

Comments for IRM Technical Conference

Dr. Mark Newton Lowry, *Partner*
Pacific Economics Group, LLC

Toronto, ON
21 September 2006

Plan of Presentation

PEG Recommendations to the Board

X Factor Revisited

Can PCI Finance Needed Capex?

Innovative Plan Update Provisions

PEG Recommendations to the Board

North American approach to IRM design

Inflation measure: GDP-IPI

X Factor:

- Rely on historical precedents
- Implicit stretch should be low

Z Factor: recommended

Earnings sharing: discouraged

X Factor Revisited

Board Staff has proposed a price cap index (PCI):

$$\text{growth PCI} = \text{growth GDPIPI} - 1\% \pm Z$$

GDPIPI growth trend: 1.77%

>>> $1.77 - 1.00 = 0.77\%$ expected annual rate escalation

Is 1% a reasonable X factor for power distribution?

X Factor Revisited (cont'd)

In North America, PCI design commonly based on index research

Logic of Economic Indexes

If an industry earns competitive return,

$$\begin{aligned} \text{trend Prices}^{\text{Industry}} &= \text{trend Unit Cost}^{\text{Industry}} \\ &= \text{trend Input Prices}^{\text{Industry}} - \text{trend TFP}^{\text{Industry}} \end{aligned}$$

Then

$$\text{growth PCI} = \text{growth Inflation} - X$$

X Factor Revisited (cont'd)

If GDPIPI is the inflation measure, X commonly based on 3 terms:

Unit cost calibration terms

Productivity Differential ($TFP^{\text{industry}} - TFP^{\text{economy}}$)

Input Price Differential ($\text{Input Prices}^{\text{economy}} - \text{Input Prices}^{\text{industry}}$)

Stretch factor

>>> X often lower than with *industry-specific* inflation measure

TFP

What is TFP?

trend in TFP = trend in Outputs - trend in Inputs

Sources of TFP growth include

- Technological change
- Reduced Inefficiency
- Scale Economies
- Volume/Customer growth

>>> TFP growth depends on output growth as well as labor economies

Output growth in Ontario slowed by CDM

Stretch Factor

Rationale: Plan may encourage faster TFP growth
Stretch shares expected benefits w/customers

Stretch should thus depend on ...

- Operating efficiency of individual utility
- Incentive power of the IRM

Application to Ontario

- Most utilities public, but operated under IRM for years
- IRM 2 plans have short duration

X Factor Revisited (cont'd)

X Factor Precedents

X factors approved where index research considered reflect evidence on productivity, input price inflation, & stretch factor

<u>Inflation Measure</u>	<u>Industry</u>	<u>Ave.</u>
Macroeconomic	Gas & Electric	1.16%
Macroeconomic	Electric	1.56%

Most recent approved X for power distribution (MA): 0.625% ave.

X implicit in U.S. *gas* distribution rates: 1.1% 1995-05

Can PCI Finance Needed Capex?

Unregulated firms don't need price "bumps" to finance investments

Since

$$\text{TFP} = \text{Outputs} - \text{Inputs}$$

it reflects plant additions by utilities during sample period

Unless starting rates reflect advanced depreciation, PCIs based on indexing research should, *in the long run*, finance investments similar to those recently made by the industry

Can PCI Finance Needed Capex? (cont'd)

Wait for full capex financing is, any event, brief under IRM 2

Risk of cost recovery generally low for distribution investments

Some utilities delay capex *even when rates are compensatory*
-- “prudent management” ???

Investment *before* next rate case bolsters argument for its need

Can PCI Finance Needed Capex? (cont'd)

Some rate plans combine COS treatment of capex with IRM treatment of other costs (e.g. capital cost “trackers”)

Terasen Gas (BC)

Fortis (BC)

Yankee Gas (CT) [suspended]

Complicating Issues:

- Imbalanced incentives for capex, O&M cost containment
- Regulatory cost
- Calibration of X

Plan Update Provisions

Dr. Yatchew's paper discusses how innovative plan update provisions can bolster long-run performance incentives

Most approved mechanisms work in context of *British-Style* IRMs

Mechanisms compatible with *North American* IRMs are a focus of our incentive power work for OEB

e.g. Initial rates for future (*e.g.* 4th Generation) IRM based 50% on new rate case, 50% on one year extension of expiring IRM

Results to date: promising