

# NASEO Natural Gas Task Force: Taking a Risk-Based Approach to Planning



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## Services, systems and models designed for:

- Utilities (electric and gas):
  - Resource planning
  - Portfolio design, risk management, hedge decisions and support
  - Network modeling:
    - Transmission – electric, gas, water
  - Enterprise risk management
  - Business planning, decision making and performance measurement
  - Load forecasting
  - Shadow settlement
- Energy-intensive companies:
  - Energy procurement
  - Data, contract and budget management
  - Invoice processing
  - Carbon inventory, management and reporting
- Retail marketers:
  - Margin optimization and risk mitigation



# THE PROBLEM



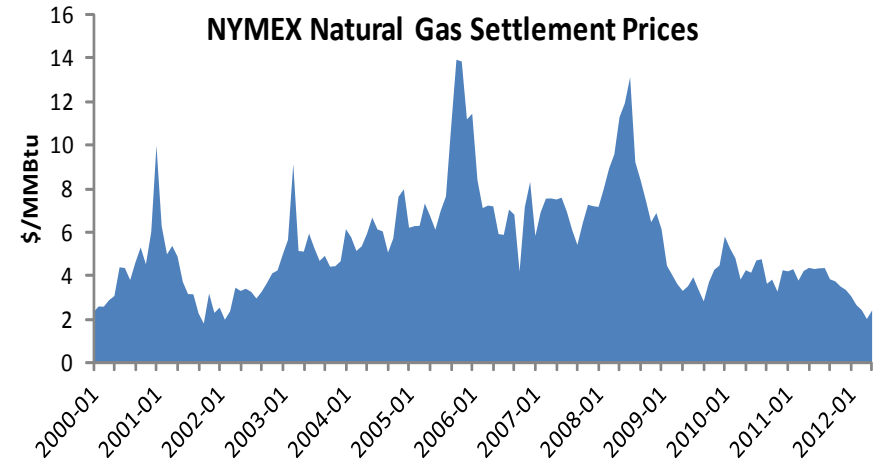
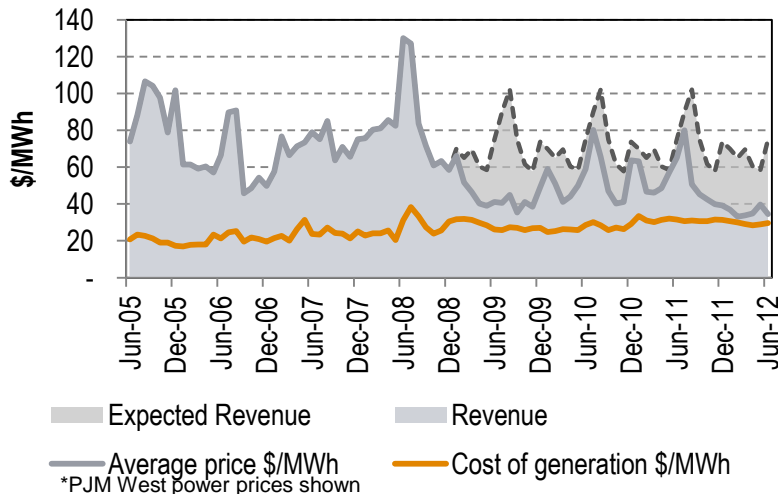
# Why Adopt a Risk-Based IRP Approach?

## Typical Approaches Do Not Convey the Range of Risks Adequately

### Energy markets have become more complex:

- Understanding, planning, and reporting on the range of risks in energy markets is frequently difficult due to many market participants
- Market price shocks (extreme volatility) are not captured in the traditional planning and reporting process
- “Game changing” or quantum events (e.g., the shale boom) that create business disruptions occur and are not adequately accounted for

Coal plant margins eroded with lower gas/power prices

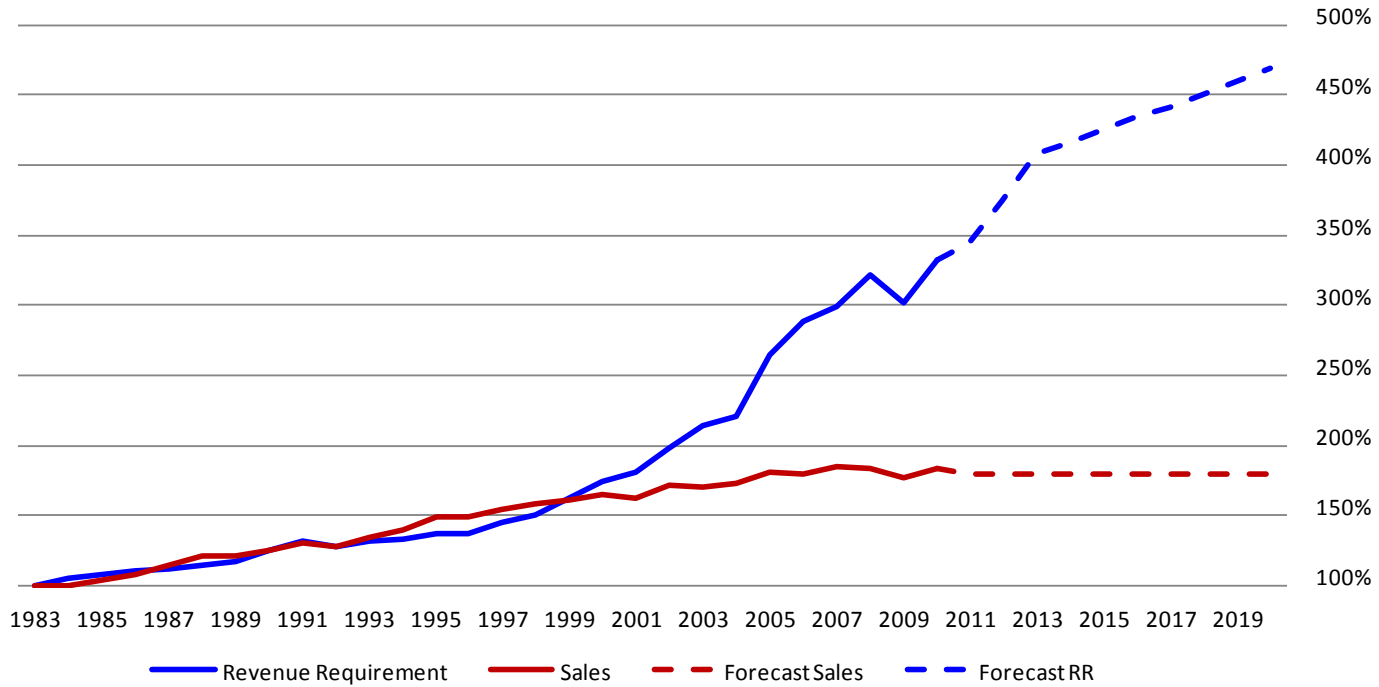


### Business processes and systems have not kept up with market complexities:

- Business process should drive system requirements, but the opposite often occurs
- As a result, utilities cannot assess the business risk/return tradeoffs for their investment decisions
- It is difficult to get quick response to key questions
- Business are not confident that their risks are adequately considered and managed during planning processes

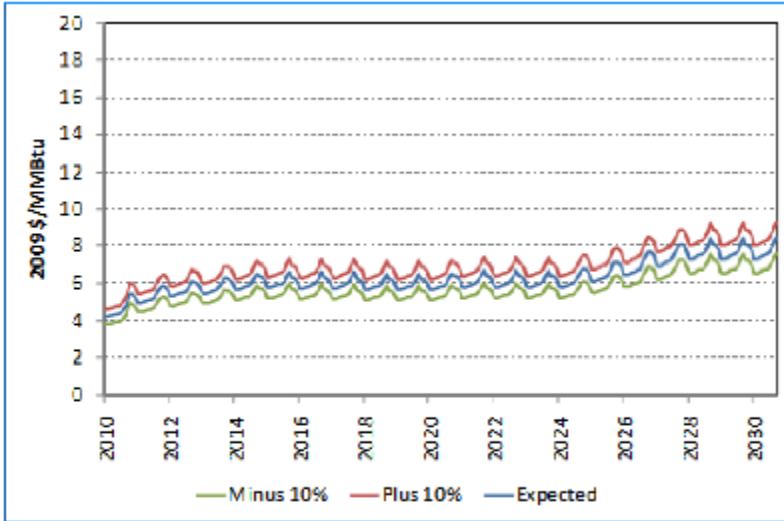
The widening gap between sales and revenue requirement growth rates is challenging because of its rate implications.

## Sales vs. Revenue Requirement





# The Importance of Risk-Based Planning Consider Natural Gas Price Forecasting – Why Typical Approach Doesn't Expose the Risks



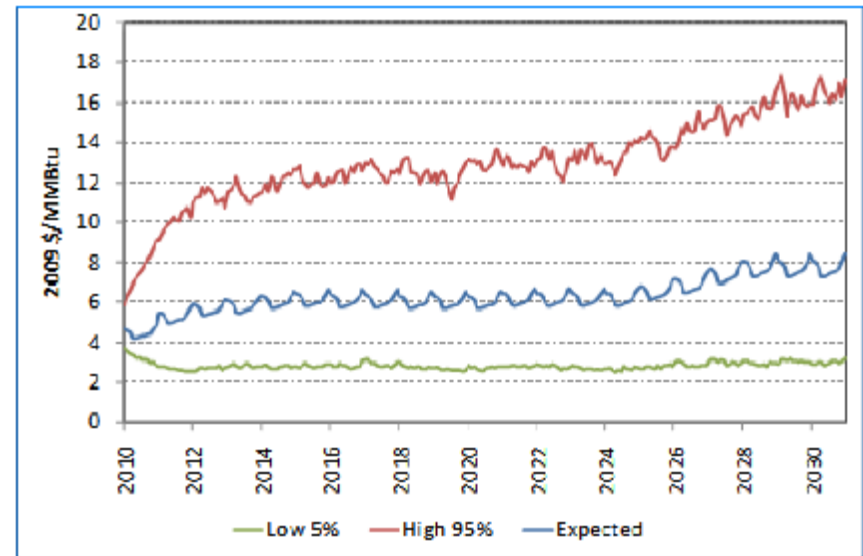
Shale gas has driven gas and power prices down.  
Volatility has at least temporarily dropped.

Common IRP planning practice is to use sensitivities applied to a base forecast (e.g.: +/-10%)

*As Pace derived in 2009*

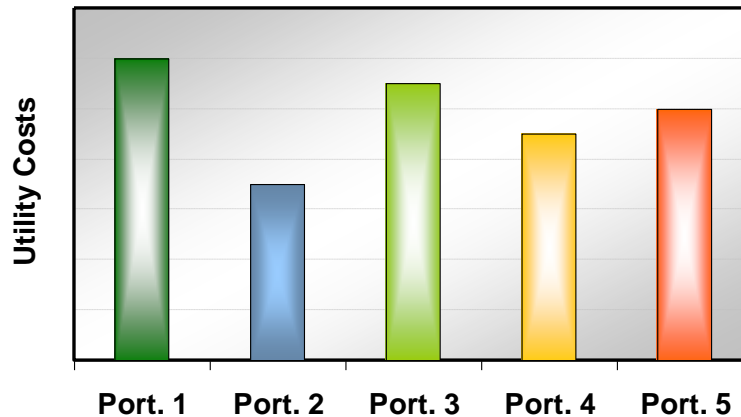
But recent history (2001-2008) suggests that it is dangerous to assume that gas (and power) prices will remain low for an extended period of time.

A risk-based approach would use historical market observations and account for the broader spectrum of risks



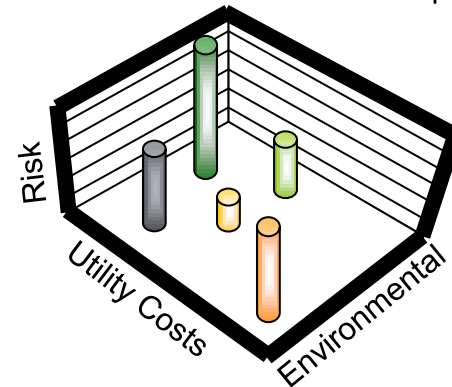
### Traditional (Deterministic) Approach

- Process focuses on minimizing utility costs
- Portfolio evaluation is one-dimensional

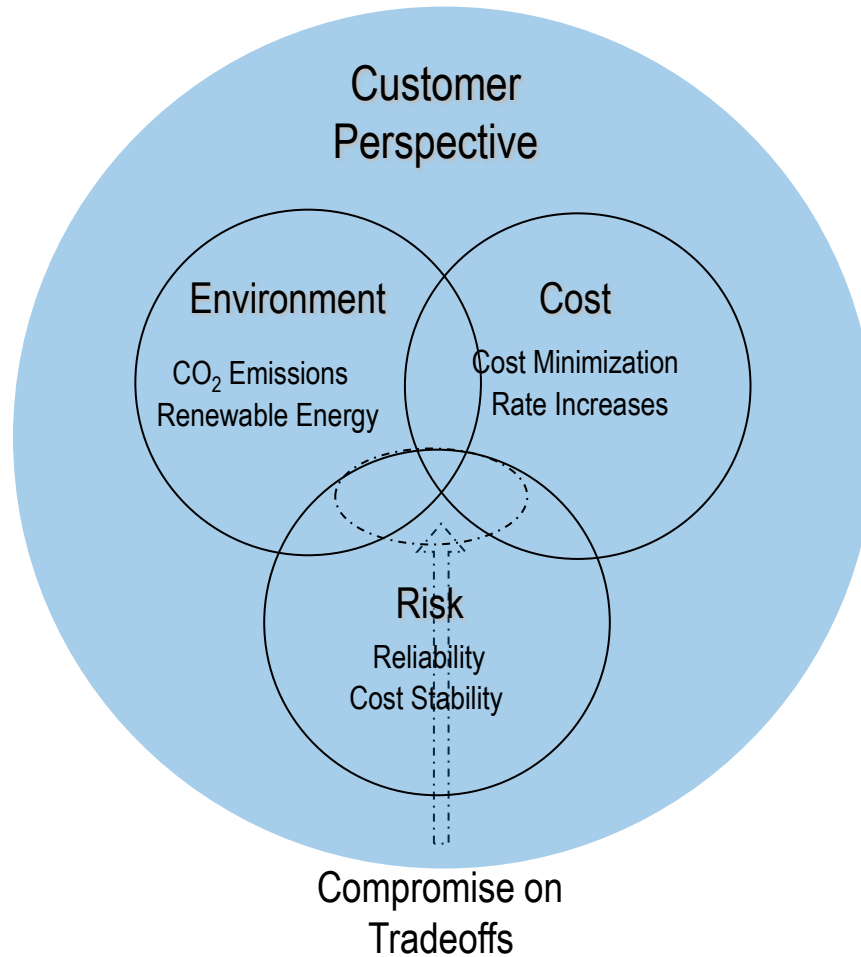


### Risk-Based Approach

- Often most the important objective is rate stability and at times environmental awareness
- Our risk based process focuses on the simultaneous evaluation of multiple objectives and tradeoffs
  - Rate Stability
  - Utility Cost Minimization
  - Environmental Stewardship



# Objective Setting and Recognizing Key Tradeoffs: Most regulated Utilities are Balancing Several Objectives



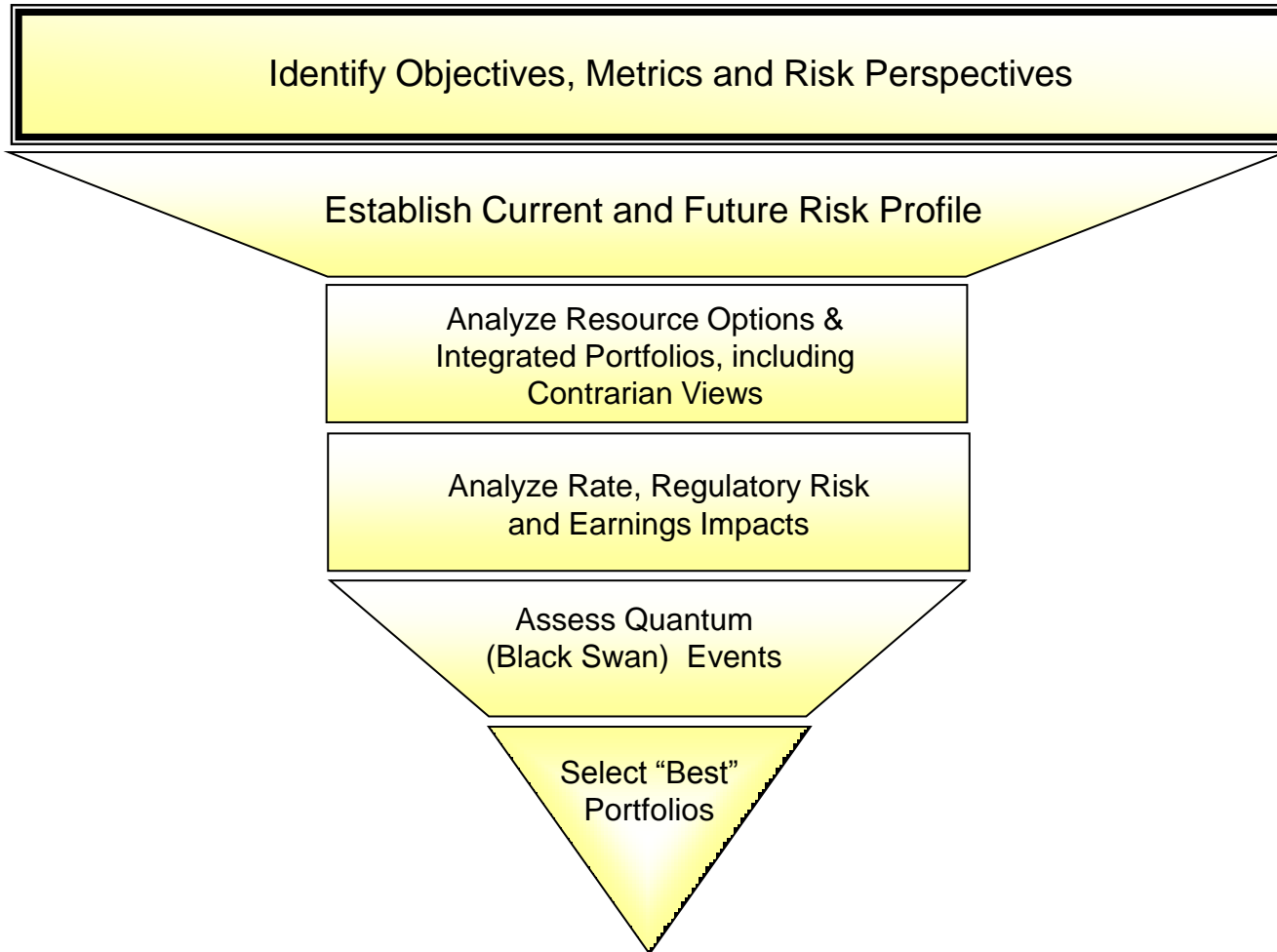


## BEST PRACTICES APPROACH

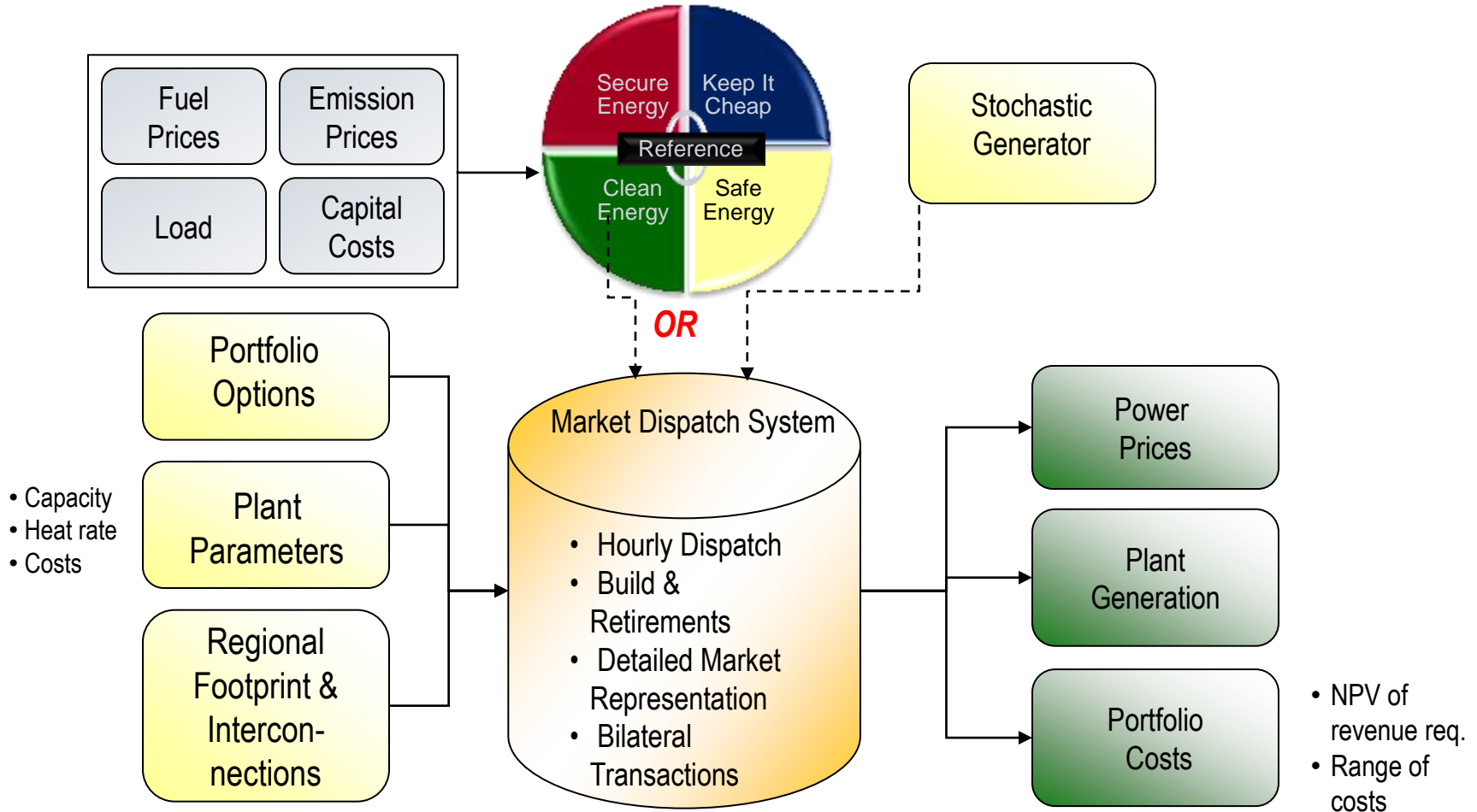


# Business Process for Incorporating Risk into IRP

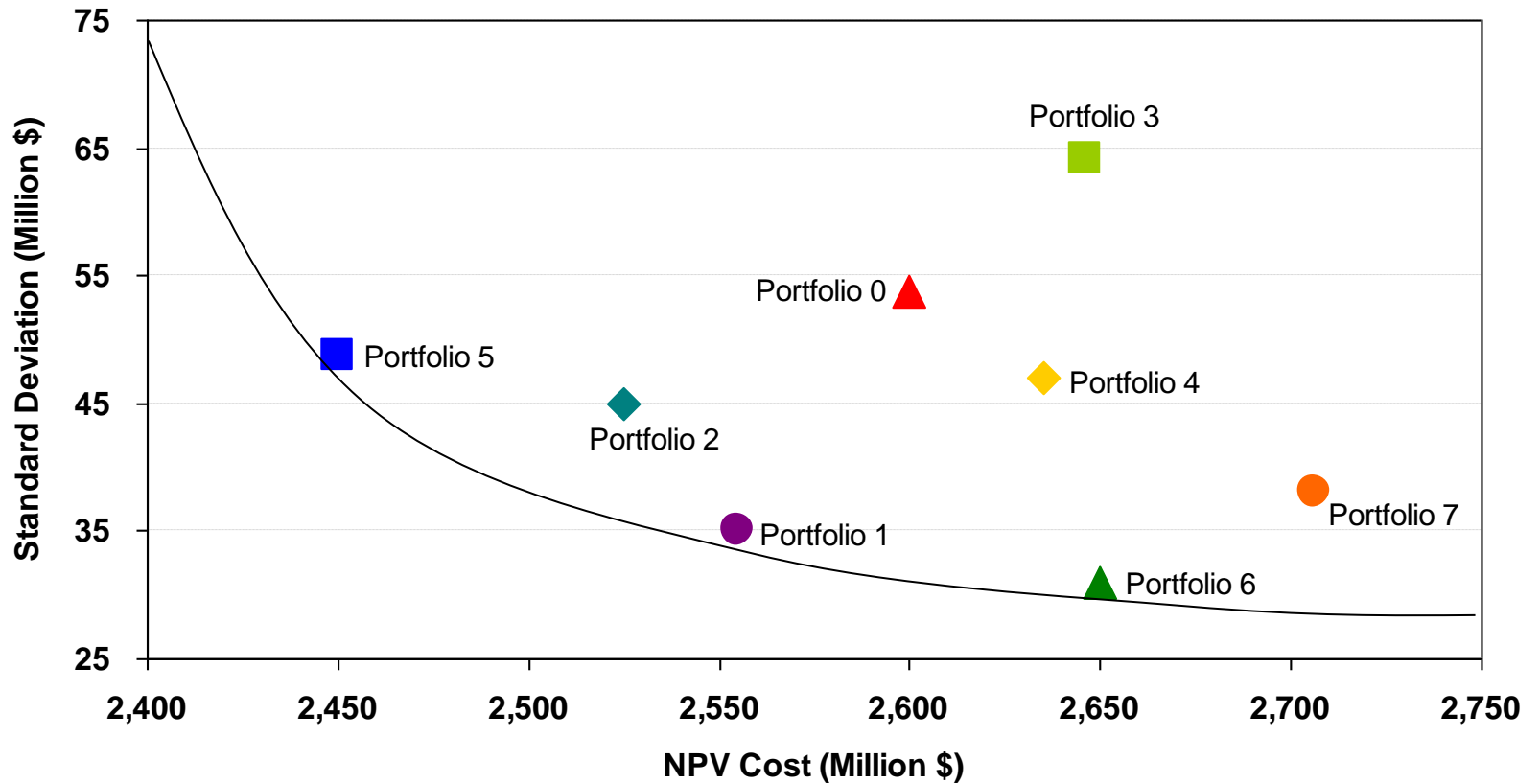
Select portfolio that meets objectives over range of potential market and regulatory outcomes



MarketLink<sup>SM</sup> Scenarios



Portfolios above line are less desirable

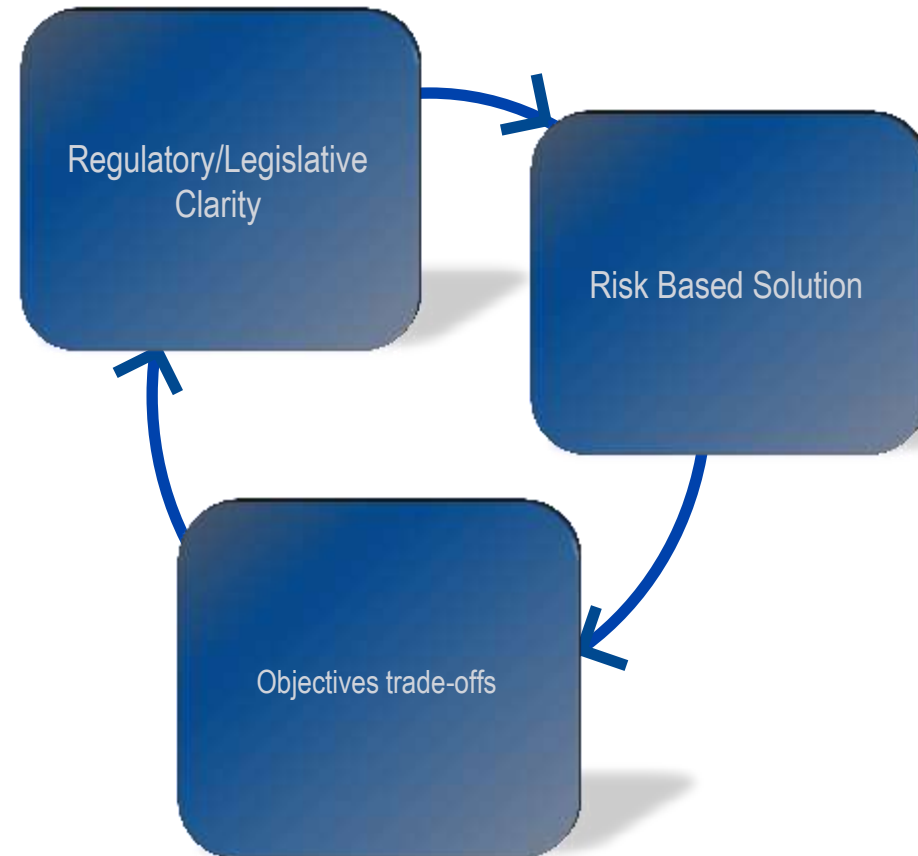


## REGULATORY PROGRAMS



## What agencies can do to drive best practices:

- Utilities (electric and gas):
  - Provide regulatory and legislative clarity
  - Require risk based decisions
  - Ensure that utilities consider the full spectrum of risks they face
  - Ensure that utilities consider the relevant tradeoffs between the objectives of rate stability, reliability, flexibility, least cost and environmental stewardship in a consistent manner
  - Require that utilities not focus on “a single view” of the future





**THANK YOU!**

**QUESTIONS?**

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