Power Supply Portfolio Development

Kansas Energy Council

Electricity Subcommittee

June 17, 2008

MIDWEST ENERGY, INC.

"Making Energy Work For You"

Company Overview

- Member-owned cooperative serving 48,000 electric and 41,500 gas meters in 41 counties of central and western Kansas.
- Eight local offices and 30 locations.
- 272 employees – 329 employees/meter
- Sales: 1.4 million MWh (2007)
- Revenue: $100.5M (2007 electric)
- 1,673 miles of transmission lines
- 9,400+ miles of distribution lines

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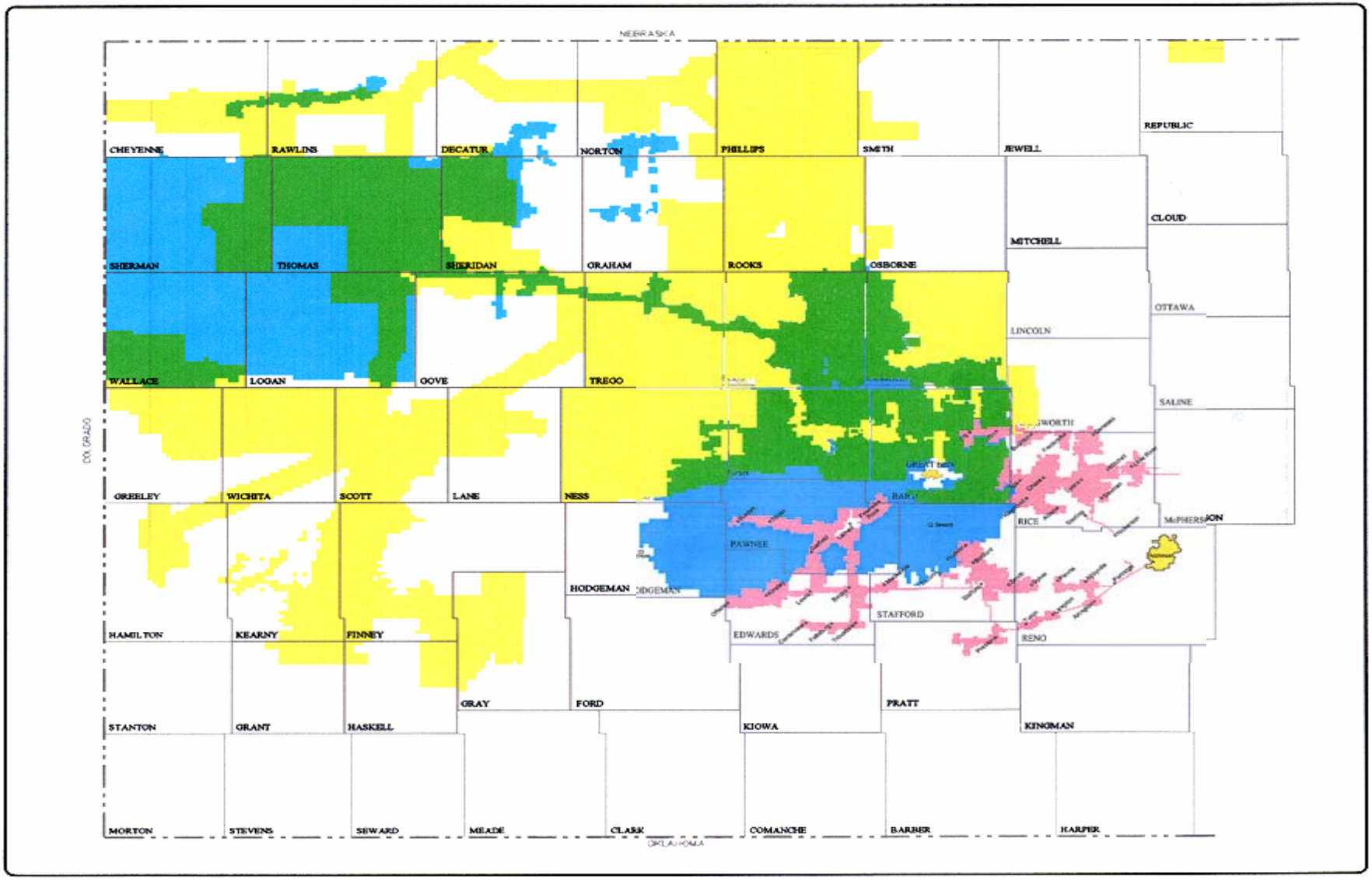

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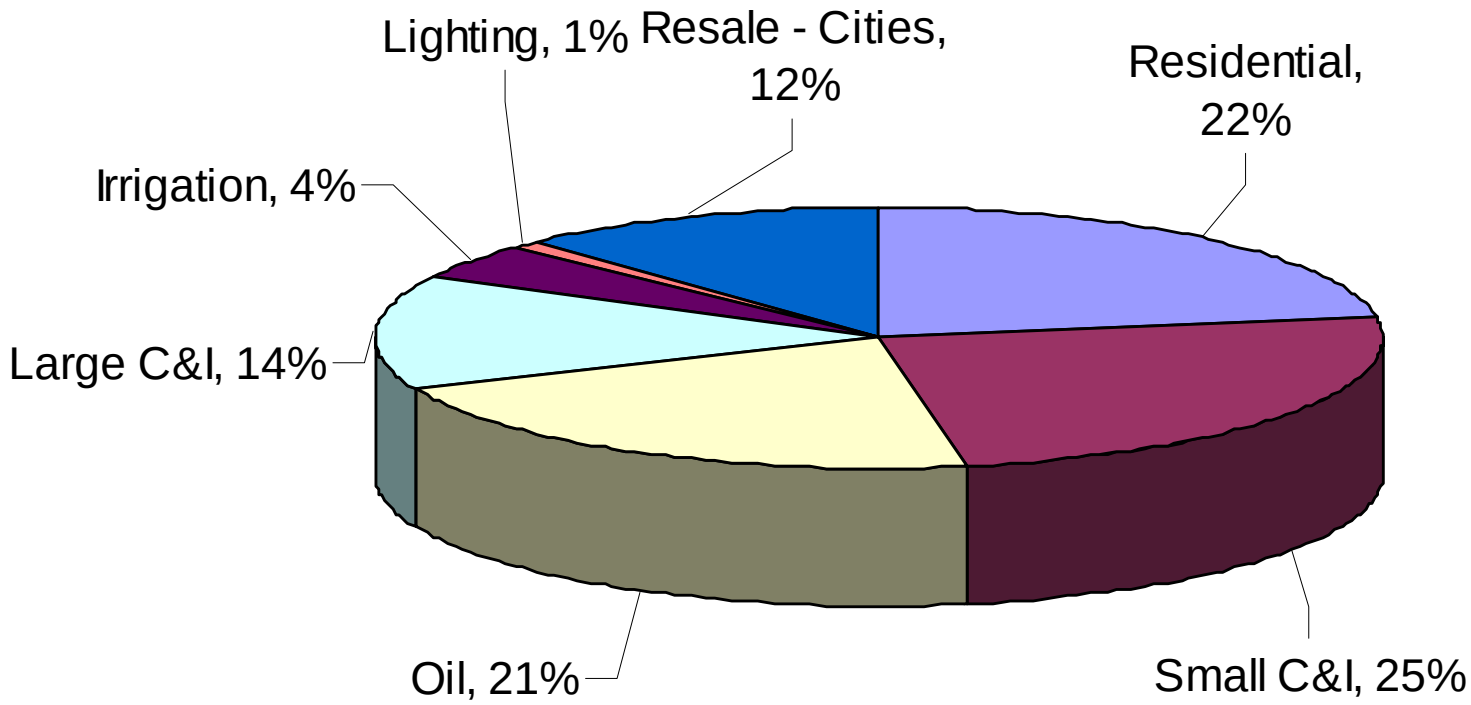
Energy Sales by Customer



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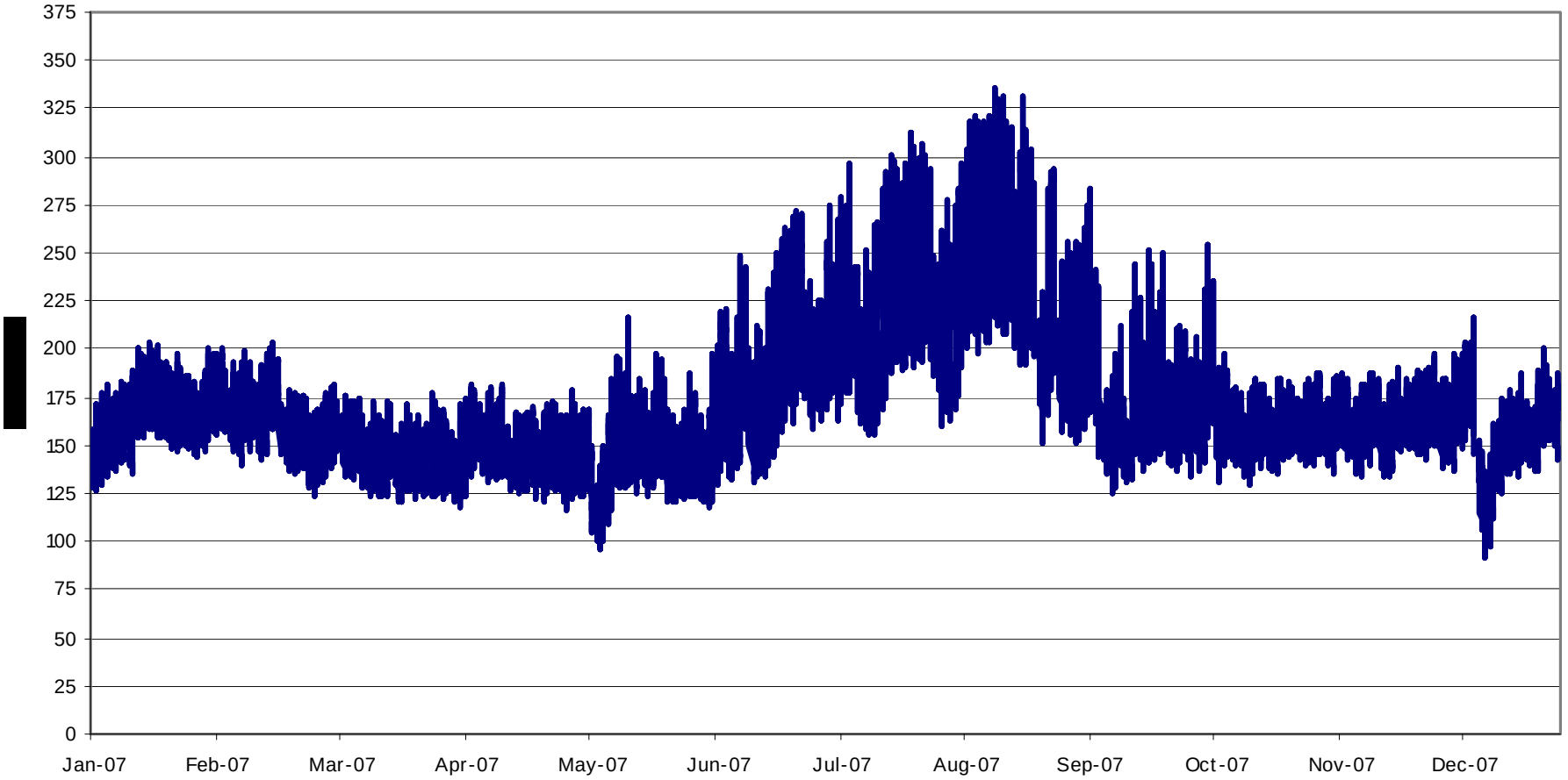
2007 Total Electric Load



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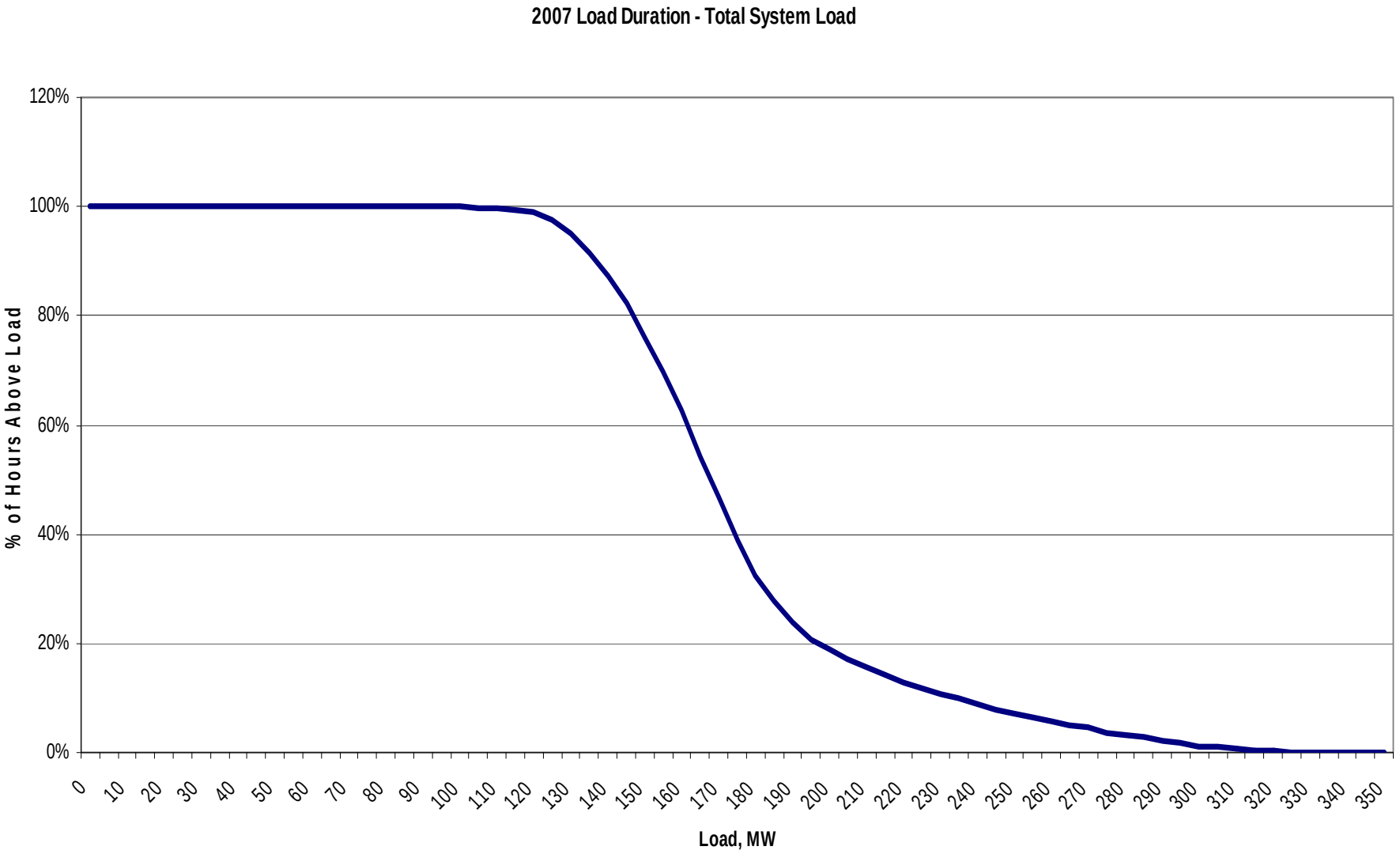

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Historic Power Supply Portfolio

- Have traditionally purchased at least a portion of our resources.
- In the early 1990s we retired old steam generating facilities at Hays, Hill City and Colby – too costly to update.
- Replaced with purchased resources.
- These purchased resources were a mix of resource type and fuels from multiple suppliers.

Resources as of May 2008

Contract A-Baseload	Coal	125MW
Contract B-Baseload	Coal	40MW
Contract C-Intermediate	Gas/Oil	60MW
Contract D-Intermediate	Gas/Oil	30MW
Contract E-Peaking	Gas/Oil/Coal	25MW
Owned Gen-Peaking	Gas/Oil	71MW

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Midwest Energy Owned Generation

Plant	Units	Fuel	MW	2009 MW
GMEC	9	Gas	50	75
Colby CT	13	Gas/Oil	13	13
Gt Bend	5 / 6	Gas/Oil	6	9
Bird City	1 / 2	Oil	2	4
Totals			**71**	**101**

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Supply Portfolio Re-Design

- In 2004 began planning for replacement of expiring contracts between 2006 and 2010.
- Engaged consultant to assist in development of a new resource plan.
- Explicitly wanted the resource plan to address the variety of risks we face in designing new portfolio.

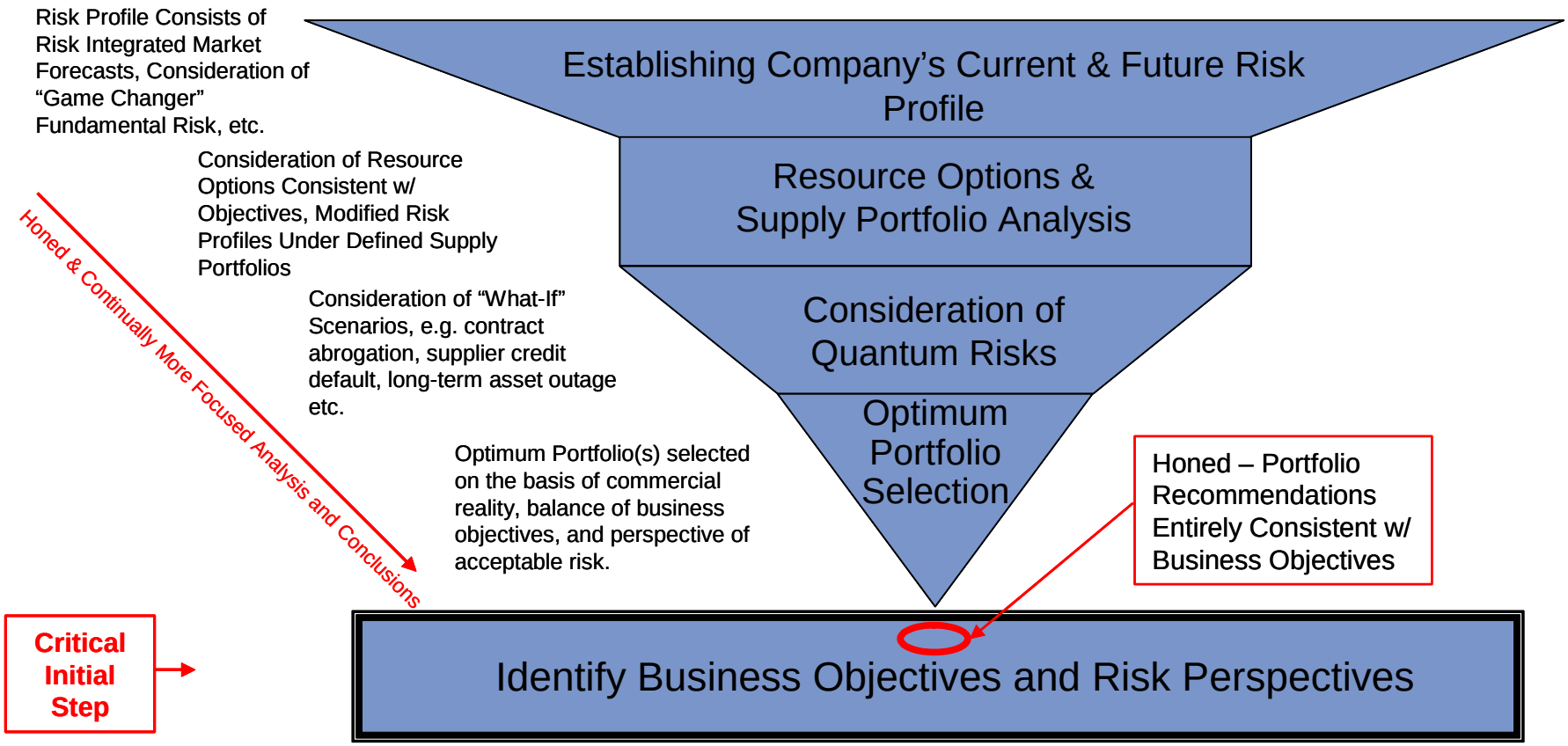
Strategic Objectives

- Provide Rate Stability for Members
- Preserve Supply Reliability
- Maintain Rate Levels Competitive w/ Neighboring Utilities
- Execute a Supply Strategy that is Prudent
- Preserve Corporate Solvency & Strong Financial Condition

Goals of Risk-Integrated Resource Planning

- Determine appropriate mix of base load, intermediate and peaking generation, and role of Demand Response.
- Determine appropriate fuel mix, recognizing risks associated with various fuels.
- Explicitly recognize transmission risks.
- Test recommendations against wide range of risk scenarios.

Analytical Framework of RIRP



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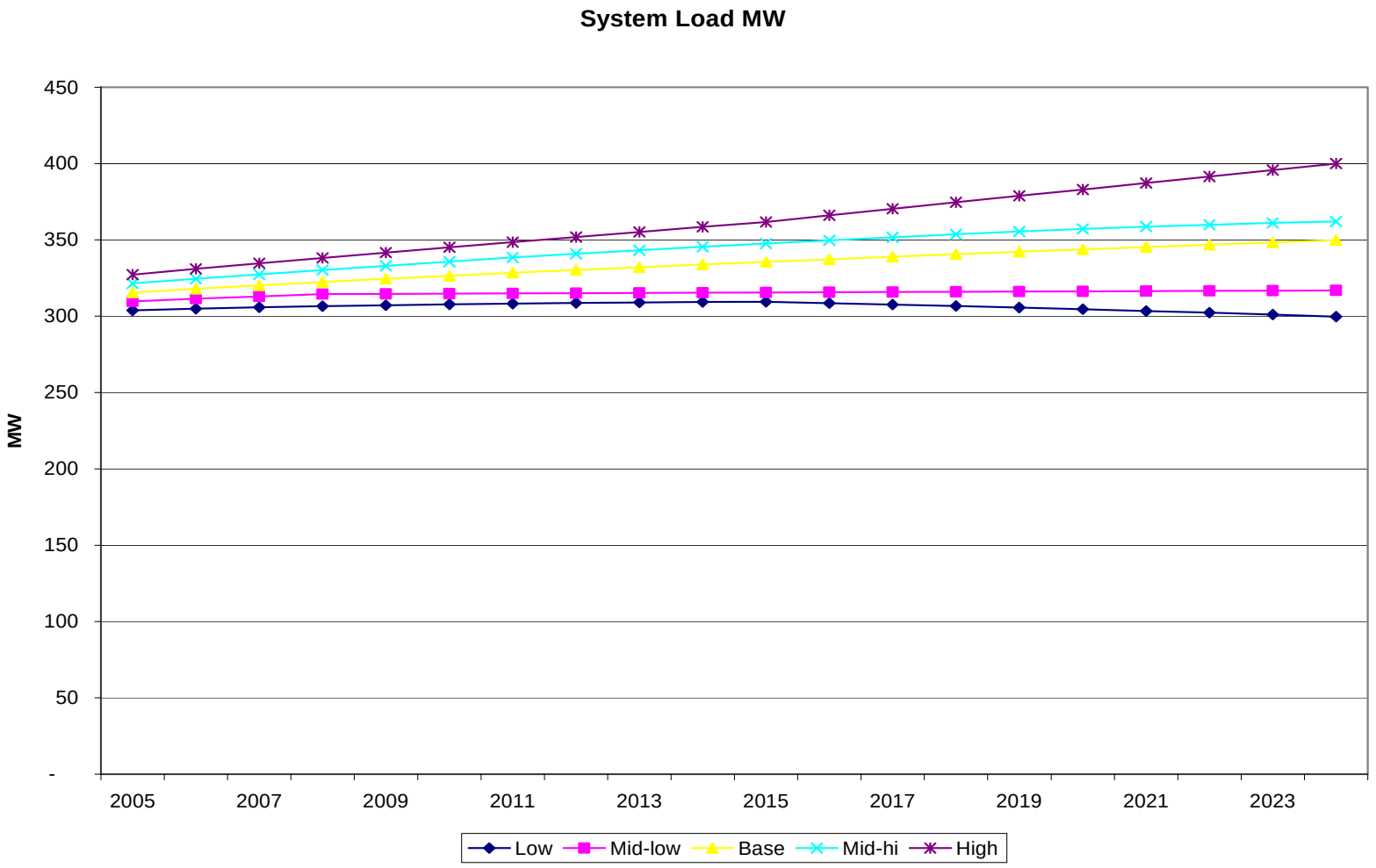
Risk Profile

- Defined by:
  - quantity of power that is anticipated to be needed over time
  - range of prices that Midwest will have to pay for that power over the same period.
- Both the volume and price of power required in the future are not known but can be defined/bounded by statistical techniques, which allows the probability of various outcomes to be considered.

Risk Profile

- Energy price risk
- Customer load uncertainty
- Market structure risk
- Environmental/regulatory risk
- Supplier default and forced outage risk

Demand Forecast



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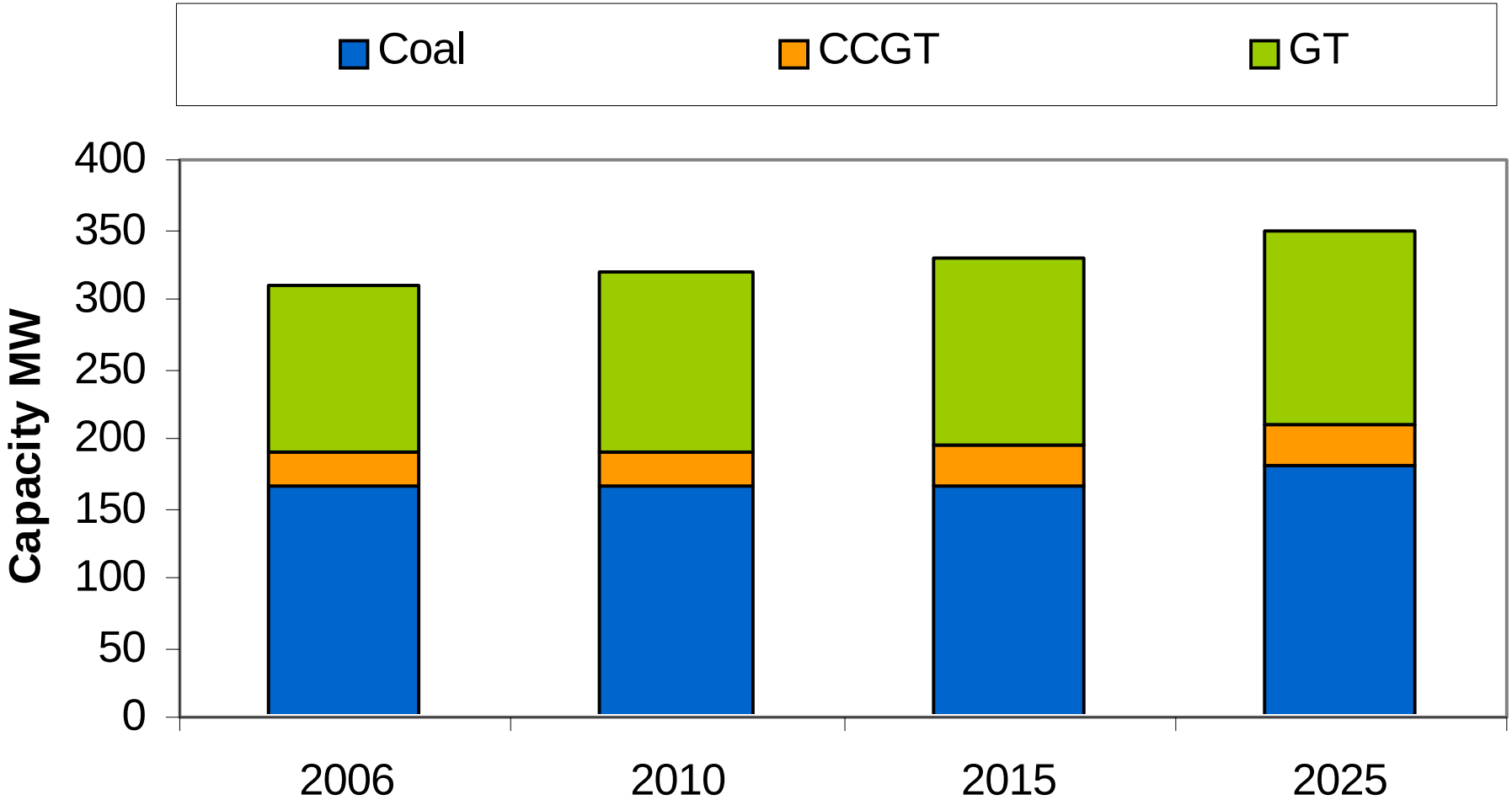
Recommended Portfolio



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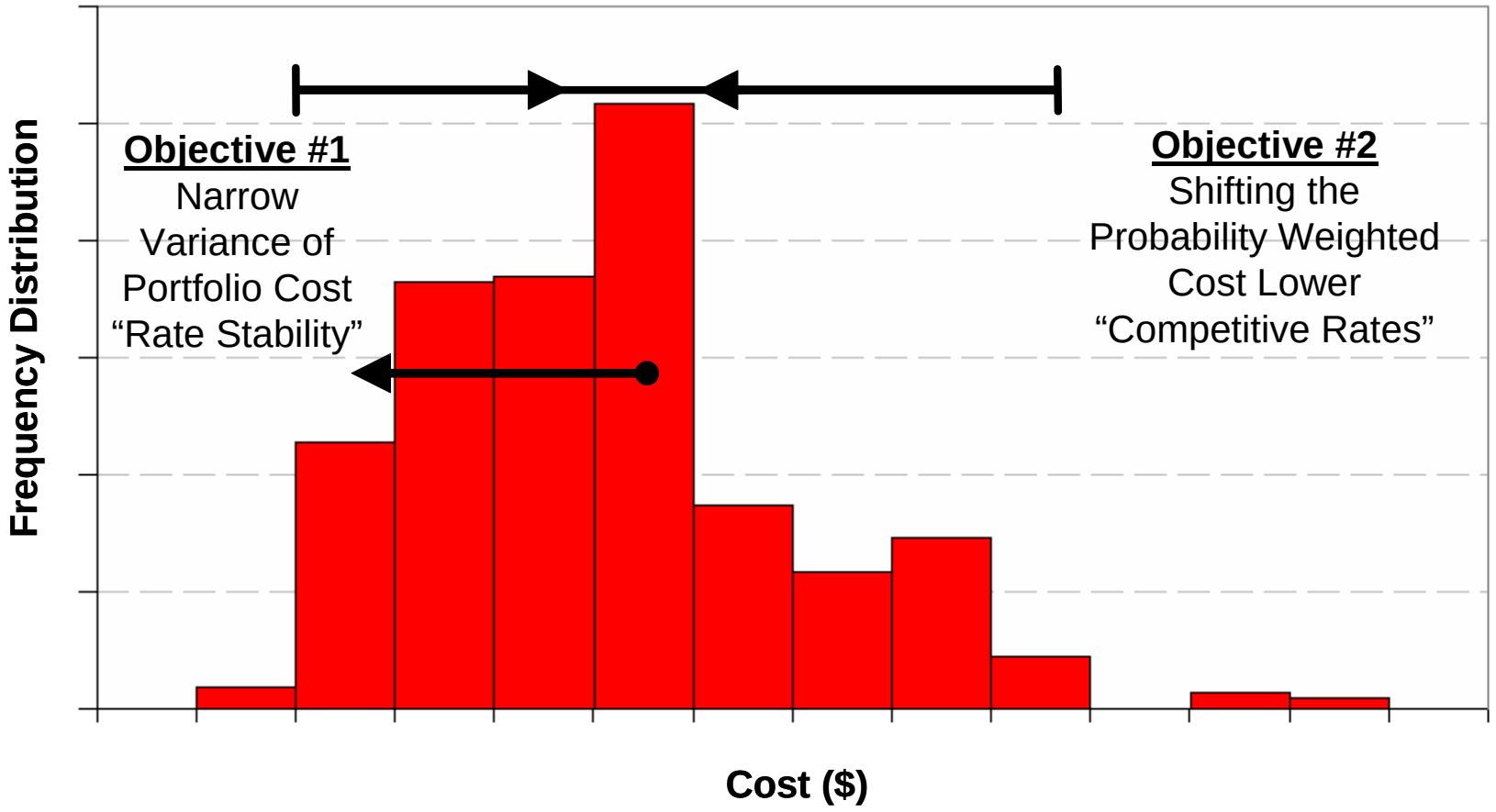
Stress Testing of Portfolio

- Supplier Default
  - Recommend at least 3 different suppliers
- Stringent environmental compliance costs
  - Though cost of coal-fired energy will increase, keep in portfolio
- Impact of wind energy
  - Should be able to accommodate up to 50MW of wind without raising overall energy costs
- Transmission risks
  - Can impact both cost and reliability of supply options
  - Work closely with SPP to test transmission access

RIRP Portfolio Design Approach



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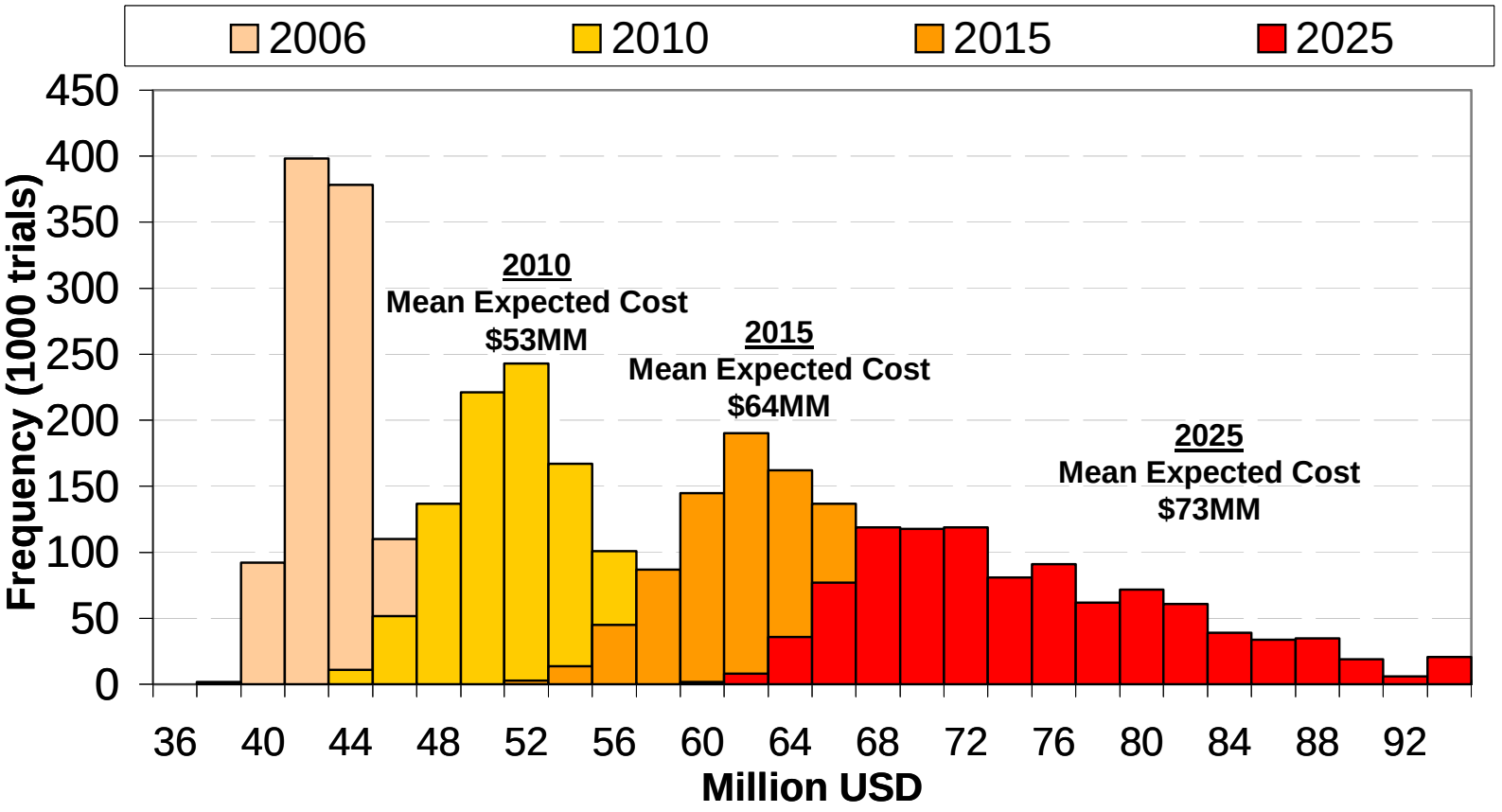
Evolving Risk Profile



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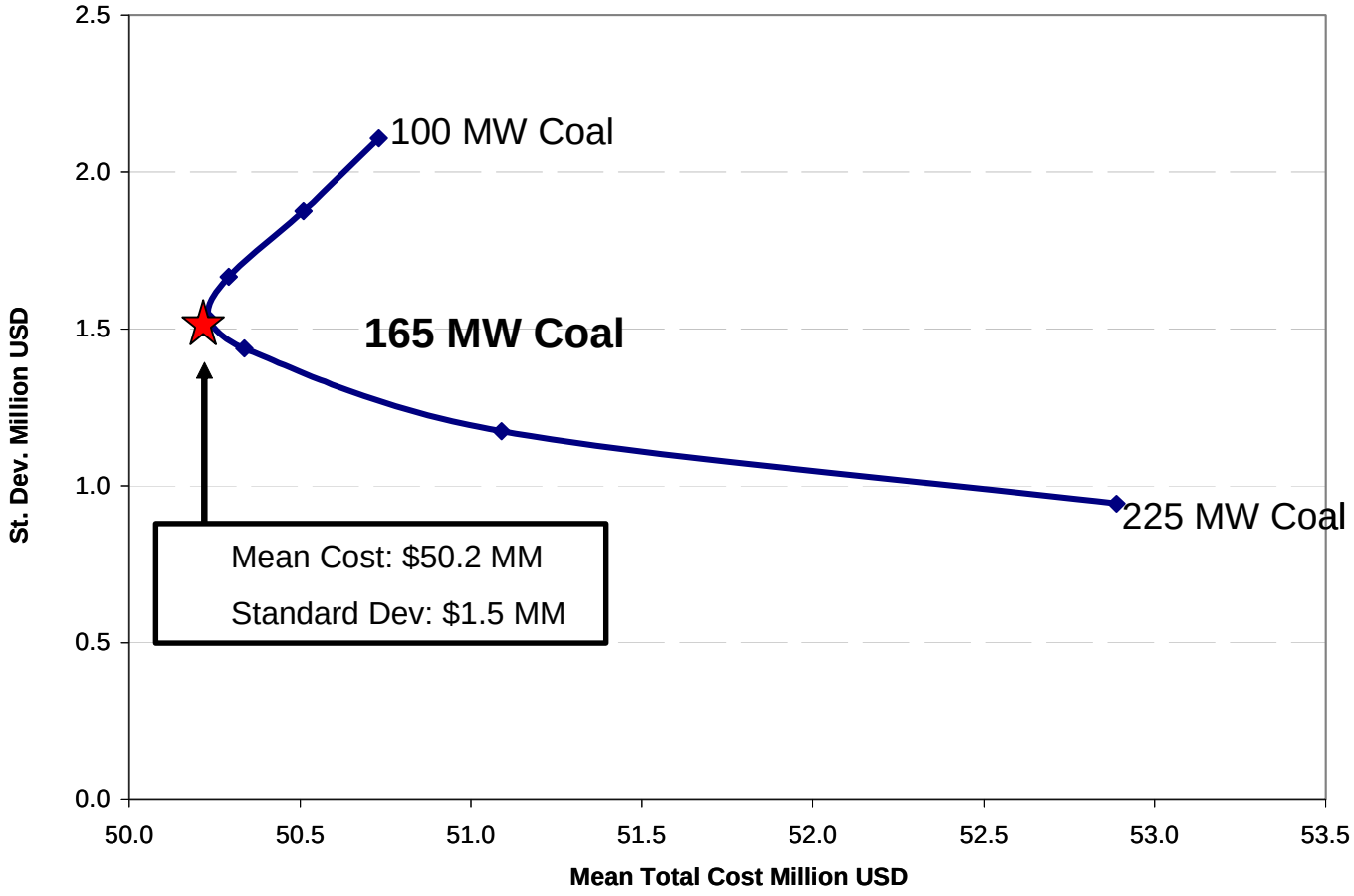
Expected Cost vs. Variability



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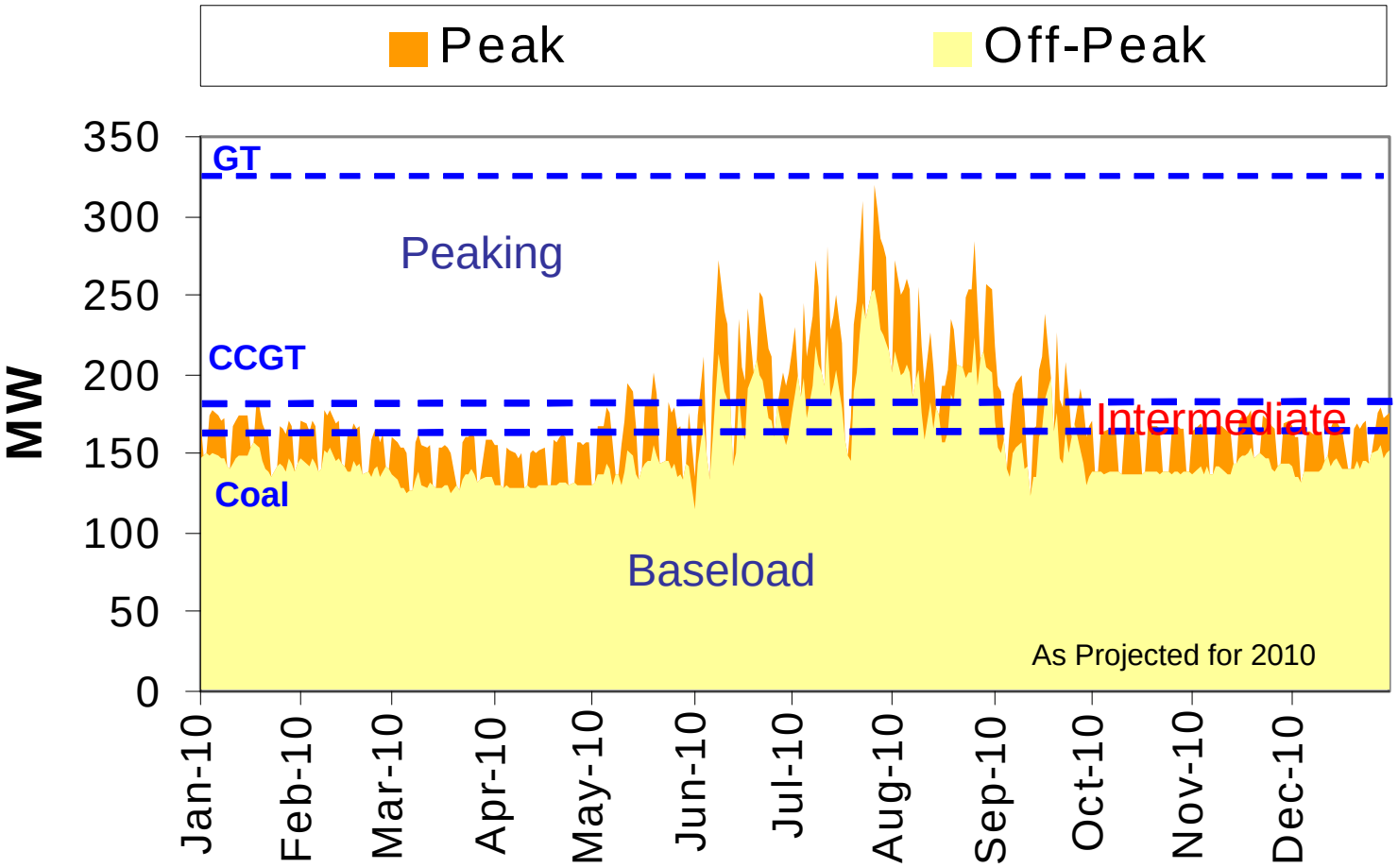
Demand Response Review

- Considered various program options
- Recognized existing programs, including the very successful time/temperature program for irrigation
- Interruptible rates being developed
- Not enough cost-effective DR to cover load growth at Midwest Energy

Portfolio vs. Load



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Portfolio Construction – RFP Process

- Implementation of RIRP is via a solicitation of proposals for long-term commitments.
- Requested proposals for baseload, intermediate, peaking and DR resources.
- Invited offers for contract sale, tolling, joint ownership, and plant construction.
- Sought to build recommended portfolio, with supplier diversity.

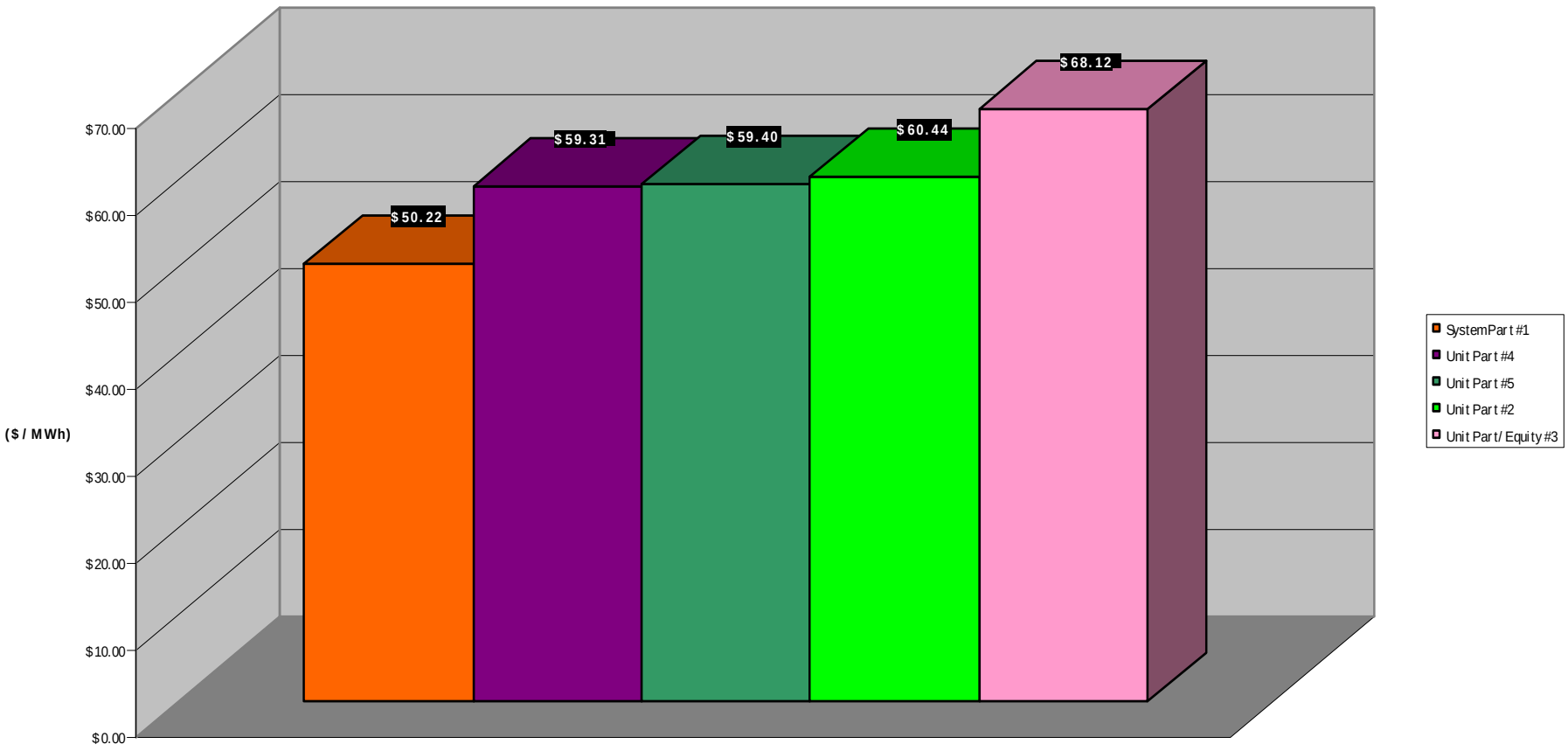
Response to RFP

- Broad response to RFP, with a variety of baseload and peaking proposals.
- Baseload: Received proposals for contract sales (unit/system participation); one offer for either a contract or equity ownership.
- Peaking: Received a wide variety of offers for contract sales, equity ownership, self-build, or tolling.

Response to RFP - Intermediate

- With intermediate, we expected to see proposals with moderate demand charges, and moderate energy charges (typically combined cycle).
- Received no CCGT proposals; did receive a few proposals for gas-fired steam (looked more like peaking).
- Didn’t fit the definition of intermediate from our RIRP process.

BASELOAD OPTIONS - 20-Year Levelized Costs (2006$, 100% Capacity Factor)



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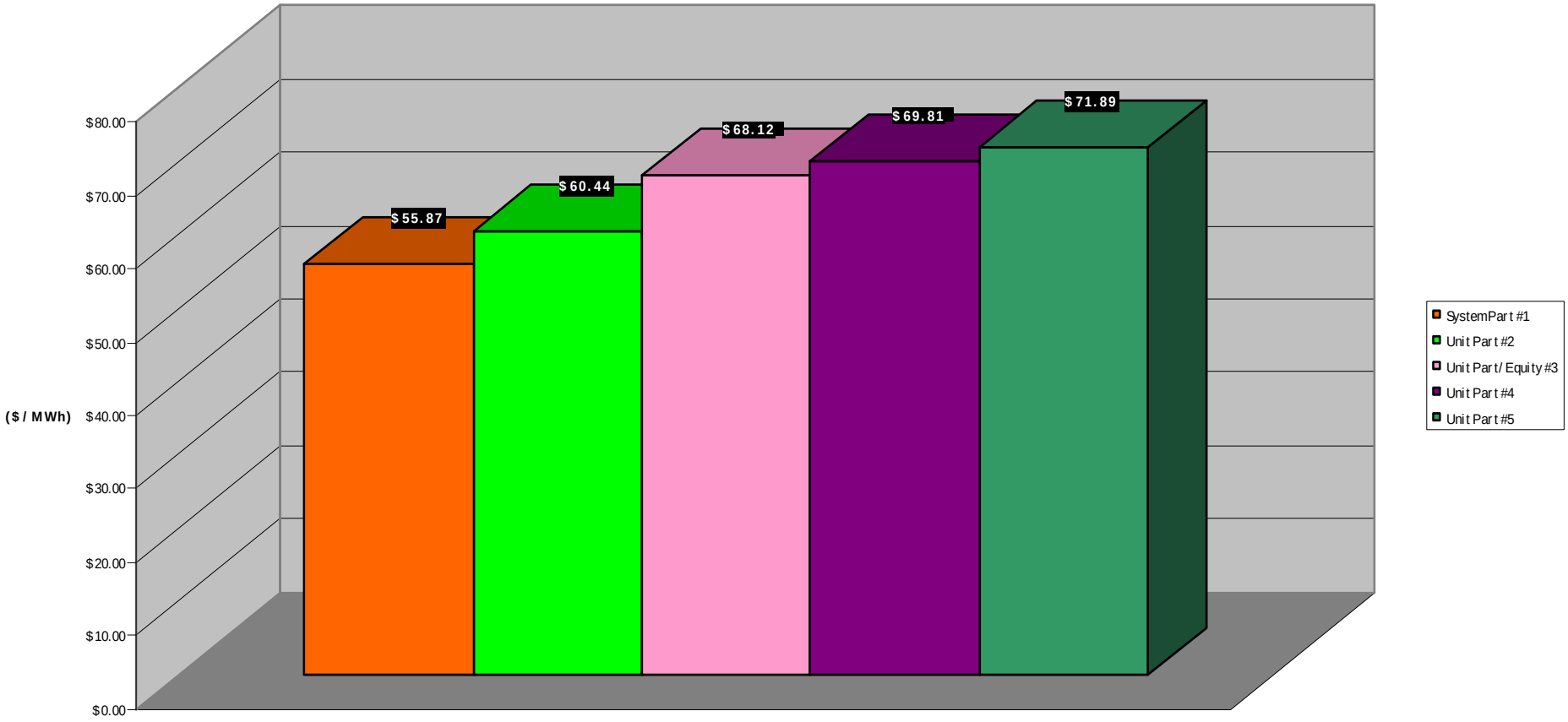
BASELOAD OPTIONS - 20-Year Levelized Costs (2006$, 80% Capacity Factor)



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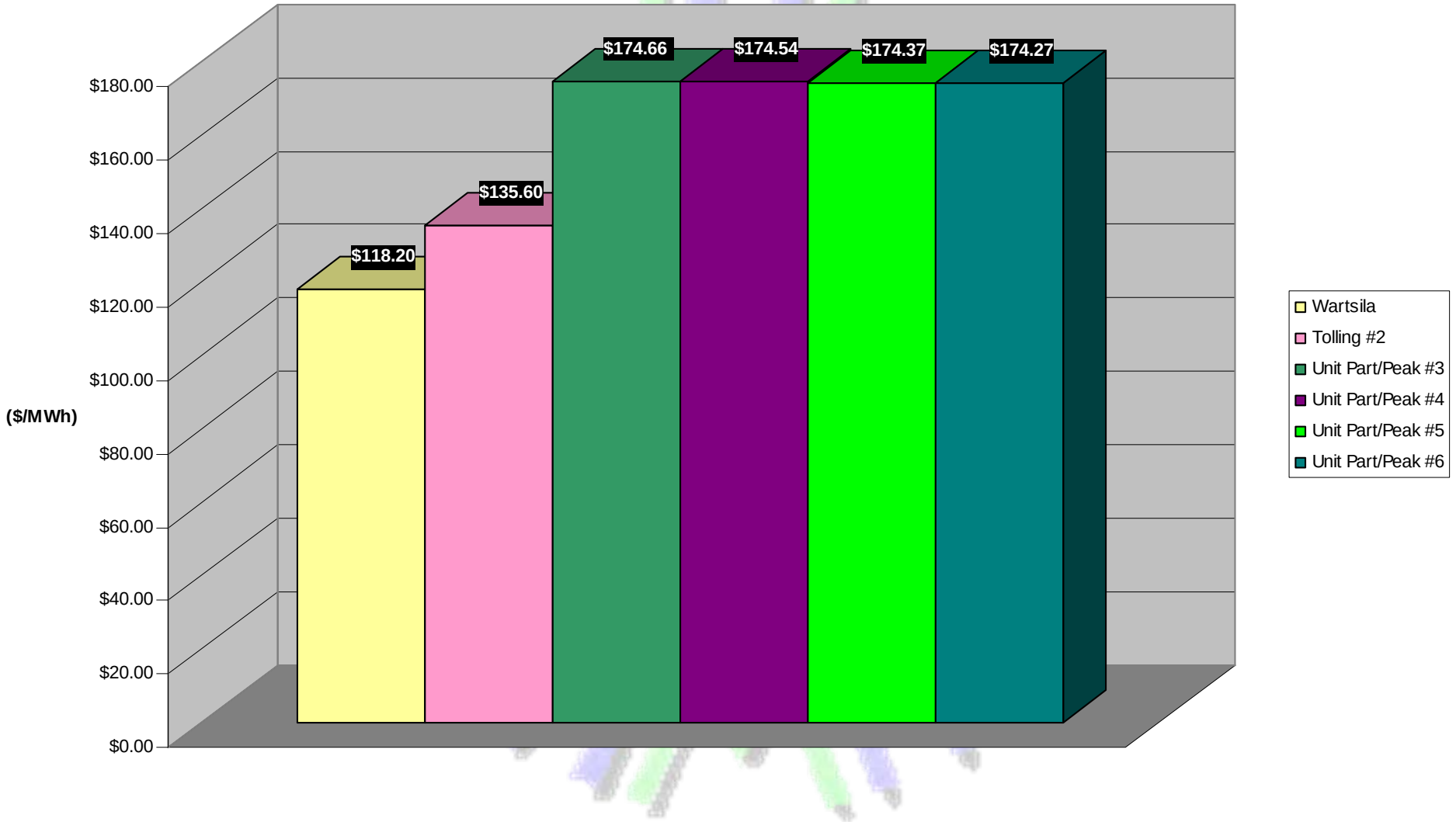
PEAKING OPTIONS - 20-Year Levelized Costs (2006$, 30% Capacity Factor)



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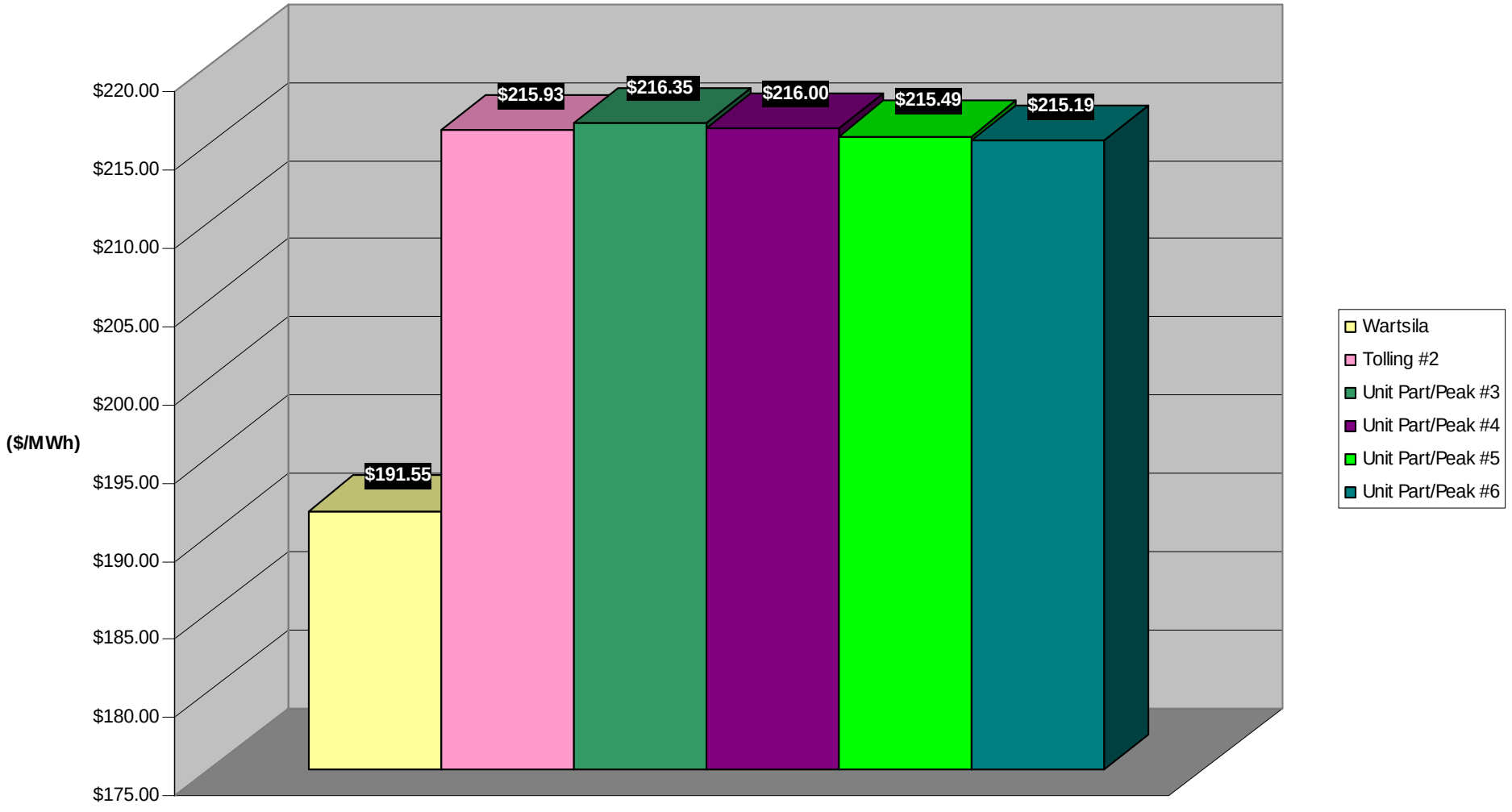
PEAKING OPTIONS - 20-Year Levelized Costs (2006$, 10% Capacity Factor)



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Status of RFP

- Baseload: Working with two parties on long-term deals; re-visiting other proposals in light of recent developments.
- Intermediate: No further activity.
- Peaking: Constructing 75MW of new internal combustion generation (Wartsila).
- Peaking: Negotiating new long-term contract for additional peaking resource.

Goodman Energy Center

- New 75MW peaking facility under construction; 50MW now commercial.
- Excellent Heat Rate: ~8,400 Btu/kWh
- Flexibility: 75MW in 9 units; can run any combination of units, at any load above 40%.
- Emissions: Quite low – Class II permit for up to 8,000 hours/year at full load.
- Water: Closed cooling system, i.e. little water use, or wastewater to dispose of.

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Demand Side Management

- Current Irrigation Time/Temperature Program
- Energy Efficiency Programs
- How$mart program
- Other internal initiatives

Irrigation Time/Temp Program

- Irrigation customers can opt into program.
- Energy rates lower ($0.06/kWh) in off-peak block than on-peak ($0.29/kWh).
- On-peak block triggered by combination of time (2-9PM, June 1, Aug. 31) and temperature (>93F).
- Approximately 35 MW of irrigation load on time based rate.

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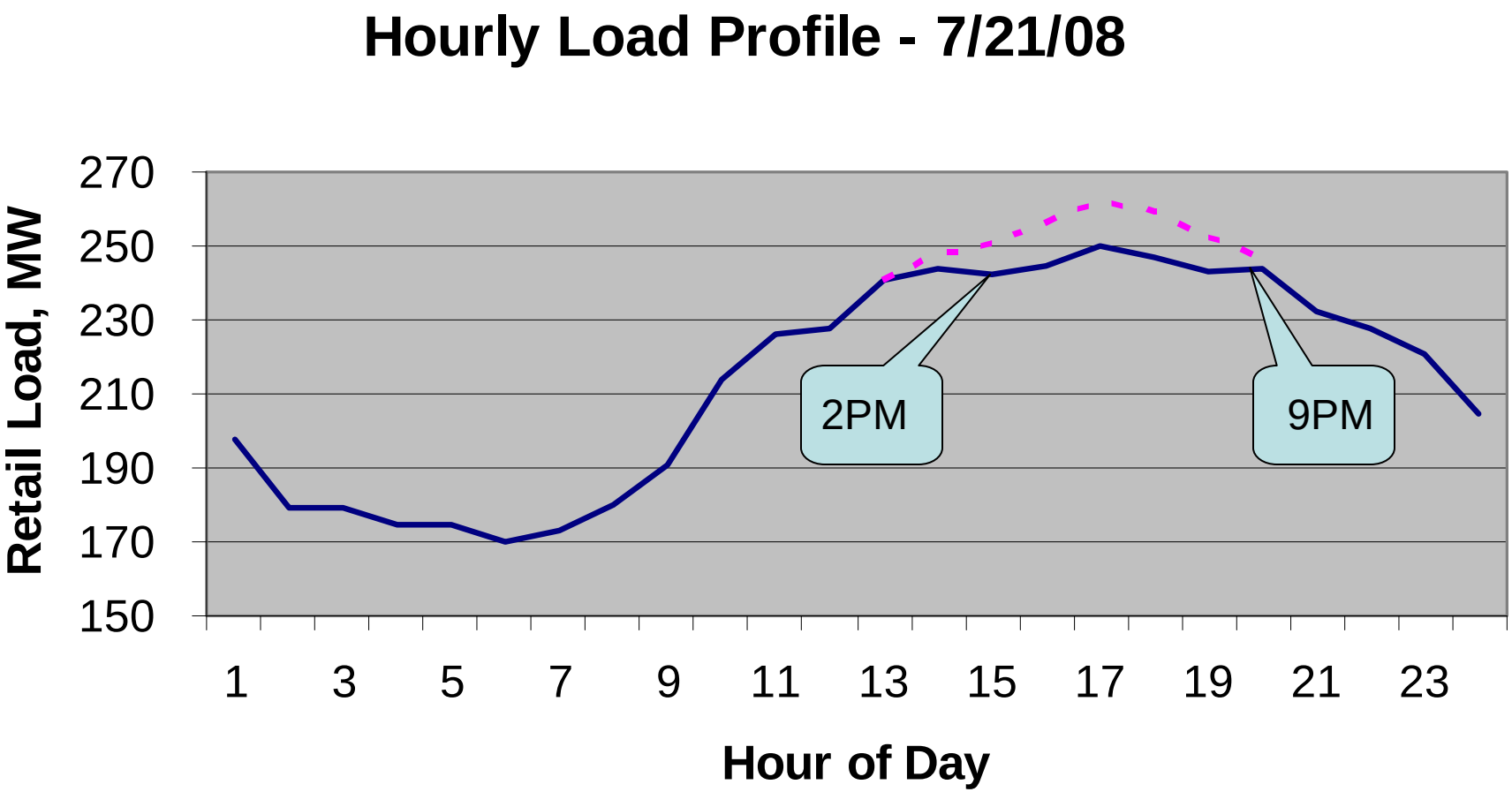
Impact of Irrigation Time/Temp



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Energy Efficiency Efforts

- Completed Efficiency Potential Study (07) similar to Kansas Study (Summit Blue).
- In progress: Business Case studies for small commercial lighting, high efficiency motors, geothermal heat pumps
- Completed: Business Case studies for How$mart expansion and CFL's.
- Energy efficiency programs worthwhile but may only have limited impact on peak demand

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Summary

- This is an on-going, iterative process:
  - RIRP study to design desired portfolio
  - RFP Process to obtain proposals
  - Decision/negotiation/construction to implement portfolio
- Each time we cycle through this process external drivers will greatly impact it.
- Other resources will be added over time to accommodate load growth.

QUESTIONS?????

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