Risk Management in Energy Purchasing - Strategy and Practical Examples

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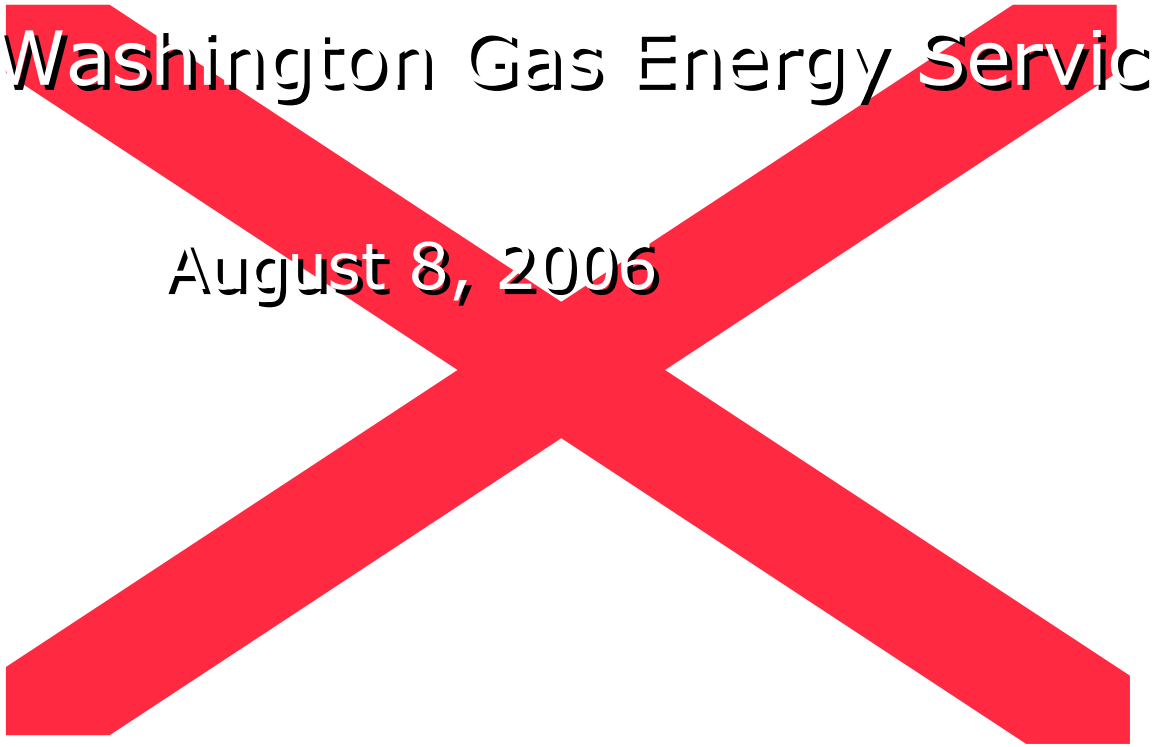


Developing a Strategy

Behind the Wheel: Management Focus

- Definition of Risk
  - The possibility of suffering harm or loss; danger
- What is Risk in the context of energy purchasing?
  - Risk in energy purchasing generally relates to concerns about the possible harm to an organization associated with high cost outcomes.
    - Let's take physical supply reliability for granted
    - Let's also set aside "programmatic" objectives (e.g. MBE procurement targets, renewable energy targets)
    - Let's assume that low cost outcomes are not a problem

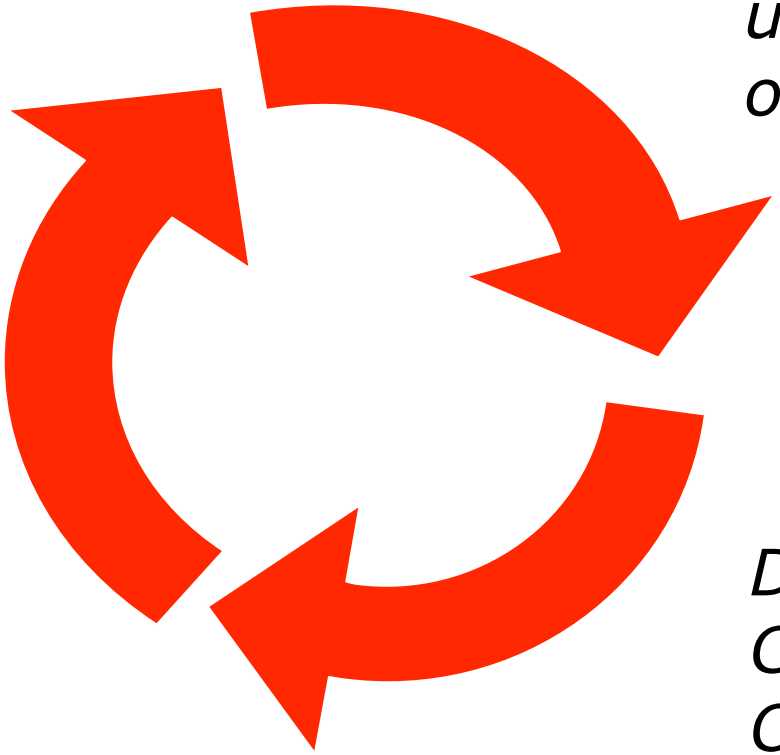
Developing a Strategy

Behind the Wheel: Management Focus

- Definition of Risk Management
  - Decisions to accept exposure or to reduce vulnerabilities by either mitigating the risks or applying cost effective controls
- What is Risk Management in the context of energy purchasing?
  - Accepting, to some extent, the implications of high cost outcomes or limiting the extent or probability of higher costs by employing some cost effective and otherwise acceptable controls or tools

Developing a Strategy

Define unacceptable outcomes



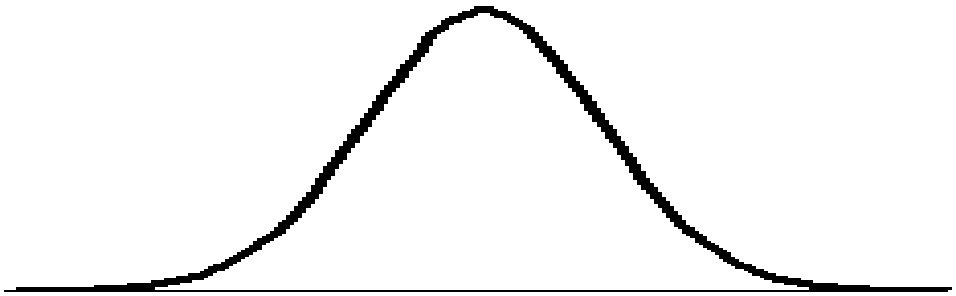
Develop distribution of possible outcomes

Determine Control Opportunities and Costs

Developing a Strategy

Behind the Wheel: Management Focus

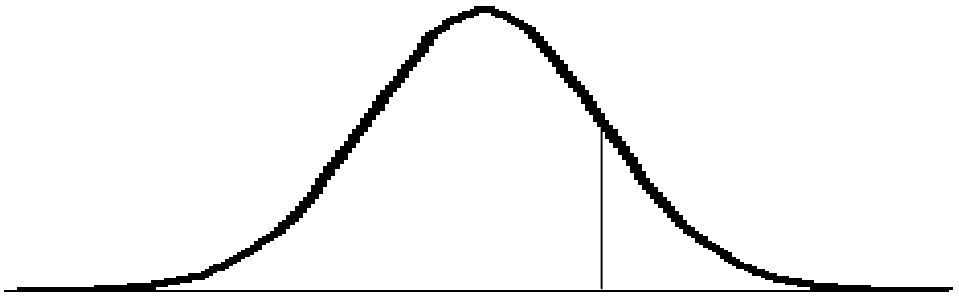
- Create a probability distribution of possible cost outcomes
  - Best to build the distribution curve on real time energy prices - these are pure with no risk management cost imbedded or applied
  - Weather is generally the other large factor
  - THIS IS REALLY HARD TO DO!!!



Developing a Strategy

Behind the Wheel: Management Focus

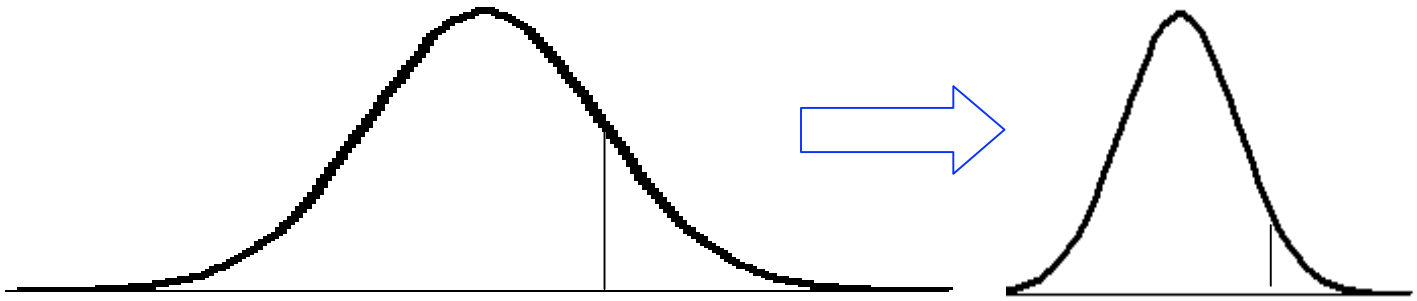
- Identify what levels or probabilities of high cost outcomes are harmful
  - How sensitive to costs is your organization?
  - What happens if costs over-run?
  - Are variations for certain reasons viewed differently from others?



Developing a Strategy

Behind the Wheel: Management Focus

- What risk management tools are available?
  - Are operational or equipment changes being considered?
  - Will your organization employ tools directly, or are suppliers applying the tools?
  - What is the cost of each discernable element of risk management?



Developing a Strategy

- Types of Risk Management Tools
  - Physical tools
    - **Load reduction**
    - **Load shedding**
  - Financial tools
    - **Forwards** - Purchase or sale transaction where delivery is delayed to a specified future date. Forward contracts set a price or pricing formula
    - **Options**- A contract that gives the buyer the right to buy (call option) or sell (put option) at a specified price (the "strike" price) over a specified period of time
    - **Weather Hedges** - A contract that gives a specified payoff based on the number of degree-days above or below a specified level during as specified time frame

Developing a Strategy

Behind the Wheel: Management Focus

- Pitfalls in Developing Strategy
  - Ill-defined purchasing objectives
    - "Buy energy as cheaply as possible"
    - "Get the lowest bid"
  - Failure to understand costs of controls or mitigation
    - Understand at a discrete level the costs of controlling each element of risk.
    - Options are expensive - forwards are not
  - Uncover "hidden" risk controls
    - Are you asking for pricing structures that mesh with available controls, or are you paying for "non-standard" approaches?

Practical Example #1

- The simplest case
  - A distribution of possible cost outcomes is developed based on potential use and price variations
  - The organization determines that any cost outcome associated with all but very remote probabilities are acceptable.
  - The decision is made, therefore, to accept all energy cost risks, and not to apply risk management tools.
  - *Implementation - Indexed Price Procurement*
    - Gas - Monthly NYMEX indexed pricing
    - Electricity - Real time LMP pass-through

Practical Example #2

- A very common case
  - A distribution of possible cost outcomes is developed based on potential use and price variations
  - The organization determines that it is prepared to accept the variation in energy costs associated with weather, if unit pricing of energy is fixed.
    - The decision-making time horizon is one budget year.
  - The decision is made, therefore, to issue an RFP for a one-year fixed-price contract.
    - BUT ……

Practical Example #2

- What are the costs of each risk management element the bidders will employ to fix the price in the structure of the RFP?
  - Do bidders clearly understand your load variability?
    - Have they been given good, complete load data?
    - Can you bracket your load based on your own modeling?
  - How is energy pricing structured in your wholesale market?
  - Are there any regulatory changes introducing uncertainty?
- What is the NEW distribution curve of possible outcomes?
  - What is the ***expected value*** in the new curve relative to the old curve (i.e. what are you paying for price protection)?

Practical Example #2

- Are any hidden risk management costs imbedded in the purchase?
  - Different "fixed price" structures can have different risk management implications
  - Are you duplicating a utility pricing structure that does not mirror the market?
  - Are hold times on bids excessively long?
  - What are the implications of "lock in" mechanics?
  - Utility SOS is not without its hidden costs!
- *Implementation - Well-structured 1-year bids*
  - Gas - Firm, full requirements contract, "locks" are full NYMEX contracts in size
  - Electricity - time-of-day pricing, energy and demand separate, seasonal rates

Practical Example #3

- A long-term hedge
  - A distribution of possible cost outcomes is developed based on potential use and price variations - *over a long time horizon*
  - The organization determines that it is would like to narrow the range of future costs.
    - The decision-making time horizon is multiple budget years.
  - The decision is made, therefore, to issue an RFP exploring multiple-year procurements
    - Over what time period does your organization want to control to a budget and how is the budget set?
    - Could other objectives or benchmarks come into play over time?

Miscellaneous Advice

- Very simple pricing structures make bid evaluation easy, but obscure important market price signals, and mask cost reduction opportunities.
- Be sure you have a risk control objective, and beware of speculating on market direction!!!!!!