



From planning to execution

How executives at top utilities contribute to the success of capital projects

A report from the Economist Intelligence Unit
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Preface

From planning to execution: How top utilities executives contribute to the success of capital projects is an Economist Intelligence Unit research report, sponsored by Oracle. The findings and views expressed in the report do not necessarily reflect the views of the sponsor. The author was Sarah Fister Gale.

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Executive summary

Every fiscal year, utility executives face difficult decisions about which capital projects to support and how to assess the benefits and risks of these investments for customers and stakeholders. Limited budgets, growing customer demand, renewable energy goals, risk of infrastructure failure and an ever-shifting regulatory environment are just a few of the factors they must consider as they balance their portfolios.

Making the wrong choice can lead to massive cost overruns, infrastructure failure and missed regulatory deadlines, all of which impact corporate viability and the bottom line. Additionally, it is the utility executives themselves who are held accountable for failed projects, even though their role becomes one of oversight once the initial decision-making process is completed.

The good news is that utility industry leaders have come to recognise the shortcomings in their portfolio management process, and many of them are making changes to improve results. This report investigates the methods they are using.

Our findings show that utility executives are increasingly:

- demanding more rigorous up-front planning before a project will even be considered. If divisions want support for their initiatives, they must produce detailed project plans outlining benefits, risks, budgets, schedule and scope. This streamlines decision-making and eliminates bad ideas from the start;
- managing budgets and risks across the portfolio, rather than considering projects individually. This approach gives them the flexibility to accommodate unexpected risks and take advantage of opportunities by moving funds between projects;
- adding early milestone reviews to trigger the full release of funds. As project plans are often written months in advance of execution, this step ensures scope and budgets are still relevant before they make a final investment;
- triggering immediate executive reviews when projects run significantly over budget or behind schedule. Having formal triggers enables executives to solve problems before projects veer off course;
- viewing regulators as partners, not adversaries. Regulations are not going away, and the most timely and cost-effective way to address them is to work in conjunction with the regulators and elected officials.



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Introduction

Utility companies may excel at building reliable energy systems, but they struggle to manage the finances that support these capital investments. An Economist Intelligence Unit survey released in January 2011¹ shows that the three greatest challenges utility industry executives face in delivering capital projects are predicting long-term costs (48%); assessing return on investment (33%); and effectively managing cash flow over the lifecycle of these projects (30%). The survey also shows that 17% of executives rate their organisations as “not very effective” or “not at all effective” at planning, prioritising and selecting capital investment opportunities.

This lack of expertise often results in projects that deliver quality results, but with massive budget overruns. Take, for example, Xcel’s Smart Grid City in Boulder, Colorado. This groundbreaking project is seen as a model for future smart grid projects, delivering innovative solutions that give consumers real-time information about their power consumption. But the final cost of the project came in at almost three times the original projected price tag. Such scenarios are not uncommon, and reflect a need for better financial planning and project decision-making methods to keep these investments on track.

A growing awareness of this gap, coupled with the limited access to capital for new projects, is triggering change in the sector. Utility executives are implementing more rigorous project assessment processes and greater oversight to improve the ROI of their capital investments. Companies that use these methods are already reaping benefits in the form of improved project delivery rates, fewer risks and better investment decisions that deliver greater system reliability and improved financial results.

1. *Prepare for the unexpected: Investment planning in asset intensive-industries*, Economist Intelligence Unit, January 2011.



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Portfolio planning

Utility executives face constant pressures when making capital planning decisions. The senior leaders in the organisation, including the CEO, CFO, COO and often the heads of transmission, distribution, and generation, come together to assess potential projects and determine which investments to support within their limited budgets. These decisions must accommodate infrastructure maintenance, regulatory requirements, energy efficiency and sustainability goals and demands to extend their power systems to new communities, among other things. While all the projects they consider may be relevant, they must determine which investments deliver the greatest value and reliability to consumers, while reinforcing the financial standing of their companies.

Adding to the challenge is the fact that industry revenue has steadily declined in recent years, with no foreseeable uptick. Less than one-quarter of utility executives in the US expect electricity usage in their area to rise by an annual average of more than 1.5% between 2011 and 2020, according to the 2010 Black & Veatch *Strategic Directions in the Electric Utility Industry* survey.² And they believe regulatory commissions are unlikely to approve rate increases, which means utilities have got to make their existing budgets go further.

Brian Bird, CFO of NorthWestern Energy in Sioux Falls, South Dakota, understands these pressures. He joined NorthWestern in 2003, shortly after the company declared bankruptcy, and has been rebuilding its capital structure and financial profile ever since. The company emerged from bankruptcy in 2005 and, owing to prudent financial management, is now rated a stable investment by Wall Street, drawing renewed interest from investors.

This kind of financial stability is vital in an industry where projects can only move forward if executives can attract the capital to support them. However, getting access to funding is just the first step. When investors are eager to put money into projects, executives must be more careful about the capital they accept and about defining the return they can secure for those investments. If they accept too much money, their debt to capital ratio is too high, which throws off their standing with rating agencies and increases their financial risks.

“The ideal profile is 50-55% debt to capital,” says Mr Bird. To achieve this requires mature evaluation processes that accurately measure the potential ROI of a project, and strict project oversight to ensure that value is delivered.

“The goal is to bring top-tier reliability without putting undue pressure on customer rates,” Mr Bird says. “If we spend too much, customers overpay, but if we spend too little, reliability suffers.”

2. *Fourth annual strategic directions in the electric utility industry survey*, Black & Veatch, January 2010.



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The long view

Most utilities attempt to maximise the value of their portfolio by first reviewing their long-range capital planning goals, based on projected needs over the next 20 years. They then identify near-term capital investments to support those goals. Those investments are assembled in a five-year capital expenditure plan that is adjusted annually to accommodate changes in forecast demand.

The benefits of such long-range capital planning that is supported by an immediate five-year portfolio plan are clear. By forecasting and prioritising projects on a long-term basis, leadership teams can more efficiently accommodate adjustments in the portfolio and shuffle projects to take advantage of shifting market opportunities.

This way, if a high-priority project requires additional funds, the leadership team can transfer money from a low-priority initiative to fill that budget gap. Or, if a major project is under budget, executives can reallocate contingency funds to ramp up new initiatives, according to Mr Bird. "It makes us more

CASE STUDY A change of course for Duke

Sometimes unexpected risks arise during project implementation that require executive teams to carefully balance the needs of the organisation against the needs of the community. Such was the case in April 2010, when Duke Energy was building a US\$60m substation and transmission line in North Carolina to address load growth issues in the area.

The project was on schedule and under-budget. Land had been purchased and construction had begun, says Paul Kling, Duke's director of project management and controls. But then a local group of Cherokee Indians raised a concern. They claimed that the hillside Duke had purchased for the station was "in view of sacred ground", which made it off limits for construction.

The tribe brought a lawsuit against Duke, which shut the project down, and Duke senior executives immediately met with project team to devise a solution. Though Duke could have fought the lawsuit, the executives and project team approached the problem from a more

holistic standpoint, seeking out a solution that would balance the objectives of the projects with the needs of the Cherokees.

After negotiating with the Cherokee tribe, and government leaders Duke opted to move the project to a new location. By making that decision, the company was able to build a new transmission station in time to address impending voltage issues, while accommodating the concerns of the Cherokee community.

"The project team invested a significant amount of time and effort into making sure we met everyone's needs and got this project accomplished," says Mr Kling.

Since Duke enables its business unit leaders to manage their budgets from a portfolio standpoint, rather than by individual project, the project team was able to manage changes to the remaining US\$52m from the existing project plan. They were also able to shift additional resources within the project portfolio to account for any cash flow deviations that occurred as a result of the scope change. "Because our contingencies are built into the portfolio, we were able to reintegrate dollars from elsewhere in the budget and spend them more effectively," says Mr Kling.



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nimble, and it allows people closest to the work to make decisions without worrying about where the money will come from.”

Such an approach also allows utilities to secure long-term contracts with vendors and contractors, which enables volume discounts and reduces the time spent renegotiating contracts. “It lowers our costs and it lowers our risks, because we can plan further into the future,” says Paul Kling, director of project management and controls at Duke Energy.

The challenge in establishing a five-year portfolio plan is that many of these projects take more than a decade to complete. Execution risks, such as fluctuating commodity prices and new regulations, are difficult to predict so far in advance, says Teresa Mogensen, vice-president of transmission at Xcel Energy in Minneapolis.

She points to a US\$2bn programme in her current portfolio to build four multi-state transmission lines and substations. Xcel is partnering with 10 other utilities to deliver the project, which began in 2004 and is scheduled for completion in 2015. “It’s difficult to definitively line up resources for a project of such scope and complexity when it might not begin or end within your current five-year plan,” she says.



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Selecting projects

But such balancing acts must be accomplished for energy systems to remain functional. To be sure all relevant projects get fair consideration, executives consider data from multiple groups before making their final decisions. These groups include:

- the economic development team, which tracks financial trends and forecasts, internal cash flow and rate projections;
- the operations, engineering and maintenance teams, which report on maintenance requirements and forecasted loads for the coming decade, and on which projects require immediate attention;
- community liaisons, who track the needs of major customers, including data centres, steel mills or new subdivisions; and
- the legal and regulatory teams, which report on legislation and regulations that could affect existing infrastructure and new projects, such as new carbon legislation, deregulation or changes in water quality requirements.

Once the executive team defines the goals and requirements of the portfolio, they can more effectively prioritise individual projects, says Ms Mogensen. At Xcel, the portfolio team assigns a criticality rating to each project as part of the vetting process, to help executives determine which projects to push forward and which ones to delay.

Executives, of course, also consider the risks and potential return on investment of each project when they build the portfolio, Mr Kling says. A coal gasification plant, for example, may deliver high ROI, but carry high risk, so these investments might balance that with investments in new transmission lines, which deliver lower, but more predictable ROI. “Higher-risk projects [entail] a lot of contingencies, so those projects might be anchored with others that have a high degree of certainty,” he says.

Even after establishing priorities for what they need to accomplish, there are always more projects than the annual budget will allow for, says Mr Bird. At NorthWestern Energy, his team at times has reviewed project plans equivalent to nearly twice its annual budget, which means only those most critical can be approved.

To reduce the sheer volume of proposals and speed up the selection process, many utilities require rigorous pre-planning by division leaders prior to the executive review. At EPCOR, the electric and water utility in Edmonton, Canada, executives have a mandatory project template for project ideas in the water utility. This template outlines scope, strategy, cost benefit analysis and required resources, says Susan



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Ancel, director of EPCOR's water distribution and transmission. The executive team only assesses those plans that follow the standardised process during the annual portfolio review process.

Having a common submission process has increased the speed and efficiency of EPCOR's portfolio decision-making process because it eliminates duplication and poorly planned ideas, says Ms Ancel. "Before we started using it, if we had a US\$30m budget, we might have US\$100m in submissions." In comparison, last year the team was able to approve 80% of all the projects submitted.

Before these projects can move forward, stakeholders must update the proposal prior to starting construction to reaffirm scope and budget, and add a "risk of execution" plan, according to Ms Ancel. "This additional step ensures the executive team has up-to-date information before releasing funds."



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Time to execute

Once capital projects are approved, the leadership of that operational unit chooses project managers and utility executives relinquish control of the day-to-day operations, although they continue to receive regular reports, as well as metrics via dashboards, and they are ready to step in if trouble arises.

Project managers are expected to participate in regular checkpoint reports, progress updates and quarterly reviews with steering committees and to report on any major problems as they arise. In most utilities, if a project goes over budget by 10-15%, an executive review meeting is triggered to evaluate the situation before the project can continue.

Creating dashboards that keep executives informed of project progress at a high level and establishing triggers for highlighting issues or overruns empowers project leaders to make decisions, while enabling executives to remain at arm's length without losing control over projects, says Ms Mogensen. They remain in an oversight role until a problem arises that requires their attention. Whether that's a contract issue, a cost overrun, or a safety concern that cannot be handled at the project level, these triggers ensure that executives step in promptly to address problems that require senior leadership accountability. "One of the biggest risks on a long-term project is that you lose sight of what's going on, so having a process to monitor progress keeps things on track."

Executives across this industry agree that creating such formal reporting processes is vital to project success. In the Economist Intelligence Unit survey, 29% of executives believe that having more open lines of communication between leadership and management would improve the way they plan and prioritise projects.

Better communication would also help to manage the various risks these projects face, including cost fluctuations and changes in market demand, which 51% of executives say impact the success of projects. "It can be a challenge to create that constant flow of communication in large organisations," says Ms Mogensen, "but it's worth the effort."



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CASE STUDY Executive review prevents road collapse

While it is important for executive committees to give project leaders the room to make decisions, they must also be ready to step in when major problems occur. And the sooner they get involved in these cases, the better, says Susan Ancel, EPCOR's director of water distribution.

"More projects come in on time and on budget when there is a better dialogue between stakeholders and project managers," Ms Ancel says. So EPCOR executives implement multiple communication strategies, including regular progress reports, steering committee reviews and frequent milestones. And if a major problem arises that threatens to push the project off track, the steering committee is automatically convened to assess the situation.

Such a trigger occurred in December 2010, when a project team was conducting a pipe installation to connect existing water lines on either side of the six-lane Anthony Henday freeway in Edmonton, Canada. The team had drilled halfway under the road when they

noticed the soil slumping in unexpected ways in the median. "The risk was that the freeway lanes would collapse if we continued across the remaining lanes of traffic," says Ms Ancel. "It would also have been a major cost hit to the project to repair the freeway."

The team ceased work and alerted the executive-led financial review committee (FRC). After discussing possible solutions, they decided to stop construction until the spring thaw, while evaluating their options and the impact on the project delivery.

Because the change in project plan will likely push the budget beyond Epcor's 20% threshold for cost increases, the team needs the FRC's approval to move forward. But the FRC does more than just approve budgets, says Ms Ancel. It gives the project team guidance as they review their options and can adjust other projects in the portfolio to accommodate the changes. "Since the committee members include the more senior staff in the utility, we are able to draw on our knowledge of similar events to support the project team in getting to the final correction/design plan," says Ms Ancel "The committee was also able to use the remaining budget to accelerate another planned project that could be done in a few weeks to have both annual capital programme budgets remain whole."



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Keeping up with regulators

Aside from cost fluctuations and changes in market demand, the other major risk these projects face, from planning through execution, is evolving regulations that could affect implementation and the ROI of the portfolio. “Regulations have huge implications for capital projects,” says Scott Etnoyer, manager of reliability standards at ENMAX Corporation, an energy distribution company in Calgary, Canada. Mr Etnoyer spent a year as a regulator for the US government’s Federal Energy Regulatory Commission (FERC), and understands the challenges utility companies face in dealing with regulators. “Executives need to understand what’s going on in the regulatory environment and what could change,” he says.

The greatest obstacle is the lack of clarity in the standards, which are loosely written and often left open to interpretation, he says. Because the federal government writes the standards, and the regulators

CASE STUDY Deregulation drives power plant project

In 2007 Legislative Bill 25 essentially “reregulated” utilities in Montana. For the first time in a decade, power companies in the state were able to build and own generation plants. NorthWestern Energy executives had worked closely with regulators and legislators for years to get the bill passed, and it came at a critical time, says Brian Bird, NorthWestern’s CFO. In 2007 energy demand was booming, and the utility was facing rising costs and scarcity of resources on the generation market, which threatened the reliability of its system. House Bill 25 enabled the company to address these risks and generate a better return on its investments by investing in its own generation sources. “There’s no profit in paying someone else to generate power,” according to Mr Bird.

Shortly thereafter, the executive team approved construction of the US\$200m Mill Creek Generating Station, which would balance load and supply on NorthWestern’s transmission system in

Montana and enable additional wind power to be integrated into the network to meet future renewable energy portfolio needs. The assigned project leader, Bill Rhoads, immediately began compiling engineering and environmental assessments, producing cost-of-impact reports and assembling other data required to win the approval of the regulatory commission.

After months of negotiations, NorthWestern received regulatory approval on the condition that NorthWestern pay for a regulatory consultant to oversee the project. “That wasn’t typical, but we knew that in order to make this project work we had to view the regulators as our partners,” observes Mr Bird. Having the regulatory advisor on the team also ended up being an advantage to the project. “The project went well, and it was his job to report our progress back to the commission.”

By January 1st 2011 the plant was operational, on budget and on schedule. Mr Rhoads attributes much of the project’s success to the support he received from the executive leadership. “Respect, teamwork and communication are so important to a project like this,” he says. “Their trust in me helped make the project a success.”



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Higher risk, higher reward Regulated vs non-regulated

The North American utility industry is made up of both regulated and non-regulated companies. And while both kinds of organization want to see a strong return for their capital investments, non-regulated companies face greater financial risks, says Northwestern Energy's Brian Bird. "Non-regulated utilities have to be concerned about whether they will make money on the asset, while a regulated utility just needs to be sure they are getting a reasonable price for the capital expenditure," he says.

As a result, unregulated utilities must be more rigorous in their assessments of individual project risks and ROI analyses, because they rely on these projects to deliver profits. "For non-regulated companies, risk needs to be fully accounted within the project itself,"

notes Duke's Paul Kling. "Regulated utilities face uncertain prudency judgment from regulators, but are typically in a better risk management position."

If a regulated utility can demonstrate that a project is good for customers, it will get it into the rate base agreed by regulators. If it's reasonable to believe that energy prices will rise, for example, investing in a new project that creates a stable if slightly higher rate base makes sense for regulated companies. Once a project is approved, regulated utilities do not then have to worry about volatility.

Independent power producer (IPPs), however, must constantly assess market volatility against the projected ROI of the project. If they predicted that energy prices would rise and instead they fall, that project can lose its profit margin. However if prices rise higher than expected, they gain even more. "Right now IPPs are underperforming utilities, but if commodity price rise they could outperform us," says Mr Bird. "The risks are higher, but so are the rewards."

merely approve or reject them, the process of change is painfully slow. In the meantime, utility companies are left to interpret the existing standards and to try to convince regulators that their project plans align with those requirements.

He points to pending Cyber Security Standards (CIP 002-009), from The North American Electric Reliability Corporation (NERC), which enforces reliability standards for North America. The Cyber Security standard lays out preventive measures to protect against cyber vulnerabilities and enforce the security of the electric system. How those standards are ultimately defined will have dramatic ramifications for project costs and requirements for blackout-recovery technology, Mr Etnoyer says. "That poses huge risks and every utility company is watching closely to see what will happen."

Faced with a nebulous regulatory environment, utility companies often take a wait-and-see approach to innovation. This is slowing progress in the industry. "Anxiety delays decision-making and causes executives to be more conservative," Mr Etnoyer says. "There is a risk in being the leader in innovation when there is so much uncertainty."

To offset this risk, many utilities partner with regulators and participate on regulatory task forces and work on pilot projects to shape the future of regulatory language and best practice. "Working with regulators helps us understand the implications of new regulations, and find solutions that make sense for the industry," says Ms Ancel.



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Conclusion

The utility industry will experience dramatic changes in the coming years as it strives to meet renewable energy requirements while maintaining competitive rates for end-users. Executives who embrace stricter project planning methodologies and implement more thorough oversight will deliver a better financial return to investors and stakeholders, while meeting the needs of their consumers. And because they are held accountable for failed projects, this approach will help them to protect their own reputations as well.

Executives who have already implemented the changes offer these tips:

Formal portfolio and project oversight eliminates surprises. In an industry that spends billions of dollars on capital expenditure and millions of dollars managing risks, having a process to identify problems earlier in the project has obvious impact on the bottom line, says Xcel's Ms Mogensen. "When you have a defined milestone review process and a constant flow of information, you are rarely caught off guard."

Build contingencies into the overall portfolio, not the individual project. Companies that allocate budgets to a group of projects have more flexibility around how, when and where they spend their money. And when problems occur, they can more easily adjust their spending in response. According to Mr Kling "It appropriately accounts for risks and provides greater control over costs."

Put talented people in charge of execution and let them do their jobs. Project managers need to be empowered to make decisions while feeling confident that they have their stakeholders' support, says Mr Bird. "It streamlines the project management process and makes for better communication across the organisation."

Think of regulators as allies, not adversaries. Utility companies that work in partnership with regulators achieve faster resolutions and have greater input into regulatory language. "Maintaining an open dialogue with regulators is the most cost-effective approach," says Mr Etnoyer.

Whilst every effort has been taken to verify the accuracy of this information, neither The Economist Intelligence Unit Ltd. nor the sponsors of this report can accept any responsibility or liability for reliance by any person on this white paper or any of the information, opinions or conclusions set out in the white paper.

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