Multeese Consulting Incorporated

IN THE MATTER OF THE PUBLIC UTILITIES ACT, R.S.N.S 1989, c380, AS AMENDED

And

IN THE MATTER OF AN APPLICATION BY EFFICIENCY NOVA SCOTIA CORPORATION FOR APPROVAL OF ITS ELECTRICITY DEMAND SIDE MANAGEMENT PLAN FOR 2013-15

DIRECT EVIDENCE OF MEL WHALEN, P.ENG.

May 22, 2012

MR. WHALEN, WOULD YOU PLEASE INTRODUCE YOURSELF?

My name is Melvin E. Whalen. I am President of Multeese Consulting Incorporated. I am a Professional Engineer, registered in the Province of Nova Scotia. I graduated from Nova Scotia Technical College in 1970 with a Bachelor of Engineering (Electrical), and from University New Brunswick in 1972 with a Master of Engineering in power systems.

Prior to establishing Multeese Consulting, I was employed by Nova Scotia Power, the National Energy Board, and Bowater Power Company. Broadly speaking, my responsibilities for each of these employers were of a planning nature, focused on topics such as load research and forecasting, integrated resource planning, economic and financial analysis, operational issues, cost of service studies and rate design. During the last ten years of my employment with Nova Scotia Power, I was NSPI's principal witness on cost of service and rate design issues.

I have presented testimony before this Board on behalf of Board counsel in General Rate Applications by Halifax Regional Water Commission and Heritage Gas. I have also provided consulting services to Board counsel in matters related to Nova Scotia Power in the areas of Integrated Resource Planning (IRP), Demand Side Management (DSM), Fuel Adjustment Mechanism (FAM), General Rate Applications, the Annual Capital Expenditure Plan and the development of Top Up & Spill Tariffs and Load Retention Tariffs.

WHAT IS YOUR ROLE IN THIS HEARING?

I was engaged by Board counsel to provide a review of Efficiency Nova Scotia Corporation's (ENSC's) DSM proposal for the three years 2013 – 2015. More specifically, I address the following issues from the Board's Final Issues List:

- Proposed 2013-15 DSM Plan Appendix A
- Proposed Multi-Year Planning, Reporting and Evaluation – Appendix B
- Amended Cost Allocation Methodology – Appendix C

- Avoided Cost Values and Sensitivity of Results to the Values Used
- ENSC Responsibility for Annual DSM Cost Recovery Rider ("DCCR")
- Role, Composition and Structure of the New DSM Advisory Group

WHAT ARE YOU CONCLUSIONS?

My conclusions are as follows:

a) The DSM programs proposed for 2013-15 are modified continuations of programs previously approved by the Board. The modifications of programs reflect ENSC's experience to date as well as ENSC's consultation with experts. They should be approved.
b) The avoided costs associated with DSM in this Application have been updated by NSPI and are different from the avoided costs that were used by ENSC to assess the 2011 and 2012 DSM programs. Two series of avoided costs were provided by NSPI. ENSC has used the series which has the highest levelized value, but this does not necessarily bias the economic assessment results, since ENSC's assessments use annual (rather than levelized) avoided costs, and annual avoided costs are not consistently higher or lower in either series. ENSC has appropriately based its assessment on the series which, at this point, appears most probable.
c) ENSC has explicitly included Net-to-Gross (NTG) ratios in TRC and PAC calculations for 2013 and beyond. The rationale for including NTG and the implications of doing so needs clarification.
d) ENSC's proposal to move to a multi-year approach addresses a number of operational issues and improves the delivery of energy efficiency. It should be approved, subject to resolution of questions related to appropriate trigger mechanisms.
e) ENSC's proposal to modify the methodology used to allocate the costs of energy efficiency programs related to electricity is appropriate and should be approved.
f) ENSC's proposal to transition from the Program Development Working Group (PDWG) to a DSM Advisory Group is in keeping with the evolution of DSM

from a developmental stage to a mature, fully operational portfolio of DSM programs. It should be approved.

The basis for each of these conclusions is addressed in the remainder of my evidence.

PLEASE DISCUSS YOUR CONCLUSIONS WITH RESPECT TO THE PACKAGE OF DSM PROGRAMS PROPOSED FOR 2013, 2014 and 2015.

In its Decision of June 30, 2010, the Board approved the following programs for 2012[1]:

Residential

- Efficient Products
- Existing Houses
- New Houses
- Home Energy Report

Commercial and Industrial

- Prescriptive Rebate
- Custom
- Small Business Direct Install

Enabling Strategies

- Education and Outreach Program
- Development and Research program.
- Other Enabling Strategies

In this application, ENSC is proposing to continue these programs, but has renamed some of them as follows:

Residential

- Efficient Product Rebates

[1] The Board Decision dated June 30, 2011 approved an expenditure of $43.7 million, as proposed by ENSC, and by inference, the programs on which that spending estimate was based.

- Existing Residential
- New Residential
- Energy Savings Actions (formerly Home Energy Report)

Business, Non-Profit and Institutional[2]

- Efficient Product Rebates (formerly Prescriptive Rebate)
- Custom Incentives
- Direct Installation

Enabling Strategies

- Education and Outreach Program
- Development and Research program.
- Other Enabling Strategies

The overall approach to each market segment and specific details of each of the proposed programs are provided in Appendix A of ENSC's Application. In addition, ENSC (CA) IR-3 provides details of sub-programs within the Existing Residential program.

Most of the components which are included in the proposed programs are continuations of programs which have previously been approved and implemented. Within the Residential sector, however, ENSC proposes to introduce a new Green Heating Systems program, as described in Appendix E. This program is an evolution of the fuel substitution program which ENSC introduced on a pilot basis in 2011[3]. Some components of this program will be delivered as part of the Existing Residential program, and some components will be delivered as part of the New Residential program[4].

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[2] Changed from Commercial and Industrial as explained in Appendix A at page 15 (pdf page 65), line 4.
[3] As part of its 2012 DSM Plan, ENSC submitted a review of existing programs prepared by Dunsky. One of the recommendations from that review was the expansion of the fuel substitution program to a Renewable Heating Industry Strategy, which is now being expanded again to become the Green Heating Systems program.
[4] ENSC(CA) IR-3

ENSC is also changing its delivery with a focus on "one-window approach", designed to simplify the customer access to energy efficiency. It eliminates any need for the customer to select the DSM programs to match specific circumstances. Instead, it transfers this responsibility to ENSC and requires the customer to make only one contact with ENSC[5].

All of these changes are appropriate, reflecting on going market awareness and assessment based on ENSC's experience in delivering DSM in Nova Scotia, as well as the experience and best practices of others in the successful delivery of DSM programs.

ARE THERE ASPECTS OF ENSC'S PROPOSAL ON WHICH YOU WISH TO COMMENT?

Yes. There are two areas of ENSC's proposal which warrant further comment.

The first area is the proposed expenditures. ENSC has filed its proposed expenditures in constant 2013 dollar. In ENSC(Multeese) IR-7, ENSC provides these in current dollars. The differences are shown in Table 1.

Table 1
ENSC Expenditures in Constant and Current Dollars

	As Filed (Constant $M)	**As per ENSC(Multeese) IR-7 (Current $M)**
2013	46.2	46.2
2014	47.7	48.7
2015	50.4	52.5

I recommend that for clarity, any amounts approved by the Board be expressed in current dollars.

[5] ENSC Evidence, page 17(pdf page 20), line 11.

The second area that warrants further comment is the economic assessment of ENSC's proposed programs provided in Figures 4.2, 4.3 and 4.4, as revised by ENSC on April 18, 2012.

These Figures show that in the Residential sector, the Energy Savings Actions program has a TRC = 1.0 in 2013 and 2014, but in 2015, this improves to TRC = 1.6. The PAC results are the same as the TRC results.

These results raise the question of whether this program should be offered, which is addressed primarily in ENSC (Avon) IR-11(b), but also in ENSC (Multeese) IR-5(d). The critical assumption which drives these results is the one year life assumed for savings achieved under this program, since this ties the TRC to avoided costs in a single year. The results reflect lower avoided costs in 2013 and 2014 and higher avoided costs in 2015. The one year life assumption may well be conservative. Given the potential for savings to extend beyond one year, and given the expected improvement in TRC in 2015 and beyond, I support the continuation of this program.

WHAT AVOIDED COSTS HAS ENSC USED IN THE ECONOMIC ASSESSMENT OF ITS PROPOSED PROGRAMS?

In its economic assessment of the DSM programs in this application, ENSC has used avoided costs as provided by NSPI on February 21, 2012[6]. Because of uncertainty with respect to the future of NSPI's two largest industrial customers, NSPI provided two series of avoided costs. The first, designated "high bookend", assumes that both Bowater Mersey and paper machine 2 (PM2) at Port Hawkesbury will operate throughout the period 2012-2032. The second, designated "low bookend", assumes that neither Bowater Mersey nor PM2 operates during the planning period[7].

[6] See ENSC(Multeese) IR-5.

[7] Details of NSPI's assumptions and calculations are provided in ENSC (Synapse) IR-14, ENSC (Multeese) IR-5(c) and ENSC (Multeese) IR-6.

By way of comparison, the levelized value of the "high bookend" series over the period 2012-2032 is \$135/Mwh (\$122/Mwh plus \$55/KW), and the levelized value of the "low bookend" series over the same timeframe is \$121/Mwh (\$111/Mwh plus \$52/KW). Both of these are lower than the levelized values of the series of avoided costs used in the assessment of DSM in 2011 and 2012 (\$166/Mwh plus \$79/KW)[8].

For its economic assessment, ENSC used the "high bookend" series. It is important to note, however, that this does not necessarily bias the results because ENSC does not use levelized costs in its evaluation of DSM programs. Instead, it uses the annualized values and applies them to each program over its expected life. Because the annual avoided costs in the "high bookend" series are in some years lower than the annual avoided costs in the "low bookend" series[9], the TRC's of some programs may be understated relative to what they would be had ENSC used the "low bookend" series.

WERE THE AVOIDED COSTS CALCULATED BY NSPI USING THE SAME METHODOLOGY AS IN PRIOR YEARS?

Yes. NSPI calculated the avoided costs using the same approach as was used in the 2009 IRP, as confirmed in ENSC(Multeese) IR-5. Some assumptions were updated, however, as detailed in that response.

HAS ENSC APPLIED THE AVOIDED COSTS TO CALCULATE TRC'S FOR EACH PROGRAM IN THE SAME MANNER AS IN PRIOR YEARS?

ENSC(Multeese) IR-12 states that the "TRC calculation methods used from year to year are consistent". However, the TRC formula provided in ENSC(Multeese) IR-5(a) is different from the formula used in prior years in that it includes explicit recognition of the Net-to-Gross (NTG) ratio. It explicitly applies NTG to the numerator and to one of the two terms (Technology Cost) in the denominator. In the example provided in ENSC

[8] ENSC(Avon) IR-9(a).
[9] ENSC(Multeese) IR-5 (Confidential)

(Multeese) IR-5(b), however, the second term in the denominator (Administration Cost) is calculated on a $/Mwh basis applied to net energy savings; i.e. this second term implicitly includes NTG. Since the NTG appears, therefore, to apply to both the numerator and denominator of the formula, its inclusion has no effect on the result. This begs the question of its purpose in the formula.

HOW WOULD YOU SUGGEST THIS QUESTION BE CLARIFIED?

I would suggest that for one measure that is common to all years (possibly the measure from Multeese IR-5), ENSC provide a sample calculation of the TRC as it was calculated in 2011 and 2012, the PAC as it was calculated in 2012, and both TRC and PAC as they are being calculated for 2013 and beyond, identifying all changes and providing an explanation of why each change is being made.

THIS IS THE FIRST TIME APPROVAL IS BEING SOUGHT FOR A MULTI-YEAR DSM PLAN? DO YOU SUPPORT THAT APPROACH?

Yes, I do, for three reasons:

a) The proposed approach addresses a number of operational and market issues that currently hamper the delivery of energy efficiency[10].
b) The proposed approach builds on, and is a natural evolution of, the flexibility that the DSM administrator, working with the Board and stakeholders, has enjoyed since energy efficiency delivery began in 2008. This flexibility is proposed within defined limits, however, with appropriate actions triggered should results fall outside those limits.
c) The proposed approach maintains the essentials of timely evaluation and reporting, albeit through modified processes.

[10] These are summarized on page 13 (pdf page 16) of ENSC's Direct Evidence (Lines 23 – 30).

Notwithstanding my general support for the multi-year approach, there are questions related to appropriate trigger mechanisms (as raised by Mr. Woolf) that need to be addressed before the new approach is approved.

IS ENSC PROPOSING TO CHANGE ANY PART OF THE COST RECOVERY PROCESS?

Yes, ENSC proposes two changes, neither of which is driven by the move to a multi-year DSM plan. The first change relates to the method used to allocate costs to customers; the second simply shifts responsibility for the annual determination of the DCRR from NSPI to ENSC.

PLEASE DISCUSS THE PROPOSED CHANGES TO THE COST ALLOCATION METHODOLOGY.

ENSC's cost allocation is a two part process. The first part is the allocation of costs to tax payers and rate payers since ENSC delivers energy efficiency programs that target energy consumption other than electricity. The method used to allocate ENSC's costs to DSM programs which target electricity versus other energy types was accepted by the Board on December 16, 2011[11]. It is not proposed to be changed in this proceeding.

The second part of ENSC cost allocation method addresses the assignment of electricity-related energy efficiency programs to NSPI's customer classes. The method by which this is currently done was approved by the Board as part of the Settlement Agreement related to the 2008-09 DSM programs. In this proceeding ENSC proposes to modify this method slightly, the only change relating to the assignment of the costs of enabling strategies. Currently, the cost of enabling strategies is assigned to customer classes on the basis of number of customers in each class. It is proposed that this be changed to allocate those costs as follows:

[11] Board letter to ENSC dated December 16, 2011.

a) Ascribe 25% of the cost of enabling strategies to System Benefits, and allocate them as all other System Benefit costs are allocated (i.e., as fixed generation costs are allocated in NSPI's cost of service).

b) Assign the remaining 75% of the cost of enabling strategies (Participant Benefit) to customer classes on the basis of the benefits each class is expected to receive from the strategy, where this can reasonably be identified[12].

c) Where the beneficiary classes of an enabling strategy cannot be reasonably identified, assign the participant portion of the cost of that strategy to customer classes in proportion to the total costs of all other programs assigned to the class.

DO YOU SUPPORT THESE CHANGES?

Yes, I do. Enabling Strategies support the successful development and implementation of DSM programs. Ascribing 25% of the cost of these strategies as a system benefit is logically consistent with the assignment of the cost of all other DSM program. Further, as identified in ENSC(Avon) IR-14, ENSC has significant detail available on the Enabling Strategies that are being pursued and for most of them, a reasonable estimate of the classes expected to benefit from them and the proportions of benefits likely to accrue to each class. Allocating the 75% participant benefit on the basis of expected beneficiaries aligns with the allocation of participant benefits of all other DSM programs.

ENSC IS PROPOSING THAT IT TAKE RESPONSIBILITY FOR THE DETERMINATION OF THE ANNUAL DCRR. DO YOU SUPPORT THIS CHANGE?

Yes, I do. Determination of the DCRR requires data from both ENSC and NSPI. The majority of the data required resides with ENSC, and ENSC's costing model (as presented in Appendix C) will allow it to do the calculations with relatively little input

[12] ENSC(Avon) IR-14 discusses allocation of these costs between Residential and BNI customers. ENSC(Avon) IR's 35 and 36 provide additional detail with respect to allocation to classes.

from NSPI. Given ENSC's familiarity with the data and its focus on DSM, this is more efficient than having NSPI continue to make the DCRR filing.

ENSC IS PROPOSING TO REPLACE THE PROGRAM DEVELOPMENT WORKING GROUP WITH A DSM ADVISORY GROUP. DO YOU SUPORT THIS CHANGE?

Yes. The PDWG was initially formed as a result of the 2008/09 DSM Settlement Agreement with a mandate to assist the DSM administrator with the development of DSM programs. It was expected to exist only until the transition to the new administrator was in place. This has now occurred and ENSC's proposal to transition from the Program Development Working Group (PDWG) to a DSM Advisory Group is in keeping with the evolution of DSM from a developmental stage to a mature, fully operational portfolio of DSM programs. The mandate of the proposed new group is no longer related to program development, but as noted in ENSC(CA) IR-2, is "to provide directional advice and stakeholder perspectives on emerging issues". In my view, this is now the appropriate role of stakeholders.

DOES THIS CONCLUDE YOUR EVIDENCE?

Yes, it does.