



# Long-Term Power Supply

Presentation to the Kansas  
Senate Utilities Committee

By

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# Westar Utility Operations

Kansas' largest electric provider

## Service Territory



## Key Operational Facts:

644,000 customers

6,000 MW of generation

20% Planning Reserve  
Margin for 2004 (SPP  
Requirement)

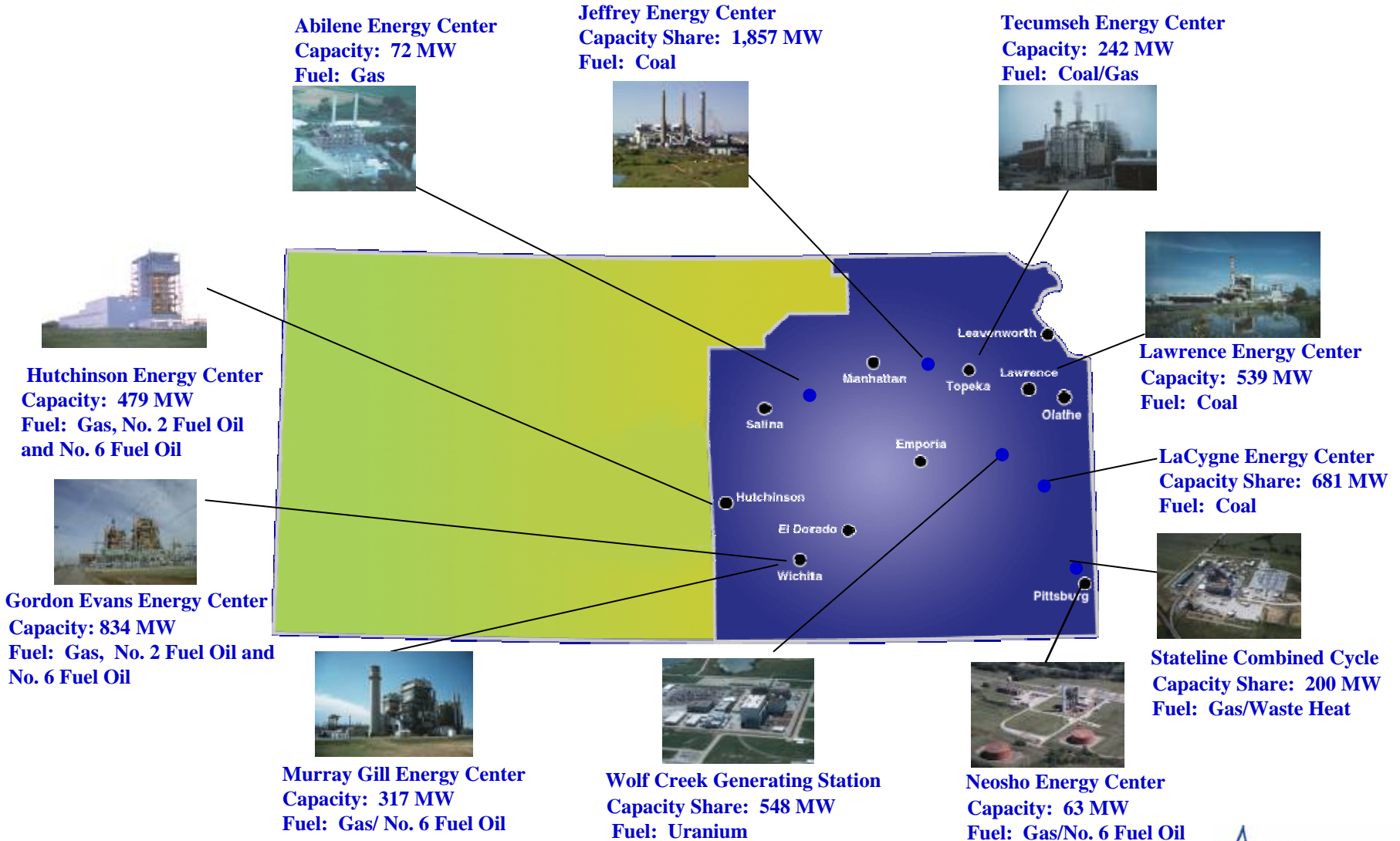
11,000 sq mile service territory

34,500 miles of T & D

2,000 employees

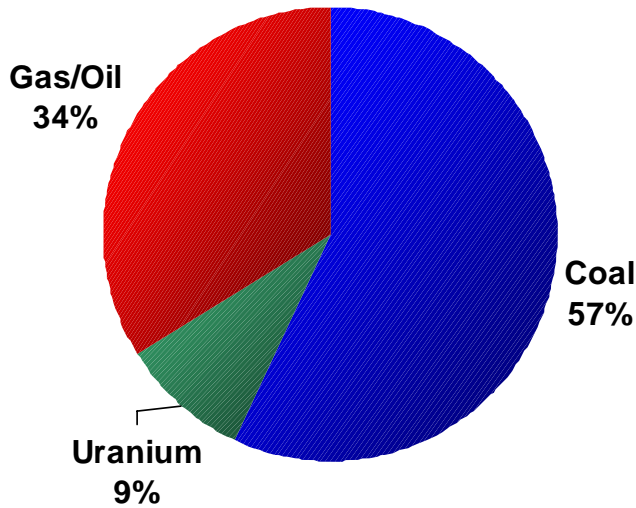
# Westar Energy's Generating Capacity

## Coal

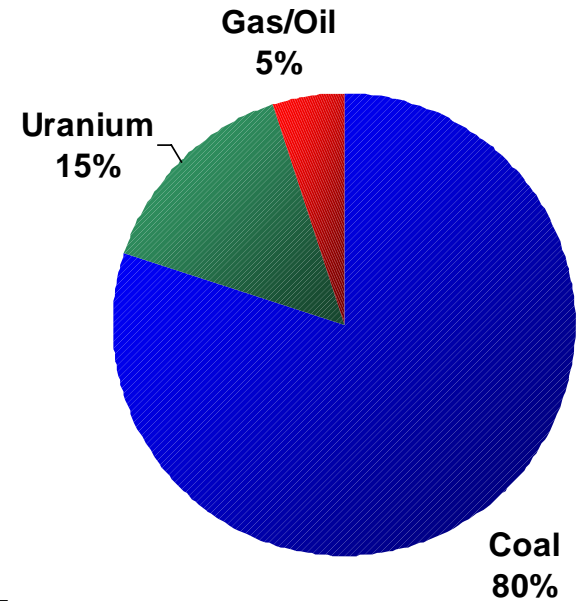


# Competitive Low-Cost Generation Portfolio

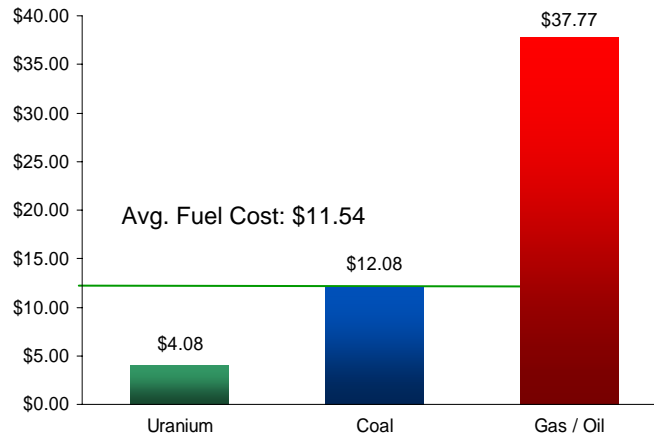
**Installed Capacity**



**As Optimized**

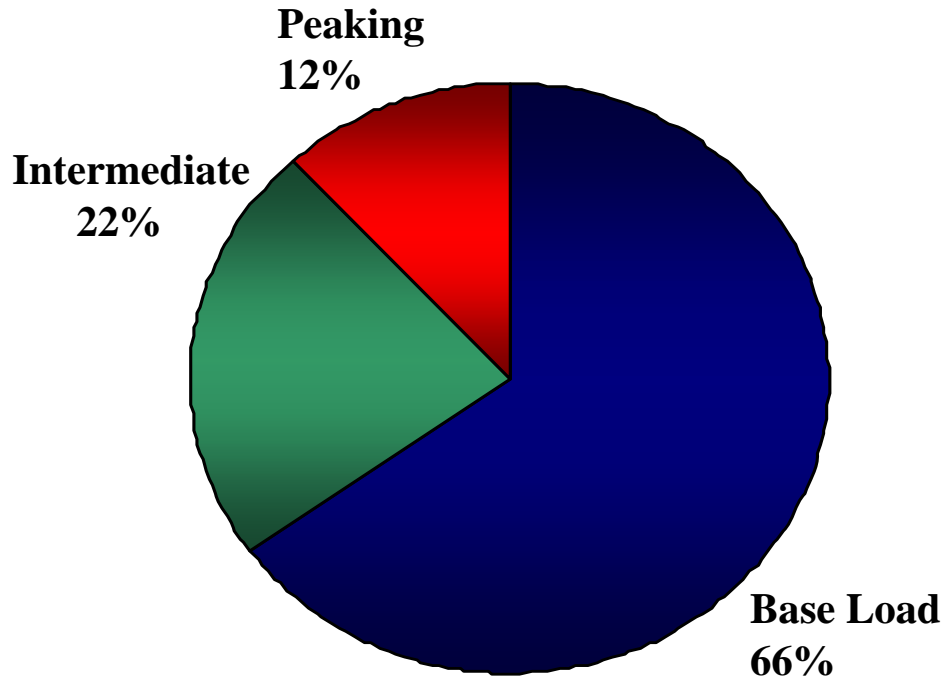


**Fuel Cost by Source  
\$/MWh**



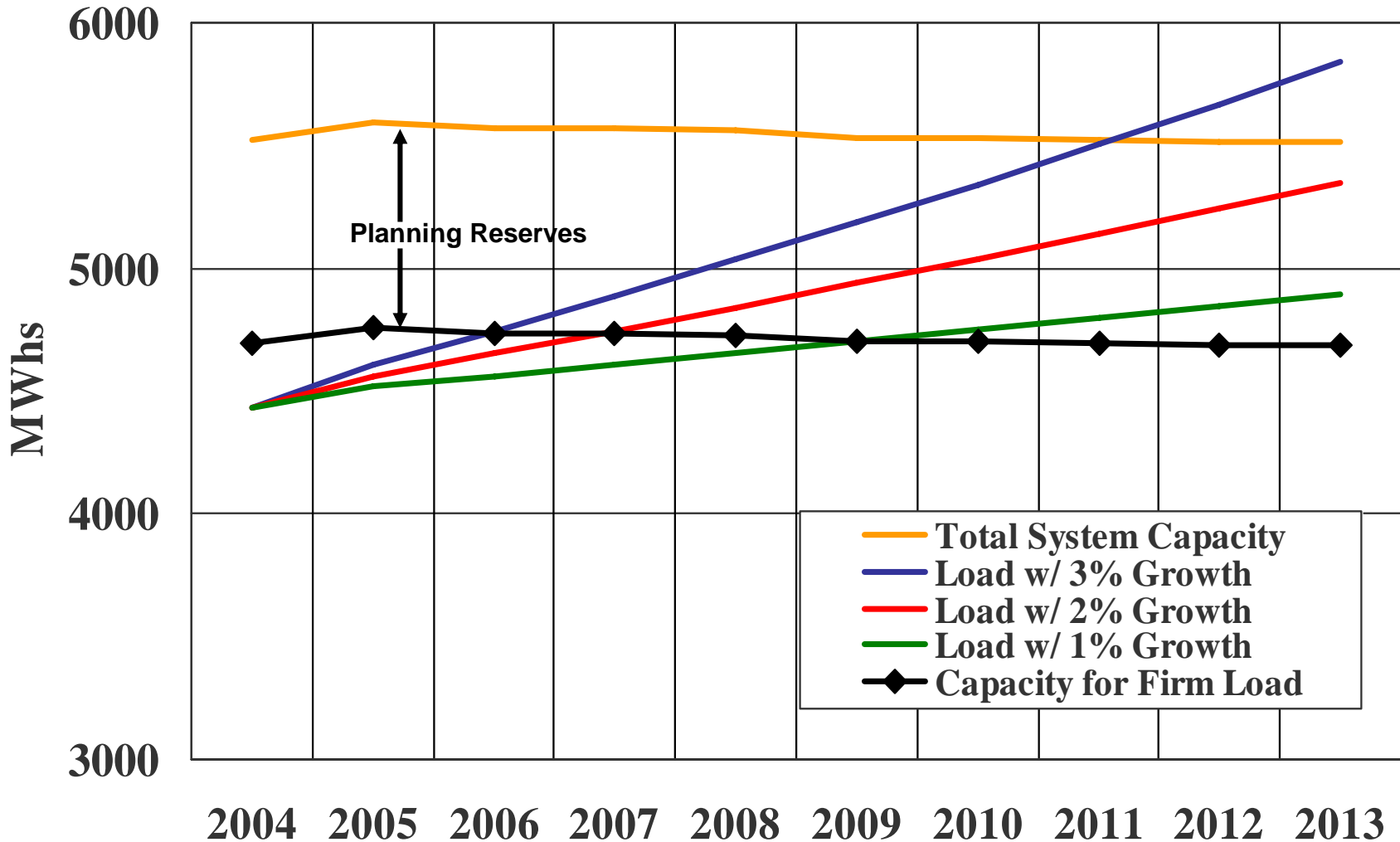
# Westar Energy's Capacity Profile

## Capacity (Nameplate)

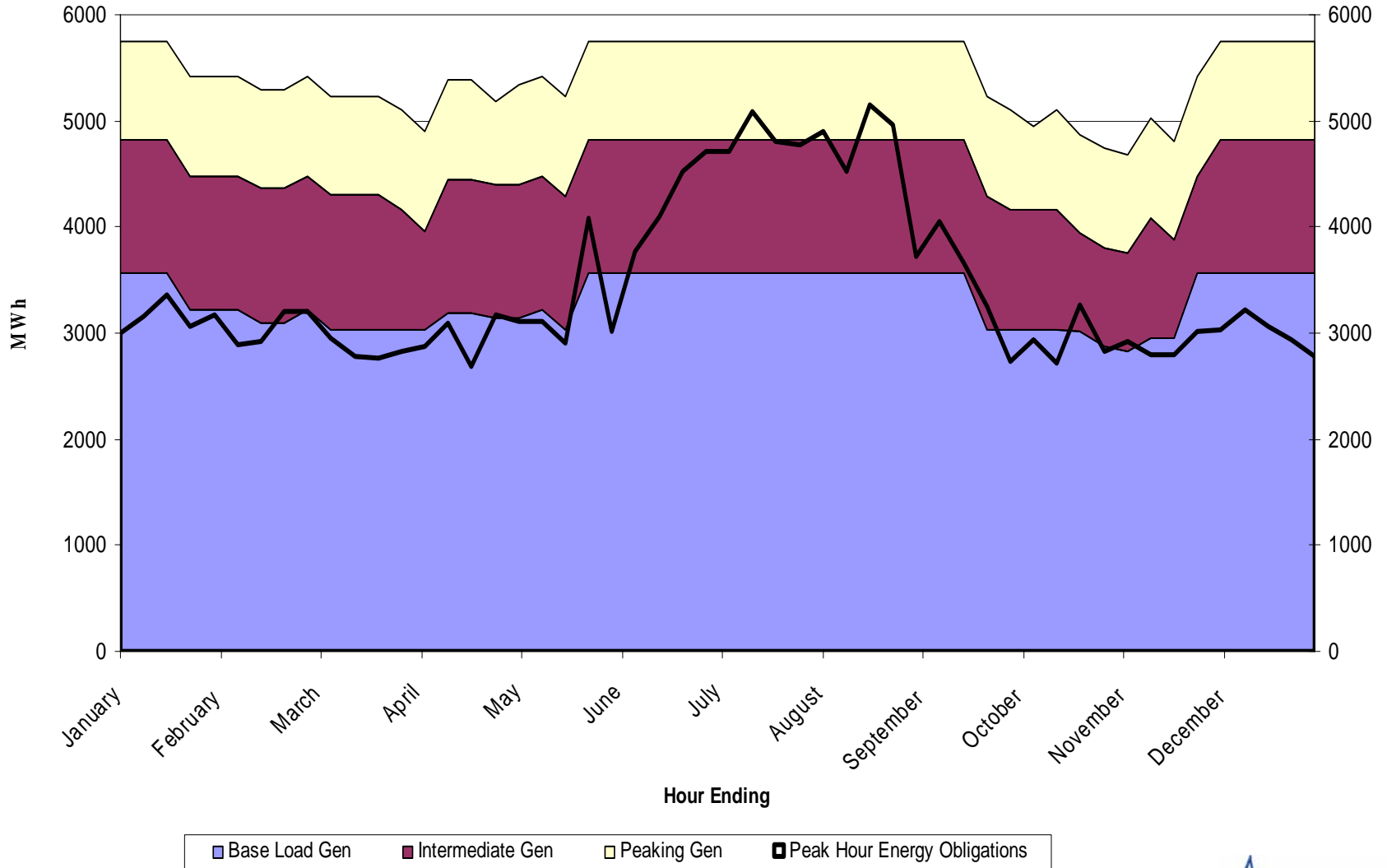


- Base Load – Operates at a constant rate over a long period of time.
- Intermediate – Operates occasionally to bridge the energy needs between Base Load and Peaking resources.
- Peaking – Operates briefly during peak load times to meet the energy needs above the Intermediate resource and during emergency system conditions.

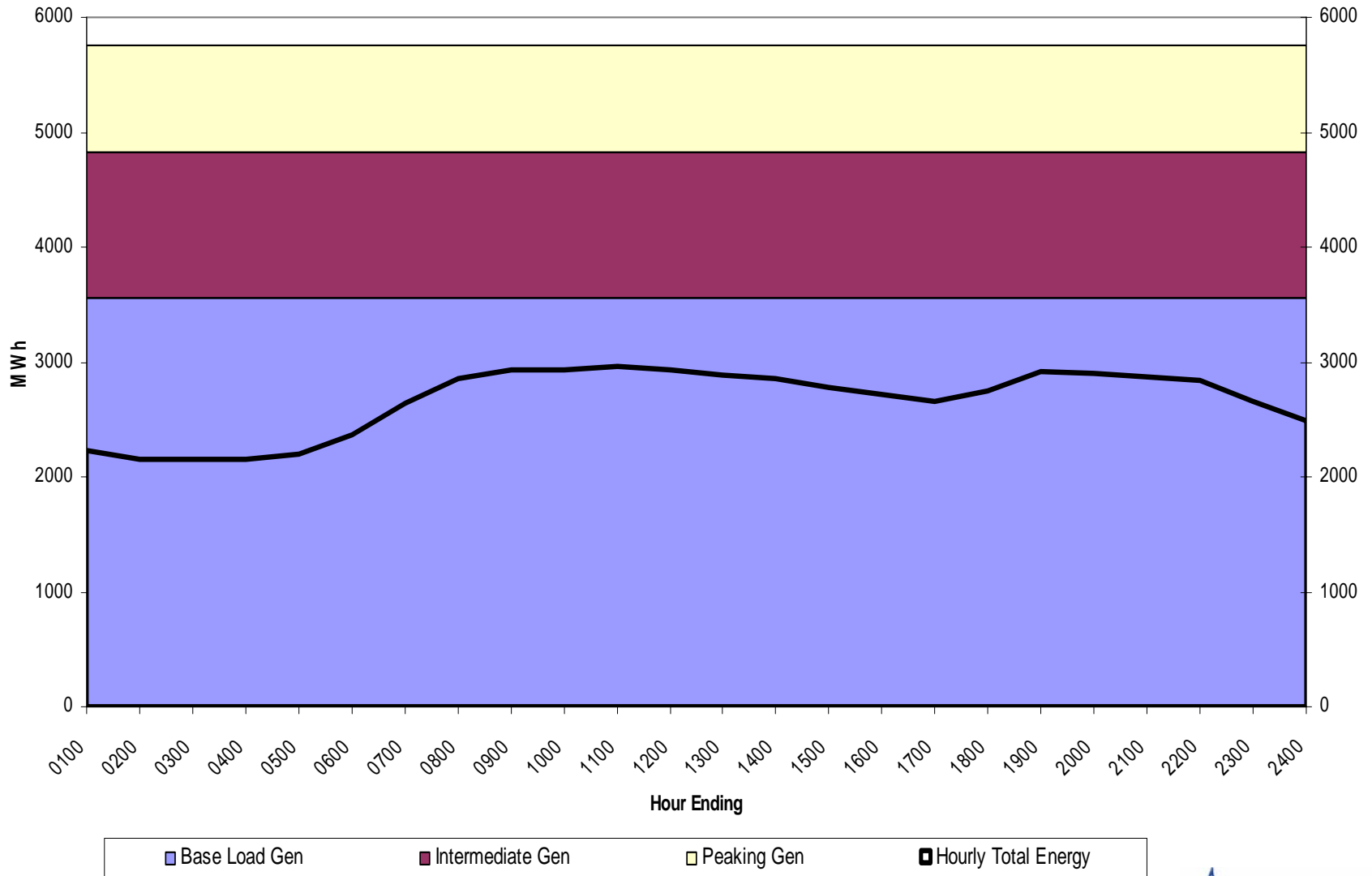
# Load and Capability Forecast 2004 - 2013



# Weekly Peak Obligation

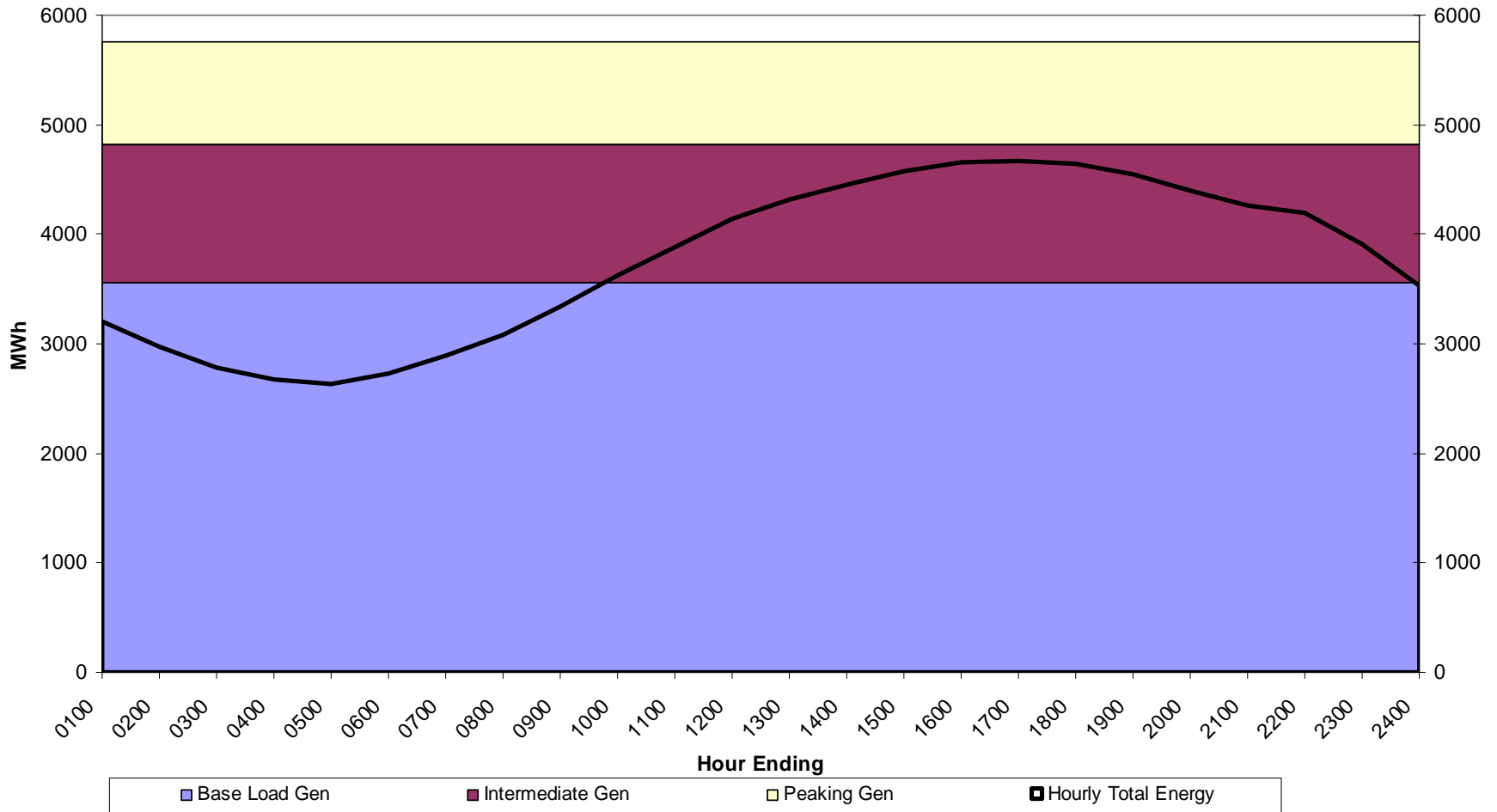


# Typical Winter Day Obligation

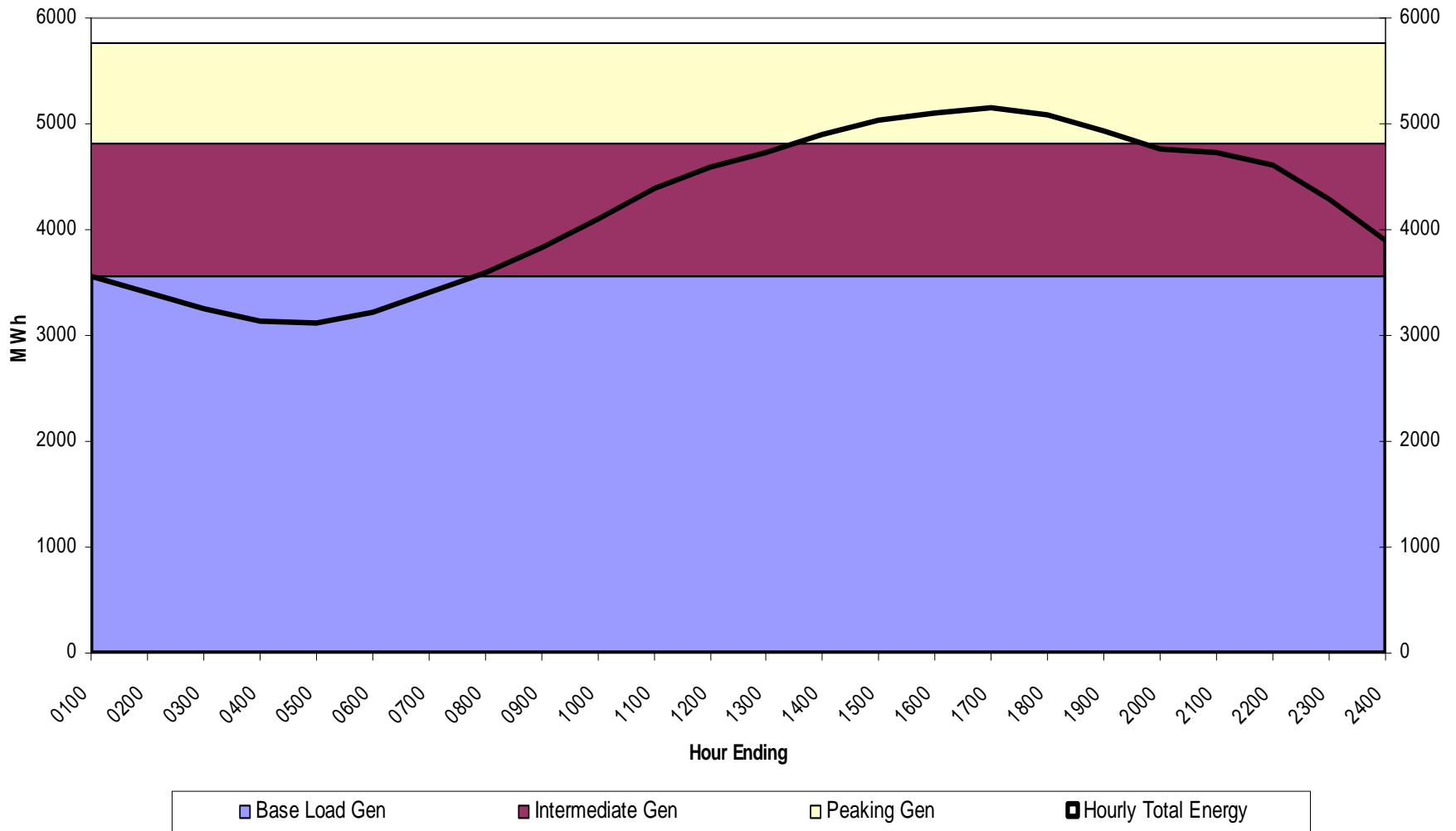




# Typical Summer Day Obligation



# Peak Day Obligation



# New Plant Characteristics

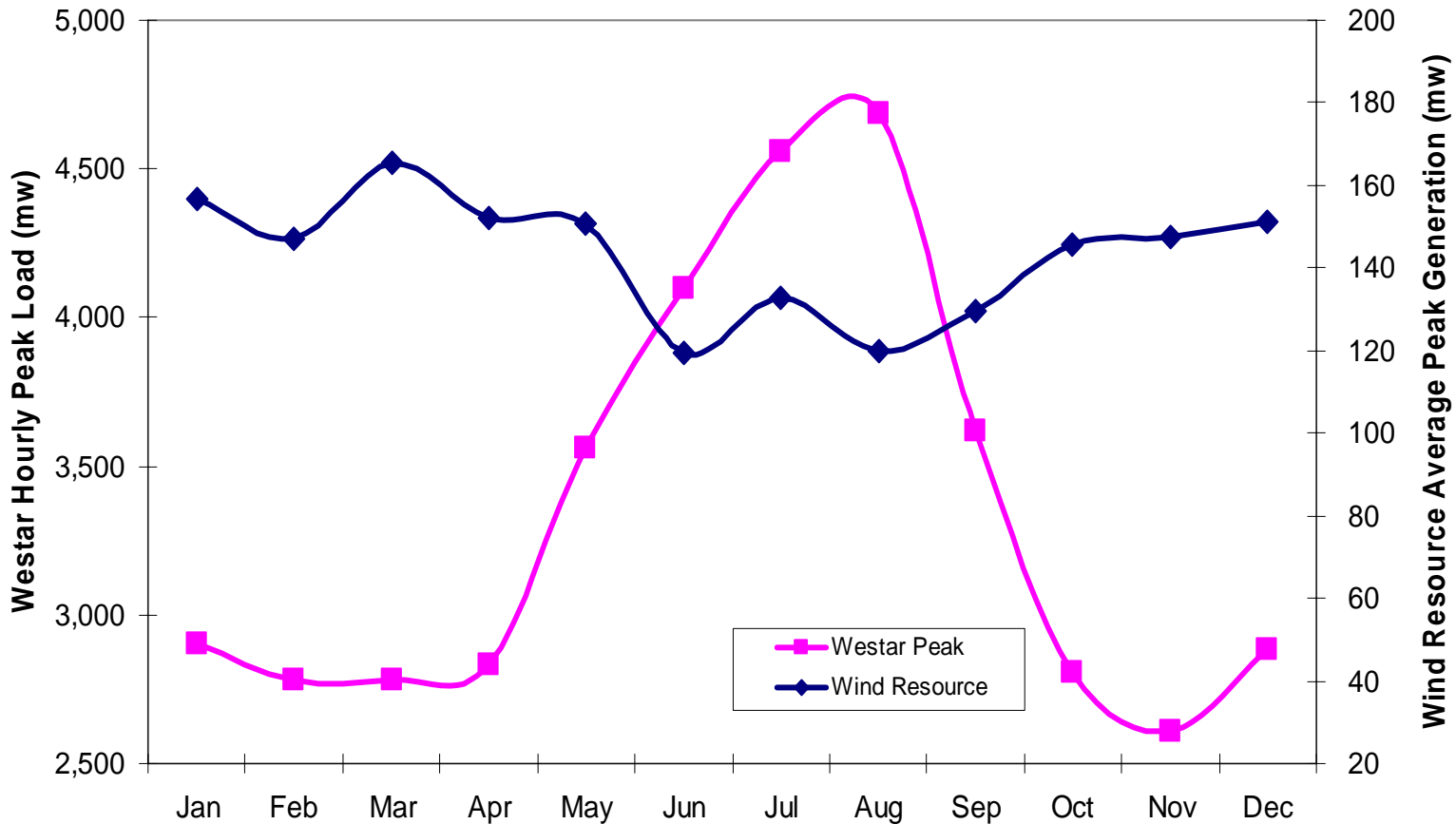
	55 MW Aero-CT (Peaking)	150 MW Combustion CT (Peaking)	500 MW CC (Intermediate)	600 MW Coal (Base Load)	Wind (????)
Capital Cost (\$/KW)	\$450	\$360	\$510	\$1,400	\$1,300
Heat Rate (Btu/kWh)	10,400	10,800	7,120	9,700	N/A
Variable O&M (\$/MWh)	\$2.75	\$2.00	\$2.00	\$1.40	\$5.00
Fixed O&M (\$/KW-year)	\$6.00	\$6.00	\$13.00	\$40.00	\$25.00
Capacity Factor	10%	10%	25%	80%	40%
Total Cost (\$/MWh)*	\$157.50	\$138.20	\$84.20	\$46.50	\$30.00

CT = Combustion Turbine    CC – Combined Cycle

\* Based on \$5.00/MMBtu Natural Gas Prices; \$0.75/MMBtu Coal Price

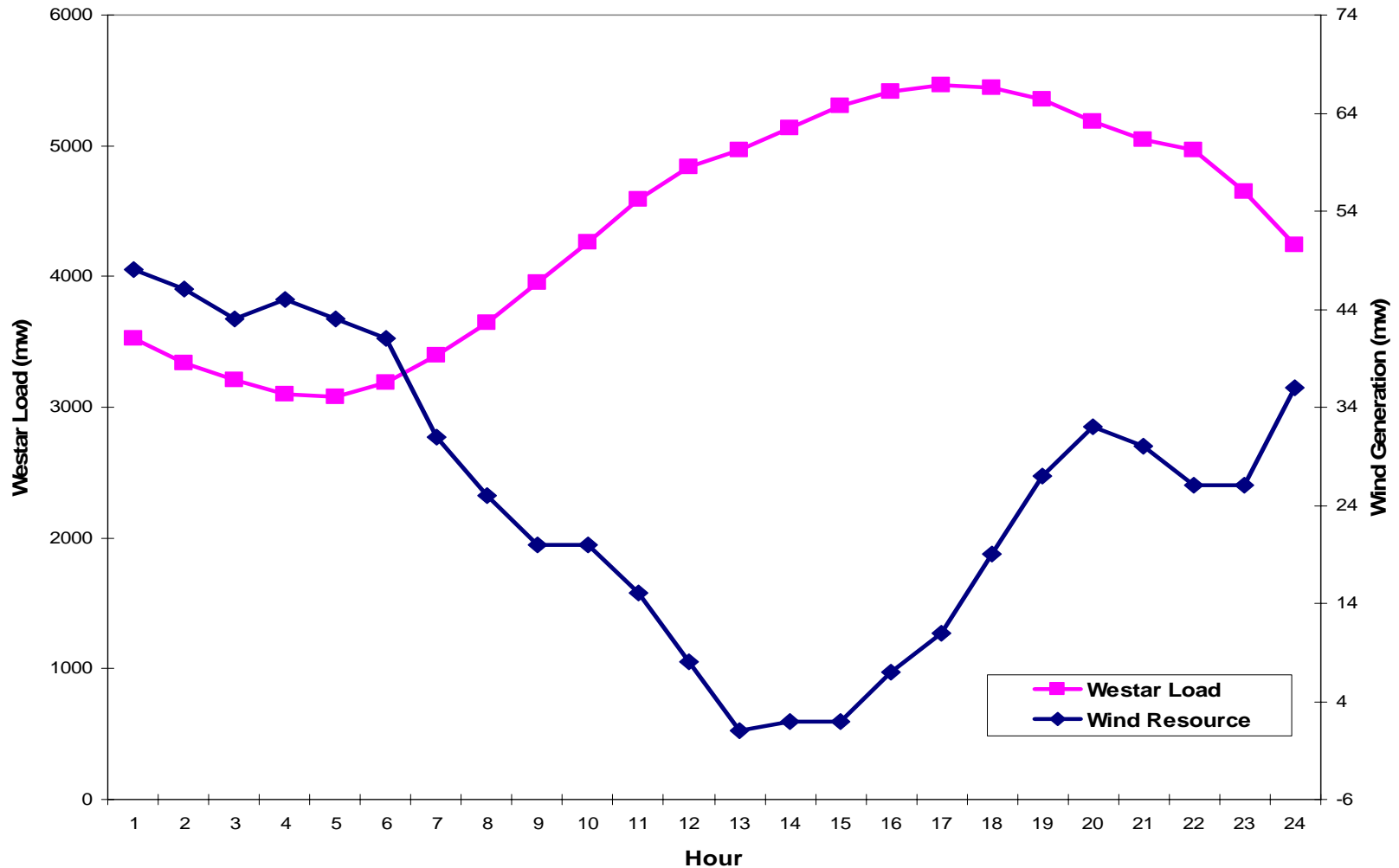
# Monthly Wind Energy Profile

Westar Control Area Load vs. Expected Peak Generation from 200-MW Wind Resource

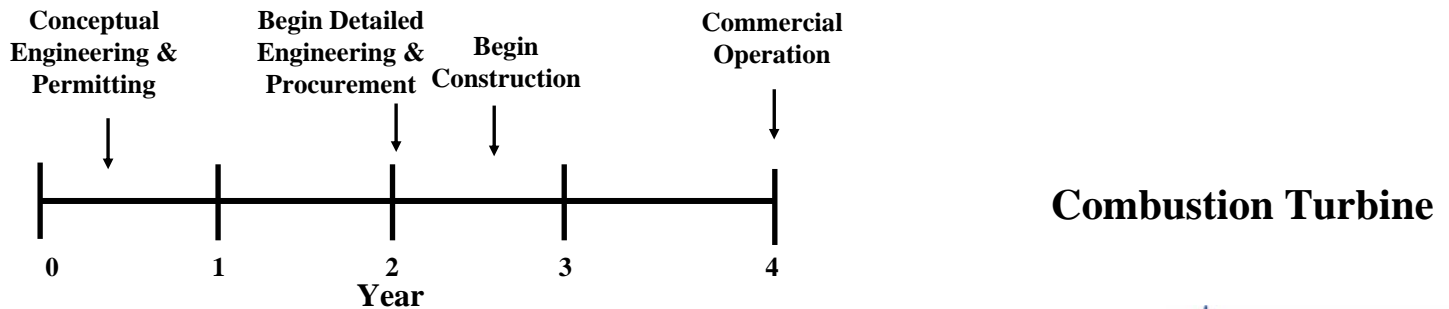
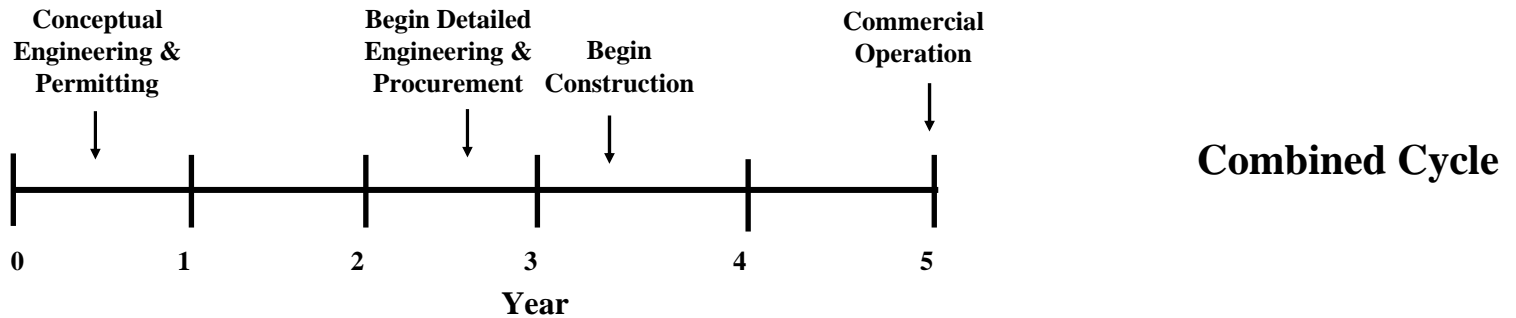
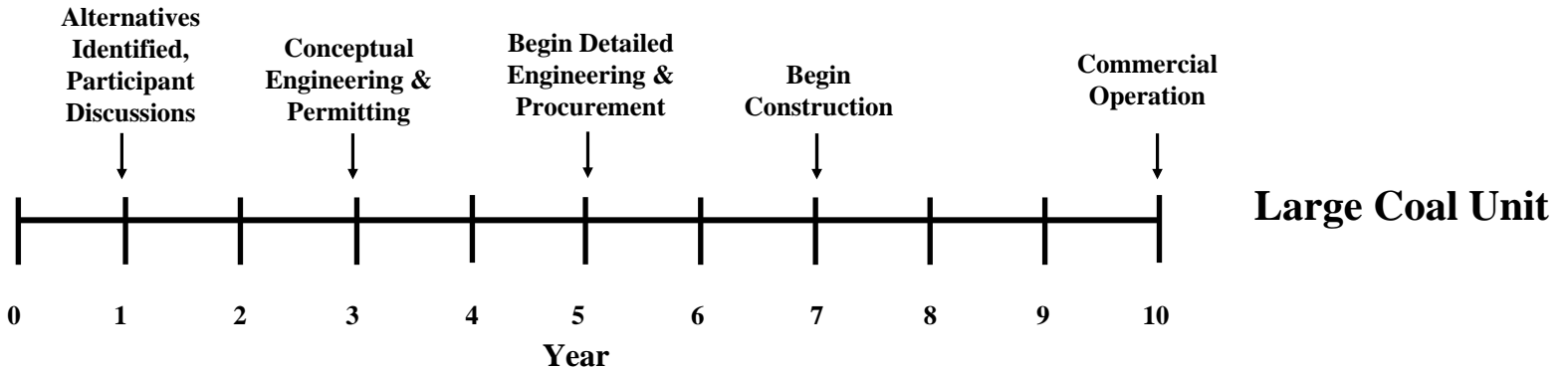


# Wind Resource Correlation with Summer Load

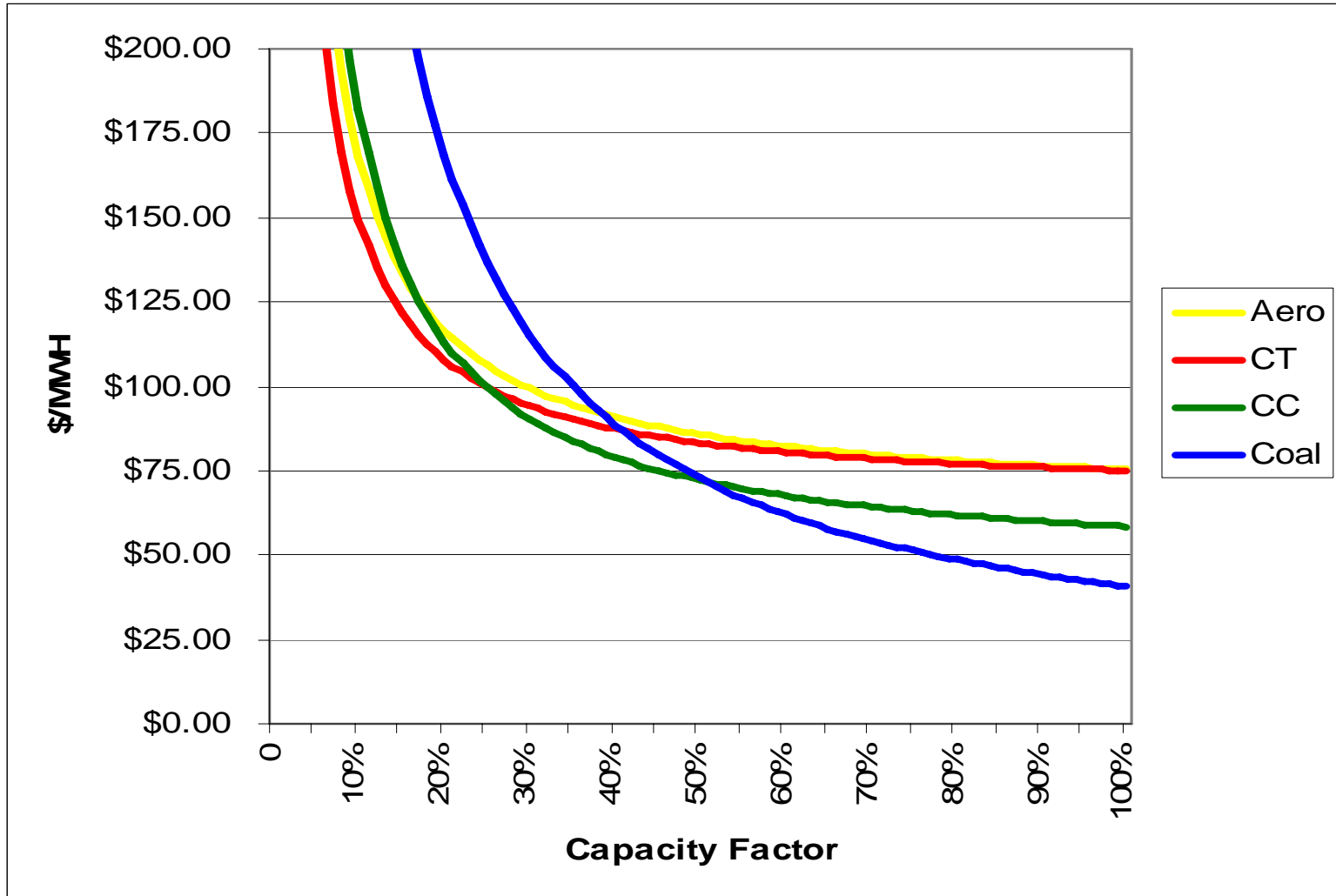
Westar Load vs. WFE's Blue Canyon Windfarm (Oklahoma) generation for 8/02/2004



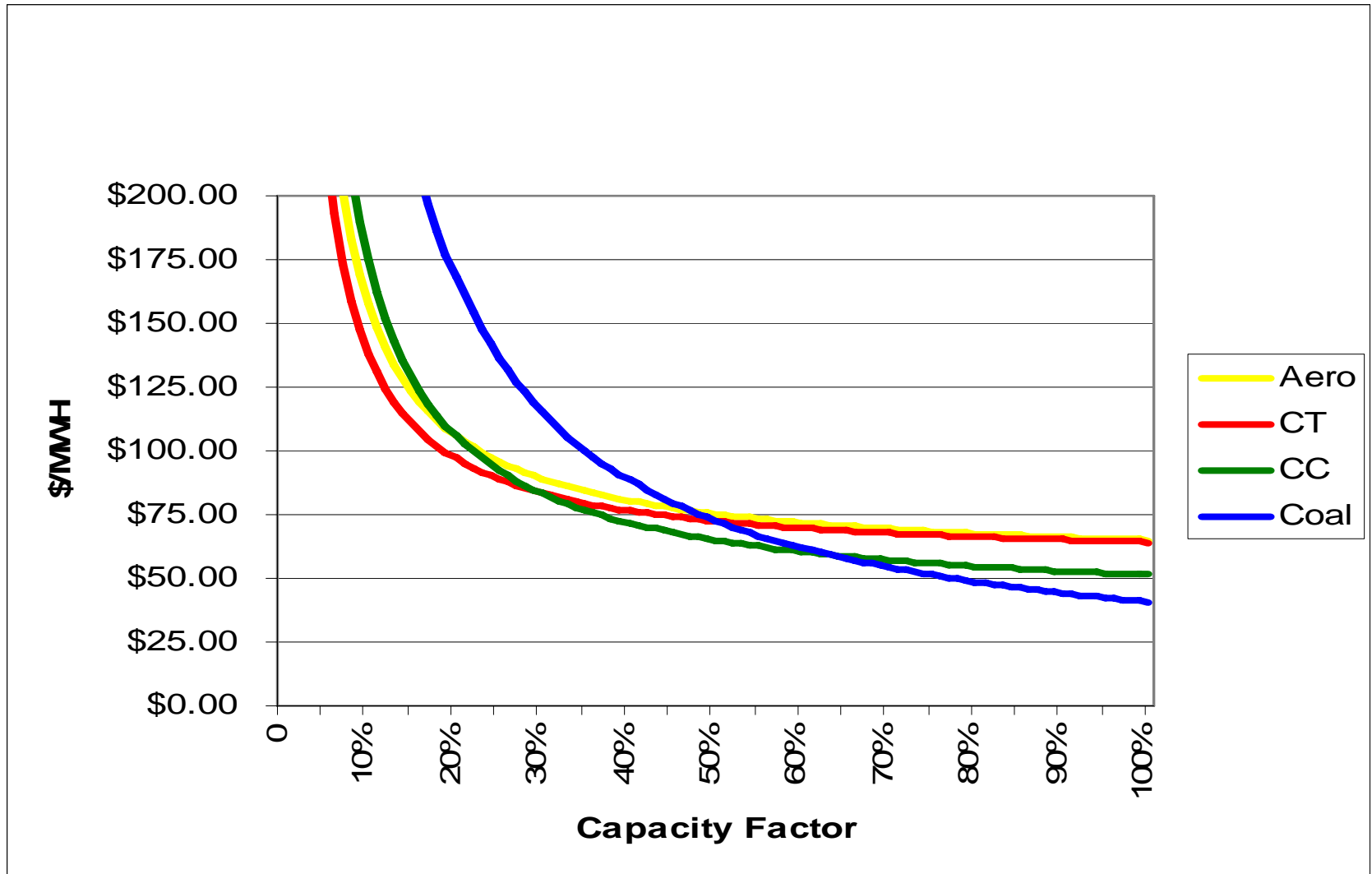
# Typical Construction Timelines



# Unit Cost Comparisons – Gas @ \$6.00



# Unit Cost Comparisons – Gas @ \$5.00





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# Questions?