

Overseas Experience with TFP in Energy Network Regulation

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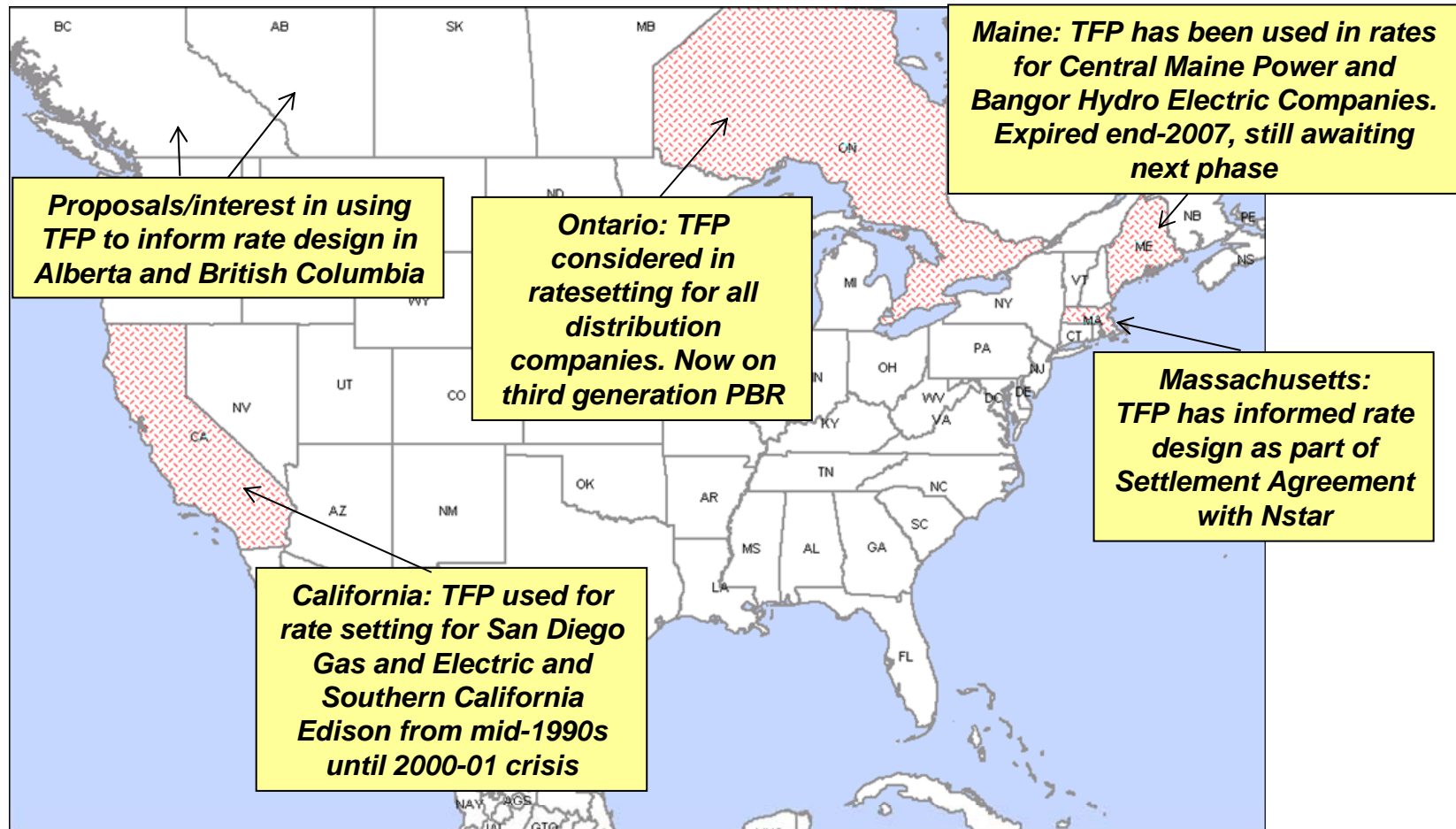
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- Brattle Report and London Economics International presentation
- New Zealand electricity distribution
- North American energy distribution
- Ontario gas distribution
- UK and Europe energy distribution
- Findings

- 29 EDBs not previously regulated, many 'trust' owned
- Needed to allow for wide variety of starting points and hence needed transitional factors in the X as well as allowing for industry TFP growth
 - $X = B + C_1 + C_2$
- 'B' factor reflecting the overall or average productivity trend for EDBs
- 'C' factors reflected different productivity and profitability starting points
 - 3 C_1 factor groupings based on relative productivity levels
 - 3 C_2 factor groupings based on relative profitability performance
- Price thresholds rather than explicit price caps
- Based solely on results of quantitative study, implemented in 2004
- Importance of pre-existing data source and transparent process
- New Commerce Act puts relevant EDBs formally under a control regime with a default price path and allows scope to apply for a customised price path
- Default price path likely to be of form $X = B + P_0$

Use of TFP in North America



TFP has been used in a small number of gas distribution cases, including in Ontario, Massachusetts (Boston Gas, Berkshire Gas and Bay State Gas), and in California (SDGE and SCE gas distribution)

- Use of TFP is the exception, rather than the norm, for North American energy network regulation – only 3 states and 1 province currently use it
- Overwhelming majority of rate cases use periodic cost of service for the most recent year to set prices
- Where TFP is used, no agreed upon model exists for either analysis or for the regulatory framework
- Lower powered hybrid models incorporating earnings sharing mechanisms (ESMs) have often been preferred
- Rarely implemented in pure way due to use of largely negotiated or relatively subjective ‘consumer dividend’ factors
- Regulators have struggled with choice of relevant geographical regions and historical time periods for comparative analysis
- With regard to energy network regulation, North American regulators have tended to be followers rather than leaders, with limited awareness of trends overseas

- Alternative TFP studies put forward by the regulator and the GDBs
- Both used the ‘differential of a differential’ framework but one used econometric methods while the other was index number-based
- Both studies drew on sample of 36 US firms and applied results to the Ontario GDBs
- But differences in how the sample was used
- Input specifications the same but different output specifications (throughput only versus throughput and customer numbers; and revenue versus output cost weighting)
- Despite using largely the same data set, resulting X factors were quite different (2% versus -0.1%) and regulator decided on equivalent of 1%
- Econometric results sensitive to specification and difficult, if not impossible, to replicate

United Kingdom

- Ofgem uses TFP as one means of reviewing EDB forecasts in building blocks – minor role and not formalised
- TFP used in partial productivity context of opex roll forward
- Use evidence from regulatory accounts and high level studies of other sectors – as a result often get wide range

Netherlands

- Initial firm-specific X factors set using data envelopment analysis but used unrealistic adjustment periods
- TFP measured using only 3 years of data
- Characterised by legal appeals and subsequent revisions, possibly as a result of inadequate initial consultation by the regulator

- Importance of good database, early consultation and transparency
- Early agreement on specification of the process is needed
- Evolution has varied between countries
- Few examples of pure application of TFP approach
- Additional information is required to set starting prices
- Need realistic adjustment periods to remove inefficiencies
- Sometimes need different rates for different businesses
- Choice of peer firms is important
- Simplifies process but many of the same issues have to be addressed along the way