



Selling Capital Projects to Management

The four key elements you need to know to effectively state the case for your capital project

By John Hynes, Excidian LLC

There was an excellent article in the March 19, 2007 edition of the *Wall Street Journal* under the "Theory & Practice" column by Phred Dvorak. The article was titled "How Understanding the 'Why' of Decisions Matters." It essentially provided justification for how I have made my living for the past nine years.

In his article, Dvorak writes about a study done by a University of Wisconsin professor of communications, Phillip G. Clampitt. The study surveyed approximately 300 managers and employees at more than 100 U.S. companies. What Prof. Clampitt discovered was that employees at companies where business decisions are explained were more than twice as likely to support those decisions as compared to workers whose companies provided less of an explanation about decisions.

After working more than 15 years in various jobs in the utility industry, I have spent the last nine years developing and delivering customized, financial acumen training for regulated utilities, unregulated generators and manufacturers. My goal has always been to give class participants the tools they need to understand the "why."

By far, the most common question asked by class participants is: "How do I sell a capital project to management?" Of all of the industries with which I have worked, the most capital intensive and financially complex industry is the generation, transmission and distribution of electricity. Because the utility industry is so capital intensive and financially complex, how approval for a capital project is obtained can be a mystery even to those who already know how to perform the financial analysis.

TABLE 1 A TYPICAL CAPITAL INVESTING SPREADSHEET LOOKS LIKE THIS

Year	Dec. 31, Year 1	Dec. 31, Year 2	Dec. 31, Year 3
Revenue	\$7,200,000	\$7,200,000	\$7,200,000
(Fuel Costs)	(\$3,600,000)	(\$3,600,000)	(\$3,600,000)
(Other Variable Costs)	\$0	\$0	\$0
Contribution Margin	\$3,600,000	\$3,600,000	\$3,600,000
(Operating Expenses)	\$200,000	\$200,000	\$200,000
(Depreciation)	(\$500,000)	(\$500,000)	(\$500,000)
Operating Income	\$3,300,000	\$3,300,000	\$3,300,000
(Interest Expense)	\$0	\$0	\$0
Earnings Before Taxes	\$3,300,000	\$3,300,000	\$3,300,000
(Taxes)	(\$1,320,000)	(\$1,320,000)	(\$1,320,000)
Net Income	\$1,980,000	\$1,980,000	\$1,980,000
(Working Capital Requirements)	\$0	\$0	\$0
Depreciation	\$500,000	\$500,000	\$500,000
Cash Flow from Operations	\$2,480,000	\$2,480,000	\$2,480,000
(Capital Expenditure)	(\$5,000,000)	\$0	\$0
Free Cash Flow	(\$5,000,000)	\$2,480,000	\$2,480,000
Discount Rate	8.00%		
NPV of Free Cash Flow	\$1,391,201		

We will begin with the basics. What are the areas in which you must be competent to successfully sell a capital project to management?

It should go without saying, but I will say it anyway: You must possess some presentation skills to be successful at selling a capital project to management. If you want to hone these skills, get all the practice you can in front of real audiences. Please do not approach a presentation to a capital project review committee as a speech. Rather, approach it as a training class that you are giving to well-educated peers.

Following are four areas in which you must be competent to increase your chances of obtaining approval for your capital project.

1. **Financial Analysis:** Understand each step in the process of the financial analysis of a capital investment and be able to explain each step to someone who may not be financially astute.
2. **Assumption Justification:** Be able to confidently articulate and justify your assumptions related to the incremental revenue and expenses that result from funding your capital project. This is where your presentation skills will make or break your ability to obtain funding for your project.

3. **Sensitivity Analysis:** Perform, and learn from, a thorough sensitivity analysis, which is nothing more than a "what if" analysis. "What if" the assumption you have made is off by 20 percent? How does that impact the value to the shareholder?

4. **Business Environment:** Understand how the business environment may affect the funding of your capital project. This can be complicated; especially if you are trying to sell a capital project in a utility that is making decisions in a rate-of-return regulated environment. Mastering this will help you understand why a seemingly excellent capital project was rejected. It will also help you create an argument for funding the seemingly excellent capital project that was rejected.

Let's examine each of these four areas of competency to get a better idea of how to excel at each one.

Financial Analysis

The process used to analyze a capital investment is no mystery. It is a financial standard. If you are the one selling the project, you must understand the correct way to perform the analysis and be able

to explain it to someone who may not understand it.

In this process, you are going to answer a series of questions that will provide you with data. You will use this data to create a spreadsheet to analyze your project and perform a sensitivity analysis. The questions are:

1. For each year of the analysis, what incremental revenue will the company receive as a result of owning this capital equipment?
2. For each year of the analysis, what incremental expenses (including depreciation) or savings will the company incur as a result of owning this capital equipment?
3. For each year of the analysis, how do these incremental revenue and expenses impact the company's net income?
4. For each year of the analysis, what are the incremental working capital requirements that result from owning this capital equipment?
5. For each year of the analysis, how do the incremental net income, working capital and depreciation impact the company's cash flow from operating activities?
6. For each year of the analysis, what are the incremental capital expenditures

that result from buying and owning this equipment?

7. For each year of the analysis, how do the incremental capital expenditures impact the company's free cash flow?
8. What is the net present value of the company's incremental free cash flow that results from owning this equipment over the time period designated by the CEO or CFO?
9. Is this a good investment for the shareholders or owners?

The result of following this series of questions will be a populated version of

Suppose you are trying to justify replacing a series of heat exchangers at a power plant because their continuing tube failures require unscheduled maintenance, thereby decreasing plant availability. This in turn results in lost revenue and higher maintenance expenses. In your analysis, you estimate the impact that an improvement in plant availability will have on revenue after the heat exchangers are replaced. How would you explain the basis for your revenue improvement assumption?

We begin by examining one way of explaining the revenue improvement

revenue improvement explanation. At the same time, present the explanation so it logically flows to the financial assumption you are trying to justify, while minimizing the complexity of the explanation. This will improve the explanation and generate fewer questions from the capital review committee.

For example, it may be possible to say that based on five years of maintenance data, tube failures in this series of heat exchangers require us to back down the 1,000 MW base loaded plant to 50 percent power for approximately 24 hours while the heat exchangers are repaired. Data also show that the frequency of repairs is now occurring at monthly intervals.

At a 50 percent power reduction, 500 MW of capacity is not productive for 24 hours. This equals 12,000 MWh per outage. At a frequency of one outage per month this equates to 144,000 MWh of lost energy sales.

Say also that the revenue lost during the 24-hour repair period is made up of 16 hours of off-peak hourly prices and 8 hours of on-peak hourly prices. Although the average off-peak hourly price is \$30/MWh, the average on-peak hourly price is three times that or \$90/MWh. Therefore, the weighted average price for energy during a typical 24-hour repair period is \$50/MWh, calculated as: $(\$90/\text{MWh} \times 8 \text{ hrs} + \$30/\text{MWh} \times 16 \text{ hrs}) / 24 \text{ hrs} = \$50/\text{MWh}$.

Using an average market price for energy of \$50/MWh, avoiding these monthly 24-hour heat exchanger repairs would increase revenue by \$7,200,000. This is how we derived the incremental revenue that this facility could gain if we made the investment in the new heat exchangers.

This revised explanation of the revenue improvement assumption is a much better way to explain this assumption. At this level of detail you will receive few of those questions that begin, "Wait a minute, how did you....?"

Don't worry if your explanation still generates one or two such questions as long as you have anticipated them and are prepared to answer them. This is why it is always a good idea to let someone else read or listen to your explanation. When you practice, be sure to ask your audience what questions come to mind during the explanation.

Your goal is to structure the explanation so it flows logically to the assumption, allowing the logical sequence to answer anticipated questions and justify the

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the spreadsheet shown in Table 1. All capital investment analyses should be constructed assuming that the equipment is paid for with cash at "time zero", or the beginning of the analysis. If you pay cash for the equipment, then the company will not incur any incremental interest expense. This is why the incremental interest expense is set to zero during the analysis period. If the project is a good investment paying cash upfront, then you can make it even better by financing it. However, if the project is a poor investment paying cash upfront, then why bother financing?

Assumption Justification

Once you are comfortable with the process of the financial analysis, be prepared for the hard part: explaining and justifying your incremental revenue and expense assumptions. The assumptions used to determine the incremental revenue and expenses are the linchpin in your bid to obtain funding for your capital project. This is where your experience and credibility are critical. Not only do these assumptions have to be logical, but they also have to be justified by past experience, history and/or data. Even more challenging for you as the project sponsor, you may have to explain these assumptions, which are likely to be technical in nature, to a non-technical financial person. If you cannot explain it at his or her level, then you may lose credibility.

assumption and then determine how we could make it more effective. A tip for making the explanation more effective is to imagine standing in the shoes of a non-technical financial person on the capital project review committee. Then try to list the questions that might come to mind as you read the explanation in the next paragraph.

Incremental revenue from increased plant availability was calculated assuming an average price per MWh lost of \$50/MWh. This was multiplied by 144,000 MWh, which is the energy the plant is unable to generate and sell as a result of outages to repair the heat exchangers. The result is an annual increase in revenue of \$7,200,000 once the heat exchangers are replaced.

Here are the questions you might be asked by a non-technical financial person on the capital project review committee:

- Why \$50/MWh?
- Can't we repair these things during off-peak periods?
- Does the entire plant have to go offline to make this repair?
- How often do we have to repair these heat exchangers?
- How long does it take to repair these things?
- Is there any evidence that the frequency of repairs is increasing?

Now incorporate the answers to these questions into a revised version of the

assumption. Present the explanation in financial terms and adjust the amount of technical information to suit the audience

For example, in the revised, more effective, explanation, we made no mention of the statistical analysis performed to

Inevitably, the business environment can generate situations beyond your control that may impact funding your capital project. You must understand how this can happen and what, if anything, you can do.

experience and education, but be prepared for a financial person with a technical background or operations experience.

determine the average repair duration. If asked about the nature of the analysis on the maintenance data, you may respond

that average tube repair lasted 24 hours with a standard deviation of 0.5 hours. This implies a 90 percent confidence interval of 23 to 25 hours. This answer should satisfy a technically-oriented financial person on the capital review committee. In fact, your answer indicates that you were prepared for this question, which enhances your credibility.

Explaining your assumptions so that you answer most questions that an audience would typically have will improve your credibility. Many people feel that being asked questions during their presentation indicates an unfavorable audience response. Remember, it is only unfavorable if you did not anticipate the questions and if your answers are not satisfactory.

An exercise that will help you prepare for questions is a sensitivity analysis, which is the third competency we address.

Sensitivity Analysis

By performing a sensitivity analysis, you learn a great deal about how sensitive your project's net present value is to any errors in your assumptions. This will require you to vary your assumptions and note the impact these variations have on the net present value. This exercise provides additional insights into how to sell the project and how to answer questions related to your assumptions.

In this analysis you are asking: "What if my revenue or expense assumptions are not accurate?"

To answer these questions, lower the revenue number or lower the estimate of expense savings by changing the corresponding line items in the spreadsheet. You then can observe the impact these changes have on the net present value. Continue lowering your revenue until the net present value becomes zero. Now compare the revenue number that caused the net present value to go to zero to your revenue estimate.

If your original revenue estimate was \$7.2 million annually in the heat exchanger project and the revenue could drop to \$3 million before the net present value goes to zero, then it is a waste of the review committee's time to delve into detail on how you derived that estimate for revenue.

Suppose further that you have sound data to document the decrease in expenses. In this case, any questions related to the credibility of the incremental revenue can be answered

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by stating that you could be off by 50 percent in your revenue estimate and the net present value would still be positive. Then direct the review committee to the credibility of the operating expense savings and away from the revenue assumption.

On the other hand, if the net present value of the heat exchanger project drops to zero when the revenue drops to \$6.5 million, you would need to structure your explanation of the revenue improvement to prove that

your estimate of revenue has less than 10 percent error.

A sensitivity analysis helps you understand the limitations—or strengths—of your financial assumptions. Unfortunately, even capital projects with the most well-justified financial assumptions can be rejected because of situations that arise in the business environment. Learning how to deal with these scenarios is the last competency that we address.

Business Environment

Inevitably, the business environment can generate situations beyond your control that may impact funding your capital project. Consequently, you must understand how this can happen and what, if anything, you can do. Mastering this ability will help you understand why a seemingly excellent capital project was rejected. It may also help you create an argument for funding the seemingly excellent capital project that was rejected.

Suppose your project is not going to be funded because the generator field must be rewound on the generator at a much larger facility. The option of deferring that particular generator project carries the risk of a generator failure. Repairing such a generator failure would be a large capital investment that would also require purchasing of expensive replacement power for an extended period of time. Your capital project cannot compete against this risk. If the probability of obtaining funding for your capital project is low, then just walk away.

This is hard to do, but understand that your project may be one of several capital projects at a plant and your plant may be one in a fleet. Try standing in the shoes of senior management in this situation. If a senior manager invests in your capital project and the field on the generator of a 1,300 MW unit fails as a result, that manager will get a chance to “pursue other career interests”.

While this last example did not provide you with an opportunity to obtain capital project funding, the following examples will illustrate situations that arise where you may still have an opportunity to obtain funding for your capital project.

At a regulated utility, the successful implementation of your project may cause actual return on equity to increase above the allowed—or regulated—return on equity. This will draw the attention of regulators, who may initiate a “show-cause” rate case to take money away from shareholders. A good argument for implementing your project would be that the increase in return on equity will permit the funding of “X” dollars of capital projects that provide negative net present value, such as environmental controls or infrastructure improvements.

Another regulated utility example would be just the opposite. Here,

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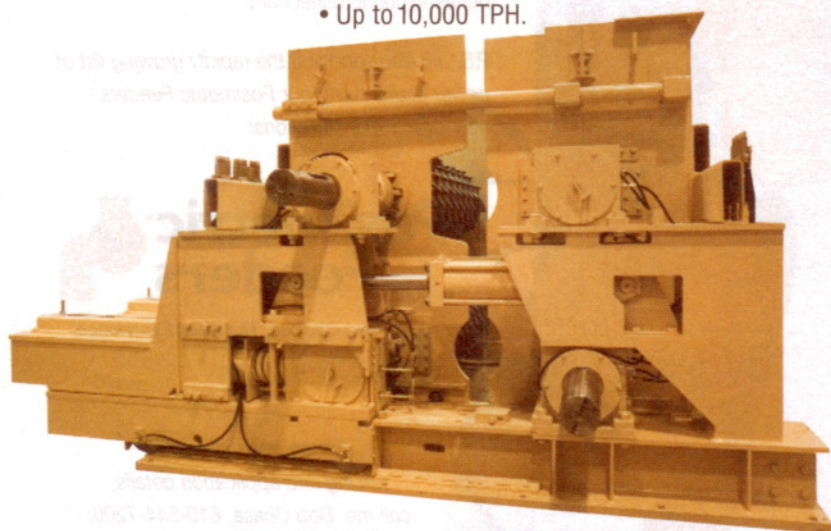
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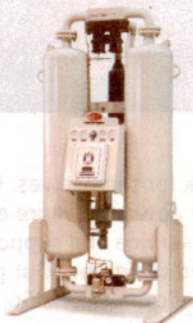
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imagine that the company's estimated return on equity is below the allowed return. Many times when utility CEOs are faced with this scenario over an extended period of time, they react by cutting capital spending to boost return on rate base. This increases return on assets, which, in turn, increases return on equity.

If you are facing this scenario, you will have to be prepared to prove that incremental net income divided by the capital investment for your project will make an immediate improvement in the company's overall return on assets. Such an improvement will result in an immediate improvement in the company's return on equity.

In other words, if the company's existing overall return on assets is 3 percent and its return on equity is 12 percent, then your project's return on assets must be greater than 3 percent to boost the company's return on equity above 12 percent.

In addition, you will also have to make a convincing case that the estimated incremental net income from your capital project will be realized with a high degree of certainty.

This is the very scenario where your credibility and expertise will be crucial. Again, look at it from the CEO's perspective. He or she has to meet the expectations of the shareholders and Wall Street and the top expectation is that the company will operate as close as possible to its maximum allowable return on equity. If the CEO is not convinced that your assumptions are realistic and therefore believes that the probability of success for your project is low, then your project will not be funded.

Earlier, I mentioned that this competency—understanding how the business environment may impact the funding of your capital project—can be complicated, especially if you are trying to sell a capital project in a utility that is making decisions in a rate-of-return regulated environment. As demonstrated by the last two examples, you have to understand how a utility makes money in a rate-of-return regulated environment. How a utility CEO responds to capital budget expenditures or operating and maintenance expenditures is a function of where that company's predicted return on equity is in relation to its allowed return on equity.

Understanding the basics of rate-of-return regulation, adding good financial acumen and combining these with experience in the utility industry will help you perfect this last competency.

The four areas of competency discussed here will help you speak—fluently and confidently—the language of the financial person who ultimately decides if you receive the capital funding you request. Learn the language and get comfortable with it. Confidence and success will follow. **pe**

Author: John Hynes is a Partner with Excidian, LLC, a company that develops, designs and delivers customized financial acumen training. Excidian delivers a course titled, "Business Finance for Power Generation Professionals" at the pre-conference workshops at POWER-GEN International, POWER-GEN Renewable Energy and Fuels and Coal-Gen. Excidian has also developed a new course titled: "How a Utility Makes Money." Look for this new course among PennWell's pre-conference workshops at Coal-Gen in Milwaukee on July 31, 2007.