a diverse team, foster collaboration and manage conflicts
- ✓ Financial acumen for budget management and cost control
- ✓ Relationship building and setting expectations
- ✓ Ability to break down silos when difference in organizational culture between IT and business units leads to misunderstandings or misaligned priorities
- ✓ Clear and concise communication skills
- ✓ Problem solving and critical thinking
- ✓ Ability to identify technical and non-technical risks early in the project and develop strategies to manage them
- ✓ Time management skills
- ✓ Flexibility and adaptability
- ✓ Emotional intelligence to demonstrate empathy towards team members and stakeholders
- ✓ Resilience in the face of challenges
- ✓ Commitment to quality and continuous improvement

OUTSOURCING

To solve the issues of constrained resources and the above-mentioned gap between the amount of work that needs to get done and a utility's capacity/capabilities, many utilities turn to outsourcing. The vast majority use a combination of both internal and external resources to staff large capital projects. Often these resources consist of strategic advisors, technical consultants, engineering/construction firms, or project integrators.

MOST UTILITIES USE A COMBINATION OF INTERNAL AND EXTERNAL RESOURCES TO STAFF LARGE CAPITAL PROJECTS





An electric municipal in the Pacific Northwest used a technical consultant for the duration of a microgrid project. *“They acted as owners of the projet. There was a face person with an entire technical team behind that person. The project took two to three years and was ultimately successful,”* leading to the utility to see the benefits of outsourcing the entirety of large capital projects that it doesn't have the in-house staff or expertise to handle.

Outsourcing a PMO allows organizations to leverage the expertise and resources of specialized providers, often leading to improved efficiency, scalability, and cost-effectiveness in managing projects. Tapping into specialized talent and expertise that might not be available in-house can help utilities more efficiently manage workloads and better prioritize and allocate resources.

Outsourcing project management also allows utilities to access technologies they may not be able to afford or have time to set up, for example, artificial intelligence (AI), state-of-the-art automated design tools, and real-time project visualization and dashboards.



“Hire a partner to provide turnkey PMO support to deliver the efficiencies the project needs, automating manual processes, eliminating waste, and innovating new ways of getting work done,” said Sharelynn Moore, CEO of 4Liberty. *“Using outside project managers with expertise in construction, design, and materials helps utilities stay in control and frees them up for more strategic endeavors.”*

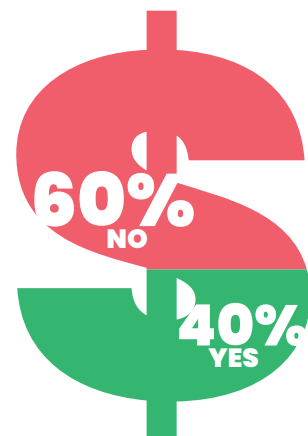


“An outsourced PMO will be especially valuable on new projects that internal people are unfamiliar with. Having someone with that expertise is very beneficial,” a utility engineer told TMG.

The ability to scale up quickly is another benefit of outsourcing. Many utilities are seeking funding through government grants, loans, or public-private partnerships to support infrastructure projects; should they receive the funding, these utilities will need to initiate work at a rapid pace and would benefit from turning to an outsourced PMO.



ARE YOU SEEKING/HAVE YOU BEEN REWARDED IJJA OR OTHER GRANT MONEY FOR CAPITAL PROJECTS





BILLIONS IN FEDERAL AND STATE FUNDS AVAILABLE TO HELP UTILITIES FINANCE INFRASTRUCTURE PROJECTS

Various federal and state programs are available to help finance infrastructure upgrades. Many government programs and policies, such as those under the Bipartisan Infrastructure Law, provide funding for both grid hardening and renewable energy projects. These programs recognize that a resilient grid is crucial for the successful integration of renewable energy sources.

Significant funding has been directed towards utility system hardening in recent years. The Grid Resilience and Innovation Partnerships (GRIP) Program, a key part of the Bipartisan Infrastructure Law, has allocated \$10.5 billion over five years to enhance grid resilience and flexibility. The first round of funding, announced in October 2023, distributed up to \$3.46 billion for 58 projects across 44 states. The second round, announced in November 2023, offers up to \$3.9 billion for fiscal years 2024 and 2025. The GRIP Program consists of several funding mechanisms:

- Grid Resilience Utility and Industry Grants: \$2.5 billion to modernize the grid and reduce the impacts of extreme weather.
- Smart Grid Grants: \$3 billion to enhance grid flexibility, efficiency and reliability
- Grid Innovation Program: \$5 billion to support innovative transmission, storage and distribution projects.

Additionally, the DOE's Grid Resilience State and Tribal Formula Grants have distributed more than \$580.5 million since May 2023 to various states and tribal nations to further modernize the electric grid.

Other programs include those through Federal Emergency Management Agency (FEMA) such as the Hazard Grant Program (HMGP) that provides funding to states the local governments for projects that reduce the risk of disasters, including grid hardening projects; and the Building Resilient Infrastructure projects to withstand natural disasters. Additionally, various DOE initiatives fund grid resilience and energy storage efforts.

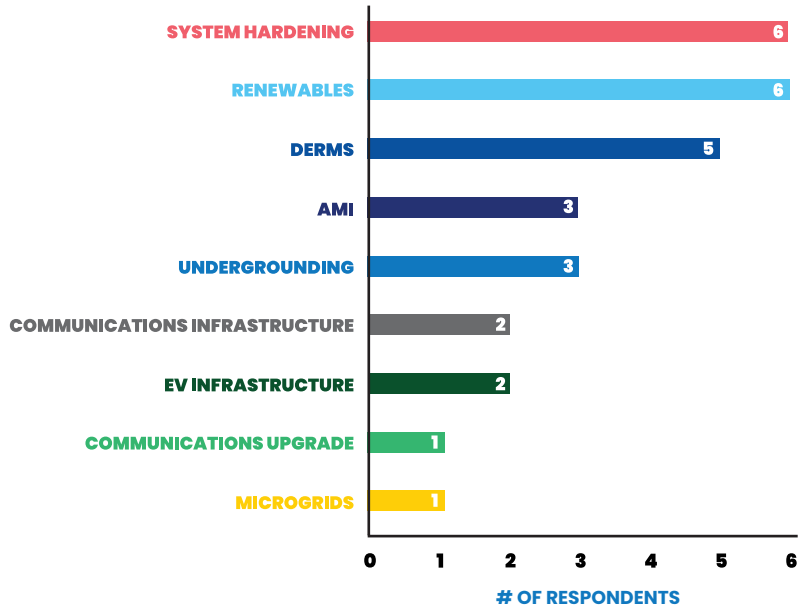
Furthermore, more states offer their own programs and incentives to support utility infrastructure hardening, often in collaboration with federal initiatives. Examples include California's Wildfire Mitigation Program and Texas' Grid Reliability Improvement Program.

Most of the survey respondents indicate their utilities plan to undertake renewable energy or system hardening projects with the grant money for which they've applied or been awarded. Others mention distributed energy resources management systems (DERMS), AMI, undergrounding, EV infrastructure, and communications infrastructure.



WHAT TYPE(S) OF PROJECTS WILL YOU MOVE FORWARD WITH BASED ON THE GRANT MONEY?

Utilities applying for grant money most likely to undertake renewables, system hardening projects.



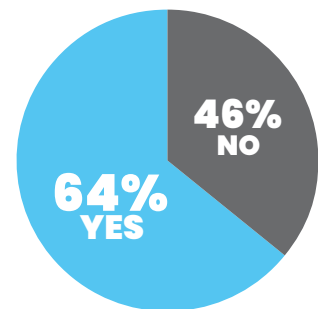
“Most companies awarded GRIP Grants will get money for a project they are not quite ready to do (since they can’t staff up prior to receiving the money in case they don’t win the grant),” explained an engineer with a utility that has applied for a grant to deploy an advanced distribution management system (ADMS) and DERMS. “When they get the gran, they will need help. They will need PMOs that know and understand the critical paths for those types of projects.”

While most utilities use a combination of internal and external resources, only 5% say they outsource project implementation/PMO type of work. However, most are open to such an arrangement, the TMG survey found.



IF YOU WERE ASSURED OF GREATER EFFICIENCIES AND PROGRAM PREDICTABILITY, WOULD YOUR UTILITY CONSIDER OUTSOURCING ALL OR PARTS OF ITS MAJOR PROJECTS/PMO-TYPE TASKS?

Most utilities would outsource if assured of greater efficiencies and program predictability.



The main reasons utility respondents report they would outsource PMO-type tasks (open-ended question) include:



WORKFORCE CONSTRAINTS:

- ✓ "Projects need ramp up"
- ✓ "Lack of sufficient internal resources to do the work"
- ✓ "We have limited staff availability"
- ✓ "Personnel resources are strained"
- ✓ "The work is not necessarily consistent, so it could help overstaffing"
- ✓ "Simply do not have the resources within the utility"



EXPERTISE/EXPERIENCE:

- ✓ "Need advice from someone who has completed similar projects for others"
- ✓ "Learning new programs takes years, which will stretch out the deadlines"
- ✓ "For newer projects, we appreciate experience"
- ✓ "Cost-control and timeline-management skills"
- ✓ "Expertise and alternative views"
- ✓ "We lack the expertise in house"
- ✓ "Lack of experienced PM"
- ✓ "Experience"
- ✓ Another respondent simply wrote "Expertise"



EFFICIENCIES, IMPROVED RESULTS:

- ✓ "Workloads are increasing, as are costs, so achieving any efficiencies would be welcomed"
- ✓ "Want to best leverage each dollar spent for return"
- ✓ "Scalability"
- ✓ "Improved productivity"



ACCOUNTABILITY:

- ✓ "Likelihood of meeting deadlines and success"
- ✓ "It is important that the projects are done as soon and efficiently as possible, so if we have a guarantee that the support of an outsourced party means that we reach our goals, we may do that"
- ✓ "To get work done timely"
- ✓ "For better results"



"We need a PMO that is knowledgeable of the industry and compliance requirements so we don't have to spend a lot of time bringing them up to speed," a Canadian utility professional said.



Additionally, a turnkey PMO can help break down silos. *"There's no such thing as a non-digital asset anymore. We know the IT requirements, can speak both IT and OT (operational technology) languages, and provide assurances to business units that IT requirements are being met,"* Moore said.

Furthermore, *"there are a lot of projects that don't go through the utility PMO because they're not considered 'major' enough. That work can suffer, but we can come in and wrap full PMO support around these projects,"* Moore explained.

Respondents who indicated they would not outsource PMO-type tasks were asked why not. Most of them mentioned the need for regulatory or local government approvals, company culture, having the skills and workforce internally to handle PMO-type tasks and change management issues.

“A turnkey PMO company can take ownership of a project from end to end. Scope, cost, and schedule—all three should be integrated for a greater degree of success. One example is bringing in the right people, such as IT, from the beginning so you don’t have to redo project scopes, costs, and schedules. Labor costs decrease when the outsourcer has the expertise to innovate, automate, and eliminate manual tasks,” explained Yvette Seymour, Ed.D., Director of IT, Grid Systems and Security at 4Liberty.



PRIORITIZING PROJECTS

Named as one of the biggest challenges for utilities as capital project budgets are increasing, prioritizing projects effectively ensures capital spend is managed most efficiently. The first step is building a five- to ten-year strategic plan that ensures capital spending is closely aligned with strategic goals and long-term objectives. This alignment helps prioritize projects that drive the most value and support the company’s growth or competitive advantage.

“Treat capital projects as a portfolio, balancing risk and return across the portfolio to ensure that capital is allocated to the most promising opportunities. The portfolio of projects should be established using a scoring system based on criteria such as return on investment, strategic alignment, risk, and impact on operations. Regularly review and adjust the portfolio based on changing business conditions or priorities,” advised Seymour.



THE IMPORTANCE OF FINANCIAL CONTROLS

Developing well-defined budgets with cash flows that align with project critical path activities are crucial in helping to understand and plan both capital needs and resources of the business. A disciplined approach to budgeting and planning can help deploy capital efficiently and effectively. Closely monitoring the costs and financial performance of all projects helps ensure that the utility’s business objectives and performance targets are being met. *“A utility should coordinate an effective cost management review process to closely monitor actual spending against project budgets, track spend against the original plan and subsequent budget updates while helping to meet the utility’s operational and financial goals,”* said Moore.



Part of controlling costs is optimizing procurement and supplier management. Well-run PMOs ensure that the orders are made, lead times are being tracked, and that inventory is well managed to assure project success.



ORGANIZATIONAL CHANGE MANAGEMENT

Implementing new capital projects often requires changes to established processes and workflows; in other words, it impacts people and therefore can be met with resistance from employees and other stakeholders. Managing this change effectively is crucial for project success.

Organizational change management (OCM) is a structured approach used to manage the people side of change within an organization and involves preparing, supporting, and helping individuals, teams, and the entire organization make a successful transition from the current state to a future desired state. OCM focuses on how changes affect people and how to guide those people through the transition effectively, minimizing resistance and maximizing engagement.



“Change management can be a slow process. We developed a dedicated OCM team two years ago. But the team only has three people for an 1,800-employee utility. They share a framework and what needs to happen, and then individual teams create a strategy based on that framework,” a leader at an electric and gas utility told TMG.

After assessing how—and how much—the change impacts different groups, systems, and individuals, the organization should create a change management plan that outlines the steps needed to implement the change successfully. This plan includes communication strategies, training programs, stakeholder engagement activities, and timelines. Developing and delivering clear, consistent, and timely messages to stakeholders to inform them about the change, the reasons behind it, the benefits, and how it will impact them helps reduce uncertainty and resistance. Strong leadership is crucial in setting the vision, providing direction, and motivating employees throughout the change process. Senior leaders should visibly support the change.

“When I think about capital projects, the key to successful project delivery is 1) early engagement; 2) an end-to-end program manager with direct end to end reporting resources, and 3) change management,” said Seymour of 4Liberty, who has an Ed.D. in Organizational Change and Leadership from the University of Southern California.



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