

Meeting Notes #5
Cost Allocation Working Group

Wednesday, April 17, 2003

9:30 a.m. - 3:15 p.m.

1. Province-wide load data collection and utilization initiative

A detailed presentation was made by Stanley But (Hydro One), with further oral comments by Woodstock and written comments by Brantford. An invited guest, Professor Dean Mountain, an economist with an academic interest in load research from McMaster University (who also had with considerable prior Ontario industry experience), also attended and commented.

A) Need for new load data sampling to update/confirm existing Province-wide load curves

Load research undertaken through the 1980's and early 1990's by the former Ontario Hydro led to the creation of province-wide load curves. These are currently posted on the IMO web site.

Professor Mountain explained that load profiles change over time - for example, air conditioning usage has increased in recent years, and more generally, lifestyles change over time. He therefore agreed some new Ontario load research should be done to confirm and or update the earlier provincial load curves.

Professor Mountain also indicated that in his experience, some type of weather adjustment was necessary in load research, although how to best do it was a further issue.

The subsequent discussion also flagged the question of how peak profiles change in response to changing customer and equipment mix and saturation.

Finally, Professor Mountain who had reviewed the proposal (see below) of using Hydro One's software and expertise to generate statistically accurate utility-specific load profiles from updated provincial load-curves, agreed it was a cost-effective solution.

B) Use of Provincial load curves to generate statistically-verifiable utility class load profiles

Stanley But, Manager of Forecasting at Hydro One and an experienced user of load profiles, present a detailed explanation of his earlier suggestion to use Provincial load curves, along with further information from a specific utility, to generate statistically-valid load profiles for the rate classes of a given utility.

(Note this was the only-statistically verifiable "lower cost" option - that is, lower cost than a single utility undertaking a comprehensive load research programme - known to the group. Load profiles are ultimately used as in input to a utility's cost allocation study, specifically to allocate demand costs.)

Mr But's presentation noted:

- “Based on Hydro One’s experience, this approach offers fairly accurate system peak analysis for LDCs, well within the benchmark of plus or minus 10% margin of errors often used by load research professionals in North America.
- If more recent Ontario specific load research data is available through cooperative efforts among LDCs (such as metered data for electric and non-electric heated houses across different regions in Ontario), the information will be used to confirm, update and improve the load shape analysis.
- Hydro One load shape analysis approach starts with weather-normal consumption data by rate class (i.e., taking out unusual weather effects), followed by load shape analysis by rate class tuned to Historic or Test year as required.
- Hydro One’s approach is reflected in the following equation:

LDC total system load shape (minus) interval customers load shape (minus) streetlight load shape (plus) embedded generation load shape (minus) residential load shape (equals) general service load shape.

Where:

- Total system load shape, interval metered customers and embedded generation are metered (for LDCs without embedded generation, ignore this term);
 - Streetlight load shape is the one currently used by the LDC approved by OEB;
 - Residential load shape will be analyzed in 4 end-uses: base load, electric heating, electric water heating and air conditioning; and
 - General service class, the most diverse and difficult one to measure, is the residual.
- The hourly load shape for total system, interval customers, embedded generation and street lighting will be tuned to the Historic of Test year using HELM (as EPRI product which stands for the Hourly Electric Load Model).
 - Hydro One will prepare the weather correction analysis and the load shape analysis by rate class as described above. The growth factors will be provided LDCs for use in the analysis.”

The subsequent group discussion raised several issues:

- Woodstock and Whitby were asked to comment on whether they could provide the utility-specific information necessary to implement this option. The initial response was encouraging. The hourly load data and monthly sales data requested could be gathered with some effort (e.g. 3-4 weeks of staff time).
 - A major challenge was that many utilities would not have up-to-date appliance saturation surveys; however, it was expected useful information could be obtained from other sources (e.g. using analysis from monthly data, plus appliance survey results from former Ontario Hydro and the latest appliance survey from Statistics Canada).
 - Utilities also expressed concern over the possibility that they might need to provide Hydro One with customer-specific information to implement this option. However Stanley But of Hydro One responded that aggregated information could be sought instead.
- Technical concerns were also expressed about the use of net system load shape v. IMO figures.
- If many utilities adopted this approach, a bottleneck could be created. It was suggested some type of staggering would be useful. By the time utilities gathered and forwarded their 2004 information to Hydro One and it was processed and utility-specific load profiles returned, filing dates earlier than summer of 2005 would be unrealistic.
- It was requested that the analysis be documented thoroughly, so that utility management could fully follow the reasoning. Moreover, it was critical that the Board would find the proposed methodology acceptable.
- Some group members suggested a utility or two be chosen as test cases.

A geographically-varied group of utilities (Bluewater, London, Toronto, Ottawa, Thunder Bay, CNPI, members of the Upper Canada Energy Alliance) were interested in seriously pursuing this option (discussions were pending with several other utilities, including some medium and small size ones). These utilities were willing to contribute new load data to update and or confirm the provincial-wide load curves. It was agreed Stanley But continue to work on this option and report back.

2. Regional Load Data Utilization Strawdog

In an earlier discussion, GTA-area utilities had indicated they were interested in sharing data (especially since many meters were already in place). The group had noted the discussion on “transferring load data between utilities” in the AEIC Load Research Manual (2nd ed, page 10-7), although there was no explanation therein on how to obtain statistically-reliable results.

This option was explored further in a presentation by Roger White outlining potential conditions under which similar utilities might be allowed to share load data.

The general advantage of any group approach is that utilities will not have to duplicate load data collection efforts. But to preclude data sharing in inappropriate circumstances, utilities would have to show to the regulator’s satisfaction an acceptable fit between customer characteristics. The literature and group members suggested the following factors should be considered: differences in utilization of major appliances (residential); differences in economic conditions between service areas; comparisons of demographic data; availability of competitive fuels for space/water heating etc.; effect of different times zones; differences in climate and effect of weather sensitive load; difference in industry between the service areas.

The presentation suggested that to provide maximum flexibility, the transfer of data could occur at the class, cluster/stratum, or individual customer level.

The major disadvantages of this potential option were:

- Unlike the above option, this approach (to the best of the group’s present knowledge) would not lead to statistically-verifiable results.
- To make a qualitative case for a close match, a utility would still have to do considerable work (re differences in appliance saturation, customer mix, etc.).
- Utilities interested in pursuing this option would have to successfully identify at an early date other utilities they are similar to and with which they wish to work.

The proposal include some illustrative data fit test tables. It was suggested these would benefit from the formal input of a statistician.

3. Potential Rate Class Issues

The discussion, which was led by Ottawa Hydro, focused on how the design of rate classes could interact with the completion of the cost allocation study and future discussions of rate design issues.

Lynne Anderson was asked to prepare a summary of the discussion for later review (with input from Bruce Bacon, and Roger White to review).

a) Interaction of Load Sampling Programme and number of Rate Classes

While the obvious purpose of a cost allocation study was to check for cross-subsidization between current classes, another purpose could be to provide support for the future introduction of new rate classes.

If a utility itself proposed to introduce a new rate class in its 2006 application, it was agreed that it would be responsible for collecting the appropriate data to be able to show to the Board that there are cost differences that justify separate rate classes. It was further suggested that in such cases, the cost allocation study should be designed with the possibility in mind (by gathering the necessary information on both current and any planned new rate classes). However, most utilities present did not feel there was large-scale dissatisfaction with the rate structure of the urban system LDCs [editor's note: rate class issues unique to rural system operator(s) were not raised].

Utilities went on to express concern over the possibility the Board itself, or an intervener, might request at a later date the introduction of a new rate class, since the load data to be collected (tentatively as of January 1, 2004) may not be reflective of the proposed class in question. Therefore it was recommended that if the Board were ever to evaluate the merits of introducing a new rate class, it be cognizant of the fact that the relevant load data may not be available and take that factor into consideration before mandating a new rate class.

In light of this potential problem, stakeholders also asked if the Board could clarify at this time if it were seriously considering the mandatory introduction of any new rate classes in the near future.

With respect to unmetered loads, it was simply proposed their load profile be calculated on the same general basis as present. The details were not discussed (for pros and cons, see analysis at page 9-8 of the AEIC Load Research Manual, 2nd Ed.).

b) Potential rate class issues for consideration during going-in rates process

Lynne Anderson's presentation noted the following potential issues for the various major rate classes:

Residential

- The SAR and DRH provide flexibility on how an LDC can classify multi-residential. Typically up to a 6-plex can be considered residential.
- LDC's also have some discretion on how to classify multi-use customers such as farmers.
- Some LDC's have density or seasonal rates.

General Service

- The 50 kW separation between small and medium sized general service customers was based on historical practices for unbundled bills. Is it the appropriate level when tracking costs of distribution services only?
- Is size the appropriate method for setting rate classes? There could be two customers with identical demand; one which has single-phase service and another with three-phase service. They are paying the same distribution charges even though the cost to service them is different. Supply voltage can also be a factor, eg, twp identical customers one served at 8 kV and another at 600 V.
- Should the rate classes be set based on the distribution services provided to the customer? Primary versus secondary voltage, single phase versus three phases etc.

Large User

- 5000 kW has been set as the level for large user. However you can have another customer supplied from the exact same feeder at the same voltage but with a peak demand of only 4900 kW who is paying completely different amounts than a large user receiving the same service."

The group spent considerable time discussing what matters are true cost allocation issues (to be addressed in the present phase of the working group) and what matters were technically issues that could be deferred to the later rate design phase of the consultations. For example, the group agreed boundary issues are best addressed in the rate design phase.

4. Miscellaneous

Group members were asked to keep track of technical issues for future potential consideration.

The group reviewed and approved a note prepared by Newmarket on meter accuracy.

Attendance

Bluewater Power - Ron LaPier, Kathy Gadsby
CNPI - Doug Bradbury
Hamilton Hydro - Cameron Mackenzie, Terry Karp
Hydro One - Mike Roger, Stanley But
London Hydro - Ken Walsh, Mark Steves
Newmarket Hydro - Gayne-Donna Young, Dave Ackers
Oakville - Gary Parent
Ottawa Hydro - Lynne Anderson
Toronto - Anthony Lam
Thunder Bay Hydro - Cynthia Domjancic
Veridian - Laurie Stickwood
Whitby Hydro - Ramona Abi-Rashed
Woodstock Hydro - Ken Quesnelle

Econalysis - Bruce Bacon
ECMI - Roger White, Andy Bateman
EDA - Maurice Tucci; John Wong
RCS - Mike Mcleod, Peter Ioannou
Upper Canada Energy Alliance - Jim Richardson
Chris Amos
Barker, Dunn & Rossi - Paula Zarnett, Neill Winger
AMPCO - Ken Snelson

Guest - Professor Dean Mountain

Board Staff:
John Vrantsidis
Neil Yeung