



Supply and Demand Balancing in the Transportation Model

Gas TCMF

2nd April 2009

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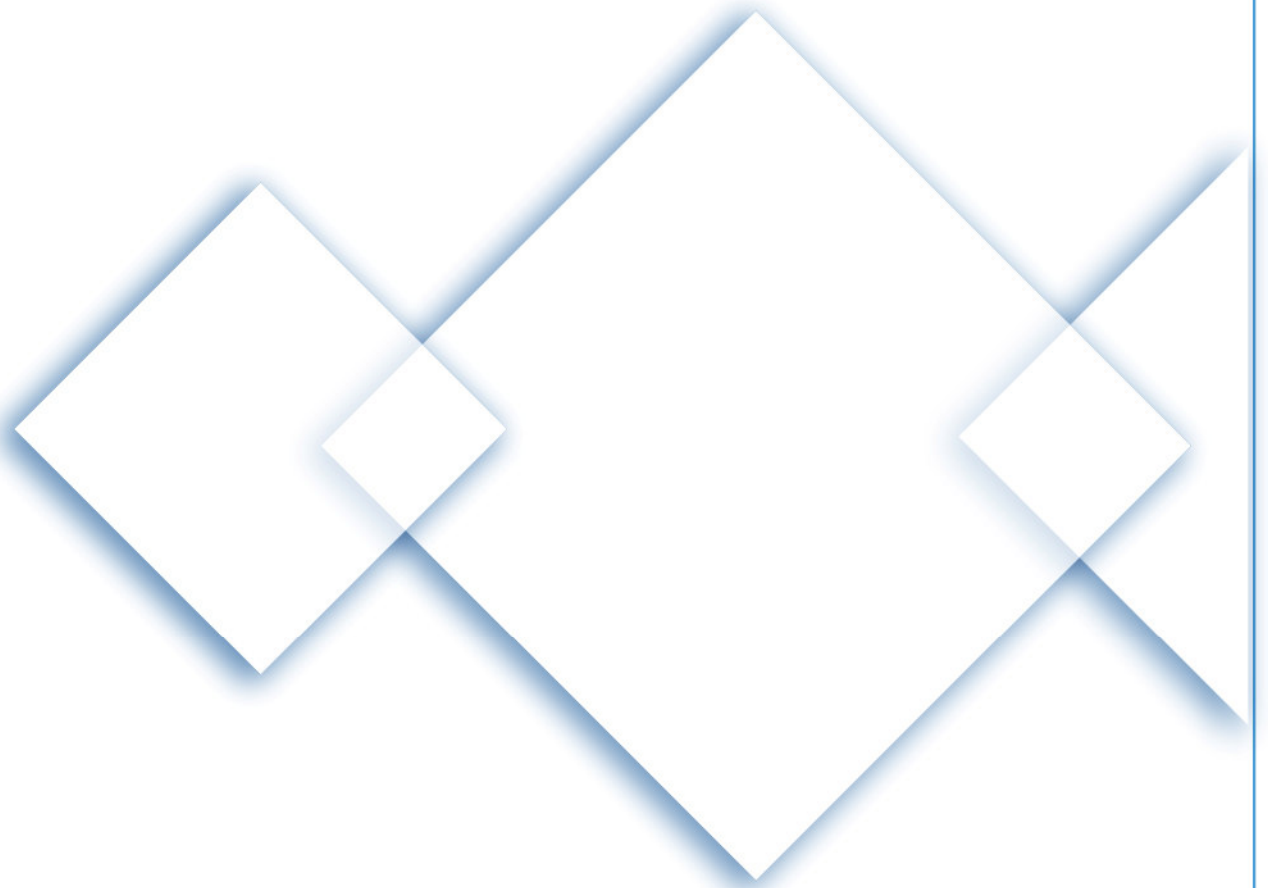
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Introduction

Discussion paper “NTS GCD 06: Supply and Demand Balancing in the Transportation Model” has now closed out. 7 Responses were received.

GCD06 highlighted and invited views on two potential factors contributing to price variation:

- 1) The methodology applied to achieve a supply and demand match in the Transportation Model
- 2) The source of the supply data used to achieve a supply and demand match i.e. the Ten Year Statement
 - Uncertainty surrounding future projects
 - Uncertainty surrounding flow levels



Supply Source Data

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Source of Supply Data – GCD06 Options

GCD06 included four potential alternative sources of supply data;

Historical Data

- ◆ Unavailable for new sites
- ◆ Inappropriate to apply to future years for sites where supplies are declining?

Obligated Entry Capacity

- ◆ Has potential
- ◆ Often a significant difference between obligated entry capacity, and actual bookings and anticipated flow levels

Physical Capability

- ◆ Relatively straightforward for storage, LNG importation and interconnectors
- ◆ Difficult for beach terminals – the likely flow capability for beach terminals would be limited by the connected offshore fields

Combinations of Supply Data

- ◆ Use Ten Year Statement supply data for beach terminals
- ◆ Either obligated entry capacity or physical capability for other entry points

Views on Sources of Supply Data

Supply Type	Ten Year Statement Forecast	Averaged Ten Year Statement Forecast	Historical Flows	Obligated Entry Capacity	Physical Capability
Beach (UKCS)	BGT, RWE, SGN, SSE, AEP, EDF	NGD – subject to demonstration of cost reflectivity	No Support	SSE	SSE
Interconnectors	BGT, RWE			SSE	SGN, SSE, AEP, EDF
LNG Importation					
Long Range Storage					
Medium Range Storage					
Short range Storage (LNG)					

Ten Year Statement 2008

*“In the forecast, **UKCS and Norwegian flows are shown at maximum delivery,** whereas **flows from the Continent and LNG are based on our best view rather than capacity.** Storage deliverability is consistent with our Base Case forecast, taking the view that existing and new storage sites will be heavily utilised. **Of note is the slow build-up in terms of peak flows from LNG importation terminals.** This is driven by our low forecasts for annual deliveries with utilisation rates as low as 10% before steadily increasing. Low utilisation of LNG translates into low levels of import or infrequent LNG deliveries. Even under these conditions we acknowledge that at times **there remains the possibility of much higher LNG importation rates.**”*

***The peak supply mix is highly uncertain due to the amount of capacity that may become available,** which in turn offers the potential for variation in supply patterns and increasing flexibility. Other factors to consider include the build status of storage sites, gas in store (in LNG as well as storage sites), daily commercial decisions on the part of shippers and the daily availability of imported gas which may be subject to Continental and global drivers.”*

Discussion

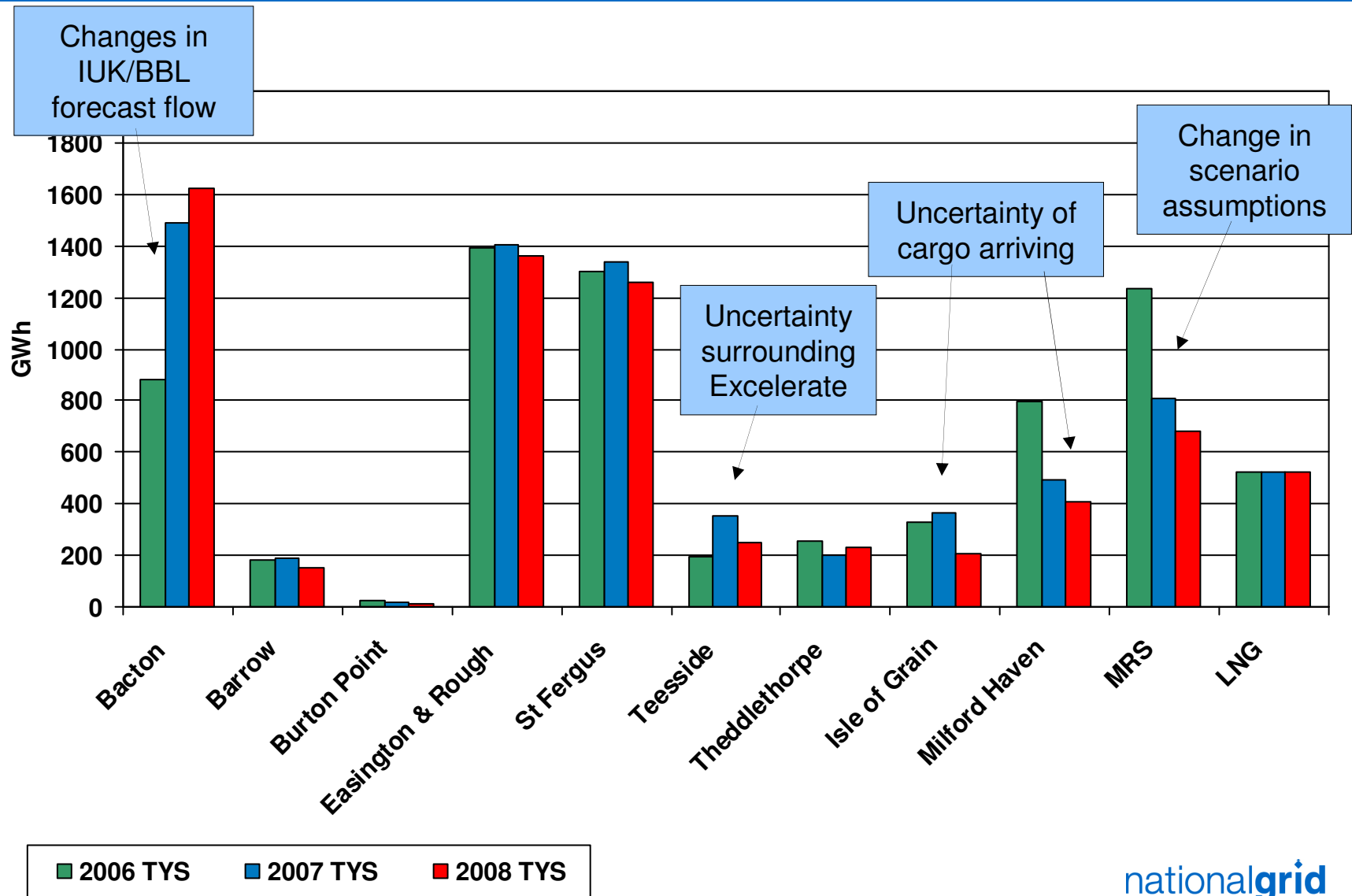
Key underlying problem appears to be assumptions regarding Interconnector and LNG importation flows yet the capability is fixed as is the obligated entry capacity.

- ◆ The TYS contains forecast maximum supply availability over a 'peak period'; however, one day of flow would drive a requirement to provide capacity and it is the cost of providing capacity that we are seeking to reflect.
- ◆ A move to either capability or obligated entry capacity appears appropriate in terms of both stability and cost reflectivity
- ◆ What about facilities that have entry capacity but no built capability / planning permission
 - less of a problem for exit capacity (capacity prices generated year ahead - year 1) but
 - more of a problem for AMSEC/QSEC entry capacity prices for years 2 & 3
 - Need to take into account planning permission and under development for new entry facilities. Section 4.6 of the Ten Year Statement could be used to identify these projects.
 - Changes regarding mid range storage are genuine changes in potential capability/obligated entry capacity levels and hence should change prices but should limit to those likely to flow i.e. those with planning permission and under development

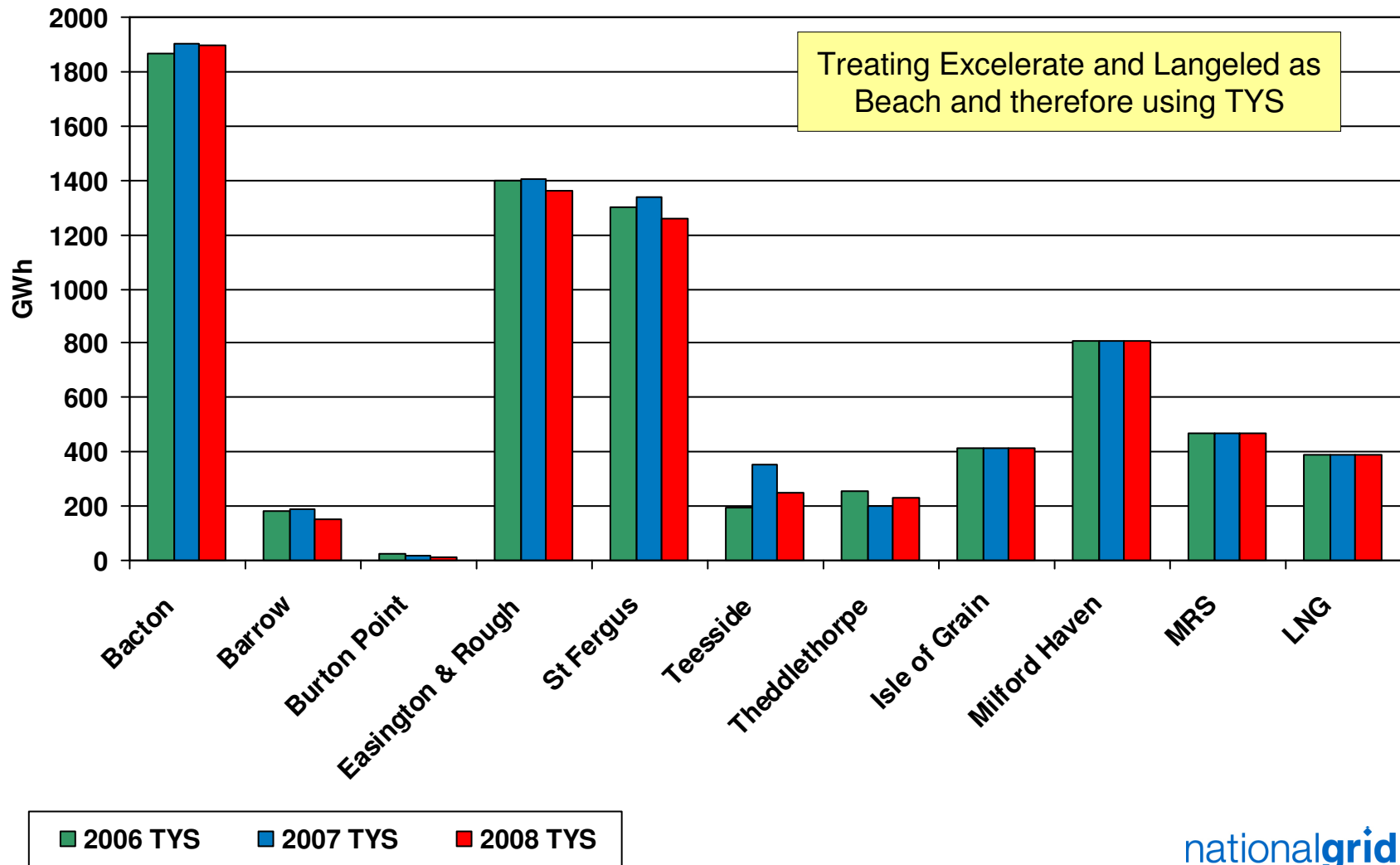
Beach (UKCS) Variation appears to be less of a problem

- ◆ Averaging may help stability, but would be difficult to justify on cost reflectivity

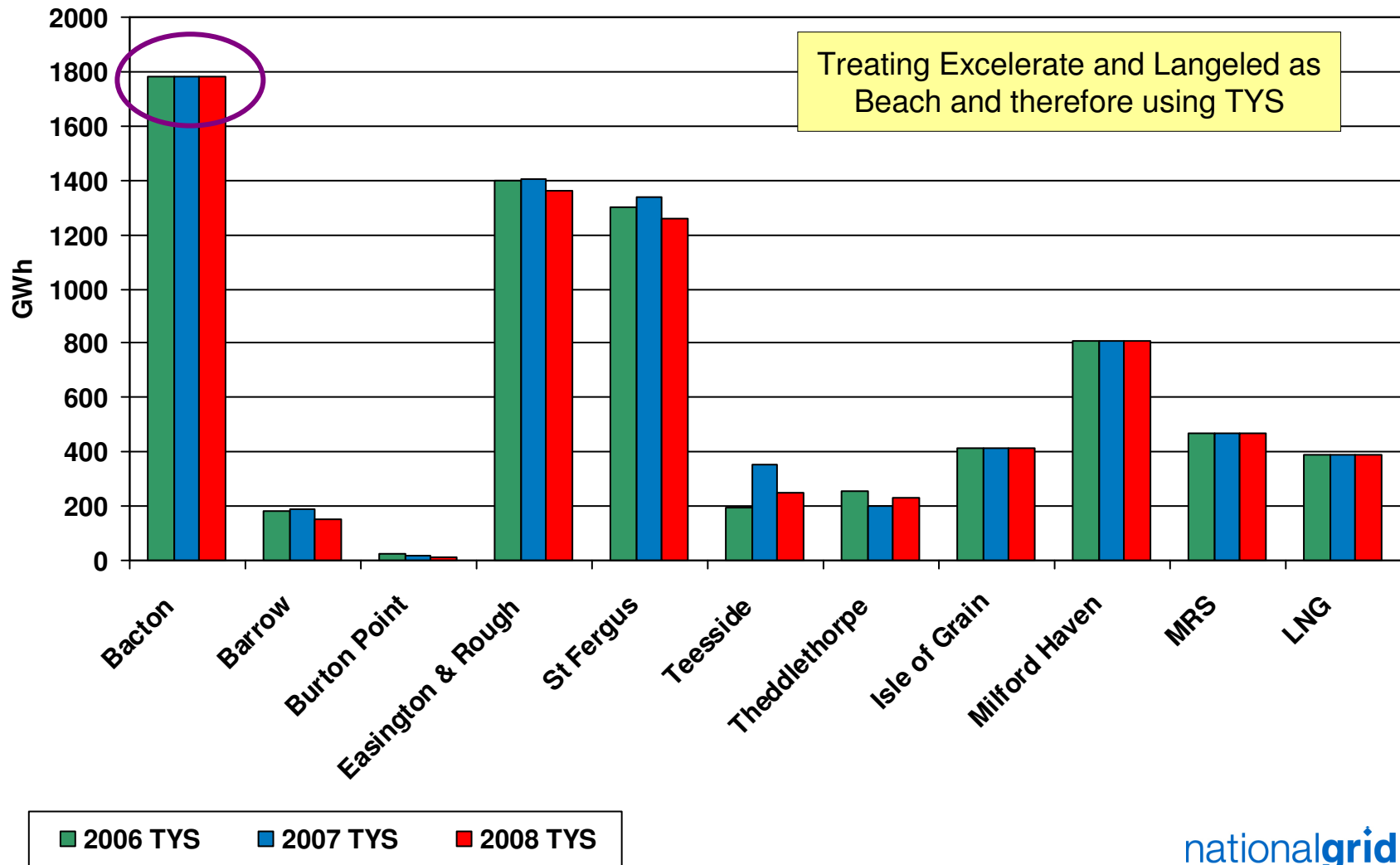
Ten Year Statement Supplies for 2009/10



Supply Levels for 2009/10 Using TYS for Beach and Physical Capability for Other Supply Points (Not Capped at Obligated Level)



Supply Levels for 2009/10 Using TYS for Beach and Physical Capability for Other Supply Points (Capped at Obligated Level)



Source of Supply Data – Summary

Historical and/or Averaged Data

- ◆ Unavailable for new sites
- ◆ Inappropriate to apply to future years for sites where supplies are declining
- ◆ Not cost reflective

Obligated Entry Capacity or Physical Capability

- ◆ Relatively straightforward for storage, LNG importation and interconnectors
- ◆ Beach
 - The likely flow capability for beach terminals would be limited by the connected offshore fields hence TYS forecast already approximates to Capability
 - Often a significant difference between obligated entry capacity, and actual bookings and anticipated flow levels
 - Need to disaggregate ASEPS with interconnectors

Proposal: Combinations of Supply Data

- ◆ Use Ten Year Statement supply data for beach terminals
- ◆ Physical capability capped at obligated entry capacity for other entry points



Supply & Demand Balancing Rules

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Supply and Demand Balancing Rules - Options

Rule 1: Supplies ranked by Merit Order as per prevailing methodology

Under Rules 3, 5 & 6, each supply group is fully utilised in order. Each of the supplies in the last required group is scaled down by an equal percentage.

Rule 3: Supplies split into three groups:

1. Beach, Interconnectors, LNG Importation, Long-Range Storage (Rough)
2. Mid-Range Storage
3. Short-Range Storage (LNG)

Rule 5: Supplies split into two groups and utilised as follows:

1. Beach, Interconnectors, Long-Range Storage
2. LNG Importation, Mid-Range Storage, Short-Range Storage (LNG)

Rule 6: Supplies split into two groups and utilised as follows:

1. Beach, Interconnectors, LNG Importation, Long-Range Storage (Rough)
2. Mid-Range Storage, Short-Range Storage (LNG)

Supply and Demand Balancing Rules - Additional Options from Responses to GCM06

Rule '10': Supplies split into Six groups and utilised as follows :

1. Beach
2. Interconnectors, LNG Importation
3. Long-Range Storage (Rough), Mid-Range Storage
4. Short-Range Storage (LNG)

Rule '9': Supplies split into Six groups and utilised as follows :

1. Beach
2. Interconnectors
3. Long-Range Storage (Rough)
4. LNG Importation
5. Mid-Range Storage
6. Short-Range Storage (LNG)

Rule '8': Supplies split into Six groups (as rule 9) :

Under this rule each supply group is fully utilised in order. Each of the supplies in the last required group PLUS ALL SUBSEQUENT GROUPS ARE scaled down by an equal percentage. This is NOT the same as 3, 5, 6, 9 & 10

GCD06 Responses Regarding S&D Rules

*“ consider that in general the **grouping of supplies may help to dampen the swings in charges** that have been seen in the past. This also seems intuitively more appropriate than prescribing a rigid hierarchy which may bear little resemblance to actual peak day supplies.”*

*“ a process where groups of supply are aggregated & a percentage utilisation applied to achieve supply demand balance is **preferable to an operational merit order that is subjective.** “*

*“ **To the extent that Option 3 retains the structure of the merit order of Option 1, which seems inherently correct, this could be a pragmatic solution. However, the same could be argued of Option 6** and the analysis suggests that there is little to choose between these options in respect of average variation.”*

*“Although options 3 & 6 produce least price variation between average, max and lowest standard deviation. However, they may not be the most cost reflective. It would be helpful to provide the results for all individual exit & entry points as averages & std devs mask the impact on individual sites. **Please provide the results of all individual exit & entry points for the analysis undertaken.**”*

Views on S&D Balancing Rules

Option	Support	Against	National Grid View	
1		BGT, RWE, EDF	No longer entirely consistent with planning approach – we now look at scenarios for supply types and hence a grouping approach should be more cost reflective	Status quo
3	RWE, NGD		Retains merit order but groups by supply type – more consistent with planning approach	Consult
5		RWE	May not appropriately reflect the interaction between storage and LNG importation by grouping together	Discard
6	RWE		Retains merit order but groups by supply type – more consistent with planning approach	Consult
8	BGT		Dynamic grouping will produce step change when a group becomes part of the balancing group e.g. one year use all of Rough, next year it's in the balancing group and used 10%	Discard
9	BGT		Consistent with rule 3 at high demand - may be more appropriate where baselines are reduced or available supplies are significantly higher than demand.	Consult
10	SSE		LNG Importation used ahead of Rough not consistent with experience or planning scenarios hence arguably not cost reflective	Discard



Charging Methodology Proposals

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Summary

Key conclusions;

1. **Analysis of the alternative sources of supply data suggest that moving to using capability for interconnectors and LNG importation, and limiting storage sites to those with planning permission and under construction has a significant downward impact on price volatility.**
2. **Revising the S&D balancing rules such that supplies are grouped can also be seen to dampen price volatility; however there are subtle changes between the grouping options. The approach most consistent with planning should be the most cost reflective.**

Potential Charging Proposals

Type	Proposal	Alternatives
Beach (including LNG importation with no storage)	Ten Year Statement Forecast: No Change	?
Interconnectors	Capability:	Obligated Entry Capacity
LNG Importation with storage	<i>Existing & Under construction. Exclude those without or awaiting planning permission</i>	<i>Existing & Under construction. Exclude those without or awaiting planning permission</i>
Long Range Storage		
Medium Range Storage		
Short range Storage (LNG)		
Beach & Interconnectors	Disaggregate into components and as above: Currently aggregated within TYS	?
All supplies	Capped at obligated capacity level	?
	Proposal	Alternatives
S&D Rules	Rule 9	Rules 3 & 6

Potential Charging Methodology Timelines

Milestone	Timeline 1 QSEC Prices	Timeline 2 Exit Prices
Raise Proposal	<i>9-17 April 2009</i>	<i>13-20 May 2009</i>
Gas TCMF	<i>07 May 2009</i>	<i>04 June 2009</i>
Consultation Close-out	<i>8-15 May 2009</i>	<i>10-17 June 2009</i>
Consultation Report & Final Proposals	<i>29 May 2009</i>	<i>01 July 2009</i>
Veto period expires	<i>26 June 2009</i>	<i>29 July 2009</i>
Notice of Prices	<i>01 July 2009</i>	<i>01 August 2009</i>

Q. Single proposal or separate proposals for Supply Source Data and Supply and Demand Balancing Rules?

NB The results of all individual exit & entry points for the analysis undertaken will be provided



Appendix A: Entry Capacity Price Variation

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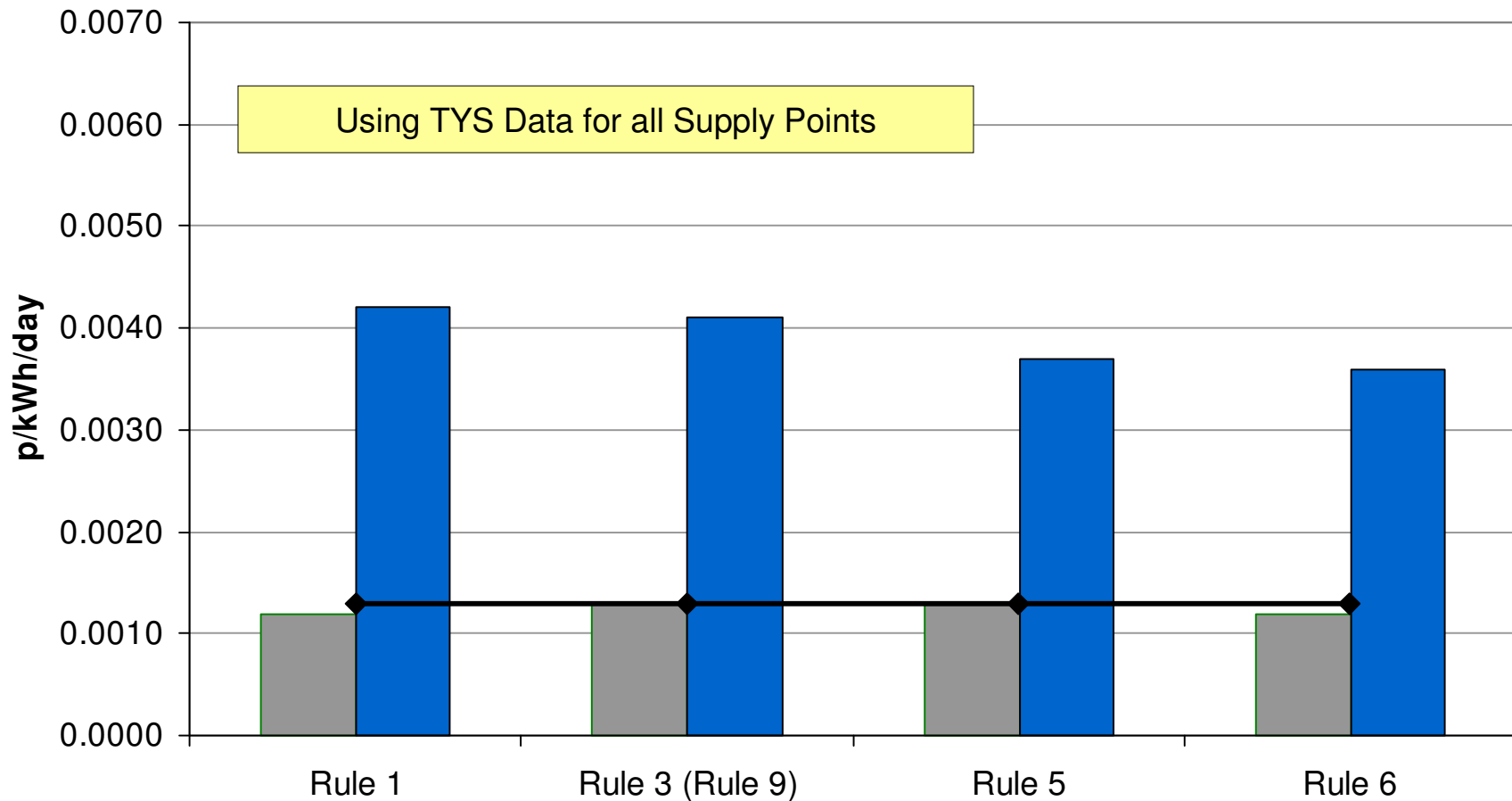
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Entry Capacity Price Variation for 2008/09 across 2006, 2007 and 2008 Ten Year Statements

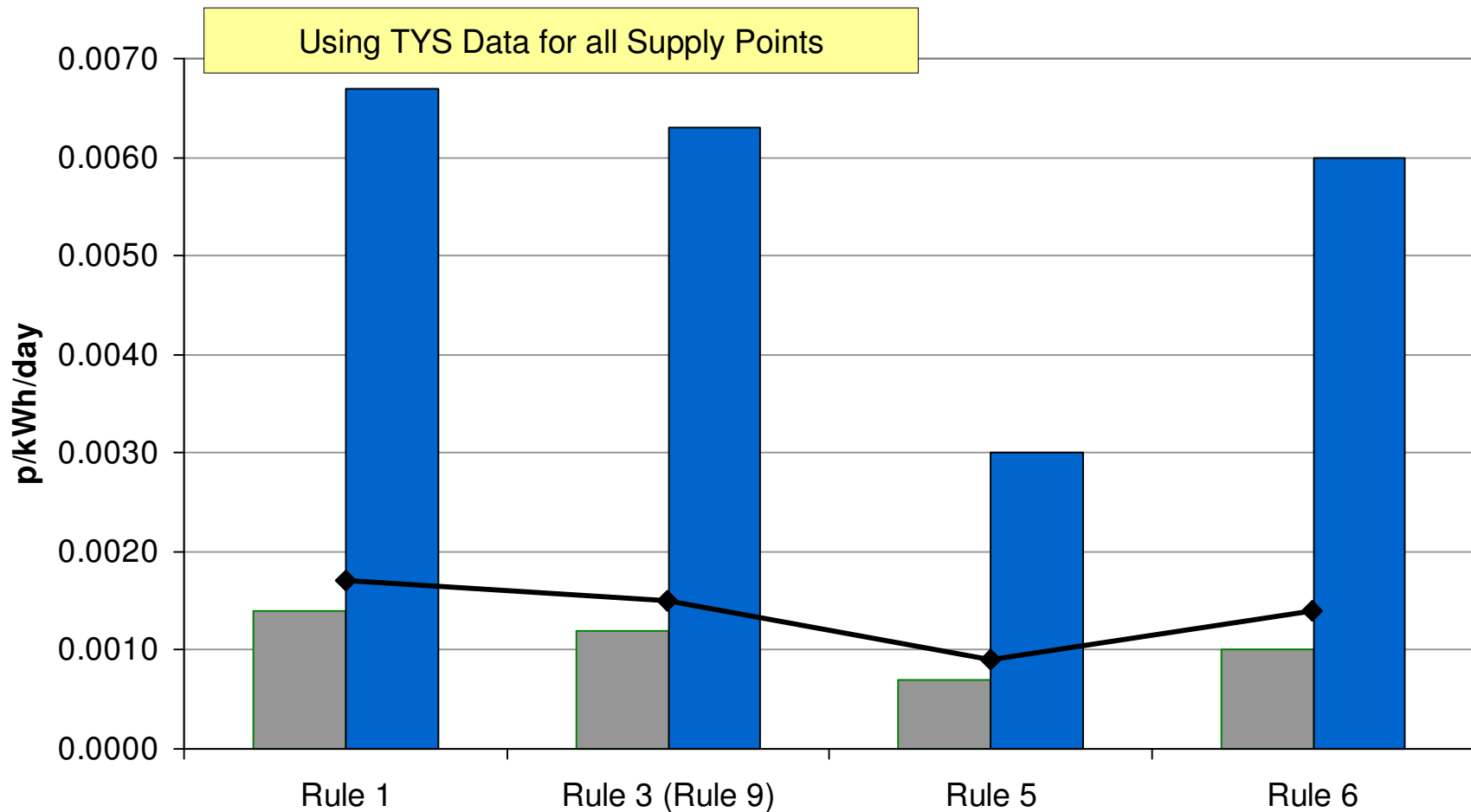
January '09
Analysis



■ Average of the Entry Reserve Price Range
■ Maximum Entry Reserve Price Range
◆ Standard Deviation for the Entry Reserve Price Range

Entry Capacity Price Variation for 2009/10 across 2006, 2007 and 2008 Ten Year Statements

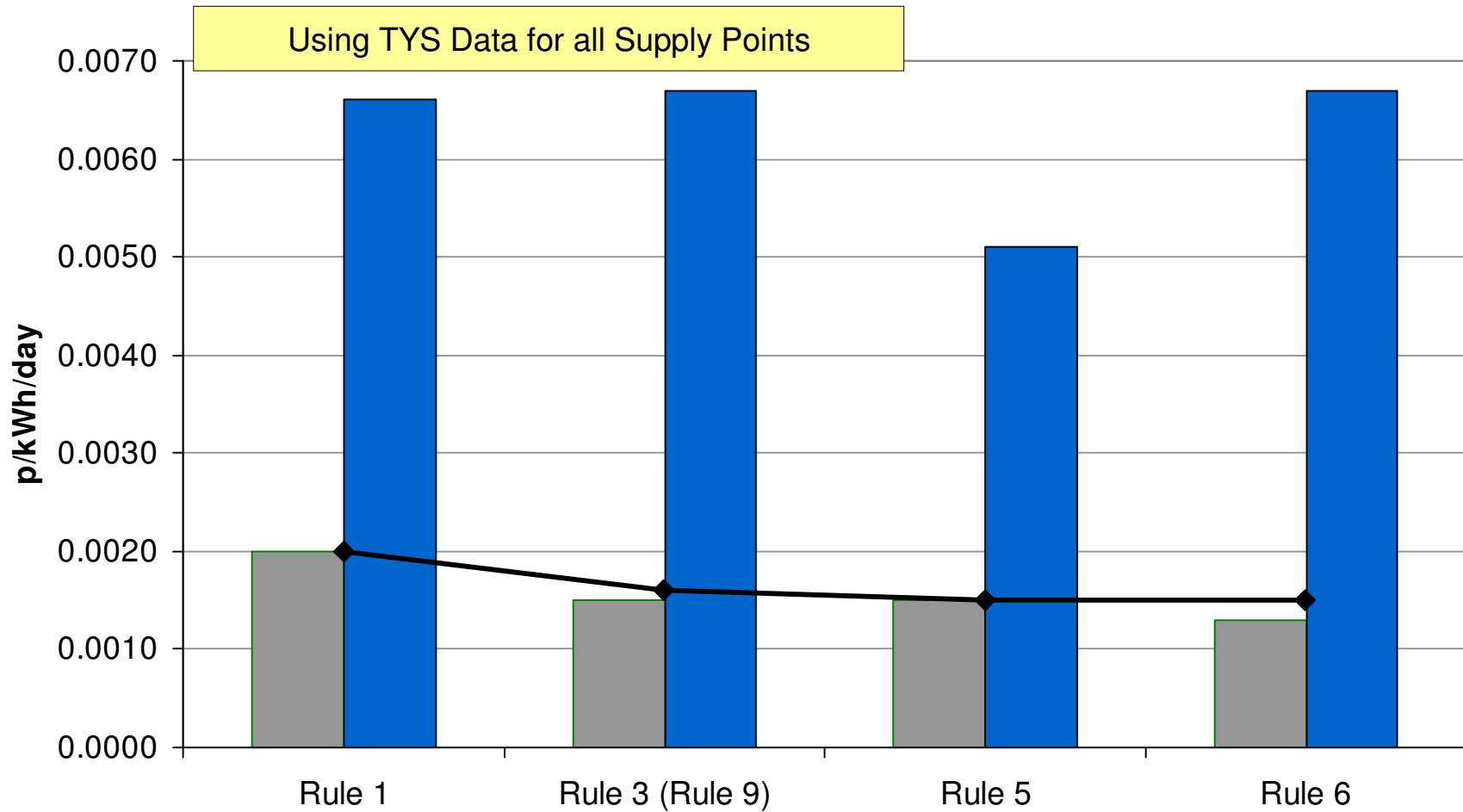
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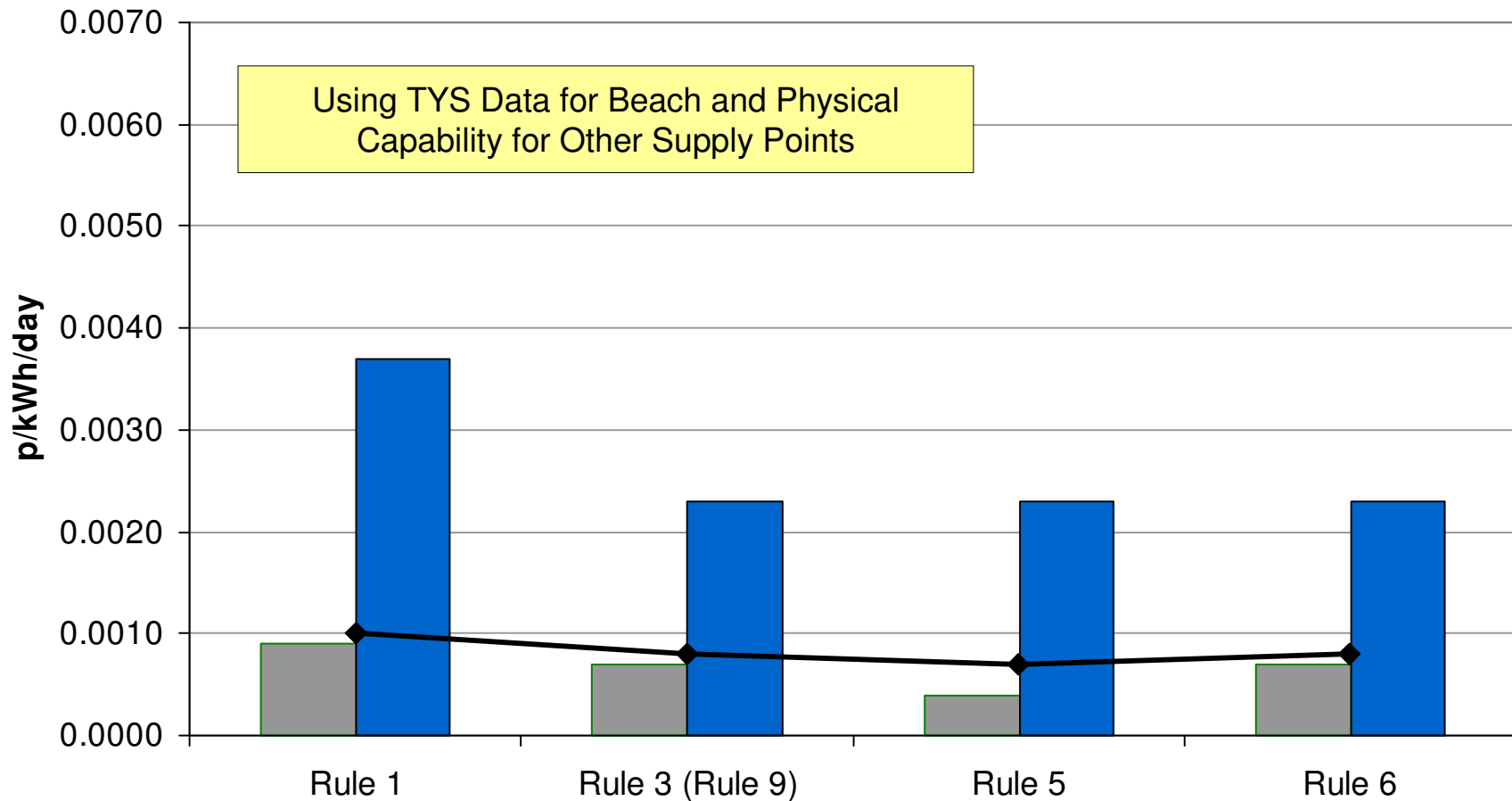
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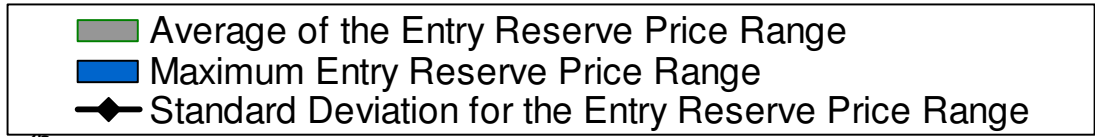
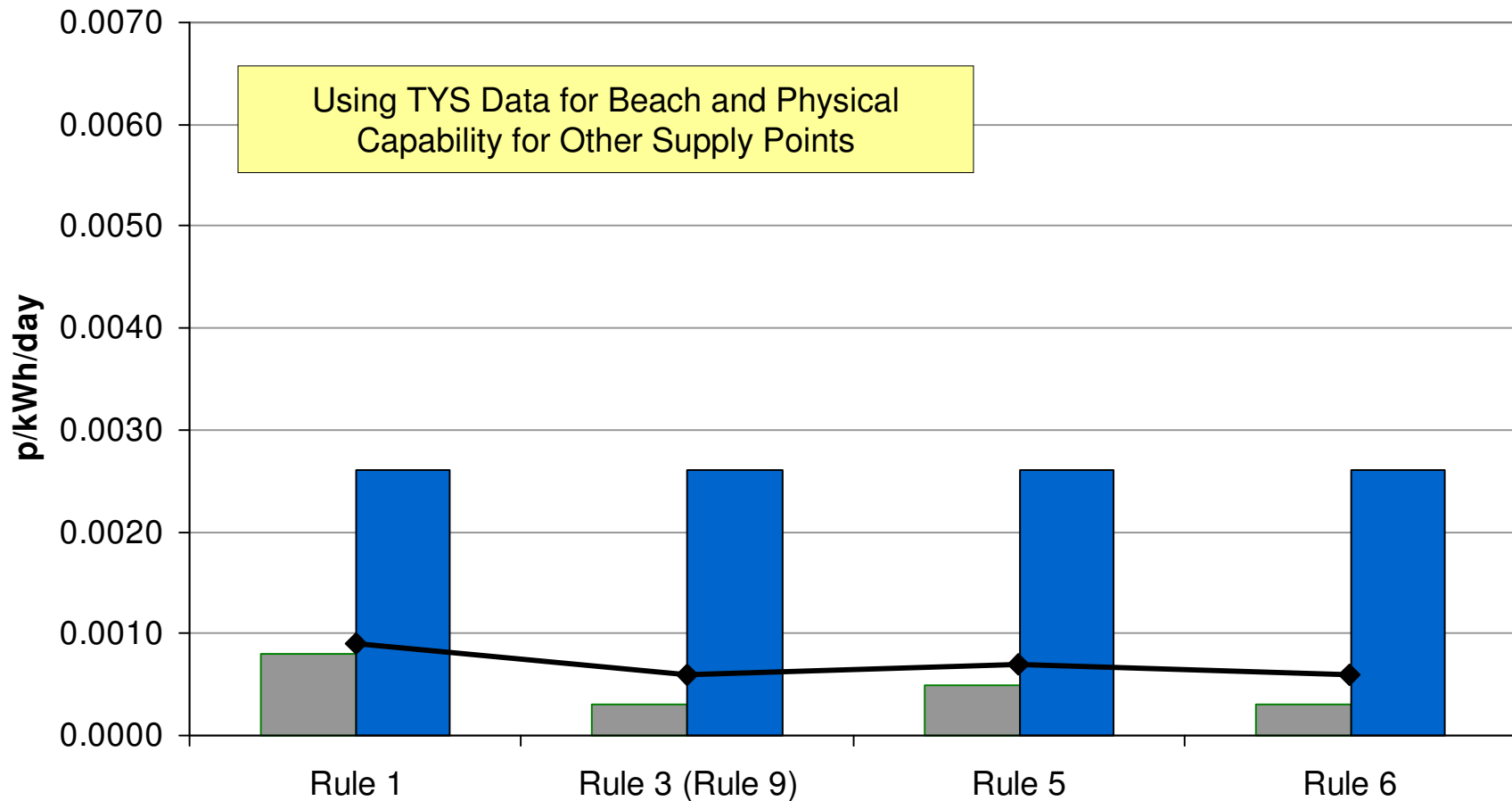
Entry Capacity Price Variation for 2008/09 across 2006, 2007 and 2008 Ten Year Statements (Supply Capped at Obligated Level)

March '09
Analysis



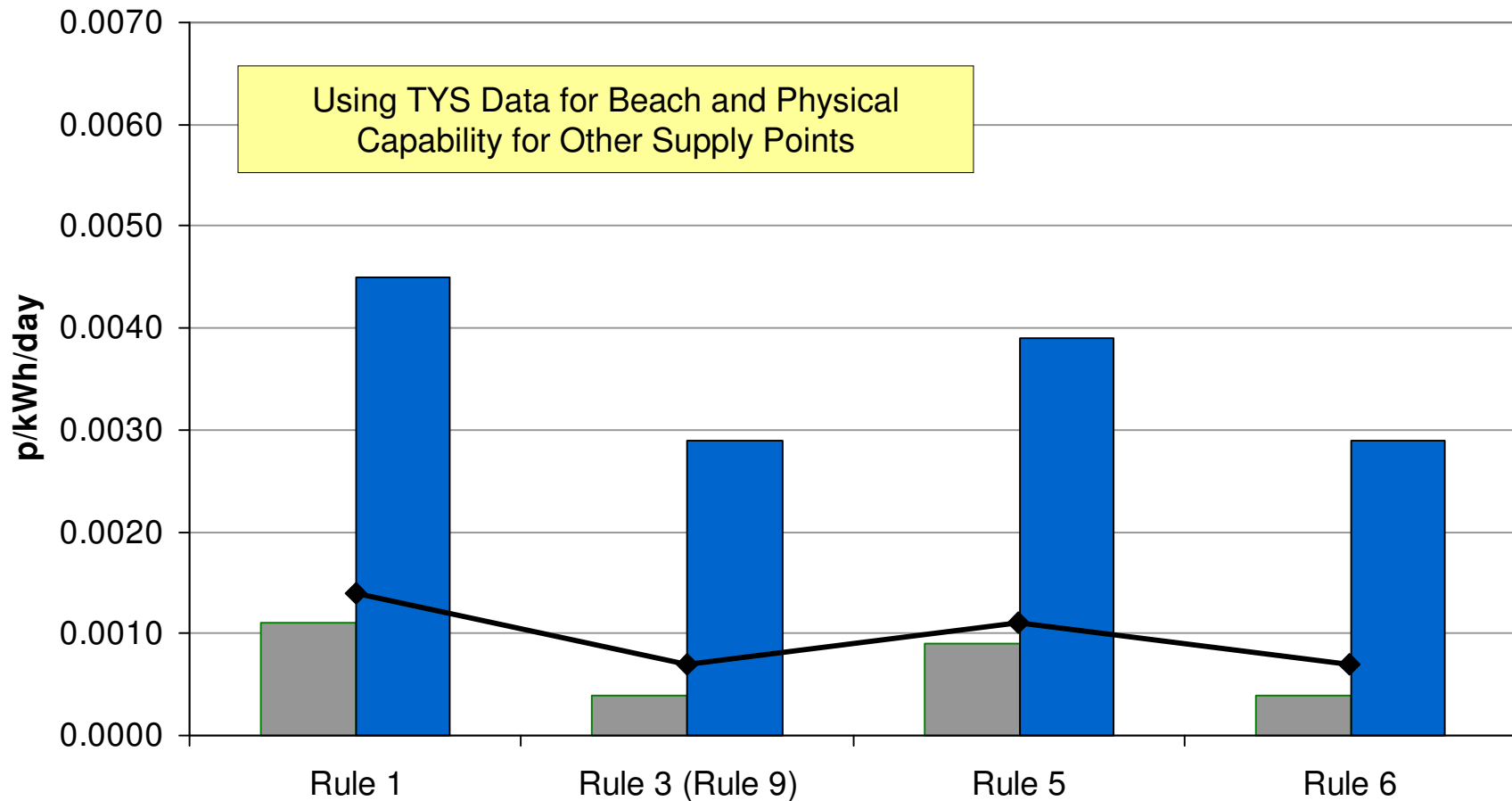
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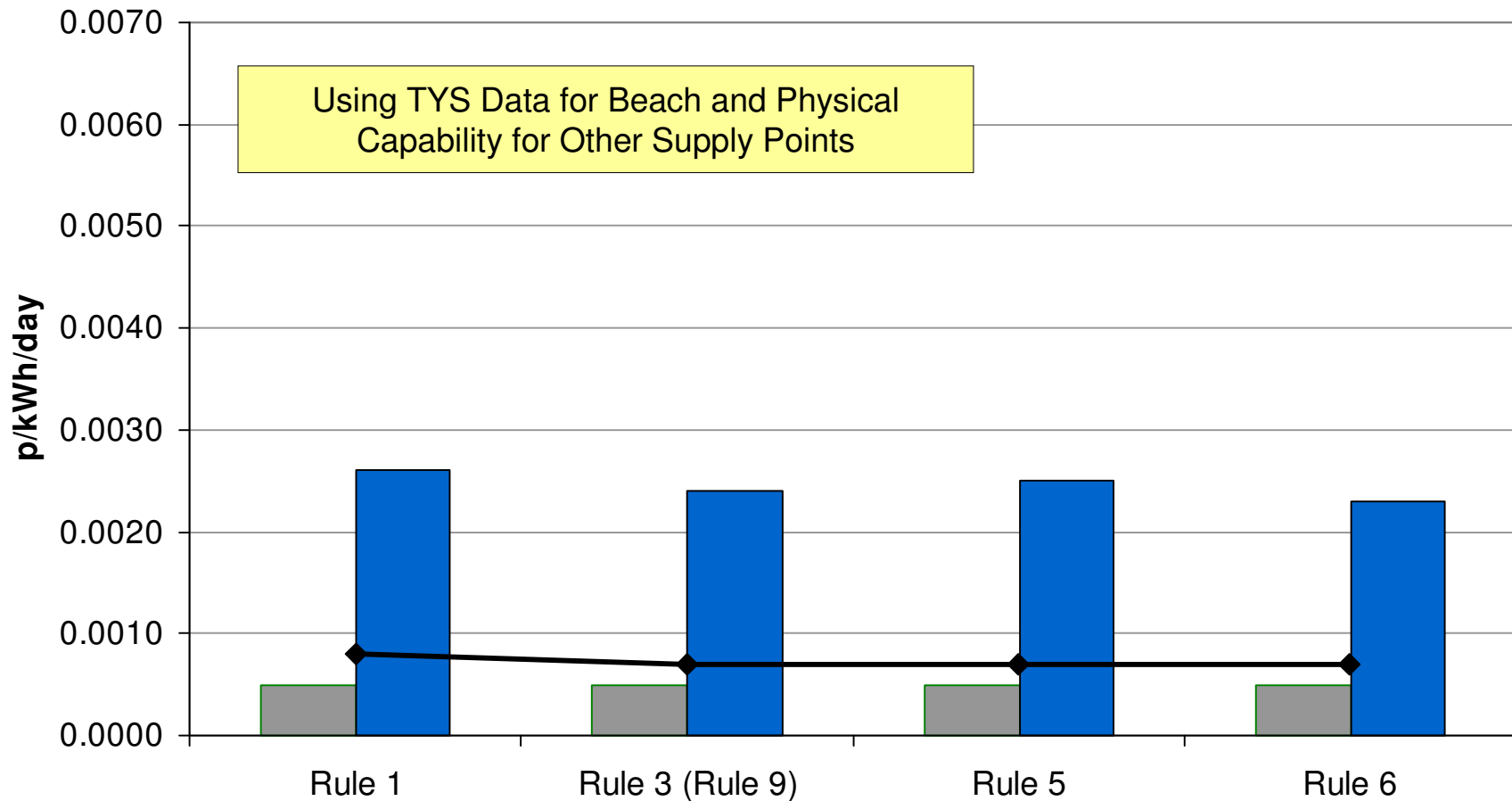
Entry Capacity Price Variation for 2010/11 across 2006, 2007 and 2008 Ten Year Statements (Supply Capped at Obligated Level)

March '09
Analysis



Entry Capacity Price Variation for 2012/13 across 2006, 2007 and 2008 Ten Year Statements (Supply Capped at Obligated Level)

March '09
Analysis





Appendix C: Exit Capacity Price Variation

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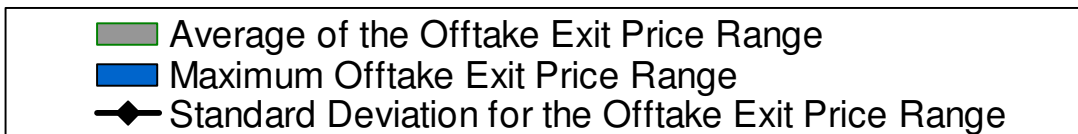
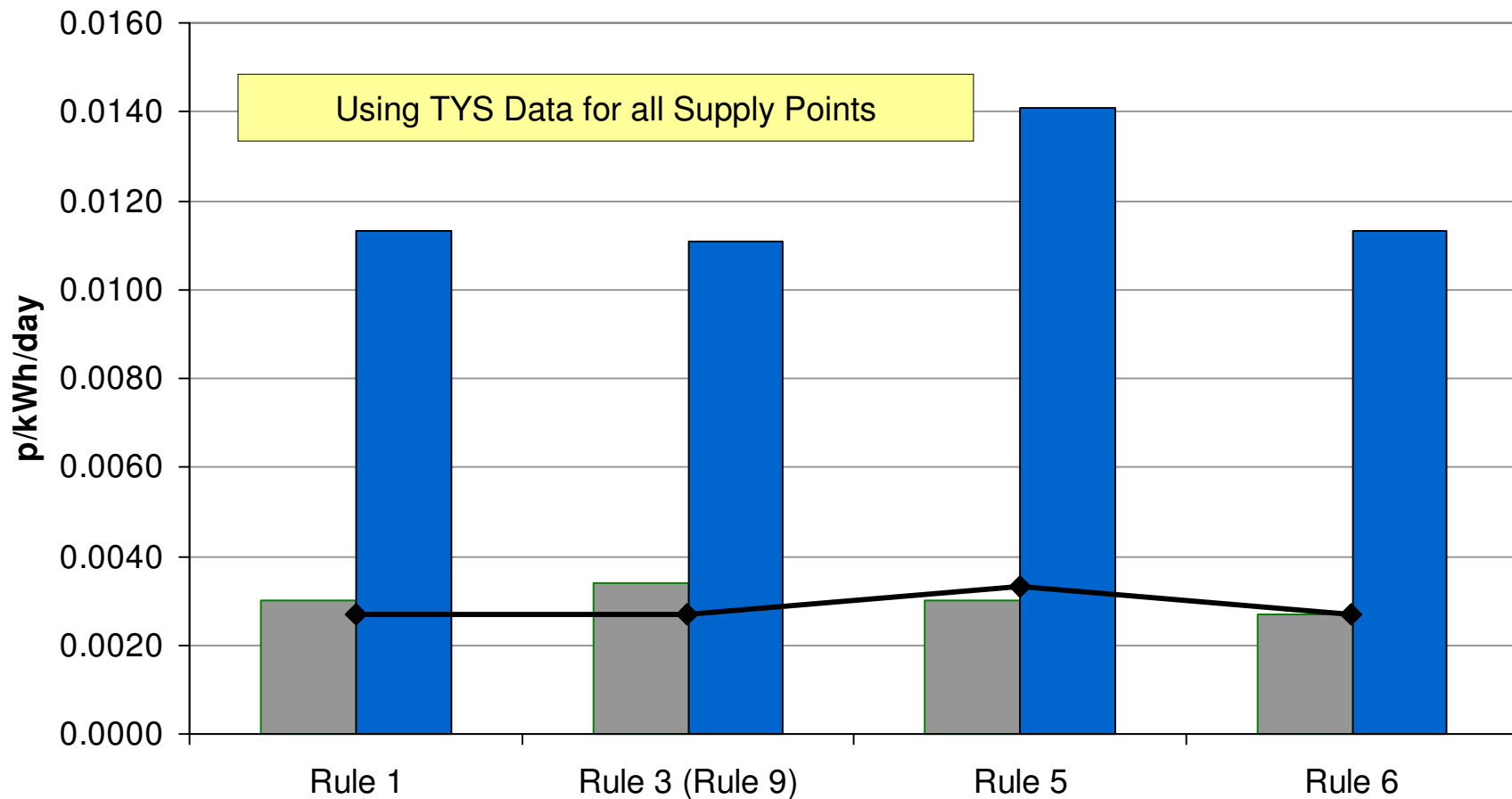
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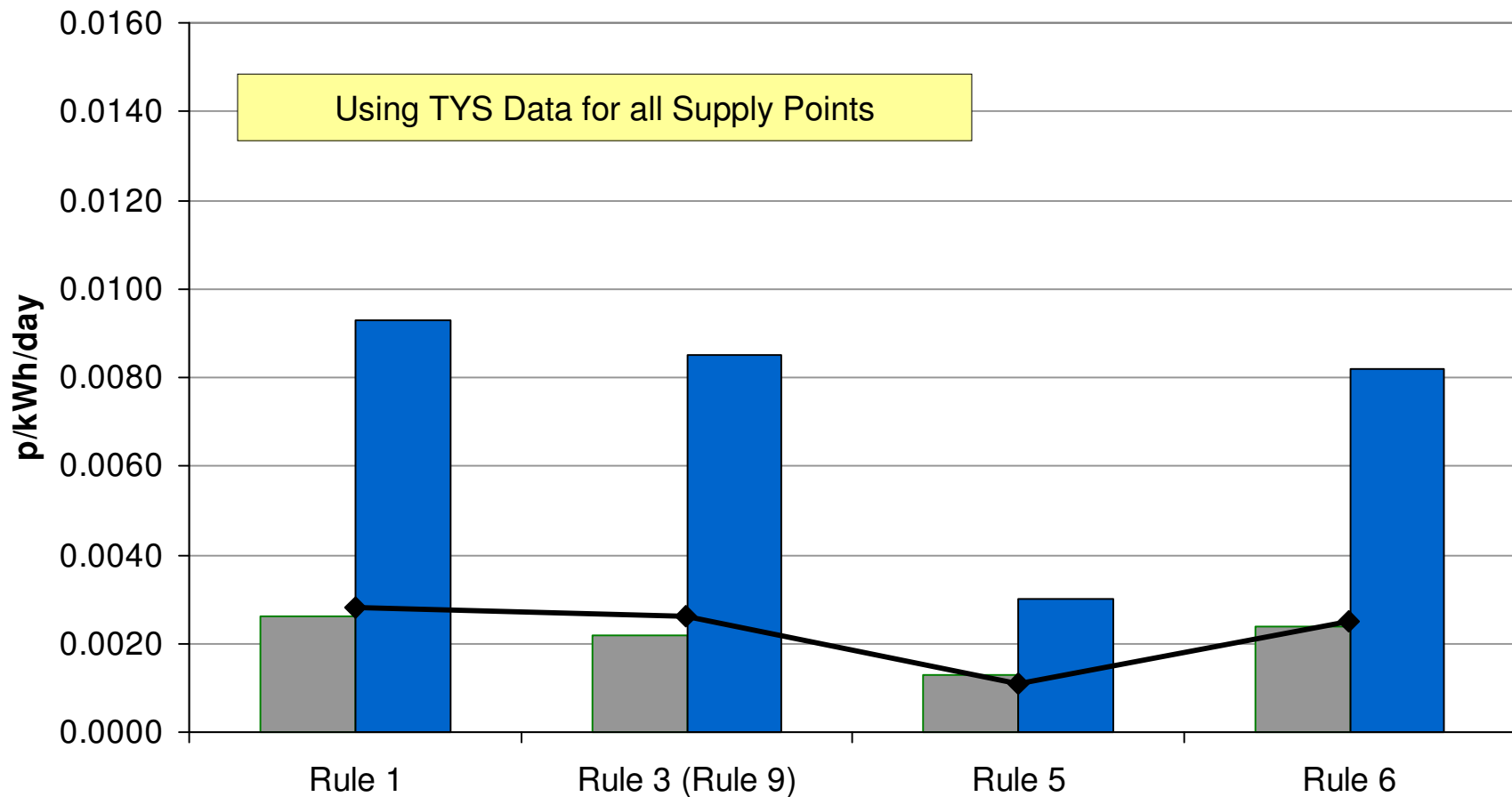
Exit Capacity Price Variation for 2008/09
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January '09
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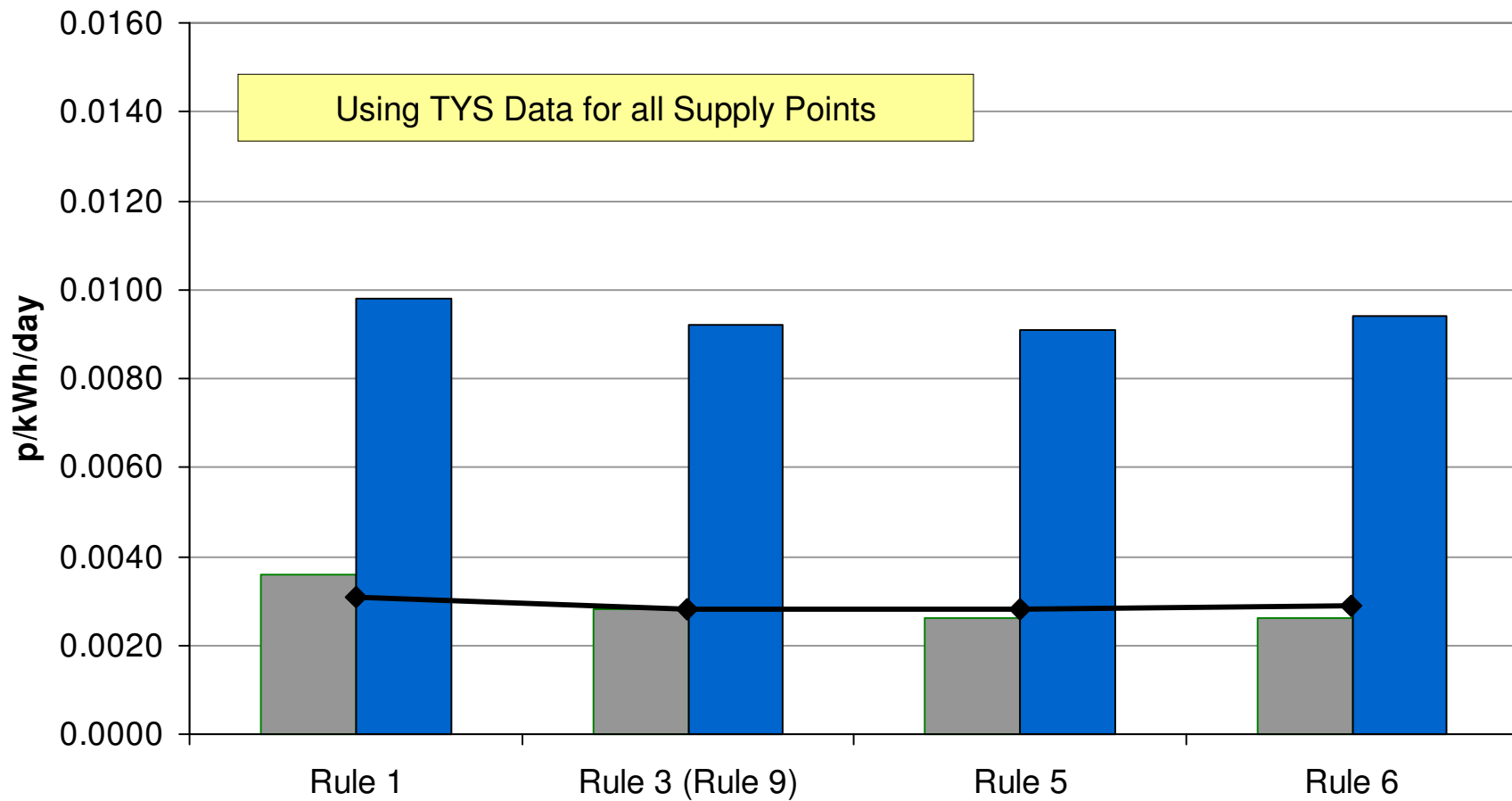
January '09
Analysis



- Average of the Offtake Exit Price Range
- Maximum Offtake Exit Price Range
- Standard Deviation for the Offtake Exit Price Range

Exit Capacity Price Variation for 2010/11 across 2006, 2007 and 2008 Ten Year Statements

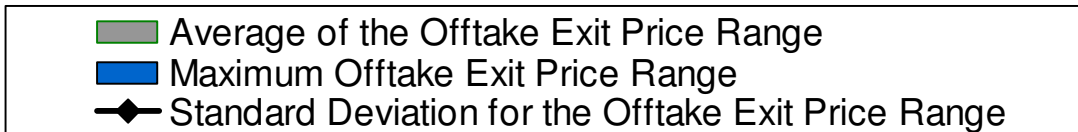
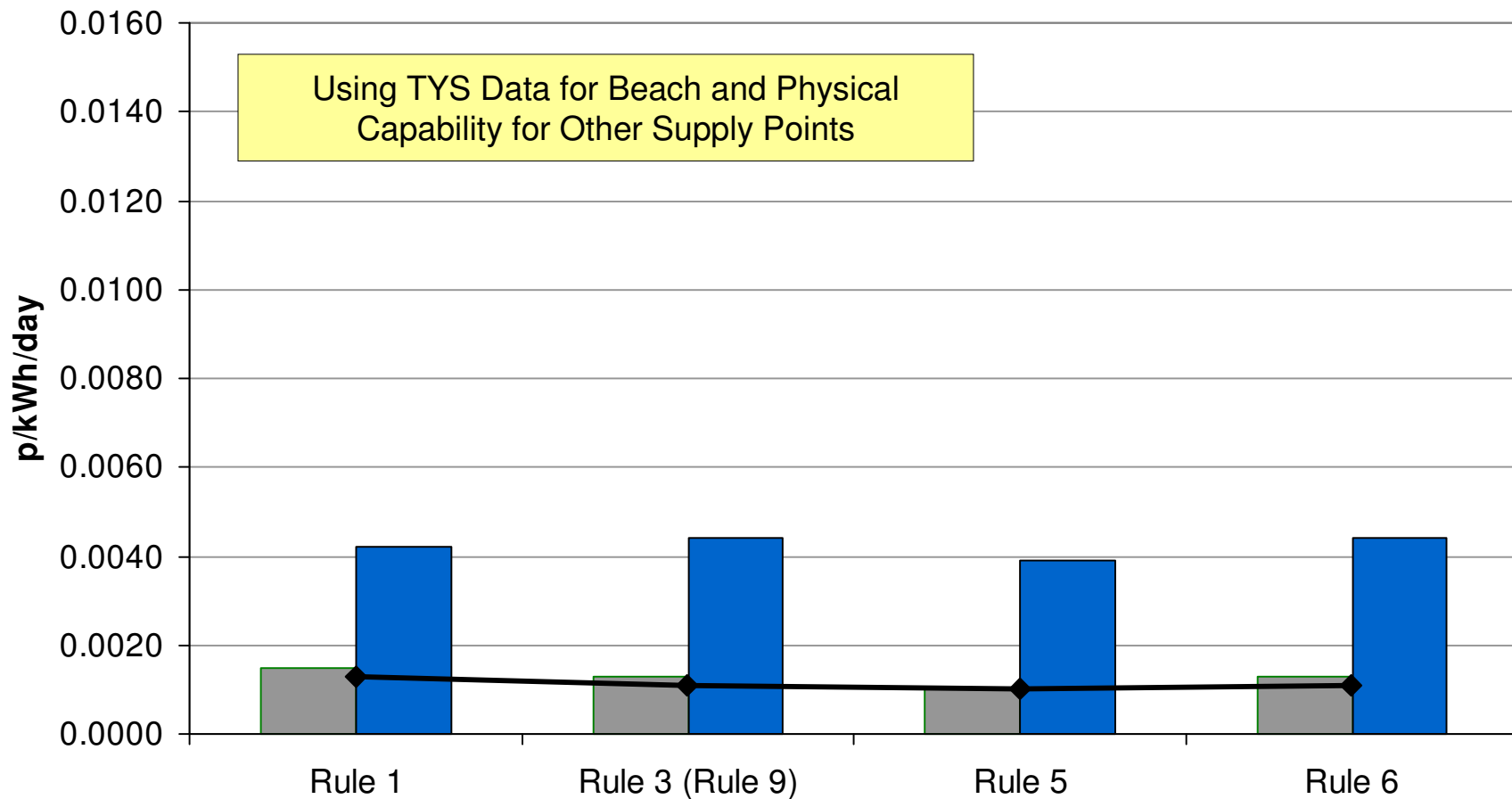
January '09
Analysis



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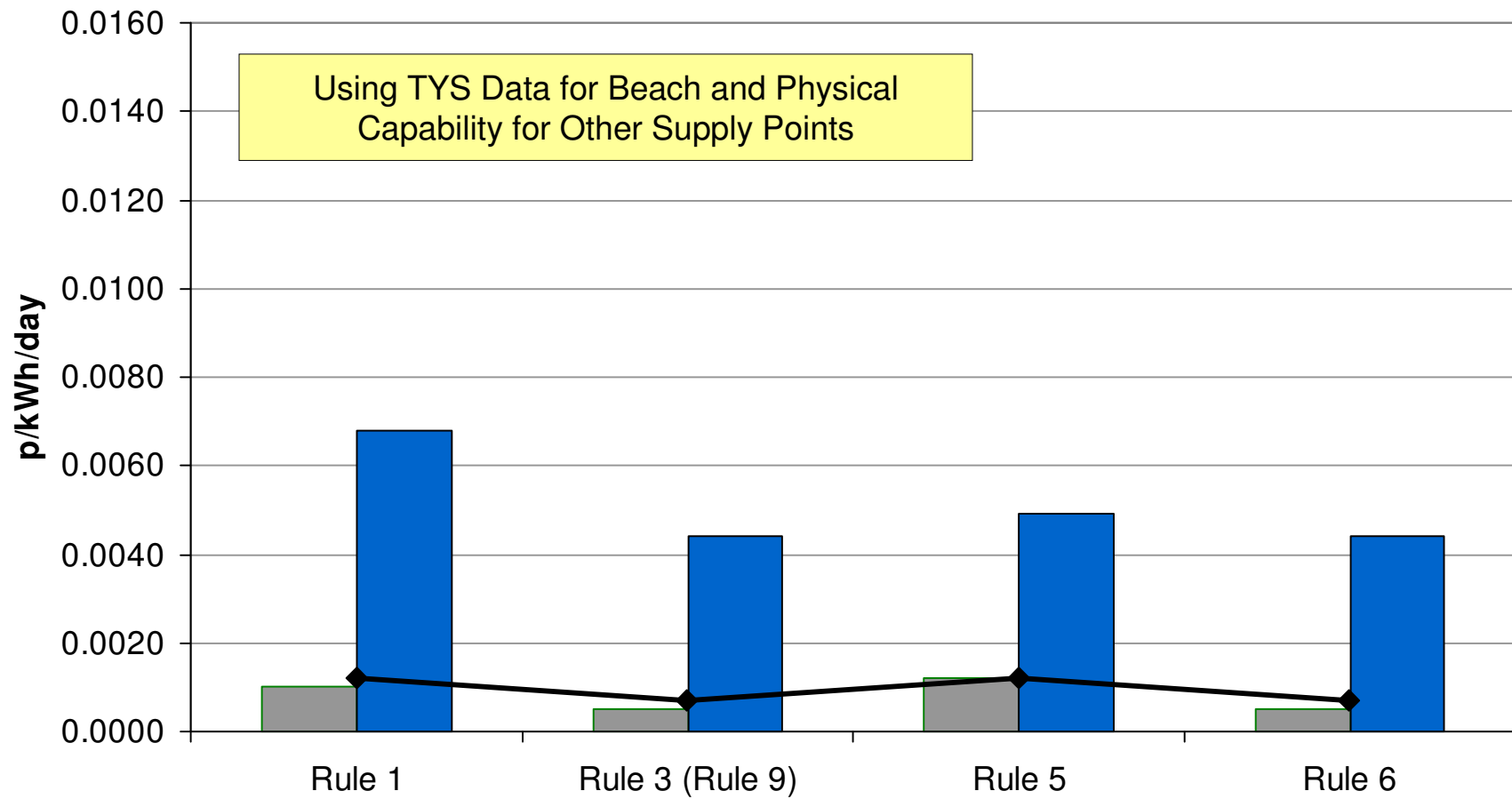
Exit Capacity Price Variation for 2008/09 across 2006, 2007 and 2008 Ten Year Statements (Supply Capped at Obligated Level)

March '09
Analysis



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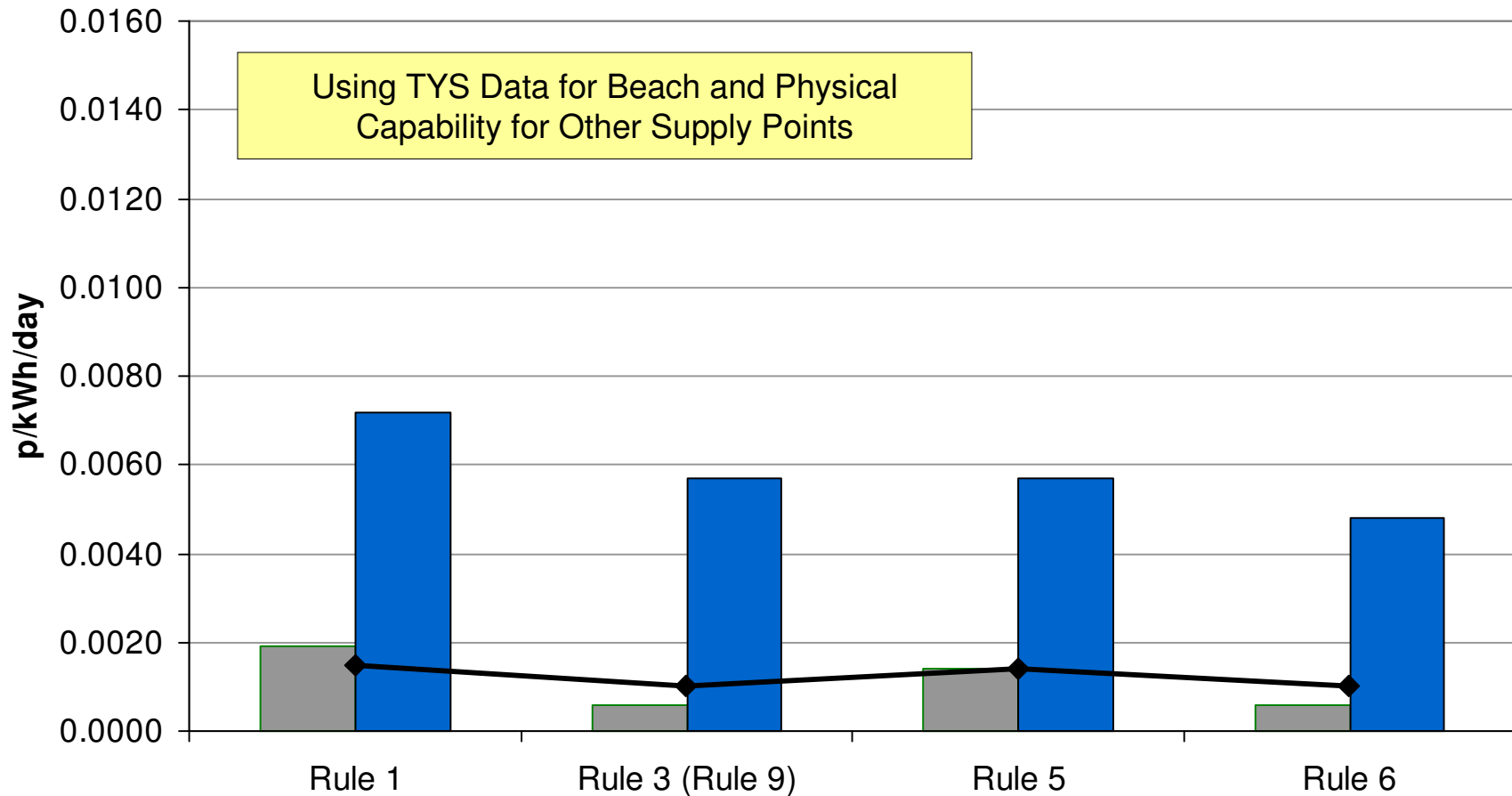
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