Financial Considerations in Environmental Regulation

Mark S. Brownstein
Director, Enterprise Strategy

Ozone Transport Commission
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Variables in Assessing The Viability of New Investment

- Cost of Capital
- Return on Capital
- Recovery of Capital
  - Energy Revenue
  - Capacity Revenue

S&P Ratings Criteria
Debt, Cash Flow, and Perceived Business Risk

Regulated Distribution Companies

Company	Rating/Outlook	Business Profile
NSTAR	A/Stable	1
Con Edison	A/Stable	2
Energy East	BBB+/Negative	3
PEPCO	BBB+/Negative	3
CT Light & Power	BBB+/Negative	3
PSE&G	BBB/Negative	3
Duquesne Light	BBB/Negative	4

S&P Rating	bps Spread from BBB
AAA	420
AA	350
A	280
BBB	0
BB	-490
B	-1910
CCC	-4500

Business Profile	
Lowest Risk	Highest Risk
1 →	10

S&P Report 10/2004

"Integrated" Generation

Company	Rating/Outlook	Business Profile
Exelon	A-/Negative	7
Constellation	BBB+/Stable	7
Sempra	BBB+/Stable	7
Pepco Holdings	BBB+/Negative	5
Dominion	BBB+/Negative	7
Xcel	BBB/Stable	5
AEP	BBB/Stable	6
Entergy	BBB/Stable	6
Duke	BBB/Stable	7
PPL	BBB/Stable	7
PSEG	BBB/Negative	7
PG&E	BBB-/Stable	6
Edison Int'n	BB+/Stable	6
TECO	BB/Stable	5
Allegheny	B+/Positive	7
Aquila	B-/Negative	8

Merchant Generation

Company	Rating/Outlook	Business Profile
FPL	A/Negative	8
Exelon Generation	A-/Negative	8
PPL Energy	BBB/Stable	8
TXU	BBB/Negative	7
PSEG Power	BBB/Negative	8
Duke Energy Trading	BBB-/Stable	10
PSEG Holdings	BB-/Stable	9
AES	B+/Positive	9
NRG	B+/Stable	9
Reliant	B/Stable	8
Dynegy	B/Negative	8
Calpine	B/Negative	9
Mirant	NR/--	10

Credit ratings affect access to commercial paper (short-term debt) and effects collateral requirements and the cost of medium/long term borrowing.

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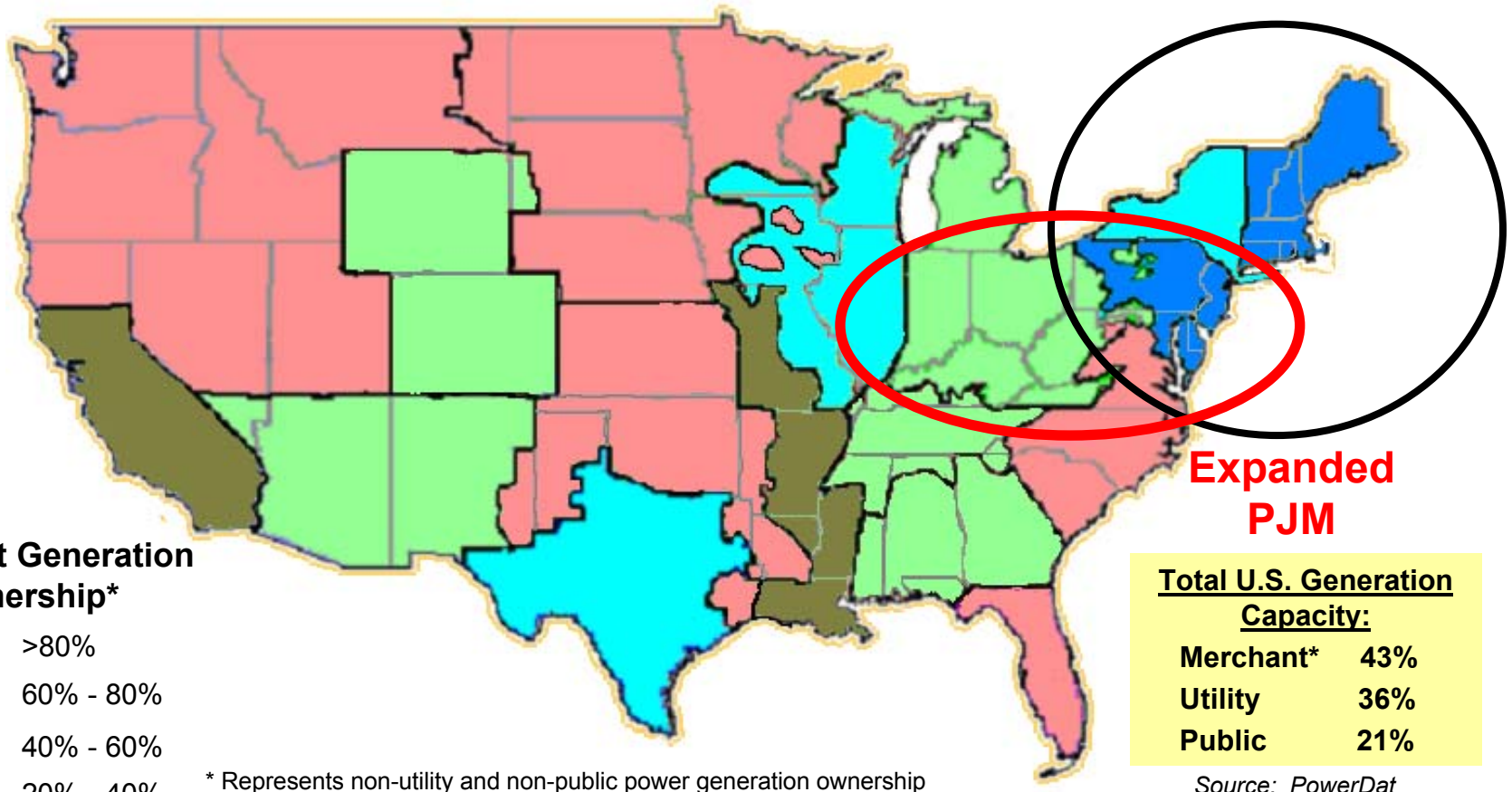
The Unlevel Playing Field
Merchant v. Regulated/Re-Regulated Generation

National Distribution of Merchant Generation



* Represents non-utility and non-public power generation ownership

Total U.S. Generation Capacity:

Merchant*	**43%**
Utility	**36%**
Public	**21%**

Source: PowerDat

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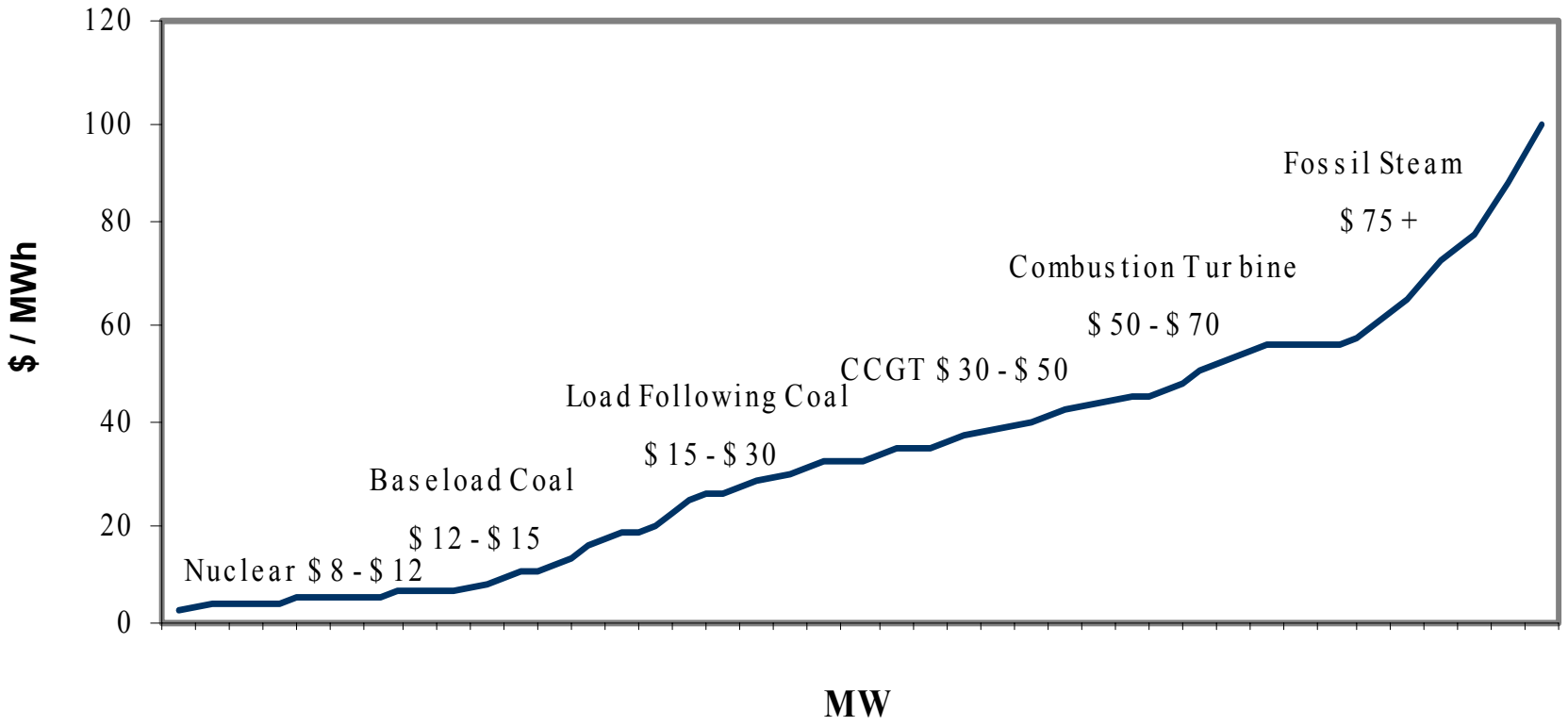
The Illustrative Dispatch Curve
Variable Cost = Clearing Price = Energy Revenue



In PJM, variable costs for load-following coal or combined-cycle natural gas units typically set the market clearing price, with coal setting off-peak price, and gas setting on-peak price.

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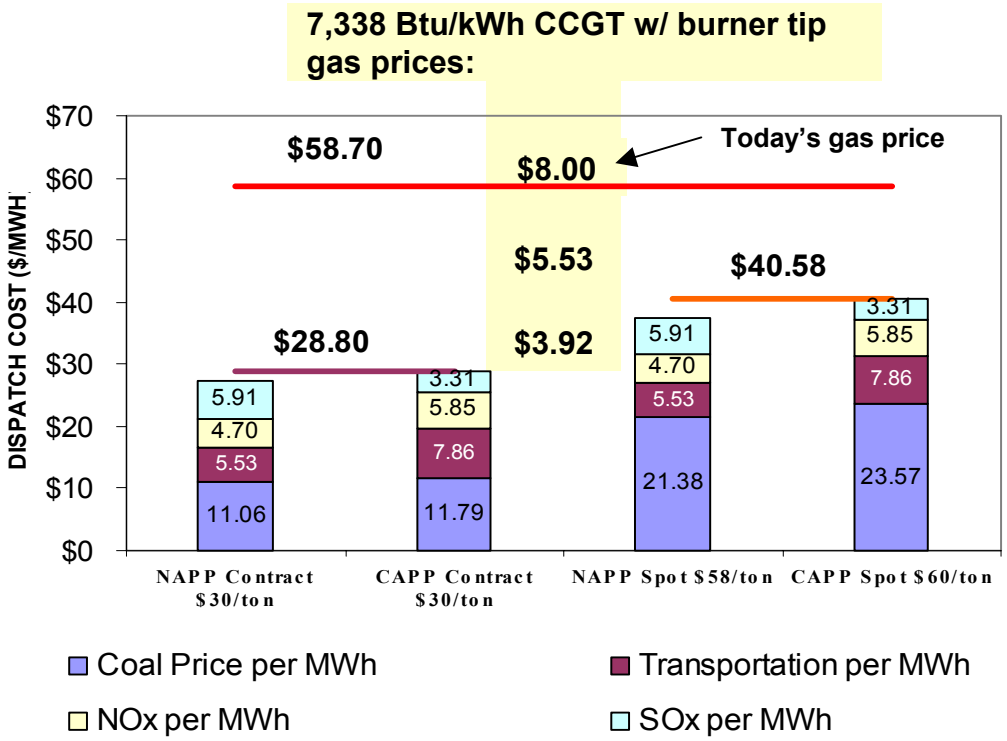
Marginal Coal v. New Natural Gas in PJM Today



ASSUMPTIONS	NAPP	CAPP
COAL SPECS (Btu/lb,%S)	13,869,2.1%S	12,942, 0.9%S
HEAT RATE (Btu/kWh)	10,200	10,100
COAL Transportation	$15/TON	$20/TON
SCR OR Scrubber?	NO	NO
SO2 Emissions (lb/MMBtu)	2.50	1.30
SO2 COSTS ($/Ton)	$500	$500
NOx Emissions (lb/MMBtu)	0.26	0.5
NOx COSTS ($/Ton)	$2,300	$2,300

On variable cost, coal beats gas absent a significant and sustained drop in natural gas price.

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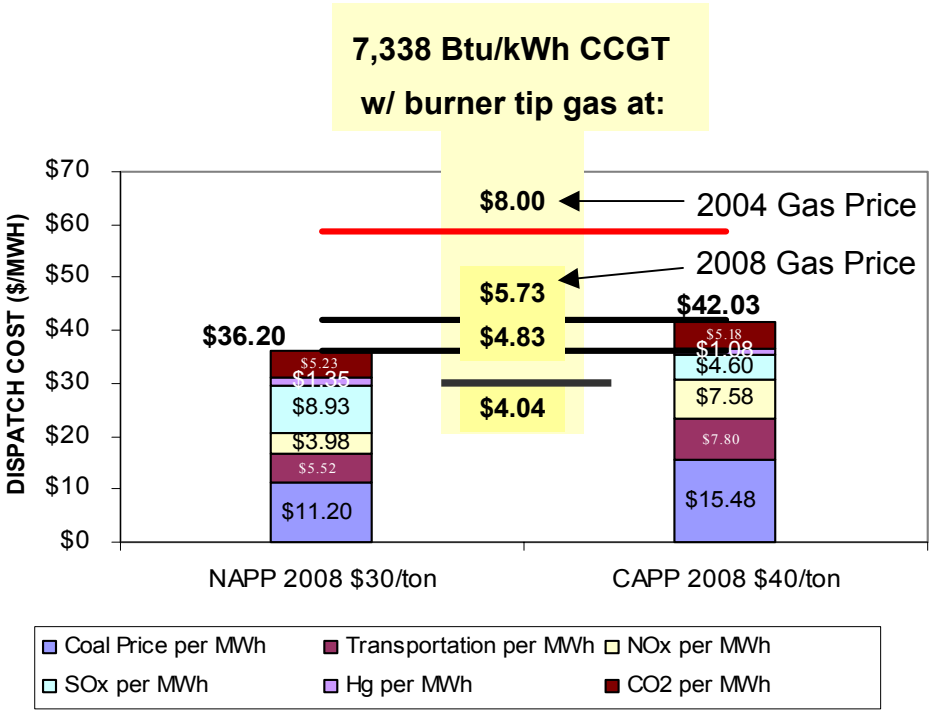
Marginal Coal v. New Natural Gas in PJM Tomorrow



2008 ASSUMPTIONS	NAPP	CAPP
COAL SPECS (Btu/lb,%S)	13,869,2.1%S	12,942, 0.9%S
HEAT RATE (Btu/kWh)	10,200	10,100
COAL Transportation	$15/TON	$20./TON
SCR OR Scrubber?	NO	NO
SO2 Emissions (lb/MMBtu)	2.50	1.30
SO2 COSTS ($/Ton)	$700	$700
NOx Emissions (lb/MMBtu)	0.26	0.5
NOx COSTS ($/Ton)	$3,000	$3,000
Hg Emissions (lb/Tbtu)	7.54	6.13
Hg COSTS ($/LB)	$35,000	$35,000
CO2 Emissions (lb/MMBtu)	205.1	205.2
CO2 COSTS ($/Ton)	**$5**	**$5**

A modest CO2 adder in combination with declining natural gas prices (and rising coal price) can have the effect of pushing load-following coal off the margin.

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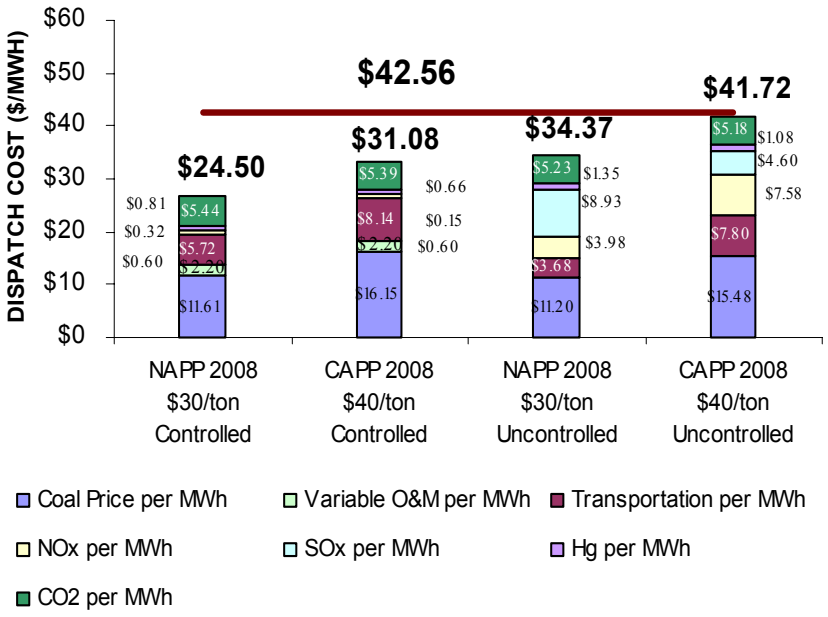
Marginal Coal v. New Natural Gas in PJM Tomorrow: In Competition with Rate-Based Assets



2008 ASSUMPTIONS	NAPP	CAPP
COAL SPECS (Btu/lb,%S)	13,900,2.1%S	12,900, 0.9%S
HEAT RATE (Btu/kWh)	10,600	10,500
COAL Transportation	$15/TON	$20/TON
SCR OR Scrubber?	YES	YES
SO2 Emissions (lb/MMBtu)	0.15	0.07
SO2 COSTS ($/Ton)	$400	$400
NOx Emissions (lb/MMBtu)	0.06	0.06
NOx COSTS ($/Ton)	$1,900	$1,900
Hg Emissions (lb/TBtu)	2.26	1.84
Hg COSTS ($/LB)	$35,000	$35,000
CO2 Emissions (lb/MMBtu)	205.1	205.2
CO2 COSTS ($/Ton)	$5	$5

$250M capital investment for a 500MW plant

A marginal coal unit in competition with a unit capable of rate-basing control equipment is squeezed from above ($5.80 natural gas in 2008) and below. The rate-based plant enjoys a $10 advantage over the merchant.

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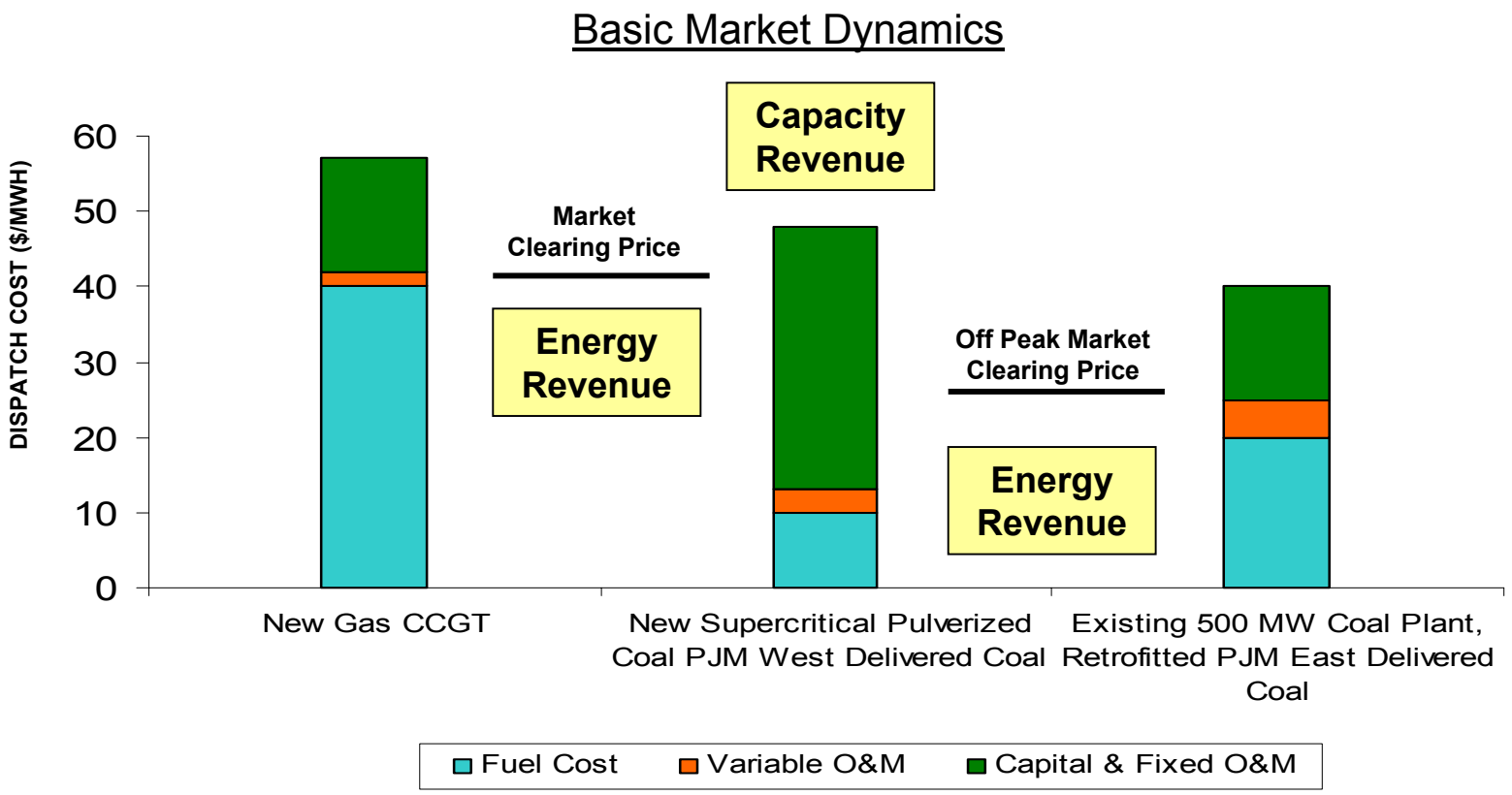
Production Cost v. Revenue
Earning Enough to Build & Maintain Generation



Under current market conditions, energy revenues alone are rarely enough to recover the full cost of new investment making the degree of capacity payments critical to the viability of new investment.

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Key Takeaways

- ✓ Cost of capital matters. Companies with the ability to recover capital costs through rate-base or other regulatory mechanisms enjoy lower cost of capital than those fully exposed to wholesale energy markets.
- ✓ Return on capital matters. Any investment must recover the cost of capital plus a return on investment. Regulated utilities typically expect a return of 9 -11%, while merchant generators expect a higher return as compensation for the additional risk.
- ✓ Market rules matter. Return on capital is a function of energy and capacity revenues. Currently, energy margins are inadequate to fully recover the cost of capital in new or modified plant, making capacity payments critical to the viability of investment in environmental retrofits and gas-fired generation.
- ✓ Fuel price matters. Future fuel pricing – natural gas and coal – is a significant variable in investment decisions because of their direct effect on energy margins.
- ✓ A level regulatory playing-field matters. Companies with the ability to recover the capital cost of emission control equipment enjoy a significant competitive advantage over those that do not. Companies required to internalize the cost of CO2 or other environmental adders are penalized in competition with those that do not face such restrictions. This is the looming reality of an expanded PJM.

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