London Economics International LLC

Considering Incentive Rate Making Options for OPG's Prescribed Generation Assets

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Presentation at the Stakeholder Meeting hosted by the Ontario Energy Board

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LEI retained by OPG to provide independent regulatory expertise in connection with performance based regulation

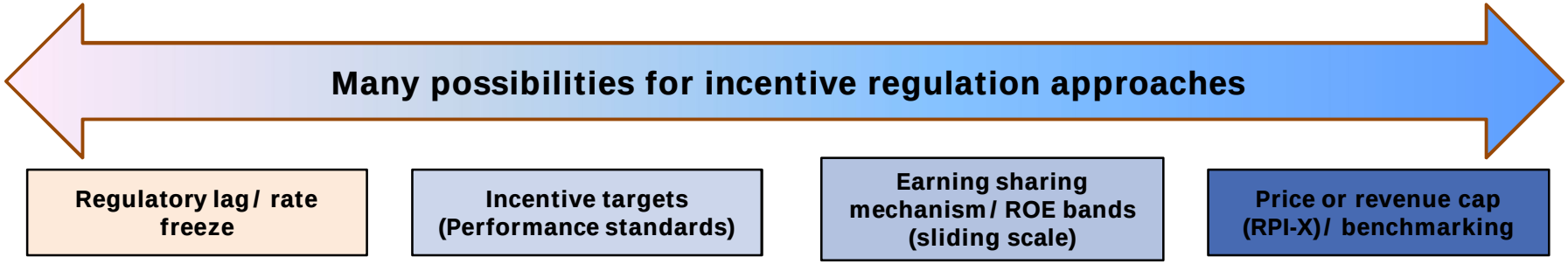
- **LEI has extensive experience as an independent expert on performance-based ratemaking ("PBR") and Incentive Regulation Mechanism ("IRM")**
  - Prepared white paper on ***PBR best practices*** for the Canadian Electricity Association; presented @ CAMPUT 2011
  - Testified in Alberta Utility Commission's ***generic IRM*** proceeding (2011-12)
  - Advised Alberta distribution utility on the different ***approaches to capital expenditure funding*** within an IRM framework
  - Advised the Coalition of Large Distributors in Ontario on the ***3rd Generation Incentive Regulation Mechanism*** proceedings of the Ontario Energy Board ("OEB") (2007)
  - Advised on ***design of a formula-based ratemaking regime*** for ENMAX Power's transmission and distribution businesses in Alberta
  - Provided expert testimony on behalf of the OEB regarding ***risk factors associated with OPG's prescribed assets***, as well as creating a risk-return continuum on which power sector assets could be placed
  - Advised on the prospective acquisition of an Ontario municipal utility, including ***implications of IRM in Ontario on company valuation***
  - Provided comments on the OEB's consultation paper on ***benchmarking of distribution companies***, looking at the analytical aspects of defining and benchmarking the performance of multiple utilities for regulatory workshop
  - ***Studied IRM designs employed around the world,*** presenting tradeoffs between different types of formulations and revenue sharing techniques, and the implications of different types of designs for key stakeholders
  - Performed ***Total Factor Productivity ("TFP") studies*** of distribution utilities
  - ***Analyzed price-cap regimes*** in UK, the Netherlands, Norway, and several US jurisdictions

Agenda

1	Incentive Regulation Mechanism best practices
2	Ontario Power Generation's current state
3	LEI's recommendations
4	Appendix A: Hydroelectric IRM option discussion
5	Appendix B: Nuclear IRM option discussion

There are many forms of incentive regulation and performance-based ratemaking approaches

- **Ontario's IRM has primarily involved use of price caps – experience has been limited to electricity and gas distribution**
  - Escalation is based on a price cap index, which is typically an inflation escalator minus the productivity and stretch factors
  - The OEB uses a similar escalation mechanism for setting natural gas distributors' rates
  - For significant capital expenditures, electricity distributors can apply for the incremental capital module ("ICM"). However, OEB has also noted in the past that ICM should be reserved for unusual circumstances. Thus, the issue of aging assets and capital expenditure for replacement is not adequately addressed currently in the OEB's IRM
- **OEB has started exploring changes to IRM, through the Renewed Regulatory Framework for Electricity ("RRFE")**
  - Strawman issued in February 2012, to kick-start discussion in anticipation of 4GIRM.
  - Key objectives in "model framework" under Strawman included longer planning/rate setting horizon, outcome-driven rate setting, consideration of reliability, compensation linked to performance, pre-approval of multi-year capital plans, and bill mitigation
- **Although typically viewed as alternative to traditional cost of service ("COS") ratemaking, IRM also relies on COS principles for rebasing. Regulatory lag in COS rate setting is a form of IRM as it can equivalent to a price cap, where I factor = X factor**



There are two basic approaches for rate-setting under a price regime

Total Factor Productivity Approach

The TFP approach (used for example by the OEB and certain US regulators) is ***based on historical productivity trends***, measuring total output produced per unit of total input. The productivity factor (X factor) is based on TFP studies of comparable organizations in the industry.

"Building Blocks Approach"

The UK and Australia IRM frameworks are built on the concept of a "building block" approach, where productivity targets are embedded in the ***forecast of future operating and capital costs that are then used to forecast a revenue requirement and rate schedule***. The X factor is not the productivity factor itself but rather a growth factor for rates that indirectly represents productivity improvements over time and the smoothed net present value of the revenue requirement per unit of output.

- **OEB has almost exclusively used the TFP approach, but the RRFE strawman suggests that building block approach should also be investigated**
- **Theoretical underpinnings of a TFP-based price cap are generally fulfilled only in a steady state environment, where the regulated utility has matured and is facing steady state operations consistent with long run dynamics (e.g. capital expenditure that is consistent with depreciation expense on existing assets)**

There are a number of best practices in developing a successful price cap regime

- **Best practice requires consideration and resolution of a number of factors**
  - Is there sufficient reliable and relevant data to establish empirically productivity targets (X factor, stretch factors)?
    - Productivity targets of some form are needed in both the TFP and building blocks approach
    - Is the quantitative method robust?
  - On inflation indices, what is relevant? What data is available and reliable?
  - Is the future like the past, and is regulated firm in a steady-state?
  - What IRM model would best balance risks and rewards?
  - What costs does management have control over?
- **The IRM formula needs to be viewed holistically; parameter choices cannot be made independent of each other**
  - The setting of an X factor is as much an art as a science – productivity studies are a useful input, but not the only consideration, for developing a price cap formula
  - Productivity factors (e.g. X factor plus any potential stretch factor) should take into account the choice of the inflation factor, the length of regulatory period, and the presence of an Earnings Sharing Mechanism ("ESM")
- **Length of the regulatory period needs be considered in light of practical factors, such as incentives and business cycles**

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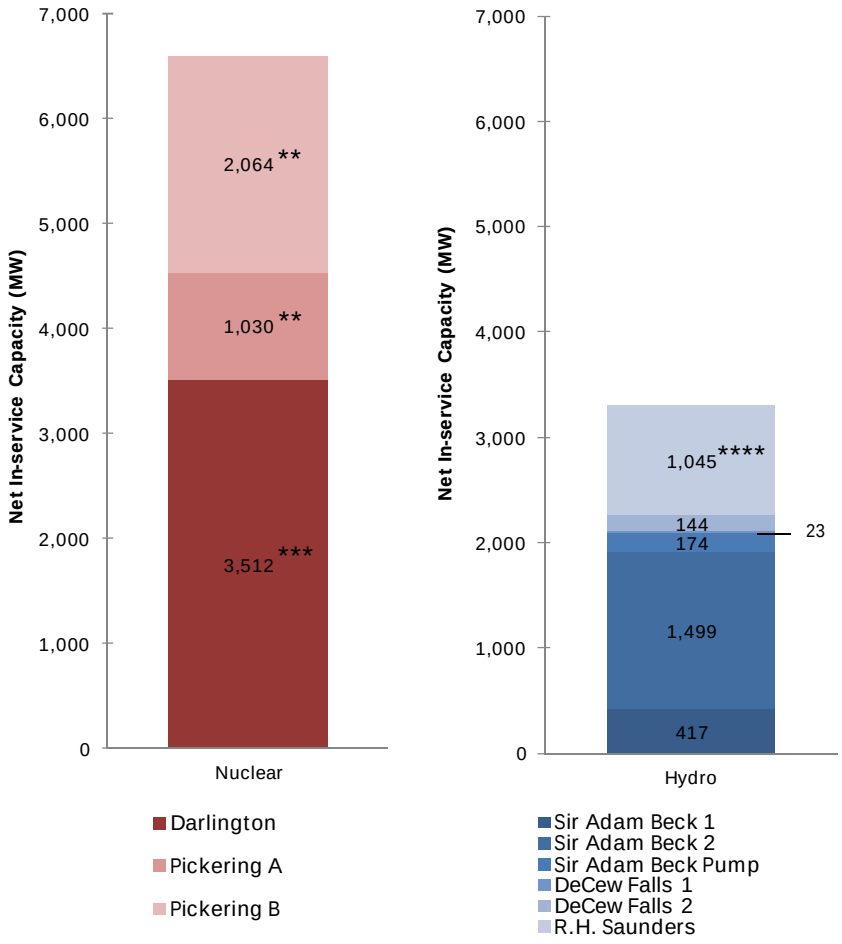
OPG is effectively under a two-year form of IRM, and faces production and cost uncertainty over the next ten years

- **OPG prescribed assets are currently under COS regulation every two years (where a $/MWh tariff set for all output)**
- **Output is not in a steady state**
  - Pickering A retirement, expected in 2018 – 2020 period, will reduce nuclear operating capacity by an effective 1,000 MW or 16%
  - Nuclear output will be reduced during outage periods
    - Pickering B extension of life
    - Darlington refurbishment project ("DRP") is expected to start in 2016 and last until 2023
  - Certain hydroelectric assets will require maintenance outages over next five to ten years, which will impact annual production levels
- **New nuclear site preparation license recently received – development costs being incurred**
- **Current COS already has many incentive properties**
  - Volumetric or output-based nature of tariff provides incentive to exceed production forecasts and minimize outages
  - Two year rate period requires planning to manage variation between actual and forecast production
  - Hydroelectric Incentive Mechanism ("HIM") promotes production of power during high priced hours
  - Various deferral and variance accounts already exist as a result of regulatory requirements and OEB decisions
- **More cost and output uncertainty for nuclear fleet**

OPG prescribed assets: breakdown of in-service capacity



*** Pickering A and B are expected to retire in the period 2018-2020*
**** Darlington will be refurbished between 2016 and 2023*
***** RH Saunders will undergo life extension in the next 5-10 years*

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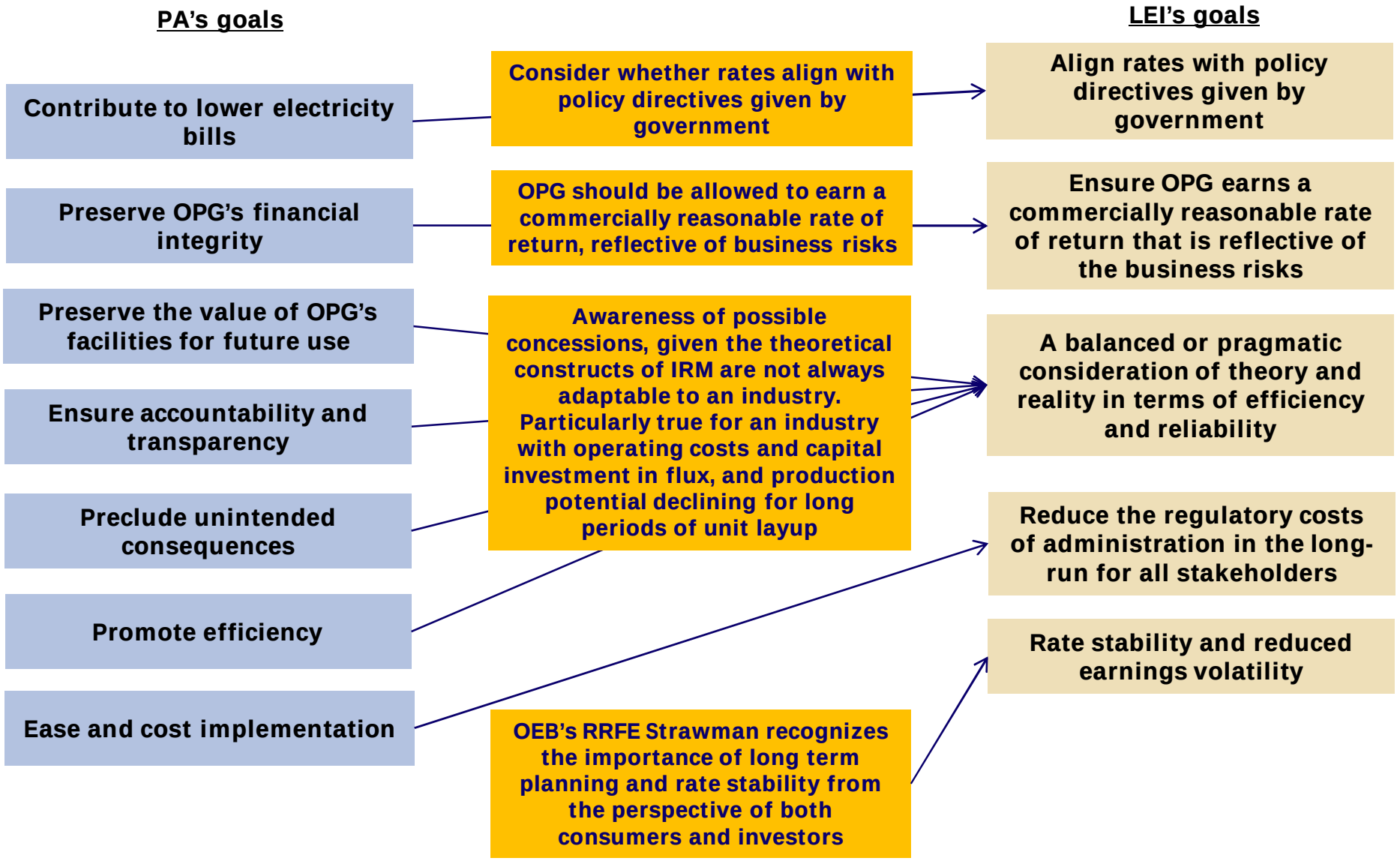
LEI generally agrees with the conceptual proposal laid out in the Power Advisory ("PA") report

- **LEI agrees with PA's proposal for effectively separate IRM plans for nuclear and hydro**
  - Nuclear and hydro have different businesses and are operating separately already
  - Although rate mechanisms are the same, they differ in terms of actual rate and targeted incentives
  - In COS ratemaking to date, cost allocation reviews conducted by OEB have not raised any concerns on the current allocation methodology deployed by OPG
  - IRM can be implemented for hydroelectric fleet first, for the sake of expediency and practicality; 'lessons learned' in a 1GIRM for prescribed hydroelectric fleet can be applied to nuclear assets
- **OPG Business Plan is a reasonable starting point, as noted by PA for any IRM; it is also the proper baseline because it reflects management's views on future operations – and already builds in efficiency improvements**
  - Stretch factors/consumer dividends in the X factor are duplicative of built in targets and/or IRM plan features like ESM (which provide for sharing of benefits with consumers)
- **PA proposed a corporate ESM; LEI agrees in principle, although it may be useful to study further and propose dead bands that are appropriate for generation businesses and risk/rewards of overall IRM plan**
  - LEI prefers balanced (symmetrical) ESM for company and customers - such an ESM will guard against the negative consequences of unintended "inadequacies" of a 1GIRM
  - ESM needs to be tested on how it interacts with other elements of IRM
- **Other recommendations are generally reasonable but additional consideration is necessary to refine the specific details and parameter values (e.g. values for X-factor, I-factor, z-factor, off-ramps, service quality/performance indicators)**
  - "Devil is in the details" – including the proposed parameter values/benchmarking studies
  - How will different mechanisms work together? (and ***not*** undermine and ***not*** create conflicting incentives)

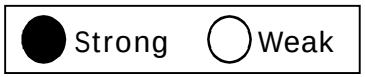
The first step is to identify objectives: LEI generally agrees with the PA criteria but recommends some adjustments



LEI recommends a variation on the price cap approach for the hydroelectric portfolio (using "building blocks")

- **PA lays out six options for a hydro IRM**
  - H1: Extend and/or modify the existing hydroelectric incentive mechanism ("HIM")
  - H2: Shaping the OPG hydroelectric payment
  - H3: Availability and EFOR incentives
  - H4: Incentives to Maximize "Other Revenues" such as ancillary services and water transactions
  - H5: Price cap approach
  - H6: O&M efficiency incentive
- **LEI recommends proceeding with the IRM for OPG's hydro assets first**
- **LEI proposes "H7", a variation on price cap (H5), with a price trajectory over the IRM term that is based on an embedded productivity target over the revenue requirement ("building block" approach, similar to N2)**
  - This is superior to H5 as it more pragmatic with respect to concerns of the OEB for under-investment in hydro and long term maintenance of asset value; also best option given lumpy capital investment and rate stability objectives and need to meet policy goals
  - Implementation of H7 also facilitates learning that can be directly applied to nuclear IRM (N2 option)
- **"Additional" features like HIM, surplus baseload generation ("SBG") reviews, and other performance metrics are positive value adders to a price cap formula in theory but must be studied practically**
  - How would HIM work with ESM and other features of H7 "building blocks" price cap?
  - "After the fact" SBG reviews create unintended regulatory costs. It may be worthwhile to consider how this can be streamlined so that regulatory cost as well as regulatory uncertainty (which exists to some degree due to the "after-the-fact" basis of these reviews) is reduced
- **See Appendix A for a more detailed discussion of the hydroelectric IRM options**

The H7 option will provide for better rate stability by accommodating fluctuating capital expenditures over time

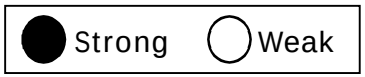


	H1: Extend/modify HIM	H2: Shape hydro payment	H3: Avail & EFOR incentives	H4: Incent other revenue	H5: Price cap	H6: O&M efficiency	H7: Price cap using building blocks
Ensure OPG earns a commercially reasonable rate of return that is reflective of the business risks	◕	◑	◑	◑	◕	◕	◕
A balanced or pragmatic consideration of theory and reality in terms of efficiency and reliability	◑	◔	◔	◔	◑	◔	◕
Reduce the regulatory costs of administration in the long-run for all stakeholders	◑	◔	◑	◔	◑	◑	◑
Rate stability and reduced earnings volatility	◑	◔	◕	◕	◑	◕	◕
Align rates with policy directives given by government	◑	◔	◑	◔	◑	◑	◕

For nuclear, LEI recommends the N2 option in the future: a price cap with an embedded productivity target ("building blocks")

- **PA lays out six options for a nuclear IRM**
  - N1: Traditional (I-X) price cap with a productivity factor based on TFP studies
  - N2: Price cap with future price based on embedded productivity target ("building block")
  - N3: Price cap with initial price reflecting efficiency improvements ("stretch factor" on top of N1/N2)
  - N4: Specific performance targets
  - N5: IRM for DRP capital expenditures
  - N6: Earnings sharing mechanism
- **For the nuclear assets, the N2 approach is plausible when restricted to operations and maintenance (O&M) and 'normal' capital expenditure**
  - Benchmarking studies will be critical and will require some assessment of OPG performance to moderate what is achievable; productivity targets embedded in the price cap should be achievable and should not undermine OPG's financial viability
  - Building blocks can help accommodate capex requirements which are not recognized in a timely manner in a TFP-based approach to price cap - even "normal" capital budgets require "smoothing" due to changes in production due to long term maintenance and refurbishment outages
  - *Another alternative to N1 (TFP approach) and N2*: a price cap with percentage of inflation in lieu of a more explicit productivity target – meets goal of rate stability while reinforcing premise of efficiency
- **Reasonable for new nuclear to be dealt with separately**
- **ESM (N6) is generally a positive add-on**
  - Although limited examples in generation-only business, it has positive attributes for the regulated utility and consumers: smoothes rate increases, avoids the possibility of unscheduled regulatory interventions
- **See Appendix B for a more detailed discussion of the nuclear IRM options**

The N2 option may be the only practical option given the hurdles to an empirical, TFP-based price cap



	N1: Traditional I-X cap	N2: Price cap with building block	N3: Price cap with stretch factor	N4: Specific performance targets	N5: IRM for DRP capex	N6: ESM
Ensure OPG earns a commercially reasonable rate of return that is reflective of the business risks	◑	◕	◔	◕	?	◕
A balanced or pragmatic consideration of theory and reality in terms of efficiency and reliability	◔	◕	◔	◔	?	◑
Reduce the regulatory costs of administration in the long-run for all stakeholders	◑	◑	◑	◑	?	◑
Rate stability and reduced earnings volatility	◔	◕	◔	◑	?	◕
Align rates with policy directives given by government	◕	◕	◑	◕	◕	◑

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H1: Extend and/or modify the existing HIM

Options	PA's Identified Advantages	PA's Identified Challenges	LEI's comments
H1: Extend and/or modify the existing Hydroelectric Incentive Mechanism ("HIM")	• Promotes efficiency, lowers electricity bills, ensures accountability and transparency, and easy to implement	• Places stress on Sir Adam Beck PGS	• Does HIM provide incentives for management sufficient to manage hydro production? • How would HIM work with a corporate-wide ESM? • What does the HIM work with SBG? • OPG needs to study further the pros/cons of the current HIM; OEB had asked for an expert review of SBG

HIM is an incentive designed to encourage OPG to optimize economically efficient production based on market price signals by (i) promoting the shifting of water (and its associated energy) from periods of low market value to high market value and (ii) maximizing the production of the regulated hydroelectric facility electricity during periods where the hourly Ontario energy price ("HOEP") is highest. The payment formula is as follows:

Payment = MWh average x Regulated Rate + (MWh – MWh average) x HOEP

H2: Shaping the OPG hydroelectric payment

Options	PA's Identified Advantages	PA's Identified Challenges	LEI's comments
H2: Shaping the OPG hydroelectric payment	• Promotes allocative efficiency • Satisfies the Outcome Goals	• Does not satisfy any of the Implementation Goals – complex approach, distorts incentives relative to the current approach, and considerable initial effort required	• An IRM should be easy to understand and implement, the shaping IRM option would appear to be complex • A shaping proposal may create unintended consequences for the spot market as supply-demand conditions change

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H3: Availability and EFOR Incentives

Options	PA's Identified Advantages	PA's Identified Challenges	LEI's comments
H3: Availability and EFOR Incentives	• Satisfies all Outcome Goals	• Requires setting an appropriate target level and incentive amount • How would this be measured? Asset or group? • Need to settle on measurement and verification	• Will benchmarking and TFP studies be necessary to determine improvement parameters? • Incentives may be pared with penalties; monetary values need to be sufficient but not overwhelming; consider indexing to market? • Target level should be realistic for OPG to meet and should be benchmarked against its own historical performance and reasonable expectations for improvement (once again acknowledging pragmatic improvement potential given age of assets and type of facility) • We recognize that to some degree, the water account variance already reflects availability/ EFORd target – so is this duplicative?

H4: Incentives to maximize "other revenues" such as ancillary services and water transactions

Options	PA's Identified Advantages	PA's Identified Challenges	LEI's comments
H4: Incentives to Maximize "Other Revenues" such as ancillary services and water transactions	• Slightly promotes efficiency and preserves OPG's financial integrity	• Requires reviewing the appropriateness and current structure of existing variance accounts	• Water/ hydrology risk should not be accepted as business risk within management's control unless there is a change in WACC and ROE • There may be increased risk of unintended consequences unless this option is carefully studied and constructed to mirror how "other revenue products" are valued relative to the production of energy. The benefits should outweigh the costs of implementing the incentives

H5: Price cap approach

Options	PA's Identified Advantages	PA's Identified Challenges	LEI's comments
H5: Price cap approach	• Promotes efficiency	• Initial implementation will require significant effort	• Productivity and even benchmarking studies for hydroelectric would be challenging • Life cycle consideration for overall TFP growth need to be reflected • If it turns out to be difficult to obtain TFP growth data for OPG and comparators, an alternative is to consider a "% of inflation" index to apply to rates over IRM term • If price cap is volumetric, will there be any consideration of weather normalization? Does OPG as regulated utility take hydrology risk? If "no", therefore, water variance accounts should remain

► **In lieu of an H5 with a TFP-based price cap (I-X), a building blocks approach could also be applied to hydro (we will call it H7)**

- Similar concept as N2 and applied to hydro
- Provides good "lessons learned" that would then be transferrable to IRM for nuclear
- Such a version of H5, like N2, may provide for better rate stability and can also accommodate larger and fluctuating capital expenditures

H6: O&M efficiency incentive

Options	PA's Identified Advantages	PA's Identified Challenges	LEI's comments
H6: O&M efficiency incentive	• Promotes efficiency and contributes to lower electricity bills • Maybe simpler than all-in or total price cap (H5)	• Neutral (to moderately negative) in preserving the reliability and safety of OPG's facilities and preserving the value of OPG's facilities for future use	• O&M only partial price cap difficult because hydro assets require significant capex to maintain; and, in the next 5-10 years, R.H. Saunders units will undergo life extension program • Unclear whether COS capex would be paired with this option; if indeed capital would be COS, an advantage of this option is certainty for capital recovery for OPG • RRFE process may allow for a flow through treatment of capital project costs

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PA recommends a traditional price cap for OPG's hydro assets, but also continuation of certain existing incentive mechanisms

Hydroelectric operations	LEI's comments
Establish a traditional price cap mechanism (Option H5) with a modest "x-factor" that encourages cost efficiencies without threatening the continued future availability of OPG's prescribed hydroelectric facilities	Formulation of price cap should consider more carefully the nature of costs (fixed versus variable) and also the volumetric risk (hydrology). A revenue cap might be a better option given that hydrology risk and in light of the presence of HIM. We prefer H7 option (variant on H5). Some tradeoffs about "lessons" transferrable to nuclear from a total cost price cap for hydro, if IRMs are staged
Retain the HIM (Option H1), with incentive payments that are proportionate to the benefits that are reflected in customer bills, thus retaining the existing sharing above a capped amount approach	HIM is currently not reported in regulated ROE so how will it work within corporate ESM to avoid duplication or weakening of incentives?
Continue the practice of after-the-fact reviews of OPG's performance during SBG conditions making adjustments to a variance account if it determines that OPG could have reasonably taken actions to mitigate the impact of SBG conditions	We understand the process has not been approved by OEB yet; moreover, an "after the fact" review raises concerns; it may be worthwhile to consider how the currently contemplated process can be streamlined so that regulatory cost as well as regulatory uncertainty (which exists to some degree due to the "after-the-fact" basis of these reviews) is reduced
If a price cap is not adopted for OPG's nuclear operations, then the O&M focused incentive for hydroelectric operations should be considered as an alternative	• The advantage is that it directly addresses significant capital investment program at OPG where other mechanisms such as an incremental capital module used for electric distributors has limitations • Another advantage of an O&M-focused incentive is the certainty for capital recovery for OPG • There are theoretical weaknesses in an O&M-only approach and there will be strong opponents to an O&M-only IRM
An ESM applied to the hydroelectric business or to OPG's entire regulated business should be considered	True-ups under a symmetrical ESM mechanism can smooth out the perceived impact of rate increases during the re-basing or review stage, especially when the IRM term is more than just a few years and there are no capital true-ups to ratebase during the term

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N1: Traditional price cap with a productivity factor

Options	PA's identified Advantages	PA's Identified Challenges	LEI's comments

N1: Traditional Price Cap with a Productivity Factor	• Satisfies almost all Outcome Goals
	
	• Makes the price setting mechanism transparent and preclude unintended consequences
		• X factor would require estimating the TFP and that is challenging due to the difficulty of obtaining the necessary data
		
		• Requires TFP studies (both historical TFP growth of industry and relative performance if stretch factors to be added) – PA recognizes data issues and methodology challenges
			There are several reasons why the X factor might not work for OPG:
			
			• there are **no comparables** to use to determine the X factor
			
			• is future like the past?
			
			  • OPG's **operating environment has changed** significantly over the years
			
			  • OPG's environment is about to **undergo another significant change** (some of OPG's nuclear fleet is nearing the end of their useful life and refurbishment of the Darlington nuclear station will require substantial capex)
			
			• Disco experience may not be transferrable - generation assets are relatively larger than distribution assets and thus, **capex for generation utilities tend to be "lumpier"**

N2: Price cap with future price based on specific target achievement

Options	PA's Indentified Advantages	PA's Identified Challenges	LEI's comments
N2: Price Cap with Future Price Based on Specific Target Achievement	• Satisfies almost all Outcome Goals	• Embedded productivity factor in future revenue requirement would be tied to specific performance indicators, but determining what targets to use as appropriate is challenging • Requires detailed performance data from a valid comparator group (benchmarking study)	• This is similar to the building blocks approach in the UK – and echoes the Strawman issued by OEB in the RRFE • Determining a productivity target to embedded in the revenue requirement will be challenging • There are challenges to applying efficiencies from benchmark study as all nuclear assets are unique in going forward capex to some design • OPG's business plan has specific targets and it is not clear if PA is proposing to use these or develop other targets • OPG will need to address the extent to which incentives can realistically work to improve the reliability of the plants

N3: Price cap with initial price based on efficiency improvements

Options	PA's Identified Advantages	PA's Identified Challenges	LEI's comments
N3: Price cap with initial price based on efficiency improvements	• Satisfies almost all Outcome Goals	• X factor (N1) or productivity target (N2) still requires assessment, plus need focused study of **additional stretch factor** • PA notes that this option requires a detailed performance benchmarking study • Requires agreement on the indicators to be used and the level of achievement that will set the revenue requirement and/or output level	• The targets that will be set for efficiency need to be balanced against OPG's financial viability and consideration of costs that are within management's control. Benchmarking should take into consideration OPG's unique characteristics • Efficiency improvements should start with OPG's Business Plan, which already includes efficiency improvements ✓Historical trend in operations and review of efficiency targets embedded in prior business plans may be useful in focusing stakeholders on considering what has been achieved and how much could be achieved going forward • Disco experience is different from N3 option – all discos all start with re-based rates in Year 1 – stretch factor is applied on top of X factor in years 2 and 3

N4: Specific performance targets

Options	PA's Indentified Advantages	PA's Identified Challenges	LEI's comments
N4: Specific Performance targets	• Satisfies almost all Outcome Goals • Can be combined with N1, N2, or N3 or standalone	• Relatively easier to implement compared to the other IRM options • Still need to identify specific performance targets • Improvement on short-term performance could have a negative impact on longer-term performance	• In setting specific performance targets, the following factors should be considered: (i) targets should be objectively measurable, (ii) relevant and accurate data for monitoring performance should be available, and (iii) realistic for OPG to meet within the levels of capex which have been provided • OPG has a corporate scorecard to drive performance; these performance metrics could be incorporated in establishing performance measures and targets, for example: All Injury rate, EBITDA, Operating OM&A expenditures, ROE, thermal start guarantee rate, and hydro availability, to name a few

N5: IRM for DRP capital expenditures

Options	PA's Identified Advantages	PA's Identified Challenges	LEI's comments
N5: IRM for DRP Capital Expenditures	• Satisfies all the Outcome Goals • Proposing DRP outside the "base" nuclear • Should be part of N1, N2, or N3	• Finding a level of performance that could be targeted for an IRM will be difficult because of the limited CANDU reactors population that have been refurbished and previous projects that are appropriate for benchmarking are limited	• The current ICM does not work with OPG's business because of the high materiality threshold and application limitations (i.e., extraordinary circumstances); furthermore, current ICM does not address rate stability over time (or earnings stability) given the nature of DRP • The proposed multi-year capital module by OEB Staff in the RRFE could work to implement IRM for DRP capex, but "devil is in the details"

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N6: Earnings sharing mechanisms

Options	PA's Identified Advantages	PA's Identified Challenges	LEI's comments
N6: Earnings sharing mechanism ("ESM")	• Appropriate especially during the period when the Pickering units are under refurbishment		• Although including an ESM complicates the administration of the IRM, it can help avoid the possibility of unscheduled regulatory interventions (windfall profits, etc.) • ESM is generally a positive add-on to the IRM although the "devil is in the details" • Setting the bands appropriately will help ensure that ESM will be fair for OPG and the customers; however, it should be noted that there is limited examples of ESM for generation-only regulated business • Another challenge in implementing an ESM for OPG is that OPG's income volatility may be greater than that of other utilities operating in a more stable operating environment

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PA recommends the adoption of an OM&A price cap for nuclear, with target improvement in UCF, and capex for DRP treated separately

Nuclear operations	LEI's comments
Establish the cast-off prices based on the COS, reflecting a modest increase in the Unit Capacity Factor ("UCF") of the Pickering units	• Agree with principle of cast-off prices, but unsure about the conceptual premise of a modest increase in UCF - is this equivalent to stretch factor? • If cast-off based on Business Plan, already reflects management's forecast of expected operations and productivity improvements
Adopt N2 with OM&A and other cost efficiencies and increased production reflected in the calculation of prices in years 2 through the end of the IRM term	• PA is unclear - Is this a partial price cap (OM&A only) or does it include some basic ongoing capex? Use of "Revenue Requirement" suggests total cost price cap • What are "cost efficiencies"? • Determining the productivity factor is still problematic given OPG's operating environment, the unique nature of associated capital costs of its nuclear assets, scope of management control, and data comparability • If the OEB decides to still continue with productivity targets, such targets need to be developed pragmatically – reflective of operating environment, should be achievable and should not undermine OPG's financial viability, especially if there are capex requirements which are not recognized in a timely manner in the IRM formula and ICM is not well-defined
Consider an additional incremental targeted incentive directed toward continuous improvements in UCF and forced loss rates at the Pickering and Darlington plants	• If adopted, additional incremental targets should be reasonable "challenges" – provide motivation but also not overwhelm. • Even with incentives in place, OPG should have the opportunity to earn a return reflective of the business risks • Service quality award/penalty scheme can be standalone or incremental targets could be handled through ESM
Establish a variance account for the DRP with an incentive mechanism that is aligned with any cost and completion date incentives that are in place for the EPC contractor and other key vendors	• PA's description is intentionally vague but merits further consideration of details • The concept of cost overruns and major projects could be taken outside of IRM discussion, but given the importance of DRP to overall nuclear portfolio, this is unlikely to be acceptable to other stakeholders
Provide for timely recovery of existing fixed costs for Darlington units while they are out of service; fixed costs attributable to the refurbishment would be placed in a deferral account for recovery after the units return to service	• Agree in principle; however how should rates be designed to smooth impact over time – can appropriate rate riders be developed?