Background On OEB First Generation PBR for Ontario Electricity Distributors

Presentation to Working Group on 3rd Generation Incentive Regulation

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Presentation Outline

- Development process
  - Comprehensive Approach
  - Multi-phase process
    1. Initial consultation process.
    2. Task forces to develop detailed work plans and '*MEU Cost and Productivity Data Base*'.
    3. Detailed analysis and plan development.
    4. Board Hearing
- 1st Generation Plan
- PBR data
- Fundamental Issues

Comprehensive PBR Framework

- The first generation PBR process was a comprehensive unified approach to restructuring, which included:
  - Initial rate unbundling
  - Capital structure and market rate of return
  - Customer rate impacts and utility financial impacts
  - Total cost benchmarking
  - Reviewing rate adjustment mechanisms
  - Data requirements
  - Service quality
  - Rate design
  - Implementation issues (sharing mechanism, Z, DSM etc)

Development Process: Phase 1

- Development of initial work plans covering:
  - Stakeholder education/outreach;
  - Data specification and collection;
  - Staff reports/presentations to the Board;
- Following development of initial work plans:
  - *Statement of Policy Objectives* developed;
  - *Consultative Letter* to stakeholders outlining the process released;
  - Staff discussion paper released to stakeholders;
  - Stakeholder comments on Issues.

Development Process: Phase 1

- Workshops
  - 2 one-day PBR educational workshops;
  - Facilitated regional stakeholder consultation workshops at five locations in Province
    - Feedback on Board staff report on *PBR for Electricity Distribution in Ontario.*
    - Input on basic PBR scheme, features of PBR model, implementation issues

Development Process: Phase 1

- After further work among the consultants and staff, Staff Report on a PBR Framework developed and circulated to stakeholders.
- In addition, during the latter part of this phase, it became apparent that extensive as well as intensive stakeholder input would be required on the part of the OEB.
- Led to the plan to form 4 Task Forces. These Task Forces were to cover:
  - Yardstick Competition
  - Rate Design
  - Cap Mechanism
  - Implementation Issues

Development Process: Phase 2

- The second phase of development consisted primarily of Task Force and Working Group meetings and detailed data collection.
- Over 30 Task Force sessions consisting of almost 200 hours of discussions.
  - Task Force and Working Groups encompassed nearly 100 participants from dozens of utilities and stakeholder organizations.
  - In these sessions, stakeholders provided critical insights and points of view representing numerous positions and issues.

Development Process: Phase 2

- Task Forces developed multiple surveys:
  - These included surveys on reliability; customer service; transition/restructuring costs; yardstick/benchmarking characteristics; and costs and productivity.
    - survey to MEUs collected necessary cost and operating information for plan development.
    - responses included detailed information on “yardstick” (benchmarking) characteristics and circumstances that the utilities believed affected their operations and costs.
- The Yardstick Competition/Benchmarking Task Force:
  - worked intensively to address issues of desirability, form, requirements, data, coverage and consequences for benchmarking.
  - Significant exploratory examinations of MUD Bank data were undertaken.
  - Preliminary examinations on selected responses of the data collected with the yardstick survey.

Development Process: Phase 2

- Data Collection and Integration
  - MEU Cost and Productivity Data Base:
    - Demand by customer class for revenue and usage for 10 years
    - Customer numbers by customer class for 10 years
    - Expenses in total and by category for 10 years
    - Labor compensation and employment for 10 years
    - Line Losses and total energy purchases for 10 years
    - Capital costs covering as much as a twenty- year history for stock, additions, retirements, depreciation, and contributions
    - Capital additions by asset category

Development Process: Phase 2

- This information was then combined with information from:
  - the Municipal Electric Association (wage rates);
  - Statistics Canada (bond rates, capital asset prices for distribution network components);
  - Ontario Hydro Statistical Yearbooks for individual distribution utilities.
- Board staff Consultants reviewed all survey returns
- Four Task Force Final Reports were issued.

Development Process: Phase 3

- The 3rd phase comprised detailed analysis of collected data, development of the *Productivity and Price Performance for Electric Distributors in Ontario* report outlining the results, and Board staff's Draft Rate Handbook, the proposed 1st Generation PBR Plan.
- Detailed analysis comprised:
  - Detailed construction of costs, prices and productivity results for scores of individual MEUs;
  - Detailed and extensive examinations and tests on costs, prices and productivity (TFP);
  - Staff Report documenting these results;
  - Assessing the implications of alternative regulatory targets on MEUs' financial performance;

Development Process: Phase 3

- The *Productivity and Price Performance* report initially contained results for 40 utilities. Ultimately, full costs, productivity and price calculations were performed on 48 MEUs.
- Partial work-ups were undertaken on dozens of other survey returns; data gaps and/or time constraints precluded additional full calculations.
- Dr. Cronin undertook to collect even more detailed data from a smaller sample of utilities focusing on such potentially important issues as functional expenditures (e.g., administration, billing and O&M) and the extent of capitalized labor.

Development Process: Phase 3

- The Draft Rate Handbook, based on the Task force consultations and data collection and analysis, was issued on June 30, 1999.
  - The proposed PBR plan included a menu of productivity target/allowed ROE tradeoffs, based on the analysis of MEU productivity and price performance and MEU financial sensitivity analysis.
  - included service quality performance metrics/standards
- The *Productivity and Price Performance* report (issued in July, 1999 with supplement in Aug) laid out the calculations underpinning costs, TFP and IPI.
  - The Report documented many of the sensitivity tests conducted on such parameters as weighting schemes, factor input inclusion (e.g., line losses), and utility size.
  - Subsequent analysis documented productivity performance based on utility size and considered additional factors such as the age of infrastructure, utility size, and productivity growth.

1st Generation PBR Plan

OEB Staff Proposal:

% Change Price = % Change IPI - % Change TFP + Z

- Inflation adjustment factor via an Input Price Index (IPI) specific to Ontario LDCs.
- IPI comprehensively measures changes in the prices of inputs employed by the distributors including capital, labor and materials.
- The Input Price Index (IPI) is the index formed by the addition of sub-indices of input prices weighted by the cost share of each input.
- IPI for *typical* Ontario LDC to be used for rate adjustment.

1st Generation PBR Plan

OEB Staff Proposal:

- A menu of allowable ROE – Productivity Offset options

Table 4-1 THE RELATION BETWEEN PF AND ROE CEILING		
Selection	**Productivity Factor (percent change per year)**	**ROE Ceiling (percent)**
A	1.25	10
B	1.50	11
C	1.75	12
D	2.00	13
E	2.25	14
F	2.50	15

1st Generation PBR Plan

OEB Staff Proposal:

- Monitoring of Service Quality Indicators.
- Board to conduct customer research for use in setting standards for the second PBR term.

Table 5-1
Service Quality Indicators

Customer Service	Service Quality
Indicators Requiring Reporting: Connection of New Services Underground Cable Locates Appointments Indicators not Requiring Reporting: Telephone Accessibility Written Response to Inquiries Emergency Response	Indicators Requiring Reporting: System Average Interruption Index (SAIDI) System Average Interruption Frequency Index (SAIFI) Customer Average Interruption Duration Index (CAIDI)

1st Generation PBR Plan

Board Decision

- Board accepted IPI approach (rather than CPI advocated by some parties). However, Board limited change in capital component to half the observed change.
- Board rejected ROE-PF menu approach and adopted a single productivity factor of 1.5% (the base PF + 25 basis point stretch factor).
- Board generally accepted the Service Quality approach.

PBR Data

- Board has the extensive data collected from 200+ MEUs during Phase 2. These data included:
  - 10 years of labour/compensation data
  - 20-25 years of capital data.
- "Yardstick Data included:

•Total service area
•Rural service area
•Urban service area
•Service area population
•Municipal population
•Seasonal customers
•Total customers, kWh, kW and revenue
•Residential customers, kWh and revenue
•GS customers, kWh and revenue
•LU customers, kWh and revenue
•Annual peak load and average peak load
•Average load factor
•Total Dx system losses and Line losses
•System voltage level

PBR Data

- “Yardstick Data continued:
  - Total km of line
  - OH/UG km of line
  - Circuit km of line type: 3 phase, Single phase
  - Number of Dx and Tx stations and Voltages
  - Number of transformers and type: Tx, sub-Tx, Dx
  - Number of Control Centres (how many hours staffed?)
  - Description of generation assets
  - Description of Tx system
  - Contributed capital policy
  - Shared Services?
  - Multi-use Utility?
  - Special circumstances or unique attributes e.g. difficult to access)

PBR Data

- Capital Additions
  - Gross book value
  - Depreciation expense
  - Amortization expense
  - Retirements
  - Capital additions: land; land rights, building and fixtures; distribution station; sub-feeder O/H, sub-feeder U/G; Dx lines O/H; Dx lines U/G; Dx transformers; and etc.
  - Total Contributed Capital ($/year)

PBR Data

- Labour/Compensation Data
  - Number of own full-time employees
  - Number of own part-time employees
  - Number of own FTE employees
  - Number of contract or outsourced “employees”
  - Total labour compensation (e.g. wages, salaries, pension, fringe, bonuses, etc)
  - Total contract and outsourced labour expense

PBR Data

- PBR Annual Filing Requirements
  - Labour
    - FTE, wages, salaries, fringe benefits
    - Change in Line Crew Wage Rates
    - Capitalized labour included in (1)
  - Capital
    - Gross fixed assets
    - Accumulated Depreciation
    - Amortization
    - Capital additions for year
    - Retirements for year
  - Line losses

PBR Data

- PBR Annual Filing Requirements
  - Functional
    - O&M – total and labour
    - Billing and Collection – total and labour
    - Admin – Total and labour
  - Capital Composition
    - Labour
    - Overhead
    - Equipment/Material
    - Other

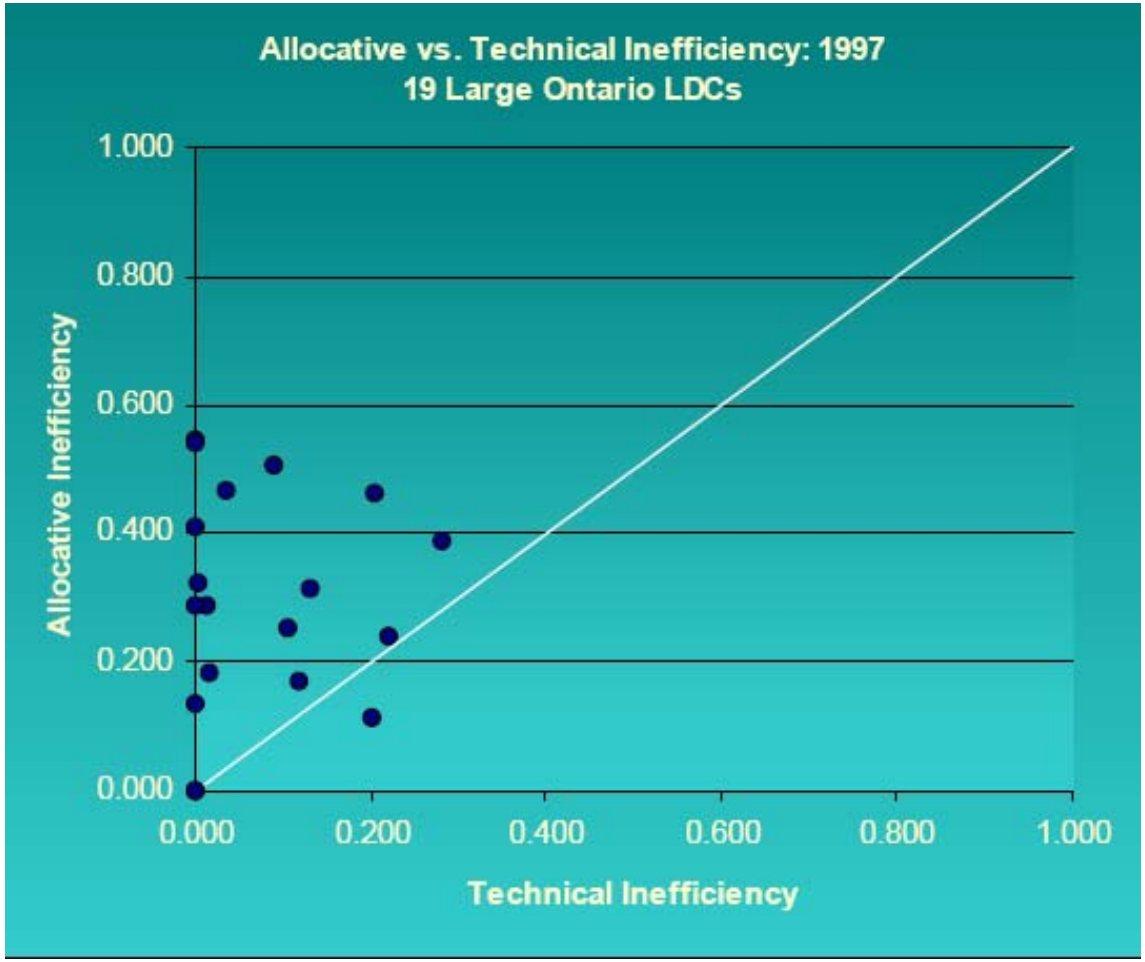
PBR Data

- 1999 Data Collected
  - Data from in excess of two hundred distributors
  - Also used data from 1988 to 1997 Ontario Hydro Statistical Yearbook
  - TFP calculation for 48 utilities representing cross section of utilities
  - Data used to determine IPI
  - Possibility to reconstruct data for entities merged post 1999.

Fundamental Issues

- Fundamental issues that needed to be addressed during the initial development of the 1st Generation Plan and in the initial research for mid-term review and 2nd Generation
  - Collection of data to create a robust data set that correctly reflects cost differences among LDCs;
  - Development of value-based capital stock for LDCs;
  - Were all LDCs or some LDCs over-capitalized (issue of importance during first generation hearing and the treatment of contributed capital)?;
  - Proper specification of the cost function and inputs and outputs;
  - Are the best practice frontier and associated peer groups stable?
  - To what extent can LDCs adjust costs during a likely plan term?

Fundamental Issues



Source: F.J. Cronin & S.A. Motluk, "Restructuring Monopoly Regulation with Endogenous Market Designs," *Institute of Public Utilities 35th Annual Regulatory Policy Conference*, Charleston, SC, Dec 8-10, 2003.

Fundamental Issues

Table 6 Peers & Weights : Base Case, 1988 and 1997

Firm	1988		1997	
	peers	peer weights	peers	peer weights
1	4 10	.24 .76	10	1.00
2	4 19	.18 .82	4 19	.48 .52
3	4 6	.60 .40	4	1.00
4	4	1.00	4	1.00
5	4 6 19	.11 .15 .74	4 19	.14 .86
6	6	1.00	6	1.00
7	4 19	.07 .93	4 19	.20 .80
8	4 19	.44 .56	8	1.00
9	4 6	.50 .50	4 10	.30 .70
10	10	1.00	10	1.00
11	4 6	.41 .59	4 8	.88 .12
12	4 10 19	.90 .04 .06	6 10	.20 .80
13	4 10	.82 .18	4 10 19	.30 .18 .52
14	4 19	.33 .67	4	1.00
15	4 6	.23 .77	4	1.00
16	4 6	.05 .95	4 6 10 19	.04 .13 .01 .82
17	4 6 19	.17 .57 .26	4 6 10	.49 .13 .38
18	6 10 19	.26 .05 .69	4 10	.51 .49
19	19	1.00	19	1.00

Source: F.J. Cronin & S.A. Motluk, “Flawed Competition Policies: Designing Markets with Biased Costs and Efficiency Benchmarks,” *Review of Industrial Organization*, Vol.31, No. 1, Aug 2007.

Political Interference

- 2000 - Minister's Directive to Board to give primacy to consumer protection with regard to rates
- Result of Directive - Phasing-in of market based rates in three installments, no impact on PBR framework
- 2002 - Bill 210 freezes distribution rates
- Result of Bill 210 – no 1st generation PBR rate adjustment