

## Abstract

A small privately held transmission and distribution utility located in the Northeast sought to improve its capital project planning and project management capabilities.

## Introduction

The client was in the midst of an enterprise-wide strategic planning effort whereby each business unit developed initiatives to present to the board. The operations group needed to focus on ways to improve the capital project planning process. Questions were raised about the appropriate planning horizon for transmission and distribution projects and the accompanying level of engineering performed for each stage-gate of the planning horizon. In addition, the client was interested in industry benchmarks and lessons that could be learned from best practices of peer companies.

## The Challenge

Prioritizing capital projects is challenging in any organization, and this client was no exception. It can be exceedingly difficult to establish project-scoring criteria and then objectively evaluate projects against these criteria. However, effective capital deployment requires that transmission and distribution utilities prioritize these efforts.

## How We Helped

As part of the initial engagement, ScottMadden worked with the client to assess their current performance in capital project planning, benchmark the company against leading practices, and ultimately refine the strategic initiatives related to capital project planning. This effort focused on identifying the issues that existed in the company's current processes, prioritizing key areas of concern, and developing recommendations to address these concerns. Based on our findings, we recommended a series of strategic initiatives and ultimately assisted in implementing several of them.

ScottMadden conducted a series of interviews with the client's staff to develop an understanding of the current capital project planning processes. Through this effort, the team reviewed existing documentation, procedures, and key performance indicators (KPI) related to these processes. It was important to understand the client's current performance in capital project planning and how it was reflected in cost and reliability KPIs. In addition, the team reviewed tools used to support the processes being assessed. Through these interviews, reviews of documentation, KPIs, and other data, ScottMadden developed preliminary findings and recommendations about issues and challenges to be addressed by strategic initiatives.

## Leading Practices Assessment

ScottMadden also identified areas to be explored through external benchmarking. These included:

- Capital project planning processes
- Planning horizons and level of detailed engineering required for various horizons in the plan
- Project estimating
- Organization and staffing for capital project planning
- Key performance indicators
- Tools used in support of these processes

ScottMadden conducted leading practice interviews with select organizations, which were a mix of the client's and ScottMadden's contacts. The following criteria were considered in selecting the panel of companies:

- Similar service territory demographics
- Highly regarded companies recognized for strong asset management/capital project planning processes
- Regional Transmission Organization (RTO) participant
- Ownership structure
- Transmission and distribution (T&D) focus

The benchmarking highlighted some important findings for the client:

- Leading practice companies bring project managers into the capital project planning process during the scoping phase of work
- Most companies provide some form of stage-gating for committing capital and resources to large projects
- Ranking and prioritizing projects within categories and balancing funding among categories are critical, though practices differ significantly across companies
- Most companies perform capital project planning in a five-year window with years one and two focused on detailed budgets
- Estimating accuracy should increase through the planning process with "for construction" estimates at +/-10%. Some companies hold their project managers accountable for 1% variances
- KPIs are critical and may include:
  - In-service date
  - Percentage of completion of planned projects list
  - Budget versus actual expenses
  - On-schedule project completion
  - Receipt of benefits identified
- Post-project reviews are important and consistent

The participants received a blinded copy of the benchmark findings.

## Strategic Initiatives

Through the findings and recommendations developed during the current state assessment and benchmarking, ScottMadden revised the client's high-level list of strategic initiatives and suggested a priority order in which they should be implemented. Upon agreement on the set of initiatives and

prioritization with the client, ScottMadden developed implementation plans. The initiatives appear in Table 1.

**Table 1: Initiatives**

Recommendations	Key Tasks	Benefits
1. Develop project development processes for project types	<ul style="list-style-type: none"> <li>■ Define project types</li> <li>■ Establish a “project team” concept</li> <li>■ Develop evaluation and approval processes</li> <li>■ Re-design business case template for routine and major projects</li> <li>■ Develop capital project challenge process</li> <li>■ Establish capital project categories</li> <li>■ Develop capital project ranking process</li> </ul>	<ul style="list-style-type: none"> <li>■ Increased project scope, schedule, and estimate stability</li> <li>■ Improved capital project justification and supportability</li> <li>■ Increased project “ownership”</li> </ul>
2. Develop a project estimating process	<ul style="list-style-type: none"> <li>■ Develop comprehensive estimating templates (will drive budgeting/planning detail required)</li> <li>■ Establish estimate definitions and target accuracies (aligned with steps in process)</li> <li>■ Develop T&amp;D compatible units and feedback loop</li> <li>■ Develop engineering design budget provision</li> </ul>	<ul style="list-style-type: none"> <li>■ Greater estimate confidence</li> <li>■ More timely estimate preparation</li> <li>■ Facilitated funding of engineering design costs for identified projects</li> </ul>
3. Establish planning vs. budgeting horizons	<ul style="list-style-type: none"> <li>■ Establish a rolling five-year planning horizon with agreed levels of project estimates</li> <li>■ Develop detailed budgets for two years, incorporating agreed levels of project estimates</li> </ul>	<ul style="list-style-type: none"> <li>■ Increased accuracy in short term budgets</li> <li>■ Formal five year plans, updated annually during business planning cycle</li> </ul>
4. Implement enhanced integrated financial modeling tools	<ul style="list-style-type: none"> <li>■ Assess financial accounting, forecasting, and reporting tools and implement recommendations</li> <li>■ Integrate project estimating and forecasting tools with financial accounting tools</li> </ul>	<ul style="list-style-type: none"> <li>■ More timely and efficient project reporting</li> <li>■ Improved project variance determination</li> </ul>
5. “Reengineer” T&D project management	<ul style="list-style-type: none"> <li>■ Assess project management effectiveness</li> <li>■ Establish a “project team” concept</li> <li>■ Establish a project manager certification training program</li> <li>■ Develop capital project KPIs and associated project manager performance measures</li> </ul>	<ul style="list-style-type: none"> <li>■ Improved cost/schedule performance on capital projects</li> <li>■ Enhanced capital project leadership from inception through commissioning</li> </ul>

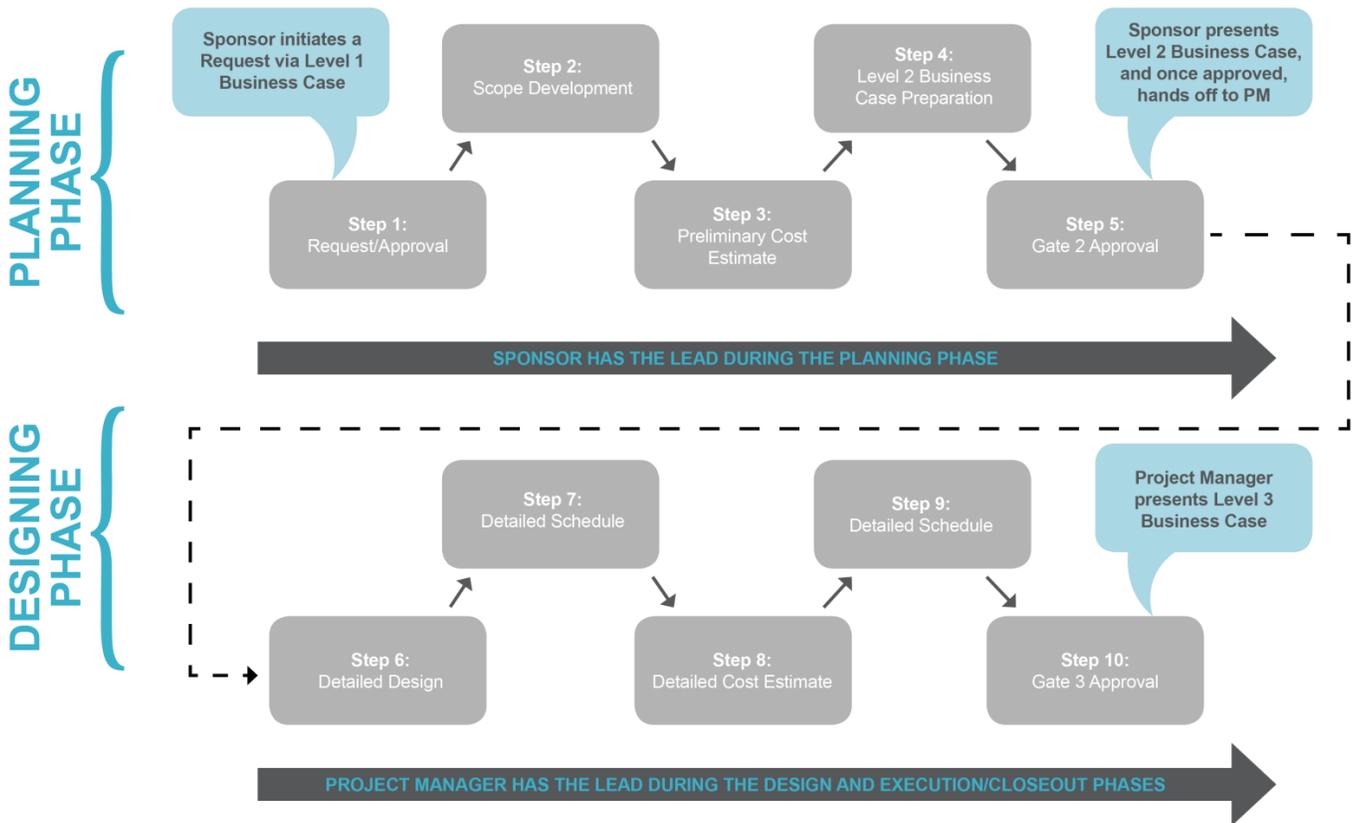
Upon approval of the above set of recommendations, ScottMadden was asked to assist in implementing several of them. The team started by focusing on the project development process for which they developed a stage-gating process.

### Stage-gating

Large capital projects cannot be accurately scoped and planned without significant engineering performed; to that end, stage-gating enables management to approve expenditures related to engineering and long lead-time items with the understanding that final approvals will be issued as project details evolve. Stage-gating ties the approval of project stages to the availability and quality of data.

Graph 1 provides a high-level description of the stage-gating process, which we designed with the client team.

**Graph 1: Stage-gating Process**



## Project Prioritization

As part of this series of initiatives, ScottMadden worked with the client to develop a set of objective criteria against which to score projects. The categories were agreed upon, and we subsequently worked with the client to team score a series of projects. This exercise proved extremely valuable, as the client team debated the reasons that projects should or should not receive certain scores. Though prioritizing capital expenditures is often a mix of art and science, establishing a straight-forward process allowed the client team to better understand and communicate their rationale for prioritizing these selections.

## Estimating

Estimating is a key component in planning a large capital project. This client identified estimating as a challenge for the organization and requested ScottMadden's assistance in refining the process. Through extensive work with the engineering and project management staff, we were able to develop an estimating procedure and a series of templates based on a common work breakdown structure. This enabled the client team to use a common set of templates to provide estimates in support of the stage-gating process described above.

The key inputs to a good estimate are a Work Breakdown Structure (WBS), which follows the project from planning to completion, and historical information on compatible units. The WBS and compatible units are

used as the basis of an estimate, and they can be tailored to the estimate for various factors such as technical difficulty, economic order quantity, and schedule.

## **Project Management**

A separate initiative focused on improving project management. In order to assist the client in this area, ScottMadden performed an objective assessment of strengths and weaknesses by comparing the client's existing practices to Project Management Institute (PMI) standards.

ScottMadden conducted interviews with the client's planning, engineering, and project management staff to understand the manner in which key processes are performed, the individuals responsible for various aspects of the work, and the use of contractors for parts of the construction management process. We reviewed project related documents and procedures, and attended project status meetings. We then compared our observations to industry practices identified by PMI and developed our findings and recommendations.

This objective assessment enabled the client to prioritize those elements of the PMI model they wished to focus on. ScottMadden then assisted in developing a project management manual, including select procedures (i.e., project scoping, risk management, change control) that are currently being implemented in the organization.

Once the appropriate solutions were agreed to by the client's management, ScottMadden established a joint team with the client to develop the tools, processes, and procedures needed. This approach ensured the tools were practical and would be easily adopted. The goal was to have a set of tools and practices to solve the challenges raised in the assessment, which would largely mirror the work done on the capital project planning process.

## **Client Engagement**

The project involved multiple departments (operations, engineering, planning, substations, lines, finance, and accounting) due to the multi-functional nature of project work. The work described here was a collaborative effort between ScottMadden and their client. Client teams were established for each of the initiatives described, and all processes, procedures, and templates were reviewed and vetted multiple times to ensure they would be usable by all. Engaging the end-users of the processes and tools developed through these initiatives was critical to the ultimate success of the project.

## **Results**

The work described above significantly changed the manner in which this company plans and manages capital projects. Stage-gating provides increased levels of approval and control through the capital project planning process.

Our client is now able to improve estimates, gain tighter controls on capital expenditures, and develop better forward-looking plans and budgets. It also enabled the client team to agree on a methodology whereby projects are scored and prioritized based on objective criteria.

These efforts created the framework to improve both the estimates for capital work and the ability to manage them.

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