Ontario Energy Board

Regulated Price Plan Working Group Meeting #2

October 8, 2004

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Discussion Outline

- Discussions continued from Working Group Meeting #1
  - Out of scope issues
  - Further discussion of objectives and conflicts
  - Criteria and scoring
- Analysis of variances and timing of true ups
- First approaches to meeting objectives

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Out of Scope Issues: Eligibility for RPP

- There has been no clear communication from the Ministry on the likely eligibility criteria for RPP
- The development of the RPP itself does not depend much on the definition of the customer groups
  - What does differ according to customer definition is the impact on the markets and on market participants, including retailers and distributors
  - The level of interest of market participants in the working group process may also vary with different eligibility definitions
- We propose to proceed with a working assumption that the eligible customers will be residential and small commercial, with "small commercial" to be defined

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Out of Scope Issues: Bill Content

- There has been no official word from the Ministry on the bill content
- The draft regulations clearly state that the Global Adjustment (GA) will be shown separately to market participants, including LDCs
- Draft regulations are silent on the bills for eligible customers; they talk about the adjustments, payments and offsets that the OPA, IESO, and LDCs will make
- Current (recently enacted) regulations specify a four-item bill

Changes, Additions since WG #1

- The presentation has been changed to be consistent with discussion at the meeting:
  - Change "revenue requirement" to "forecast supply cost"
  - Change the diagram to indicate a net price for wholesale market participants and others taking IESO supply
  - Change wording from "L V & D" customers to "eligible" customers
  - Some other minor wording changes were also included
  - Change wording from "5 degree days" to "5 degrees/day"

Criteria Development

- The number of objectives and the fact that some conflict means that there must be tradeoffs between some of them
- The strawmen will be developed to emphasize those tradeoffs
- The working group members will want to compare different strawmen
- One way to formalize this is to use a structured scoring system
- The next slide shows a scoring system that was used by the New Brunswick Market Design Committee. It allowed comparison of several strawmen with respect to the objectives for the Committee

Scoring Strawmen

COMPARATIVE MARKET PERFORMANCE				
	Market Model			
Criterion	Minimal Strawman	MEU Strawman	Proposed Strawman	"Maximal" Strawman
Efficiency	+	+	+	++
Price Performance	+	0	+	++
Investment Incentives	-	-	+	++
Administration Cost	-	--	-	-
Reliability	+	+	+	+
Transparency	0	0	+	++
Fairness	+	+	+	+
Robustness	-	-	0	+
Enforceability	0	0	0	0
Environment	0	0	+	+
Protecting SOS customers	++	+	+	0

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Analysis of the Variance Account

- Navigant Consulting has performed some calculations to create a range of values of the variance account the OPA will carry for designated customers
- We started with an existing forecast of the three price streams in Ontario, as shown on the diagram
  - If the actuals are exactly as forecast, the variance will be zero
- We then chose conditions that are likely to create higher or lower variances, with the intention of producing roughly an 80% range
  - A probability of 10% of having a higher variance
  - A probability of 10% of having a lower variance
- The following slides describe our methodology for arriving at the variances

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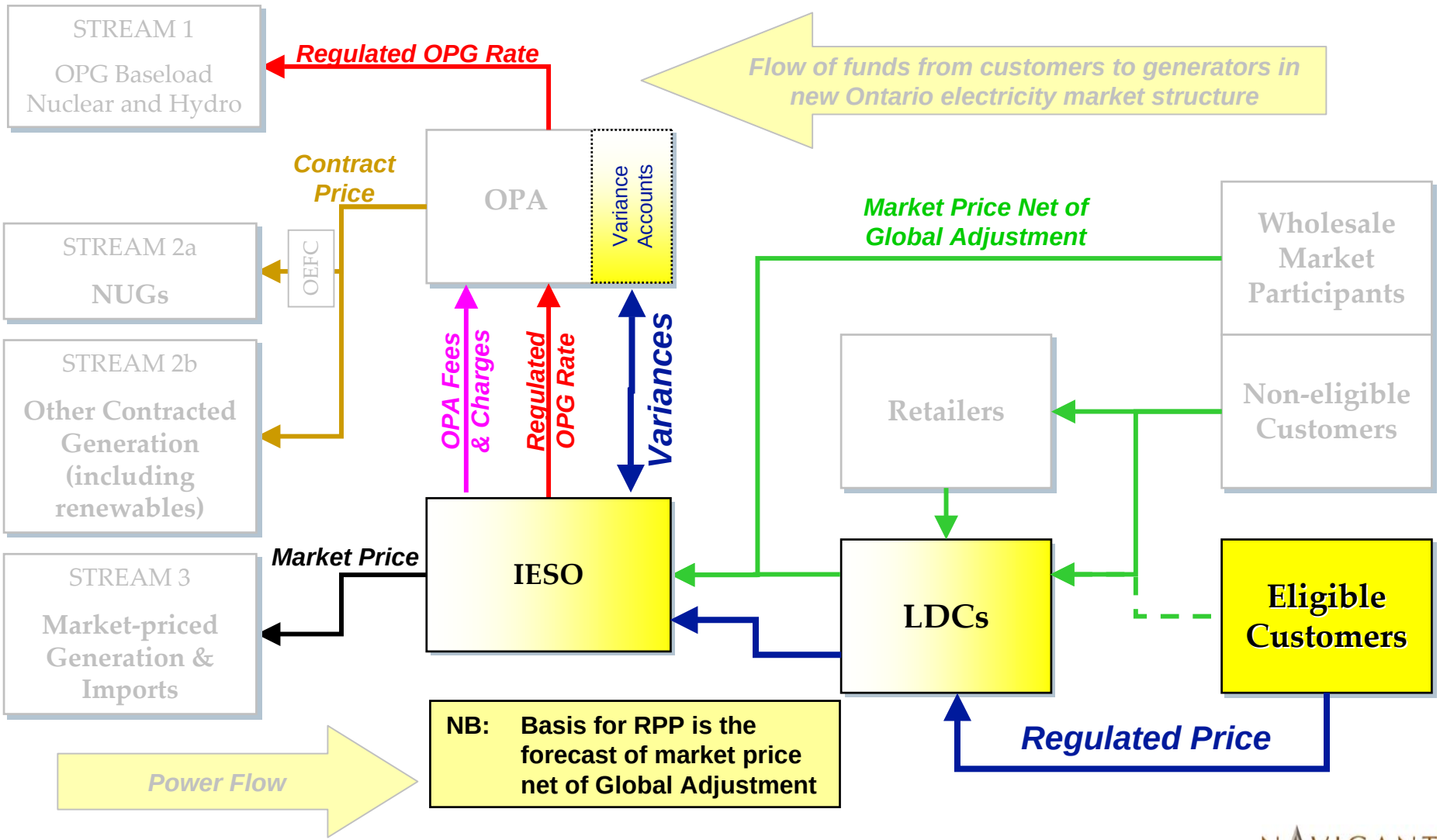
Market Structure and Variances



OPG Baseload Nuclear and Hydro

STREAM 1

OPG Baseload Nuclear and Hydro

- For this calculation, we assumed that the OPG baseload assets will be supplied at a fixed price set by the OEB
- However, the quantities of output could be reduced or increased by worse or better than expected nuclear performance
- We chose scenarios to represent each case

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NUGs and RFP Supply

STREAM 2a

NUGs

STREAM 2b

Other Contracted Generation

(including renewables)

- For the existing NUGs, we used our assumptions from our Ontario Market Assessment. We did not change these assumptions as part of the scenarios.
- This analysis is only for the first two years of the RPP, or to May, 2007. We have not factored in the impact of the Other Contracted Generation (ie, through the 2500 MW or renewables RFP) because very little of this capacity is likely to be onstream until in May 2007.

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Market Priced Supply

STREAM 3

Market-priced Generation & Imports

- For the analysis, we assumed that the quantity of supply to be priced at the market is the rest of total demand, after the contribution of the prescribed generators, NUGs, and RFP contracts
- We varied the price based on the historical variance of the market price (HOEP)

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Alternative Scenarios

- We have produced several scenarios for the variance and the impact on customer rates
  - For the rate impact, we assumed that variance recovery would take place over 12 months as an incremental energy charge based on the forecast demand by eligible customers for the 12 months
  - We calculated the rate impacts if the variance is trued up at 3 or 12 month intervals
  - We assumed that customers taking about half the total load would be eligible for the RPP
- Note that the total rate impact is the same at the end of the 4 quarterly adjustments as the annual adjustment, it just happens in smaller steps

Scenarios for Variances: High

- One in ten year high
  - Market price starts peak period at the 90th percentile, but moves toward the mean
  - Two large nuclear units out for the summer peak; one small nuclear unit out for the winter peak
  - The summer is hot (5 degrees/day above normal for half the summer months)
  - The winter is cold (10 degrees/day below normal for half the winter months)
- 10% price
  - Market price taken at 10% above forecast level for entire period

Scenarios for Variances: Low

- 10% price
  - Market price taken at the 10% below forecast for the entire period
- One in ten year low
  - Market price starts peak period at the 10th percentile, but moves toward the mean
  - Nuclear capacity factor 2% better than forecast for summer and winter peak periods
  - The summer is cool (5 degrees/day below normal for half the summer months)
  - The winter is warm (5 degrees/day above normal for half the winter months)

Variances

Scenario	Quarterly Variances ($/M)				Year Total ($/M)
	1	2	3	4	
Tenth Percentile High	$116.5	$54.6	$130.5	$98.2	$399.90
10% price increase	$66.6	$62.7	$60.5	$52.3	$242.00
10% price decrease	-$66.6	-$62.7	-$60.5	-$52.3	-$242.00
Tenth Percentile Low	-$118.40	-$156.69	-$51.80	-$72.10	-$281.30

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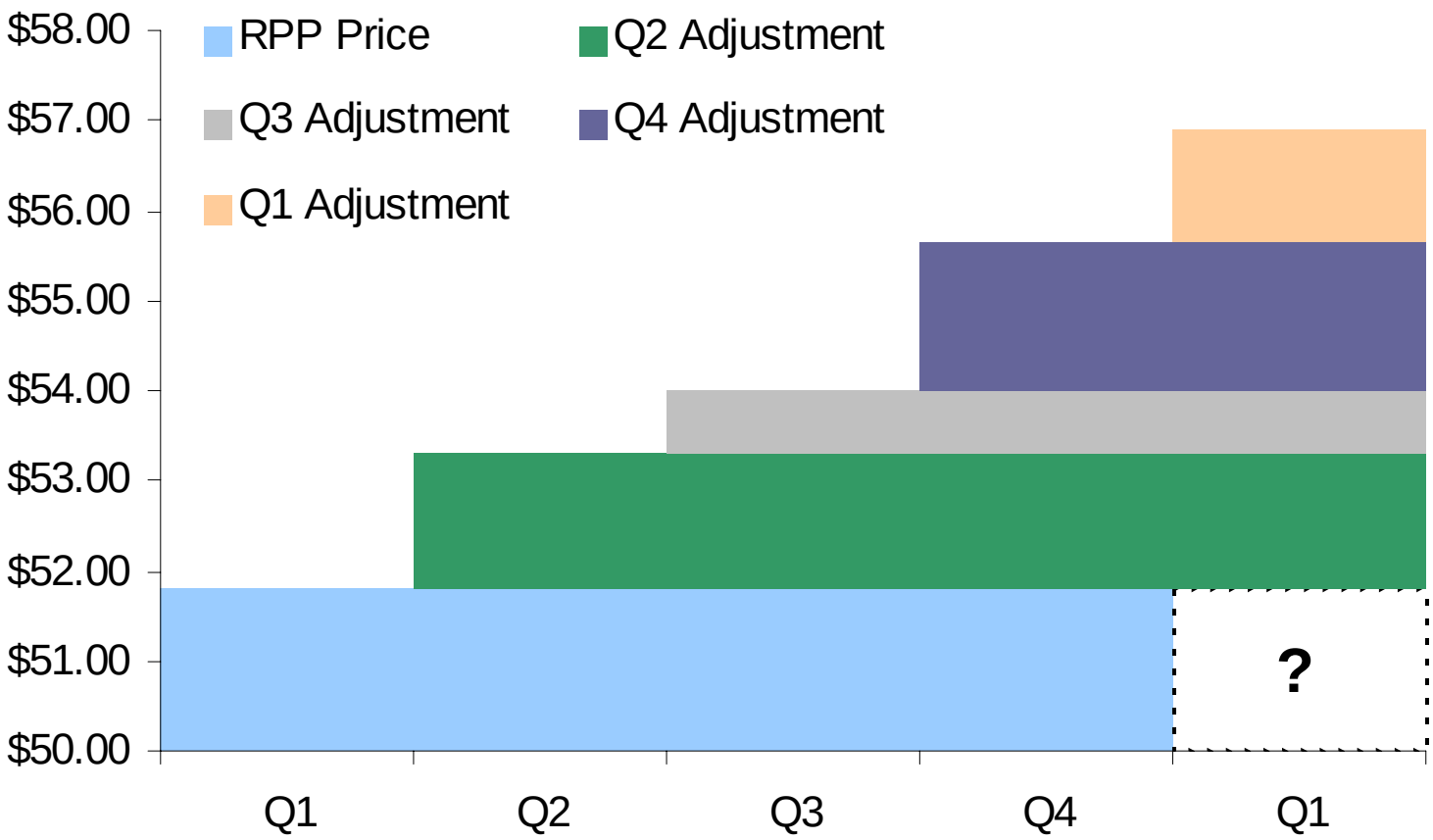
True Ups

Scenario	True Ups by Quarter (cents/kWh)				Annual True Up (cents/kWh)	% base price*
	1	2	3	4		
Tenth Percentile High	0.149	0.070	0.166	0.125	0.509	9.8%
10% price increase	0.085	0.080	0.077	0.067	0.308	6.0%
10% price decrease	-0.085	-0.080	-0.077	-0.067	-0.308	-6.0%
Tenth Percentile Low	-0.152	-0.050	-0.066	-0.092	-0.358	-6.9%

*per cent of commodity price, not of total customer bill

True Ups and Price Stacking



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Objectives and Approaches

- This section looks at the objectives and presents some ideas of how to approach them
- For each objective, we have tried to generate more than one idea
- We are looking for reactions and ideas from the working group, with the intent of starting to construct a strawman
- In keeping with the discussion of last week, this section will focus on the immediate future without widespread installation of smart meters
  - The implications of smart meters will be discussed once the outline of a first approach for current metering infrastructure begins to emerge

Objective: Rates Cost Reflective Over Time

- Because the rate that eligible customers will pay depends on forecasts, the actual costs of their supply will differ from their rate
  - The resulting variances will be carried by the OPA (as the draft regulations make more clear)
- These variances must be allocated to customers to make the rates cost reflective over time
  - The eligible customers are those for whom the costs were incurred; they will bear the costs or get the benefits
  - At issue is how the variances are allocated to customers

Approaches: Rates Cost Reflective Over Time

- Using an adjustment to future RPP prices to allocated past costs or benefits means that the future RPP prices will reflect a forecast of prices then, along with an adjustment for historical actual costs
- Is there a way to make these future prices more reflective of costs at the time that the prices are being paid?
  - For example, if the true up is annual, use a seasonal (monthly?) pattern to the true up that matches the seasonal pattern of the variances?
  - Or put the variances on the top tier of the rate, if there is a tiered rate structure (thus allocating costs or benefits differentially to those whose marginal use might be greater)?
- Note: the variance computations simply added the true ups to the average energy rates

Objective: Price Stability

- The discussion last week recognized that price stability can be seen as referring either to the size or the frequency of price changes
- The calculations of the variances and true ups showed how the size and frequency of the price changes trade off against each other

Approach: Price Stability

- The preceding discussion showed the implications for eligible customers of various time periods for paying or collecting the variances
- The different approaches show directly the tradeoffs between cost reflectivity and price stability, including the tradeoffs
- The longer the variance accumulates, the greater cost reflective adjustment can be as a fraction of the base price
  - Variances will build up if they tend to be all of the same sign
  - If variances offset each other (periods of high variances alternating with periods of low variances), the longer the variance accumulates, the less the adjustment
  - But the risk of a high variance is greater with the longer period

Example: Enbridge QRAM

- Enbridge Gas Distribution has a Quarterly Rate Adjustment Mechanism (QRAM) for System Gas customers
- As reported on Enbridge's website (see handout)
  - Prices are set for the year based on a forecast (unclear whether forecast based purely on spot or on mix of spot and forward purchases)
  - Variances collect in the Purchased Gas Variance Account and are cleared quarterly (recovery period not stated)
  - Prices are reviewed quarterly and rebased if required
  - Outstanding variance at year-end is cleared through annual adjustment

Example: System Gas Prices across Canada

- Broad mix of approaches uses by other gas utilities across Canada
  - Rebasing and true-up periods vary
  - Degree of forward purchasing varies (NB – hedge provided by a any forward purchase of gas would have similar impact on system gas costs as OPG heritage pool for Ontario RPP supply costs)
- Based on Navigant Consulting analysis, all system gas pricing mechanisms yielded average system gas costs within 3% of AECO spot prices over a three year period from January 2000 through December 2003, but how they got there varied significantly as shown on the following slide

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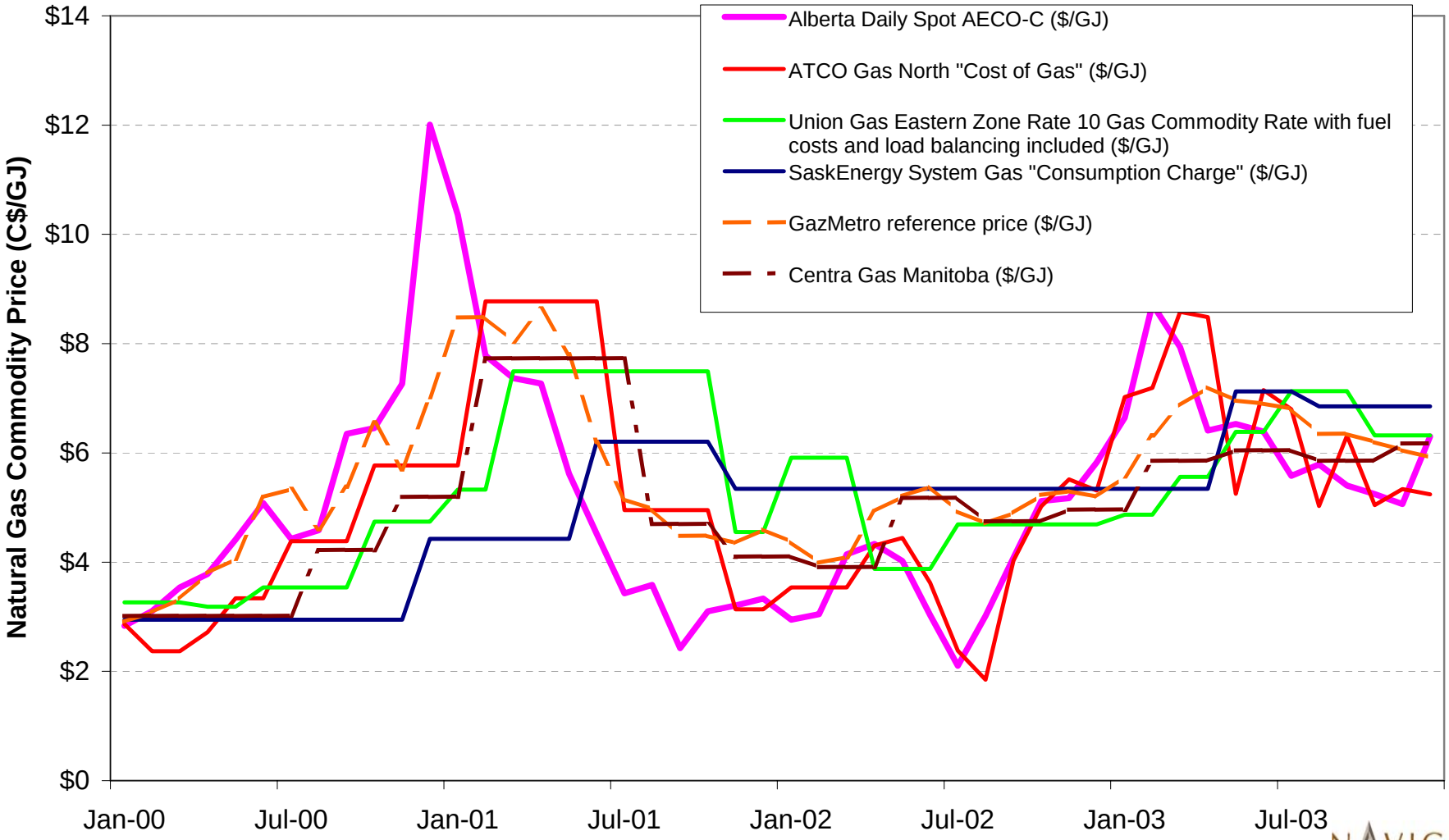
System Gas Prices across Canada: January 2000 – December 2003



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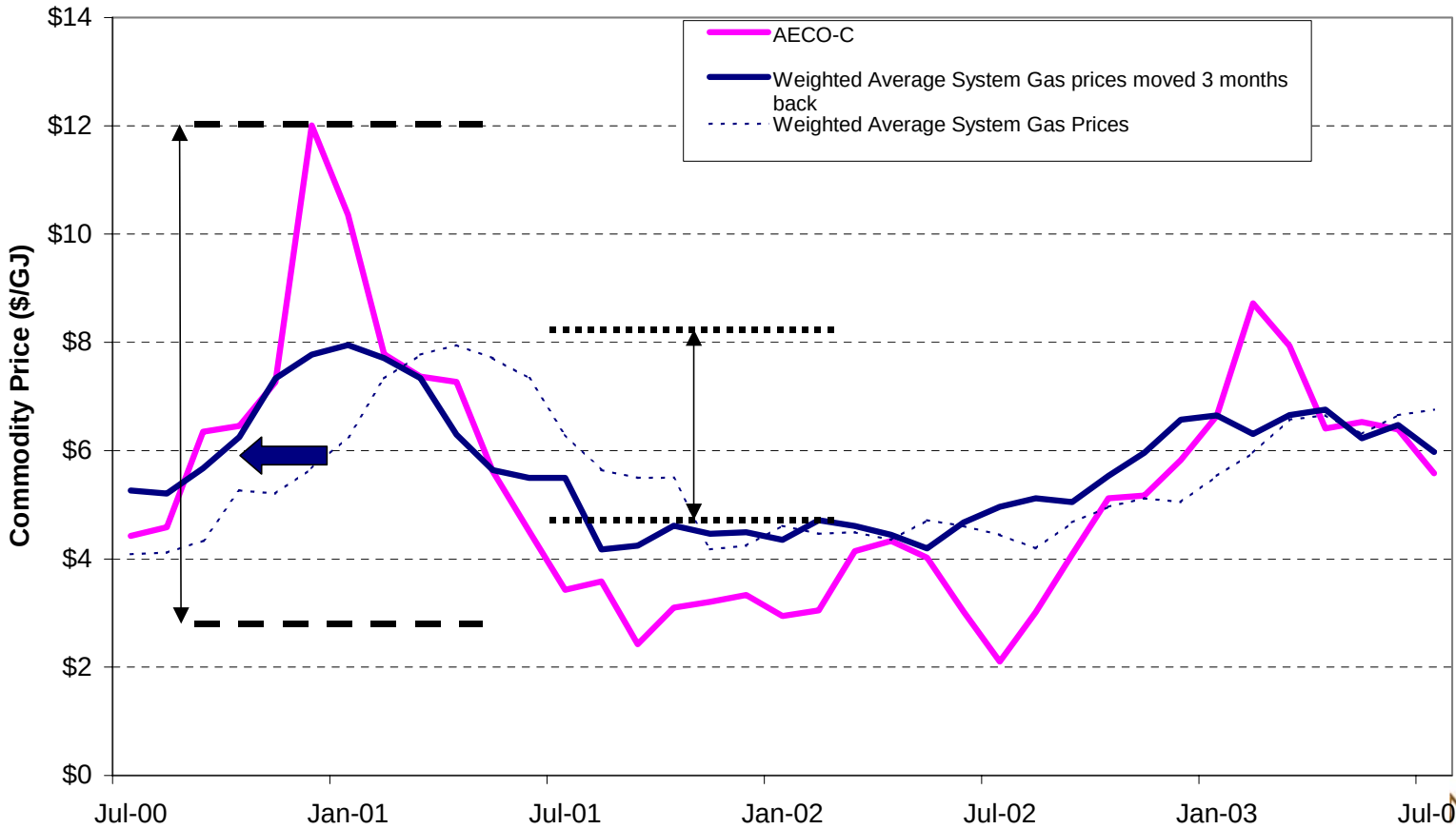
System Gas Prices across Canada (cont'd)

- System gas pricing mechanisms mitigate volatility in spot market
- On average across Canada, changes in system gas prices lag changes in spot prices by ~ 3 months



True Up Alternatives

True Up Alternatives
One Year in Ten Scenario

	Prices and True Ups ($/MWh)				Variance Remaining ($M)	
	1	2	3	4		1
True up quarterly						
Base price	$51.80	$51.80	$51.80	$51.80	$251	$52.50
True up		$1.49	$2.19	$3.86		$5.11
Total price		$53.29	$53.99	$55.66		$57.61
True up annually						
Base price	$51.80	$51.80	$51.80	$51.80	$400	$52.50
True up						$5.09
Total price						$57.59
Rebase quarterly						
Base price	$51.80	$53.00	$53.00	$53.00	$203	$53.00
True up		$1.49	$1.89	$2.60		$3.55
Total price		$54.49	$54.89	$55.60		$56.55

The more truing up and rebasing is done during the year, the less the variance carryover.

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Approaches: Price Stability

- The approaches have been explored
- Regularly timed true ups
  - Quarterly, whatever the size of the variance
  - Annually, whatever the size of the variance
  - Some other time period, such as 2 or 3 times a year
  - Monthly is probably too frequently
- Triggers for true ups
  - Size of the variance account
  - Resulting rate change as % of base rate
  - The use of triggers could keep the maximum rate change below some threshold, but the timing of these adjustments would vary
- Combination of regular true-ups with special true-ups under exception circumstances
  - Likely only necessary if regular true-ups are not frequent

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Approaches: Rebasing and True-up Frequency

- Use different time frames for the implementation of the rebased and the true up adjustment (assuming that they are not both on annual schedules)
  - Annual rebasing, with quarterly true-ups
  - Quarterly rebasing, monthly true-up
  - Semi-annual rebasing, quarterly true-ups
- Use the same time frame for both
  - Three months for both regardless of magnitude of change in underlying supply cost forecast
  - Quarterly rebasing (if required), with quarterly true-up
- Although rebasing and true-ups are very different, they both affect the customer's bill
  - Will customers really see them as being different?
  - Are the optics different?

Other Approaches

- Allow positive variances (RPP price > actual supply costs) to accumulate. Used to mitigate impact of negative variances
  - Acts like a rate stabilizer
- Slight upward bias of RPP relative to forecast supply cost increases probability of positive variance.
  - Slight reduction of expected volume from OPG heritage supply (if heritage rate is below forecast market prices) would create such a bias
- How much, if any, less "cost-reflectivity" would be acceptable through either of these two approaches
- Other ideas?

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Objective: Price Predictability

- How far in advance should the price be known?
  - If the prices are reset annually, base prices for the end of the period will be known at least a year in advance
  - How far in advance the rebased price be announced?
- How far in advance should the true up adjustments be set?
  - The working group seemed to agree that three months was as much as anyone needed
- The farther in advance the prices are rebased and/or trued up, the greater the potential for prices to shift (change in gas prices, nuclear outage) prior to the price change, increasing the potential magnitude of any variance
- Likely never "too much" advance notice of price changes (absent consideration of impact on other objectives), but definition of "not enough" advance notice will probably vary by customer
  - One day, one week, one month, three months?

Objectives: Encourage Conservation and Energy Efficiency

- Some of the RPP's objectives are already consistent with this one:
  - Price predictability can help, because consumers investing in energy efficient equipment want to know that their investment will be paid back
    - But can/should the RPP provide sufficiently long-term pricing certainty to inform consumers re: major purchase decisions (ie, new fridge)?
  - Cost reflectivity can help, because it sends proper signals to consumers as to the value of the electricity they are using
- Artificially low electricity prices are seen as a barrier to energy conservation and efficiency

Approaches: Encourage Conservation and Energy Efficiency

- Seasonal rates
  - Rates could vary by quarter, with the peak periods (ie, summer and winter) higher
  - Other jurisdictions have taken this approach for their default supply customers
- Tiered rates
  - If the rate for the higher tier more accurately reflects the true marginal cost of the electricity, it provides an appropriate price signal as to the cost of electricity used
  - Tiered rates increase average rates in high demand periods (ie, summer and winter) for those who contribute to the higher demand
  - Tiered rates can help to mitigate variance accounts
    - High demand and high prices are correlated; more consumption in the higher priced tier when demand is high = more money to RPP
    - Does not address all factors contributing to variance
- Seasonal tiered rates?
- Other ideas?

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Objectives: Encourage Demand Response and Load Management

- Demand response occurs when costs are high and consumers can react to the high cost by reducing demand
  - Demand response programs pay consumers for the response
- Load management occurs when customers or another party plan to shift load off times of peak price
  - The return to consumers from load management comes from moving load from high electricity price periods and the consequent reduction in electricity costs
  - Other parties (distributors) can benefit if they can manage load for consumers and reduce their electricity costs

Approaches: Encourage Demand Response and Load Management

- In the absence of smart meters, eligible customers benefit little from load management and can do little to respond to load signals
- Without smart meters, the RPP can do little to encourage demand response and load management
- Does the RPP interfere with ability of others to implement load management with eligible customers?
  - Distributors, retailers and others could do load management with eligible customers
- Should the RPP specifically allow load management without smart meters?
  - Benefits could be made to customers available "off-line" from the RPP (eg, interruptible load discount)
  - Could help to establish desired load management infrastructure prior to implementation of smart meters
  - Is this issue within the WG's scope?

Objectives: Allow Customer Choice

- Two kinds of customer choice:
  - Choice of an alternative supplier of electricity (including buying from green power suppliers)
  - Choices within the RPP framework
- Consumers have a choice of an alternative supplier
  - The cost-reflective price can provide an appropriate signal
  - Price variability gives consumers an incentive to move to alternative suppliers
  - But price stability is an objective of the RPP
- Choices within the RPP (eg, choice of seasonal or uniform pricing for the year)
  - Will availability of choices within the RPP…
    - support or conflict with other RPP objectives?
    - influence customer behaviour or simply reward existing behaviour?

Approaches: Allow Customer Choice

- The regulations clearly contemplate continued choice for consumers of alternative suppliers
- The RPP needs to provide a clear price against which the consumers will make choices
  - In other jurisdictions, the standard supply price is called the "price to beat"
  - The allocation of risk (volumetric and cost) in providing this standard supply is allocated in different ways in different jurisdictions
  - If the RPP price is set for a year, it provides an assured price against which consumers can evaluate alternative offers
    - Consumers will need education and information to show how the Global Adjustment affects their price both through the RPP and with a competitive supplier

Objectives: Supporting Smart Meters

- The smart meters envisioned for Ontario are interval meters
  - Not clear if they can handle two-way communication, to give consumers signals of the current price
  - But consumers who want real time price signals can get them from the IESO
- The consideration of how RPP can support smart meters is postponed for now

Objectives: Low Administrative Costs

- Keeping administrative costs low should be an objective for all regulatory processes
- But low administrative costs are not an absolute; they should not prevent the implementation of solutions that otherwise make sense
  - For example, the more frequent the true ups, the higher the administrative cost is likely to be

Approaches: Low Administrative Costs

- In the working group discussion last week, several members emphasized that the RPP should build on existing systems where possible
  - Build on existing IT systems at the IESO and the distributors
  - Use the IT systems that IT suppliers to the distributors already support
- The working group should be aware of the administrative cost implications of the alternative approaches and whether there are large differences in cost
- The working group should be aware of the possibility of implementation methodologies that take advantage of existing systems. This could inform the eventual creation of the code