If market price were to change as the result of a change to the market scheduling model (i.e., using a 3 times ramp rate multiplier instead of a 12 times multiplier), there would be adjustments made within the overall market settlement activity to offset or mitigate some of this change.

Much of the generation in Ontario is associated with some fixed pricing mechanism, either regulated or contracted prices. These contracts affect the final payment made by consumers.[1] Consumers initially pay market prices for their electricity. Consumers might be charged 5-minute or hourly market prices, or may be paying a fixed rate to their LDC. Each month, consumers then receive an adjustment amount to account for the difference between the market price for energy and the prices paid to certain regulated and contracted generators. This adjustment is called the "global adjustment." It can be positive or negative – that is, it can be a credit or a charge to a customer's account.

As a settlement adjustment based on the difference between the energy market price and the various contracted prices, the global adjustment has the affect of buffering a portion of consumers' energy purchases from changes in energy market prices – either up or down. The amount of the buffer depends on the ratio between the amount of production paid a fixed contracted price and the amount of energy consumed by Ontario consumers. The higher the ratio, the more insulated consumers are from changes in the energy market price (the HOEP). The extent of the buffer from changes in the HOEP does not depend on the level of the prices as contracted but instead the amount of production that is contracted.

There are various types of fixed price contracts that affect the global adjustment. These contracts affect a number of Ontario generation assets. Table 1 provides a summary of

[1] For more information on the Global Adjustment and OPG Rebate go to the IESO Quick Take at http://www.ieso.ca/imoweb/pubs/training/QT19_pricing.pdf

the different classes of contracted generation assets producing energy in Ontario and the percentage of their output under a fixed price contract. The data reported in the table is for the period November 1, 2005 to April 30, 2006. This period was chosen to coincide with the period in which simulations were conducted to estimate the impact on HOEP from moving to 3 times ramp rate.

Table 1: Percentage of Ontario Energy Production Under Fixed Price Contracts (November 01, 2005 to April 30, 2006)

Class of Contracted Generation	Total Production (TWh)	Percentage Contracted (%)	Production Under Fixed Price Contract (TWh)
OPG Prescribed – Nuclear	25.0	100	24.98
OPG Prescribed – Baseload Hydro	8.6	100 up to 1900MWh	7.67
OPG Non-Prescribed Coal	13.1	85	11.13
OPG Non-Prescribed Hydro	8.6	85	7.30
OPG – Lennox	0.1	95	.10
OEFC NUGs	4.1	100	4.10
Bruce A	5.6	100	5.56
Bruce B	12.1	0	0.00
Early Mover Contracts and other OPA contracts	0.3	100	.30
Other Non-contracted Generation	2.4	0	0.00
Total	**79.8**		**61.13**

The first column of the table lists the generation facilities according to different contract classes. For a more detailed description of the nature of the various contracts affecting these classes of generation, please see the IESO Quick Take: Electricity Pricing, OPG Rebates/global Adjustment.[2]

The second column of Table 1 provides the total production of each class of contracted generation for the period based on the revenue meter readings of the specific facilities within each class. In total, 79.8 TWh of energy were produced by these Ontario generators between November 1, 2005 and April 30, 2006. The third column lists the percentage of the production of each contract class effectively paid a fixed energy price. The final column computes the amount of Ontario energy production affected by a fixed price contract over the review period. In total, 61.13 TWh of Ontario's energy produced between November 2005 and April 2006 was under a fixed price contract.

[2] http://www.ieso.ca/imoweb/pubs/training/QT19_pricing.pdf. The interested reader may also refer to the Chapter 3, Section 5 of the most recent Market Surveillance Panel Report http://www.oeb.gov.on.ca/documents/msp/msp_report%20final_131205.pdf

The degree to which Ontario consumers are provided a buffer from changes in HOEP depends on the amount of Ontario production under fixed price contracts. The effective hedge ratio is calculated in Table 2 below.

Table 2: Effective Energy Market Price Hedge Provided by the Global Adjustment (November 2005 through April 2006)

	(TWh)
Total Market Demand	**83.65**
Less Exports	-6.59
Less Losses	-1.70
Ontario Energy Consumption	**75.35**
Production Under Fixed Price Contract (From Table 1)	**61.13**
Effective Hedge **(Production under Fixed Price Contract ÷Ontario Energy Consumption)**	**81.13%**

The global adjustment credit/debit is applied to Ontario consumers only and does not apply to exporting consumers. The adjustment is based on metered consumption and in this sense does not account for losses. As illustrated in Table 2, for the period November 2005 through April 2006, total market demand (including exports and losses) was 83.65 TWh. Exports accounted for 6.59 TWh of this demand while losses represented another 1.7 TWh. Ontario energy consumption was therefore 75.35 TWh. This represents the metered consumption in the province over the period for which the global adjustment applies.

The "effective hedge" provided by the various fixed price contracts is computed as the ratio of the total Ontario production affected by a fixed price contract and the total Ontario Energy Consumption. For the period November 2005 through April 2006 this ratio was 81.13%.

The following provides another perspective on the role of the global adjustment as a buffer or hedge against changes in the HOEP. A $1 per MWh increase in HOEP in every

hour, would lead to a corresponding credit (or a reduced charge) to consumers through the global adjustment in the amount of $1 * Production under fixed price contracts. This credit (reduced charge) would be distributed to all Ontario consumers based on their metered consumption. So for example, for the period November 2005 through April 2006, the value of this credit to consumers on a per MWh basis would be, roughly speaking:

Credit for a $1 increase in HOEP ($MWh)	=	($1 * 61TWh) /75TWh)
	=	$0.81

That is for a $1 per MWh increase in the HOEP, consumers would receive an offsetting credit (reduced charge) through the global adjustment of $0.81 per MWh. In other words, a $1 increase in the HOEP would translate into a $0.19 per MWh increase in the overall Ontario consumer's energy bill.

However, there are a number of reasons why this estimate for the effective hedge is uncertain or approximate.

(i) The calculation uses equivalent fixed price generation quantities as a proxy for changes in payments, on the assumption of a $1 per MWh change in price for every hour. That is, X MWh of equivalent fixed price generation receiving $1 per MWh higher price would rebate $X in total. Different patterns of price changes would lead to different total rebates. If price increases were higher in hours with lower portions of fixed price energy, the overall hedging effect would be less.

(ii) It is not possible to model specific contract arrangements precisely. Many contract details are not publicly available, so the terms have been assumed as comparable to the pro-forma contracts published by OPA. Also, contract calculations tend to be performed on a monthly basis; translation to hourly calculations would not be valid for all conditions.

(iii) The above calculations have been based on actual production figures, although some of the contracts are tied to deemed production which is more

closely associated with market schedules. For higher priced generation with the potential for being constrained on, the actual production can overstate the deemed production. This would overstate the energy hedge, although this generation is not a large fraction of the overall production.

(iv) Going forward, the production levels in the six month calculation period will change. Such changes will change the portion of fixed price energy production.

(v) The amount of hedging is dependent on the level of imports and exports, which can change in response to changes in underlying market prices.

Because of these uncertainties, it was considered prudent to use a more conservative estimate of the effective hedge ratio. Thus rather than the 81.13% estimate above, the IESO applied a lower and less precise value of 75%. This is a ball-park figure guided by the 81.13% estimate as well as the proportion of supply not under fixed price arrangements.