DEMAND SIDE MANAGEMENT GUIDELINES
FOR NATURAL GAS DISTRIBUTORS
&
REVIEW OF DEMAND SIDE MANGEMENT (DSM) FRAMEWORK
FOR NATURAL GAS DISTRIBUTORS

EB-2008-0346/EB-2008-0150

COMMENTS OF ENERGY PROBE RESEARCH FOUNDATION

Consultation:

Energy Probe appreciates the opportunity to comment on the two reports from consultants to the Board circulated on March 19, 2010:

- ✓ a report entitled Review of Demand Side Management (DSM) Framework for Natural Gas Distributors prepared by Concentric Energy Advisors (the "Concentric Report"); and
- ✓ a report entitled "Top Down" Estimation of DSM Program Impacts on Natural Gas Usage prepared by Pacific Economics Group Research (the "PEG Report")

General Overview and Summary:

First of all, as stated above Energy Probe welcomes the opportunity to comment on the future Framework and Guidelines for natural-gas DSM in Ontario. We have been heavily involved in this field for many years, and continue to be heavily involved today -- including our current membership on Enbridge's EAC for 2009 and 2010.

While we disagree with many of the recommendations in the two consultants' reports, we believe that the information presented in those reports -- and in the follow-up discussions and responses to questions -- can form the basis of substantial improvements in the future Framework and Guidelines.

In particular, we have expressed concern for many years that the natural-gas DSM programs in Ontario -- despite the significant expense of ratepayer funds and time that have gone into them, and the significant gas savings that have been attributed to them -- have not produced any objectively observable net reduction in per-capita natural-gas consumption in Ontario.

Specifically, we have looked for, and failed to find, an increase in the "background" rate of decline in per-capita natural-gas consumption in Ontario, compared to neighbouring jurisdictions with less aggressive DSM programs, or compared to national or North American average declines, or compared to the pre-DSM period.

Unfortunately, we find that the authors of both reports have, in their own ways, confirmed our previous concerns, by also failing to find any such objectively observable net reduction in consumption.

In short, per-customer natural-gas use has declined by approximately 33% over the past 25 years in North America, and there is no statistical or objective measurement to indicate that (a) the decline has accelerated since the introduction of utility DSM programs compared with pre-DSM years, (b) the decline is more rapid in jurisdictions with DSM programs than without DSM programs, (c) the decline is more rapid in jurisdictions with more aggressive and more costly DSM programs than in jurisdictions with less aggressive and costly DSM programs (or even none at all), or that (d) in Ontario the decline is more rapid in years in which DSM expenditures have been relatively high, compared to those with lower expenditures.

In 2010 in Canada and Ontario, all three levels of government have recently engaged in extensive energy-savings efforts, and are either undertaking or discussing further steps to decrease energy consumption, and/or to reduce or "monetize" carbon-dioxide emissions. It is generally acknowledged, here and internationally, that saving energy (whether in response to utility DSM programs or other drivers) is the quickest and most cost-effective way to decrease carbon-dioxide emissions and the other negative "externalities" from energy consumption.

In this context, it is understandable that the OEB would be considering increasing the levels of effort and ratepayer funds that their regulated gas utilities expend on conservation ("DSM") programs, as a way to further reduce gas consumption and to reduce carbon-dioxide emissions and other negative "externalities".

Unfortunately, while we can have 100% confidence that increasing DSM expenditures at ratepayer expense will increase spending, we cannot find any corresponding basis for confidence that these increased expenditures will accelerate the decades-long, continent-wide, and ongoing decline in per-customer natural-gas consumption, or in the accompanying emissions and "externalities".

Ultimately, as an alternative to expanding the cost and aggressiveness of the "status quo" programs whose benefits are either invisible or statistically insignificant -- the basic thrust of the recommendations in the Concentric Report -- Energy Probe would propose that we re-align the incentive structure for the natural-gas utilities so that they can increase their shareholder returns from achieving an accelerated reduction in per-customer natural-gas consumption. That is an outcome that Energy Probe and the Government of Ontario, and (we believe) the OEB and most intervenors in this process would like to see accomplished.

Indeed, if the Earth's climate is actually being dangerously changed by anthropogenic emissions of carbon dioxide, and if it is vital that we make deep and significant cuts to those emissions as soon as possible, then it is clearly important that the natural-gas utilities be deputized to do that job in good faith, rather than proceeding with lucrative DSM programs, while simultaneously pursuing programs to market natural-gas fireplaces and radiant backyard heaters -- programs whose recent success may have negated all the benefits of those DSM programs.

In short, if we believe that it is desirable to significantly accelerate the decline in energy consumption and natural-gas consumption, for reasons of efficiency, economy, public health, and environment, then we should ensure that the "DSM" incentives we give to the natural-gas utilities align as closely as possible to those desirable ends, rather than aligning them to the complex mixture of theoretical and "what if" measurements that determine the SSM payments at present, or the variations proposed under the main recommendations from the Concentric Report.

We note in passing that if and when one of our governments decides to monetize Greenhouse Gas emissions -- either through setting a total "cap" and allowing a trade in "permits", or by implementing a tax on carbon-dioxide (and equivalent) emissions -- that monetization would increase the effective price of natural gas burned in new fireplaces and backyard heaters exactly as much as the effective price of natural gas saved with today's DSM programs. That monetization -- and the atmosphere and planet that it would be designed to save -- will not make the arcane distinctions that we have been forced to make in calculating TRC values for DSM while the utilities continue to market increased gas-combustion out of other budgets. In short, we believe that a focus on consumption levels aligns much better with stated government and OEB goals AND the effect of potential carbon monetization, than today's DSM programs or tomorrow's as proposed in the Concentric Report.

Energy Probe has proposed variations on this approach several times in the past, and we believe that our most recent proposal (see http://www.rds.oeb.gov.on.ca/webdrawer/webdrawer.dll/webdrawer/rec/92764/view/EP_comments_email_20081125.htm) may have helped prompt the commissioning of the PEG report, whose Terms of Reference certainly seem superficially similar to our proposal -- though they are actually quite distinct. But we are quick to acknowledge that "the Devil is in the details", and that this approach could not be implemented rapidly without first consulting on, and resolving, a number of important issues, some of which are discussed below. We would be pleased to participate in drawing up a more complete list of those issues, and a road map toward resolving them.

A review of the troubling evidence on DSM and consumption decline rates:

Energy Probe's analysis suggesting that Ontario was lagging its less aggressive neighbours in decreasing per-customer gas use was presented to the OEB's Generic DSM/DR Review, RP-2003-0144, on 2003 October 29 -- see www.oeb.gov.on.ca/documents/directive_dsm_energyprobe291003.pdf . Those results were also presented in a popular form in a Financial Post article by Tom Adams -- "Dim bulb idea" (2003/09/24).

The PEG Report was commissioned specifically to investigate "whether 'top down' estimates of DSM savings could be developed using available data in Ontario". (Summary of Findings, slide #2) Despite a relatively heroic number of attempts to solve this problem -- and success in discovering a number of other independent variables (including price and weather, etc.) that DID lead to decreases in natural-gas consumption -- the authors failed to find a correlation between DSM spending and gas consumption in Ontario. (Passim, e.g., Summary of Findings, PPT slides #11, 12, and 16).

In Energy Probe's submission, there are two conclusions to be drawn here: (1) The impacts of DSM spending cannot be discerned from the fluctuating levels of gas consumption in Ontario, even after correcting for confounding variables like weather and price (using over 100 "second-stage specifications!), and (2) If the PEG report is correct, and there is no statistically significant and provable correlation between DSM effort (or claimed savings) and declines in consumption, then we should -- or must -- choose which of the two we want to reward the gas utilities for achieving: spending money and generating theoretical TRCs, or actually lowering per-customer gas consumption!

The Concentric Report, and subsequent discussion with the authors, gives further grounds for concern about the present approach. See, e.g., Questions 120 and 121 (EP Questions 7 and 8) and their response:

> **Question 120 – (EP Question 7)**
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> "Evidence Regarding Reduction in Gas Usage", Pp. 106[ff], including Table 23: Please provide the time scale of the < 1% savings estimates provided. Were these savings produced over the course of one year? Are all the data for the same year, and if so, which year?
>
> The information presented in Table 23 represents the reported reduction in gas consumption attributable to DSM programs compared to total gas consumption for six distributors that operate within the states covered by Concentric's research survey. The data were gathered from reports filed by the gas distributors with the various state regulatory agencies for the 2008 DSM program year. The reported reductions in gas consumption represent savings that were attributable to DSM programs for the 2008 program year. Concentric interprets this to mean that the reported savings are those attributable to all approved DSM programs that were currently in effect during 2008. These are reported as annual savings rather than cumulative savings.

Question 121 - (EP Question 8)

Ibid and p. 26 first bullet point, "The average American home uses one-third less natural gas than it did a quarter century ago.": According to our math, that 25-year national average reduction in domestic gas consumption has averaged a bit over 1.6% per year. Has Concentric discovered any data indicating whether the reduction has been increasing or decreasing in the years since DSM programs were implemented, or in jurisdictions in which DSM programs have been implemented?

According to the AGA study referenced in the question, gas consumption has declined by approximately 33% in the average American home over the past 25 years. This reduction represents an annual decrease of approximately 1.32% (i.e., 33%/25 years = 1.32% per year). During the course of our research, Concentric did not find any data indicating whether the percentage reduction has been increasing or decreasing in the years since DSM programs were implemented, or in jurisdictions in which DSM programs have been implemented. At a qualitative level, Concentric's view is that energy efficiency and conservation programs are one important factor that has contributed to reduced gas consumption among residential customers. However, Concentric does not have any information other than what is presented in Table 23, which would allow us to quantify the impact of DSM programs for gas distributors. Another complication in responding to this question is that DSM programs have been implemented at different times in different jurisdictions, making it difficult to draw any meaningful correlations between the implementation of DSM programs and the average reduction in residential gas consumption over the past 25 years.

First, a correction: a decline of one-third (33.333...%) over 25 years is actually equivalent to an annual decrease (year over year) of "a bit over 1.6% per year", as stated in our question, and not of "approximately 1.32% (i.e., 33%/25 years = 1.32% per year)" as stated in the answer. It is true that the average decrease is only around 1.32% of the FIRST-YEAR level, but that simple calculation is meaningless and is never used in respectable circles. Rather, the correct math is comparable to "compound interest", in showing the average annual decline compared to the previous year -- the 25th root of 0.6666... = 0.9839..., = 1 minus ~ 0.016088. If consumption in each year, on average, were equal to 0.9839... of the previous year (declining a bit over 1.6% per year), over 25 years, then total consumption would decline by 33.333...%, which is exactly what it did.

This correction is worth making because the "background" decline of 1.6% p.a. -- a 25-year average, including a clear majority of years and jurisdictions without any utility DSM programs -- is so much larger than the various claimed DSM savings in Table 23 on p. 107

of the Concentric Report.

The remainder of Concentric's response to Question 121 underscores Energy Probe's concerns: DSM consultants believe ("At a qualitative level, Concentric's view is") that DSM programs have contributed to the 25-year decline, but have no idea whether that decline has accelerated or declined since DSM programs began, nor do they have any independent basis for their belief, other than bottom-up utility claims of DSM effectiveness.

Why can't we just give an incentive for the results we REALLY want?

Fortunately, when pressed on the subject, at least one of the authors of the Concentric Report seems to be willing to embrace the possibility of an incentive tied to the lowering of per-customer gas consumption, just as we recommend. See Question 119 – (EP Question 3):

> PPT Slides of April 29, esp. slide 31: In the discussion of April 29, we understood Jim Coyne to express general support for per-customer reduction in gas consumption (without attribution to DSM programs) as a metric for DSM performance and incentive payments – with the stated caveat that it might make more sense after the establishment of a specific government goal for reductions in carbon emissions or consumption. Please confirm or amend this understanding.
>
> Yes. My [*sic* for "Mr."] Coyne expressed that opinion at the Stakeholder Meeting, recognizing that attribution would not be as important as actually calculating per customer and aggregate reductions in energy use and GHG emissions.

We consider it important to note this convergence of opinions here, despite our rather different starting points. Indeed, in the Stakeholder Meeting of April 29th, my notes show that I then asked Mr. Coyne a supplementary question: "But why not apply incentives based on that metric now, before that time arrives?" and he responded "Yes, you could do that -- and several jurisdictions (Manitoba and Maine?) already have." [The question mark indicates my lack of confidence that I got the jurisdictions right, taking notes on the fly.] So our convergence of opinion with Mr. Coyne may be virtually total.

Indeed, even the recommendation in the Concentric Report itself, directly following Table 23 -- on pp. 107ff -- includes a similar incentive metric to Energy Probe's, though admittedly recommended only as a secondary metric (after market penetration of BAT), and with the additional condition that the decline be "attributable to the DSM program or measure":

> d. Recommendations
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> One of the most difficult aspects of designing a cost effective energy efficiency and conservation program is determining how to measure success. From our perspective, this concern is best addressed by developing DSM metrics that are straight-forward and verifiable. In our opinion, TRC net savings is difficult to measure and verify, and may have contributed to the development of shallow DSM programs in Ontario (that is, programs with modest energy savings or a short-term focus). Concentric recommends that the Board adopt market penetration of the Best Available Technologies as its primary metric for evaluating whether a particular DSM program or measure is successful. In situations where market penetration is not applicable or cannot be measured (e.g., attic insulation might be difficult to observe), Concentric recommends **measuring the reduction in gas consumption per customer attributable to the DSM program or measure.** [**emphasis** added]

We also agree with the first three sentences of that paragraph, and commend it to Board Staff for future steps in this process.

It is also worth noting that the starting point for the oral discussion with Mr. Coyne and this written question was the inclusion in PPT Slide 31 of the following:

> Experience In Other Jurisdictions:
> - Different jurisdictions in our survey use different methods to measure the success of DMS programs
>   - . . .
>   - **Targets for reduction in gas demand** (BC, Minnesota, Colorado, Oregon, New York). [**emphasis** added]
>   - . . .

In short, we believe that the authors of the Concentric Report are not at all hostile to Energy Probe's preferred DSM success/incentive metric, although they may only support it wholeheartedly as a fallback or secondary metric, or perhaps after governments have

adopted specific goals for reductions in carbon emissions or consumption. Put another way, we prefer, and recommend, a slight variant on the Concentric Report's secondary DSM success/incentive metric. It is also worth noting that we believe that the Concentric Reports **primary** recommended metric -- market penetration of the Best Available Technologies -- will prove more complex and vexing to implement (and more controversial among stakeholders) than it may initially appear.

In conclusion, Energy Probe supports a reorganizing of the DSM Framework to align gas-utility incentives with accelerated declines in per-customer consumption. We acknowledge that it would be best to add "corrections" for factors (like weather and price) that are known to affect per-customer consumption in the short term, and that these corrections should be refined with further consultation among the stakeholders. There may also be a need for specific exclusion or correction factors for the impacts of fuel substitution, also calling for further consultation and thought.

Like today's mostly-TRC SSM incentive, this approach could also leave room for specific Market-Transformation programs to accomplish specific MT goals, and other OEB directives regarding Low-Income programs, etc. But in general, we believe that an approach that eliminates the TRC test's "alternate universes" calculation (where estimated gas consumption for DSM participants is compared to their consumption in the "alternate universe" in which the DSM program did not exist) and substitutes a relatively simple comparison of per-customer gas consumption with historical projections of current levels, will add simplicity and confidence, and better align the "incented" results with widely supported outcomes, including those promoted by government policy.

ALL OF WHICH IS RESPECTFULLY SUBMITTED

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