

MassTransit

BETTER TRANSIT THROUGH BETTER MANAGEMENT

Managing Your Money: Controlling Volatile Fuel Costs

Transit agencies can create value through the application of an energy price risk management strategy over the long-term.

By Jeffrey R. LeMunyon, CFA

Energy price risk management adds significant value to an organization if it is applied as a strategic and continuous process.

Any risk management strategy will consider an organization's needs due to its exposure to energy market risk. The strategy will then react to energy market conditions in order to avoid the risk of high prices and to capture the opportunity in low prices. The typical results of a properly designed and executed strategy are (1) more certain future costs and (2) the expectation of lower overall cost over time.

More certain future energy costs add value by enhancing the planning and budget process and by creating stability in terms of budget risk and

organizational stress. The expectation of lower overall cost over time, while not guaranteed, can also add significant value.

In order to realize these benefits, an organization must develop, establish and execute a continuous energy price risk management strategy suited to their particular needs. This strategy will mitigate the timing risk of the hedging decision; use time as an advantage; and determine how much to hedge, for what period of time in the future, at what price, and why.

WHAT IS HEDGING?

Simply put, hedging is the process of either reducing or eliminating the range of probable energy



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costs over a future time period. This is done by “locking in” the price today for future needs.

Let’s look at an example. Over the next year, a company expects energy prices to be within +25 percent from their current levels. Prices could end up being 25 percent higher or 25 percent lower; we don’t know. So the organization hedges — or locks in the price for — half of its needs over the next year at current market levels.

While the market’s expected price range remains at +25 percent, the organization’s expected cost range is now +12.5 percent. If the organization had hedged 80 percent, the range of cost would be only +5 percent.

WHAT LEVEL OF HEDGING IS OPTIMAL?

Zero percent? 100 percent? Somewhere in between?

The answer depends on current spot (cash) price levels, forward price levels (the price at which you can hedge future needs at), the market’s

expectation of the range of probable prices, and, most importantly, the level of risk that these market conditions present to an organization in terms of cost and budget risk.

Energy markets generate an enormous amount of information. While the media will report the daily price of crude oil or gasoline, it ignores the shape and level of the forward pricing curve (the prices at which future needs can be “locked in”).

Generally, if forward prices are higher than spot prices, supply is plentiful and inventories are large. Forward prices that are lower than spot prices indicate tight supplies and lower inventories. For most of the past 20 years, forward prices have been lower than spot prices, a market condition which tells us that inventories are typically lower than the market is comfortable with and that energy consumers are willing to pay a premium price for the certainty of supply. The result is that spot prices are bid up relative to forward prices.

When forward prices are lower than spot prices, the energy consumer has the opportunity to “lock in” the price for future energy needs at prices that are lower than today’s spot prices. This is the first way of adding value through a strategic energy price risk management program.

Energy markets also indicate the expected range of expected prices.

Let’s look at another example. The six months forward price for Crude Oil is \$60 per barrel. What is the probable range of spot prices six months from now? Is it somewhere between \$59 and \$61 or somewhere between \$45 and \$75? Is there is a 30 percent chance of prices exceeding \$70 per barrel or a 3 percent chance? The greater the range of probable range of future costs, the higher the uncertainty of cost will be for the energy consumer. Hedging decreases or eliminates this probable range of future costs.

THE ADVANTAGES OF HEDGING

The advantage of hedging is that the consumption of the energy is no

longer simultaneous with the pricing of the energy. Without hedging, an organization is faced with paying daily market prices and hoping for lower prices tomorrow. The organization is helpless and becomes a victim of energy prices.

Hedging allows an organization to separate the timing of energy pricing from the timing of energy consumption. All of the value attributable to hedging is due to this simple fact.

VALUE CREATION

There are generally two ways of measuring economic value: positive cash flow (earnings, cost savings, etc.) and risk reduction. For example, when an investment portfolio of stocks and bonds is created, the expectations are typically measured in terms return and risk. The return is the profit the portfolio is expected

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to make and the risk is the level of uncertainty associated with the return expectation. When compared to their current portfolio, rational stock and bond investors will always prefer a portfolio that has more expected return with the same amount of risk or a portfolio that has the same expected return with less risk. Risk and return are, thus, interchangeable.

DECREASING THE UNCERTAINTY OF FUTURE COSTS

This idea of portfolio risk and return can be applied to organizations as well.

Any organization can be viewed as a portfolio of cash-flows and the levels of uncertainty associated with each of those cash flows. The positive cash flows are revenues to the

At a Glance:

Energy Price Risk Management Success Stories

- Since 1998, Linwood Capital has advised Metro Transit in Minneapolis which burns more than eight million gallons of diesel fuel per year. During the year ended June 30th, 2005, Metro Transit saved \$1,426,584 (17.15 cents per gallon), reduced fuel cost volatility by more than 52 percent, stayed on target for its 2005 budget, and reduced cash flow at risk by more than \$3,000,000 (24 cents per gallon) over the next 18 months.

- Another public transit client, Metro St. Louis, burns about six million gallons of diesel fuel per year. Over the fiscal year ended June 30th, 2005, Metro saved \$1,155,336 (19.32 cents per gallon), reduced fuel cost volatility by more than 61 percent, and has reduced cash flow at risk by \$2,400,000 (28 cents per gallon) over the next 18 months.

organization and can be thought of as assets. Negative cash flows are costs to the organization and can be thought of as liabilities.

Some assets and liabilities have relatively steady values. Fare revenue and labor costs can be predicted with some certainty, while other assets and liabilities have more volatile values — such as fuel cost. Volatile fuel costs cause cash flows that are difficult to predict with certainty. Hedging makes this “liability” more palatable.

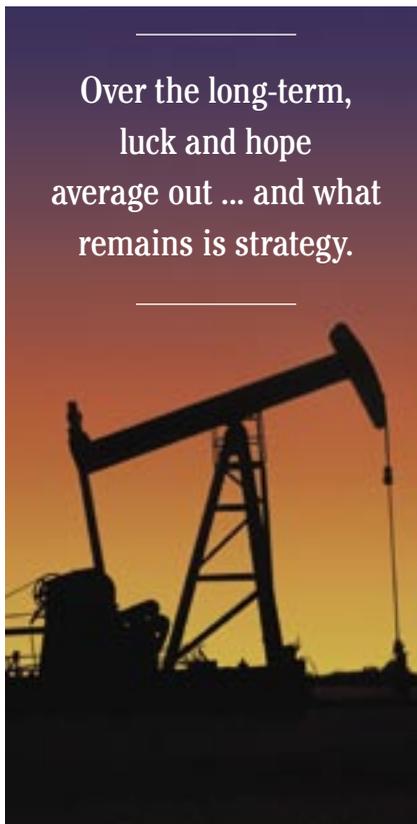
For transit organizations, the goal of energy price risk management is to bring the level of uncertainty associated with energy cost down to a level that the agency can tolerate, stabilizing the value of the “fuel cost liability”.

Just like the stock and bond investor, transit properties should choose more certainty in expected cash flow when expected cash flow is held constant. In the same way the stock and bond investor adds value by choosing a portfolio with the same returns and lower risk, an energy consuming organization creates value by reducing the uncertainty associated with energy costs.

WHY DOESN'T EVERYBODY HEDGE?

First, the size of the organization should be taken into consideration with regard to its exposure to energy risk. A small airline may burn 7 million gallons of fuel per year, making their fuel cost a significant percentage of their earnings. In this case, energy cost uncertainty presents risk that the airline cannot tolerate, so they hedge. Conversely, a large financial institution might burn 7 million gallons of fuel per year in automobile travel. As a percentage of earnings, the fuel cost for the financial institution is insignificant since the financial institution is very large and presents no risk that the company can't tolerate, so there is no hedging.

Second, organizations believe that, although the risk will be less, their return might also be less. They will have reduced risk at too high a cost and the hedge would not have added value (the lost money on the



hedge). This is the equivalent to an investor choosing a more risky portfolio with the same expected return in hopes that the value of the portfolio will increase dramatically. Over the long-term, luck and hope average out and what remains is strategy.

The real reason why some organizations don't hedge is that they lack the resources to intelligently and continuously apply an energy price risk management strategy.

LOWER OVERALL FUEL COSTS IN THE LONG-TERM

Unlike risk reduction where the value added is not always apparent, positive cash flow is universally recognized as value added. Will hedging always result in lower net fuel costs within a certain time frame? No. However, along with more certain future costs, the goal of any hedging strategy is to minimize cost over time while managing risk. An organization that hedges will experience a slight cost advantage due to the structure of the petroleum forward pricing curve, where deferred prices are typically lower than spot prices. In other words, if a hedging strategy is executed over an extended time pe-

riod, the fuel cost will be less than if no hedging were in place because of the shape of the petroleum forward pricing curve. However, unlike the reduction of risk with hedging, this cost advantage is not a certainty.

To a certain degree, hedging transactions can be timed and made when prices are relatively low in an attempt to gain a cost advantage over simple averaging.

ENHANCED PLANNING & BUDGET RISK MANAGEMENT

As energy prices become higher and more volatile, the public transit organization is presented with a higher likelihood of exceeding its fuel budget. Since a strategically applied hedging program will increase the certainty of future cost, it follows that budget risk will be diminished.

Aside from the value created in risk reduction and the expectation of lower cost over time, hedging creates high qualitative value. By keeping costs within budgets, an organization can more certainly honor promises made to stakeholders, and can reduce the likelihood of organizational stress caused by going over budget due to energy market exposure. While these benefits are apparent, they are difficult to measure and will vary for each organization according to their unique situation.

Forecasting future costs is inherent in the activity of energy price risk management. Superior forecasting and knowledge of the level of uncertainty associated with the forecasts will allow more accurate budget planning and will further reduce the organization's overall exposure to energy risk.

ADDING STRATEGY

How does an organization develop, establish, and execute a strategy that will create maximum value and determine how much to hedge, for what time in the future, at what price, and why.

MITIGATING TIMING RISK

Within the application of a hedging strategy, the most significant risk is timing: the market risk associated

with the timing of a hedging decision. For example, there will be more timing risk in hedging 50 percent of future needs in one transaction than there would be in hedging 1 percent of future needs each day over a 50 day period. When a large percentage of future needs are hedged at once, the one opportunity to make a good decision is exhausted. Recognizing that not all market timing decisions will be valuable, the response to this timing risk is to make as many individual timing decisions as possible over time in order to create an averaging effect. Since the value of hedging does not come from market timing, it is important to reduce timing risk and to create an averaging effect through the application of a continuous strategic process.

HOW MUCH TO HEDGE?

The answer is some percentage of expected energy consumption within a given time period, e.g. 25 percent of next year's expected consumption. The answer will also vary from organization to organization depending on needs and risk tolerances. The risk management needs of an organization are typically expressed in terms of budget risk. Percentages hedged will also depend on the strategic balance between risk avoidance and strategic pricing that the organization desires. In short, it depends on the needs of the organization and market conditions.

WHAT PERIODS IN THE FUTURE SHOULD BE HEDGED?

This is a strategic decision that depends almost entirely on the specific needs of the organization. Typically, in a public transit setting, the forward pricing window should encompass all periods for which a budget has been established in order to effectively manage the risk associated with that budget.

USING TIME AS AN ADVANTAGE

The hedging decision is affected by the proximity, in time, of the hedge. For example, if all prices along the forward pricing curve were equivalent and rose 20 cents per gallon, it

would make intuitive sense to hedge more in the nearby time frames than in the further forward time frames. Why? Because the price rise in the further forward time frames presents the organization with less risk than an equivalent price rise in the nearby time frames due to the relative lack of immediacy. Also, the further forward the time frame, the greater the ability to wait for more favorable market conditions. Thus, nearby time frames are typically more hedged than further forward time frames.

AT WHAT PRICES SHOULD AN ORGANIZATION HEDGE?

An organization should hedge at prices that will successfully control cost and risk. Sometimes these prices will be high, sometimes they

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will be low. If the hedging units are small and provide the organization with many different pricing opportunities, as is mentioned above regarding timing risk, then there will be an averaging effect. Ultimately, the decision to hedge is not only based on price but also on the level of risk and/or opportunity that price creates for an organization.

WHAT IS THE RATIONALE BEHIND THE HEDGING DECISION?

A dynamic hedging strategy reacts to market conditions by continuously asking, "Is the market presenting more risk than I can tolerate?" and, "Is the market presenting opportunity that I should take advantage of?" These questions are answered within the context of an organization's specific needs and parameters regarding risk. In general, when prices are relatively low,

an opportunity exists and a certain level of hedging should take place in order to take advantage of the relatively low prices by "locking them in". "Locking-in" lower prices serves two purposes. It guarantees a relatively attractive cost for a portion of future needs, and increases the certainty of future costs. When prices are relatively high such that they create risk for the organization, a certain level of hedging should take place in order to reduce the risk to a tolerable level. Hedging at lower prices reduces the need to hedge at higher prices and is therefore an important element to any strategy.

CONCLUSION

Through the application of a hedging strategy, transit agencies can control their energy costs and exposure to volatile and rising energy markets. The riskiest course of action is not hedging at all. The beauty of all this is that all of the information and tools are there. In return for a little planning – Risk Management – a Public Transit Agency can enjoy stable and often lower energy costs and have a much higher degree of certainty of future energy costs. ■

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