Demand Side Management

Final Collaborative Report

Documentation Related to the DSM Collaborative Process

Volume II of III

A Joint Report of NSPI, UARB Staff and Consultants

January 31, 2008

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Miscellaneous Correspondence Preceding the Issue of the Terms of Reference

Nova Scotia Utility and Review Board (UARB)
c/o Ms Nancy McNeil
Nova Scotia Utility and Review Board
Box 1692, Unit "M"
Halifax, Nova Scotia B3J 3S3
UARB.nmcneil@gov.ns.ca

To: Nova Scotia Utility and Review Board,

September 7th, 2007

Re: Electric Energy Efficiency Administration and Planning

As a large group of stakeholders, we are writing to highlight the need to ensure strong public accountability for any electric energy efficiency investments made in Nova Scotia.

We wish to articulate, at this time, a list of common principles to ensure effectiveness and accountability for Demand Side Management (DSM) investments and to underline that action from both the UARB and the Provincial Government will be necessary to develop an effective framework for energy efficiency administration and planning.

Many of us have been fully participating in the *Demand Side Management* (DSM) and *Integrated Resource Plan* processes with Nova Scotia Power Inc. and the Utility and Review Board.

All parties who are signing this letter recognize the need to pursue electric energy efficiency in Nova Scotia. We believe that is it in the broad public interest to establish administrative rules for energy efficiency that ensure a high degree of public accountability and oversight. Public accountability is important for energy efficiency programs to be effective and equitable – contributing to reduced energy costs, while also delivering social and environmental benefits.

We feel there is no *a priori* reason for a utility such as Nova Scotia Power Inc. to administer electric energy efficiency programs.[1] A broad array of administrative models should be considered. It is therefore our request that the UARB fully engage stakeholders in the upcoming DSM process and that the Government of Nova Scotia also recognize its potential role in enabling the desired framework for DSM administration and planning.

Our broad grouping of stakeholders wishes to highlight the following principles for energy efficiency administration and planning:

[1] The Resource Recovery Fund Board provides an instructive example of independent administration in Nova Scotia.

- There must be clear performance indicators – related to measures such as energy and power savings, resource benefits, market transformations, and equitable service provision[2].

- The program administrator or program administrators must be free from conflicts of interest and/or competing priorities and they must engender trust in those they are serving.

- The administrator(s) should operate under a clear contract that may be competitively awarded and terminated if deemed necessary. We note that The Electricity Marketplace Governance Committee's (EMGC) recommendations 12 & 10, read respectively "The EMGC recommends that there be an open solicitation process to acquire or contract for new generation or DSM" and "The EMGC recommends that the UARB oversee any competitive process for NSPI to acquire new resources of demand management or generation facilities."

- Substantive energy efficiency programs should not be undertaken in an ad hoc fashion, and should only commence after the program administrator(s) has been chosen and the proposed programs have undergone careful stakeholder review.

- Incentives and disincentives should be explored to ensure that the program administrator(s) meets performance indicators.

- A high degree of public oversight, with frequent evaluations of efficiency programs and resource plans is essential to ensure effectiveness and to allow mid-course corrections.

- Funds invested in energy efficiency must not be utilized for other purposes or to meet other objectives.

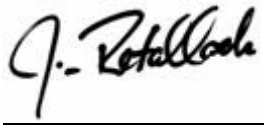
- Electric efficiency administration should be easily extended to programs for other fuel types and resources.

We believe it is critical that these principles are followed to ensure the success of any energy efficiency program in Nova Scotia. Ensuring an effective planning and administrative framework is likely to require action from stakeholders, the Utility and Review Board and the Government of Nova Scotia.

We are asking that the DSM process fully engage stakeholders and that DSM planning and administration account for the principles expressed above with an understanding that action from the Government of Nova Scotia, the UARB, and stakeholders, as well as NSPI will be necessary.

[2] Ensuring costs and benefits are shared equitably.

Acadia Management Group Inc.



Per: Dr. Jim Retallack, P. Eng

Affordable Energy Coalition

Per: Megan Leslie

Atlantic Chapter-
Canada Green Building Council

Per: John Crace

Avon Valley et al.

Per: Nancy Rubin

Canadian Manufacturers and Exporters

Per: Robert Patzelt, Q.C.

Ecology Action Centre

Per: Brendan Haley

Genuine Progress Index Atlantic

Per: Clare Levin

Halifax Regional Municipality

Per: Mary Ellen Donovan

Municipal Electric Utilities Co-operative of Nova Scotia

Per: Don Regan

Sierra Club of Canada – Atlantic Canada Chapter

Per: Gretchen Fitzgerald

Stora Enso and Bowater Mersey (SEB)

Per: George Cooper, Q.C.

cc
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The Honourable Bill Dooks, Minister of Energy
The Honourable Mark Parent, Minister of Environment and Labour
Bruce Outhouse, UARB Counsel
Dr. John Stutz, Tellus Institute
Rene Gallant, Nova Scotia Power
All interveners in Integrated Resource Plan

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For /Per: Gretchen Fitzgerald

Stora Enso and Bowater Mersey (SEB)

Per: George Cooper, Q.C.

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S. DAVID BRYSON, Q.C., COUNSEL, RET'D

* also of the Newfoundland Bar

September 17, 2007

TO:
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Canadian Manufacturers and Exporters
Genuine Progress Index Atlantic
Municipal Electric Utilities Co-operative of Nova Scotia
Stora Enso and Bowater Mersey (SEB)
Affordable Energy Coalition
Avon Valley et al.
Ecology Action Centre
Halifax Regional Municipality
Sierra Club of Canada – Atlantic Canada Chapter

Re: Electric Energy Efficiency Administration and Planning

The Nova Scotia Utility and Review Board has asked me, in my capacity as Board counsel, to respond to your letter of September 7, 2007.

The terms of reference for NSPI's DSM Plan are currently being developed and are to be filed on September 20, 2007. Following that, it is the Board's understanding that the DSM Plan will be developed through a collaborative process with stakeholders and it is anticipated that the DSM Plan will be completed in January 2008.The Board will then convene a public hearing to consider all aspects of the Plan. The hearing will likely be held in March or April.

Your letter urges the Board to consider a broad array of administrative models of DSM. While the Board certainly understands your point of view on this issue, the Board's jurisdiction is to regulate public utilities. Under the current legislative regime, the Board can require NSPI to establish and implement a DSM Plan. However, the Board does not have the authority to require NSPI to fund a DSM Plan which is administered by some other agency. For example, it would not be within the Board's jurisdiction to adopt the Vermont model for administering DSM in Nova Scotia.

It appears that all interested parties, including NSPI, are of the view that DSM will play an increasingly important role in meeting Nova Scotia's electricity needs and that it is necessary to move forward with the development and implementation of a comprehensive DSM Plan. The Board shares this view. However, given the existing legislative framework, the Board must proceed on the assumption that NSPI will be administering the DSM program. If the members of your group believe that an alternate administrative model is preferable, then that is a matter you will have to pursue in another forum.

There is, of course, an important distinction between administration of DSM generally and the delivery of individual DSM initiatives. The Board is mindful of the fact that the Province's Energy Policy encourages third party supply of energy resources, including DSM, where it is economic to do so. Accordingly, there is every reason to believe that third parties will have a role to play in the actual delivery of DSM initiatives.

On a related issue, the Board is concerned that the start up of individual DSM initiatives not be unduly delayed. As previously mentioned, it is likely that the public hearing on the DSM plan will not take place until the early spring of 2008. The Integrated Resource Plan (IRP) indicates that a large DSM component should be part of NSPI's future resource mix. Up to the present time, apart from rate credits for interruptability which, in effect, pay for load management, DSM expenditures have been extremely modest – less than 1% of NSPI's revenues. Consequently, there may well be significant DSM opportunities currently available which it is obvious will ultimately form part of the DSM Plan.

If NSPI can identify such opportunities, then the Board would be prepared to consider approving them prior to finalization of the DSM Plan. Such applications could be dealt with by way of "paper hearings" in which all stakeholders would be able to provide input. The contentious issue of how the costs of DSM are to be recovered from the various rate classes would not, however, form part of the paper hearing process and would be deferred to the main DSM hearing.

If the members of your group or other stakeholders, have any concerns about proceeding in the manner described in the preceding paragraph, please communicate them to me and I will pass them along to the Board for its consideration.

Yours truly,

S. Bruce Outhouse
Counsel to the Nova Scotia Utility and Review Board

cc: The Honourable Rodney MacDonald, Premier of Nova Scotia
cc: The Honourable Bill Dooks, Minister of Energy
cc: The Honourable Mark Parent, Minister of Environment and Labour
cc: Mr. Peter W. Gurnham, Q.C., Chair, NSUARB
cc: Dr. John Stutz, Tellus Institute
cc: Mr. Rene Gallant, NSPI
cc: All Intervenors in Integrated Resource Plan

MERRICK JAMIESON STERNS WASHINGTON & MAHODY

BARRISTERS

John P. Merrick, Q.C.
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September 26, 2007

23341

Mr. Bob Boutilier
Director, Regulatory Affairs
Nova Scotia Power Inc.
P O Box 910
Halifax, NS B3J 2W5

Dear Mr. Boutilier:

Re: NSPI Demand Side Management Program

I have a copy of your letter of September 20, 2007, addressed to Ms. McNeil attaching the terms of reference for Demand Side Management (DSM).

I can offer only limited comments. The terms of reference are general and still very sketchy. What is critical is how the development of the DSM plan actually unfolds and, in particular, whether a substantive input is in fact provided to stakeholders. You will know from previous communications, a criticism that has been levied at NSPI in the past is that the company develops the substance of the report or study, seeks input from stakeholders late in the process and then fails to reflect the substance of stakeholder input.

I would urge you and the company to ensure that the DSM process not only allows for early and consistent stakeholder input, but gives full consideration to that input.

Yours truly,

John P. Merrick

JM/ds

c IRP Intervenors
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MERRICK JAMIESON STERNS WASHINGTON & MAHODY

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September 26, 2007

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VIA FACSIMILE – 429-7347
23341

Mr. Bruce Outhouse
Blois, Nickerson & Bryson
1568 Hollis Street, Suite 500
P O Box 2147
Halifax, NS B3J 3B7

Dear Mr. Outhouse

Re: Electric Energy Efficiency Administration and Planning

I have a copy of your letter of September 17, 2007, addressed to Acadian Management Group Inc. and a list of other interested participants in the DSM process.

I note your advice that the Board's jurisdiction is limited to the regulation of public utilities and, as such, does not have the authority to require NSPI to fund a DSM plan which is administered by an independent agency. I share the concerns expressed to you on this point by Mr. Cooper in his letter dated September 18, 2007. I would submit that while there is no dispute the Board's jurisdiction is limited to the regulation of public utilities, consideration of whether NSPI is the appropriate entity to spend public funds for DSM does come within the scope of the Board's jurisdiction. There are several considerations which support that proposition.

1. The Board's jurisdiction must include the review of expenditures recovered in rates to ensure that the consumer is ultimately being required to pay no more than reasonable rates. There are been a number of instances when the Board has, without challenge, assessed the appropriateness and the effectiveness of NSPI's expenditures.

2. DSM spending is, at least arguably, in conflict with NSPI's corporate objective of selling more power. That has the potential of engaging conflict of interest issues. The review of such issues must come within the scope of the Board's regulatory oversight.

3. The issue of the independent administration of DSM programs has been discussed over the last several years in a number of forums, including regulatory hearings. It has been discussed by the Board in their recent decisions. Previous discussions have been based on the premise that the issue of how DSM programs should be administered is a matter that was to be addressed in dealing with DSM.

4. You note in your letter a distinction between administration and DSM generally and delivery of individual DSM initiatives. The role of third parties in the actual delivery of DSM initiatives is an integral part of any DSM proposal that may be developed. The distinction between DSM generally and DSM initiatives may be difficult to identify without ambiguity.

In short, it is my submission that the Board's jurisdiction to ultimately approve or disapprove the recovery in rates of DSM expenditures must involve consideration by all participants as to the advantages or disadvantages of NSPI administering the plan as opposed to some other alternative.

Yours truly,

John P. Merrick

JM/ds

c IRP Intervenors
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September 28th, 2007

Re: DSM Terms of Reference & Issues related to Administration and Planning

Dear Mr. Outhouse,

The Ecology Action Centre is writing to you in response to your letter, dated September 17th, regarding electric energy efficiency administration and planning issues, and in response to the NSPI Demand Side Management Collaborative Terms of Reference.

The EAC is very concerned that the DSM process outlined is almost exclusively depending on Nova Scotia Power Inc. to determine the scope and importance of DSM administration and planning issues. We do not feel this is at all appropriate, especially if NPSI is seeking to have control over DSM programming and administration.

It is far more appropriate for DSM administration and planning issues to be determined by those that will hold a given program administrator accountable. A collaborative is an appropriate forum to determine these issues; but it must be one where the Board and stakeholders play a significant leadership role. The initial letter submitted by a broad group of stakeholders on DSM administration and planning was asking the Board, stakeholders, and the government to play a much more active role in ensuring accountability for DSM program investments.

We would like to request that the Board make it quite clear that the Board itself will guide this process to assure accountability to the public. It appears that this would be best handled under the direction of Dr. John Stutz, leading a truly collaborative process in close consultation with stakeholders and government representatives.

The EAC would also like to encourage the Board to entertain a discussion on a wide variety of DSM administration and planning models. In some areas the Board might feel it lacks of jurisdiction.[1] However we would like to note that the Board has the ability to recommend legislation, and that the Board, or a collaborative operating under the Board's purview, is perhaps best able to identify what changes could be made through legislation or regulation to ensure an effective DSM administrative model that serves the public interest.

[1] We would like to note that the statement in the Sept. 17th letter which suggested that the Board's jurisdiction is to regulate public utilities, would not seem to preclude Board oversight over a separate energy efficiency utility. We would also like to note that the program administrator is only one of a series of issues with regards to administration and planning.

In particular, the EAC does not feel it is appropriate for NSPI to first define the scope and extent of administrative issues and to then hold a stakeholder conference afterwards. Instead, we would like to recommend that the schedule be modified to allow for an initial meeting with stakeholders that will seek to define issues associated with DSM administration and planning. We feel this would be a better approach that will commence a truly collaborative process.

We feel that not having an initial discussion to define administrative issues will further delay DSM initiatives and create distrust amongst stakeholders. We say this because the initial listing of DSM administrative issues contained within NSPI's draft terms of reference is inadequate. This is disappointing given that a large group of stakeholders have sought to define clear principles of DSM administration and planning within an earlier letter, and that the Ecology Action Centre has presented lists of these issues at every available opportunity over the course of the past year.

The EAC feels the following issues of DSM administration are fundamental to ensure accountability and effectiveness:

- Performance Indicators (related to energy savings, market transformations and equity)
- Performance Assurance – including incentives and penalties for program administrator(s)
- Scope of energy efficiency services
- Governance and Oversight (public participation & selection of entity)
- Program planning and implementation
- Resource Planning (process for future potential studies, forecasts and connection to IRP)
- Evaluation & Review
- Establishment of minimum funding levels and security of efficiency funds
- Coordination with programs connected with other fuel types and resources.
- Efficiency infrastructure development, including staffing and labour market strategies.

The Ecology Action Centre concurs with the terms of reference in their statement that "the DSM planning process is both technical in nature and time-consuming". We are also very much aware of the need to ramp-up DSM investments in the year 2008 to avoid future generation additions and electricity system costs.

An effective DSM plan will require a high degree of planning, professionalism and public oversight. The potential depth and complexity of the broader administrative issues and the need to forge consensus amongst public stakeholders speaks to the need for a rapid, but thorough, examination of all issues.

We clearly recognize the urgent need to ramp-up energy efficiency spending quickly, but we also strongly emphasize that it is equally important for gain assurance that DSM expenditures will be effective. We therefore join with other stakeholders in cautioning against ad hoc programming.

We believe the deployment of an initial set of well-designed DSM programs is important, that it can deliver many benefits and complement the longer-term administrative set up for energy efficiency in Nova Scotia. Deploying an initial set of programs will let Nova Scotia gain some initial experience and send the right signals to the market for future DSM delivery. However, it is important for an initial set of DSM programs to not pre-judge the critical administrative and organizational issues that must be decided. We would like to propose a process to ensure that this happens below.

Given that the IRP calls for a significant ramp-up of energy efficiency spending in 2008 (3 months away) and that your previous letter suggested the need to deploy an initial set of programs, we would like to request that the DSM terms of reference explicitly reference the two-track process suggested: with the first track concentrating on developing an initial set of well-designed, ratepayer funded DSM programs and the second track concentrating on the issue of longer term administration and planning. The first track will need to answer questions related to programming and funding before 2008. If stakeholder concerns regarding any potential conflicts of interest associated with NSPI controlled DSM initiatives are valid, it would follow that the Board will need to explicitly order initial DSM initiatives in the long-term interest of ratepayers.

We recommend that an initial track of programming be contracted to third-party delivery agents. Contracting out the initial program delivery will ensure flexibility and an ability to adapt to whatever longer-term administrative set-up is established. The EAC recognizes that concerns of potential NSPI conflicts of interest and competing priorities remain amongst stakeholders such as the Consumer Advocate and Stora Enso and Bowater Mersey (SEB). We would recommend that we explore the possibility of having NSP contract to the Conserve Nova Scotia agency to, in turn, contract out the initial set of programs. If there is a reason that the latter suggestion cannot be implemented we would like to request that the Department of Energy explain why this is the case and that it suggest potential options.

It is very important that the initial set of programs be developed in a truly collaborative fashion, with a high degree of public oversight. The Board and all stakeholders must have the opportunity to evaluate the specific programs to be deployed. In this process the EAC has retained the services of the Vermont Energy Investment Corporation (VEIC), VEIC has unparalleled experience in North America in DSM program design. We would like to ensure that our consultants, and other stakeholder consultants, be integrally involved in the collaborative effort to develop an initial set of programming. It is this type of collaboration and oversight that has helped develop successful DSM programs in other jurisdictions.

The potential depth and complexity of the broader administrative issues and the need to take the time necessary to forge consensus around an initial set of programming speaks to the need for a rapid and thorough examination of all issues. The success of DSM is of utmost importance given the potential for new fossil-fuel generation in the future without rapid ramp-up that achieves energy savings.

The EAC is concerned that the Terms of Reference, as presented, underestimates the amount of time and the amount of public consultation needed to fully develop an accountable, equal and effective DSM plan. We are also fully aware that the resources of Board staff, as well as NSPI, are currently being utilized in the Fuel Adjustment Mechanism (FAM) process.

The Board's decision in the most recent 2007 rate case acknowledged the concern that the scheduling of a hearing on a Fuel Adjustment Mechanism would further delay the Integrated Resource Plan which addresses NSPI's plans to meet environmental targets. The Board stated that, "The IRP process will take precedence over the FAM hearings in the Board's regulatory calendar" (para. 35). The DSM process is a continuation of the IRP and quickly and effectively deploying DSM resources is fundamental to achieving the least-cost plan identified by the IRP and meeting NSPI's environmental targets, and any future environmental targets.

Given the mandate that the Board established in the last rate case regarding the FAM process vis-à-vis the priorities established in the IRP, we feel there is some time available before 2008 to ensure that a full, thorough and truly collaborative DSM process takes place. If it is the case that full stakeholder consultation and thorough examination of all administrative issues associated with DSM is in conflict with the current FAM schedule, the Board's previous decision states that the FAM process should be delayed and the DSM process should be prioritized.

The EAC is issuing these comments to assure that Nova Scotia is able to implement an effective DSM program as quickly as possible. We look forward to future collaboration.

Brendan Haley

Energy Coordinator
Ecology Action Centre

cc
The Hounourable Rodney MacDonald, Premier of Nova Scotia
The Honourable Bill Dooks, Minister of Energy
The Honourable Mark Parent, Minister of Environment and Labour
Dr. John Stutz, Tellus Institute
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Our File: G-2907
October 1, 2007

VIA EMAIL

Ms. Nancy McNeil
Regulatory Affairs Officer/Clerk
Nova Scotia Utility and Review Board
3rd Floor, Summit Place
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Halifax, NS B3J 3P6

Dear Ms. McNeil:

Re: Demand Side Management ("DSM") Terms of Reference

We are in receipt of the NSPI DSM Collaborative Terms of Reference submitted to the Board on September 20, 2007. On p. 4 of the Terms of Reference, the Process Timeline Summary suggests that the UARB approve the Terms of Reference by October 4, 2007. Our clients, Stora Enso Port Hawkesbury Limited and Bowater Mersey Paper Company Limited (collectively "SEB") would like to offer the following comments on the Terms of Reference for consideration by the Board.

1. The IRP as a "Benchmark" for the DSM Plan

On p. 1, the Terms of Reference state: "The ramp-up proposed in the IRP analysis can serve as a benchmark for the plan." SEB would note that the DSM assumptions used in the IRP reference case were based on the untested analysis provided in the Summit Blue report, with assumed benefits that were extrapolated from a mathematical formula for the 5% spending level. This level of spending for DSM is virtually unprecedented in North America, a more common figure being 2% (or less). Furthermore, as SEB consistently pointed out throughout the IRP proceeding, the industrial benefits assumed by Summit Blue and Synapse have already been achieved with respect to the Stora Enso and Bowater mills, which together constitute approximately 20% of NSPI's load.

The Final IRP Report states at p. 34-35 that the Reference Plan "allows time for DSM to be implemented, monitored and evaluated...if DSM experience in Nova Scotia indicates a level of savings less than that projected in the Plan, alternative plans can be considered during these two years."

SEB believes that the objective of this collaborative effort should be to develop an initial DSM plan to explore the extent of achievable and cost effective DSM in Nova Scotia and take advantage of them, as opposed to simply assuming a 5% spending level as the "benchmark" and scaling back if that target proves too ambitious. The details of the plan should be subject to significant review and ongoing revision based on results.

2. The Role of the DSM filing of September 8, 2006

On p. 1 and 2, the Terms of Reference state that NSPI will "use the DSM filing of September 8, 2006 as a starting point for the development of an enhanced plan." SEB would note again that this plan remains based primarily on findings in the Summit Blue report which was generic in nature and did not appear to capture in any meaningful way the specifics of the Nova Scotia environment. More current information specifically addressing DSM potential in the province will be available soon. The CME-sponsored Neill & Gunter study assessing opportunities for industrial DSM is expected in November, and reports have already been provided to individual survey participants. Also, on October 26, 2006, the Department of Energy awarded a tender to Kema Inc. to "Provide a review/assessment of potential DSM and renewable energy opportunities for all end user energy sources in Nova Scotia and identify the most economically attractive opportunities", and this report should also be completed shortly.

The Approach and Process sections of Terms of Reference should specifically refer to the use of these reports in the collaborative development of NSPI's DSM plan. The various activities conducted by other DSM providers in the market, such as Conserve Nova Scotia, must also be considered to ensure that efforts are not unnecessarily duplicated. This information is timely and may be particularly useful in determining any DSM meriting early implementation.

3. DSM Administrative Issues

On p. 3, the Terms of Reference state that for the "Deliverables" related to Administrative Issues, "The Collaborative [presumably NSPI and Board Consultants] will assess the DSM administrative issues and present them for stakeholder input over two sessions..." These issues include those that relate to tracking and reporting of results. If NSPI is to be a provider of DSM and seeks to recover its costs, SEB is not convinced that NSPI should also be involved in the initial determination as to how its performance will be evaluated, or in assessing concerns regarding its potential conflicts of interest.

The Board should modify the Terms of Reference with respect to DSM Administrative Issues to require its consultants to develop administrative rules for energy efficiency that would ensure a high degree of public accountability and oversight appropriate to a utility applying to recover costs associated with DSM spending, in collaboration with stakeholders. This framework for evaluation could then be presented to NSPI for input.

4. Stakeholder Engagement

The Terms of Reference contain numerous references to "stakeholder input". On this point, SEB would like to re-iterate the comments expressed by the Consumer Advocate in his letter to Mr. Bob Boutilier of September 26, 2007, that the substance of

similar reports or studies prepared by NSPI in the past have "failed to reflect the substance of stakeholder input."

The Terms of Reference should specifically ask NSPI to incorporate stakeholder comments and concerns directly into the substance of the final Report to be filed with the UARB, as opposed to attaching such comments as an Appendix. If the process is truly intended to reflect "stakeholder input", simply appending that input to NSPI's position paper, almost as an afterthought, does not accomplish the objective.

5. DSM Process Timeline Summary

The suggested timeline recommends that the first stakeholder session take place on November 1, 2007, with written comments to be provided on November 8, 2007. As the Board is aware, many of the stakeholders who will be participating in the DSM Collaboration will also be active participants in the FAM Proceeding that begins on November 5, 2007.

SEB requests that the Board adjust the timeline to ensure that stakeholders are able to fully participate in both the FAM hearing and the DSM collaborative effort.

Thank you for considering these comments. SEB looks forward to participating in the DSM collaborative process.

Yours truly,

George Cooper

(1092272)

cc: S. Bruce Outhouse, Board counsel
Dr. John Stutz, Tellus Institute
Rene Gallant, NSPI
IRP Intervenors

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S. DAVID BRYSON, Q.C., COUNSEL, RET'D

* also of the Newfoundland Bar

October 1, 2007

VIA E-MAIL

Mr. George Cooper, Q.C.,
McINNES COOPER,
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P.O. Box 730,
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Mr. John Merrick, Q.C.,
MERRICK JAMIESON STERNS WASHINGTON & MAHODY,
Barristers & Solicitors,
5475 Spring Garden Road, Suite 503,
Halifax, NS B3J 3T2

Gentlemen:

Re: Electric Energy Efficiency Administration and Planning

I acknowledge receipt of Mr. Cooper's letter dated September 18, 2007 and Mr. Merrick's letter dated September 26, 2007 in reply to my letter of September 17, 2007 concerning the above-noted matter. I passed your letters on to the Board for consideration and it has instructed me to respond to same.

Both of your letters correctly make the point that the Board has the jurisdiction to disallow expenditures by NSPI which are not "reasonable and prudent" and, no doubt, such jurisdiction would extend to DSM-related expenditures. To that extent, it is certainly open to the parties to take the position that no expenditures for DSM should be approved by the Board because the test of "reasonableness and prudency" cannot be met if NSPI is administering the DSM program. It is also true, as you both point out in your letters, that the Board could consider the issue of DSM administration in the context of making a recommendation to the Attorney General pursuant to s. 21 of the *Public Utilities Act*. The Board has no plans to institute such a proceeding.

This said, however, the main point of my September 17, 2007 letter remains unchanged. Simply put, the Board does not have the jurisdiction under existing legislation to require NSPI to establish and implement a DSM plan which is administered by some other agency which the Board does not regulate. Consequently, unless and until there are legislative changes, any DSM initiatives will have to be administered by NSPI unless, of course, NSPI were to voluntarily contract out the administration of DSM, in which case the contract would be subject to Board approval.

It appears from Mr. Cooper's letter that SEB has concerns about approval of any individual DSM initiatives until after the DSM hearing which will probably be held in March or April of next year. The Consumer Advocate has not stated any position on this issue. The Board remains of the view that, if NSPI can identify significant opportunities which it is obvious will ultimately form part of the DSM plan, it would be appropriate to deal with such opportunities by way of "paper hearings" rather than defer their consideration to the main hearing and the delay which that will necessarily entail.

As always, the Board appreciates your comments and concerns.

Yours truly,

S. Bruce Outhouse
Counsel to the Nova Scotia Utility and Review Board

cc: Mr. Peter W. Gurnham, Q.C., Chair, NSUARB
cc: Acadia Management Group Inc.
cc: Atlantic Chapter – Canada Green Building Council
cc: Canadian Manufacturers and Exporters
cc: Genuine Progress Index Atlantic
cc: Municipal Electric Utilities Co-operative of Nova Scotia
cc: Stora Enso and Bowater Mersey (SEB)
cc: Affordable Energy Coalition
cc: Avon Valley et al.
cc: Ecology Action Centre
cc: Halifax Regional Municipality
cc: Sierra Club of Canada – Atlantic Canada Chapter
cc: The Honourable Rodney MacDonald, Premier of Nova Scotia
cc: The Honourable Bill Dooks, Minister of Energy
cc: The Honourable Mark Parent, Minister of Environment and Labour
cc: Dr. John Stutz, Tellus Institute
cc: Mr. Rene Gallant, NSPI
cc: All Intervenors in Integrated Resource Plan

Canadian Manufacturers & Exporters

Nova Scotia Division

October 3, 2007

S. Bruce Outhouse, Q.C.
Blois, Nickerson & Bryson
1568 Hollis Street, Suite 500
PO Box 2147
Halifax, NS B3J 3B7

Dear Mr. Outhouse,

Re: NSPI Demand Side Management Collaborative Terms of Reference

We have reviewed the NSPI DSM Collaborative Terms of Reference dated September 20, 2007. These terms of reference are, in our opinion, extremely vague.

The CME concurs with the comments previously made by the Consumers Advocate that it is now critically important how the development of the DSM plan unfolds. Stakeholder input in this process should be sought early in the planning process and continue throughout the process on a frequent basis. There have been criticisms of past planning and consultation processes and they should be duly noted. We respectfully request that the Board play a more active role to ensure these issues do not arise during the DSM planning process as the timeline for planning and implementation is extremely tight.

It is understood from your letter dated October 1, 2007 addressed to McInnes Cooper and Merrick, Jamieson, Sterns, Washington & Mahody, that the Board does not have the jurisdiction under existing legislation to require NSPI to establish and implement a DSM plan administered by an outside agency, which the Board does not regulate. This does present a hurdle but our research indicates that some of the jurisdictions with the most successful DSM programs have been achieved in large part due to the oversight and independence of a separate body. We must fully explore how this may be achieved, either through a separate agency or other mechanisms perhaps mimicking the systems to achieve the same results.

The CME would like to reiterate a point made by other interveners that there are matters of conflict of interest that must be addressed. Also, the CME supports the request previously made by the Ecology Action Centre for the Board to guide the DSM planning process and to assure accountability. It is felt that strict regulatory oversight will be of paramount importance to ensure the interests of Nova Scotian ratepayers are protected.

The CME agrees with the matters raised and points made in the October 1st, 2007 letter from McInnes Cooper on behalf of SEB and for the sake of economy they will not be repeated in this letter.

Finally, we request that the CME-sponsored study, conducted by Neil & Gunter assessing the opportunities for industrial DSM be taken into consideration during this planning process. The report is expected to be completed in November of this year.

The CME appreciates the opportunity to provide feedback on the development of DSM in Nova Scotia. We look forward to further participation.

Respectfully submitted,

Robert Patzelt, Q.C.
CME, Nova Scotia Division

Cc: Rene Gallant, NSPI
Bruce Outhouse, Q.C. Board Counsel
Intervenors
Ann Janega, VP, CME-NS

October 4, 2007

By email: bob.boutilier@nspower.ca

Mr. Bob Boutilier, P. Eng.
Director, Regulatory Affairs
Nova Scotia Power Inc.
14th Floor, Barrington Tower
P. O. Box 910, Scotia Square
Halifax, NS B3J 2W5

Dear Mr. Boutilier:

Nova Scotia Power Inc. ("NSPI") - Demand Side Management - Terms of Reference P-884

Attached is the Terms of Reference as amended by the Board. The amendments are:

1. A provision to make it clear that the process will be informed by other studies currently being undertaken by the CME, the Department of Energy and perhaps others;

2. An adjustment to the timeline recognizing the timing of the FAM hearing.

The Board appreciates all of the comments received from participants in the process.

The Board wishes to clearly reiterate the points made by Board counsel in his letters of September 17th and October 1st, that the Board does not have jurisdiction to establish and implement a DSM program administered by an agency the Board does not regulate.

Utility administration (whether directly or through third parties contracted by the Utility) will ensure that an organization the Board regulates will be responsible to the Board for administration of DSM efforts.

The Terms of Reference clearly provide for consultation with stakeholders. In accordance with various submissions received the Board requires that these consultations be meaningful.

The Ecology Action Centre raises a series of issues in the 3rd paragraph on page 2 of its letter to the Board dated September 28, 2007, concerning administration of the DSM programs. Comments on

governance have been dealt with. However the Board anticipates that a number of the other issues such as performance indicators, performance assurance, resource planning and implementation will be dealt with in the final DSM report filed with the Board and the subject of a hearing in the spring of 2008.

Yours very truly,

Nancy McNeil
Regulatory Affairs Officer/Clerk

c.c.	S. Bruce Outhouse, Q.C., Board Counsel	By email
	Dr. J. Stutz, Board Counsel Consultant	By email
	Rene Gallant, Regulatory Counsel, NSPI	By email
	Eric Ferguson, Manager, Regulatory Affairs, NSPI	By email
	Marlene Gargan, NSPI	By email
	Formal Intervenors - P-884	By email

October 4, 2007
Terms of Reference

NSPI Demand Side Management Collaborative

Terms of Reference

1. Objective

Initiate the development of a comprehensive DSM program, aimed at realizing the potential indicated in its Integrated Resource Plan (IRP) analysis. The ramp-up proposed in the IRP analysis can serve as a benchmark for the plan. The program is expected to include reporting mechanisms to track expenditures and assess changes in electricity demand and energy across the various customer segments to capture the effect of significant 'ramp up'.

The DSM collaborative will undertake to:

- Consider administrative issues relating to DSM including issues raised by stakeholders;
- Update and enhance NSPI's DSM plans to reflect the objectives and opportunities contained in the Integrated Resource Plan IRP.

2. Approach

NSPI will:

- Collaborate with the Board's staff and DSM consultants under the direction of Dr. Stutz;
- Consult with stakeholders;
- Work expeditiously and with a sharp focus on scope as outlined in Section 3;
- Incorporate learnings gained through the IRP process;
- Consider DSM consultant information as appropriate and provide the UARB with information as necessary to support the process;
- Develop the comprehensive DSM plan aimed at realizing the potential indicated in the IRP;
- Use the DSM filing of September 8, 2006 as a starting point for the development of an enhanced plan;
- Consider the results of studies currently being undertaken by CME, the Department of Energy, and any other studies applicable to the task;

Allow for the inclusion of competitive solicitation of DSM by NSPI as appropriate.

3. Scope

The DSM Collaborative will consider previous DSM Planning work by NSPI and its consultants, and stakeholders and their consultants, and incorporate the analysis, findings and action plan contained in NSPI's IRP**.**

Primary steps of the DSM Collaborative include:

A. Administrative Issues and Programming

- Identify a set of administrative issues for consideration
- Develop and evaluate options around each of the key administrative issues
- Perform analysis as required and engage consultants where necessary to determine initial DSM programming to pursue
- Consult with stakeholders

B. Early DSM and Baseline Activities

Develop realistic demand-side and baseline activities for NSPI to consider for early implementation, including:

- Year 1 and year 2 baseline activities that prepare a foundation for DSM programming of future years;
- Engage consultants and perform analysis as required;
- Consult with stakeholders.

Early implementation of short term DSM projects (possibly contracted to delivery agents).

4. DSM Collaborative Framework

Process:

NSPI will collaborate on the development of an enhanced DSM Plan, starting with the September 8, 2006 DSM filing, aiming to realize the potential identified in the IRP

analysis, while addressing the DSM administrative issues and taking into consideration stakeholder input.

Criteria to be considered include:

- Completeness – assess potential programs and benefits
- Achievability – Realistic view to understand and mitigate any barriers or limitations
- Effectiveness – Sound, proven approaches with emphasis on monitoring and evaluation to ensure effectiveness

Flexibility – Providing ability to adjust to new market or technology opportunities to achieve the DSM program objectives as appropriate, the Collaborative will address contrasting views and identify common perspectives with regard to administrative issues. NSPI and its consultants will consider technically and economically viable demand-side technologies and evaluate individual DSM initiatives. Estimated DSM costs and energy and/or demand effects will be included in the analysis.

Deliverables:

A. DSM Administrative Issues

- The collaborative will assess the DSM administrative issues and present them for stakeholder input over two sessions, including:
- Nova Scotia Power's Role in DSM
- Proposed level of DSM Investment and cost recovery approach
- DSM Programming
- Tracking and Reporting of Results

B. Early DSM Activities

The DSM collaborative will identify for consideration early NSPI DSM activities for NSPI to consider for implementation that will best position DSM for significant ramp up. The activities list will consider DSM baseline work, studies, partnerships, and pilot programs that can provide a foundation for future

additional investment in DSM. Timely start-up of DSM programming will be explored with consideration given to contracting implementation to DSM delivery agents.

C. Revised DSM Plan /Recommendation

The DSM Collaborative will oversee the enhancement of NSPI's September 8, 2006 DSM Plan aimed at realizing the potential identified in the IRP analysis and this will form the foundation of NSPI's DSM filing.

5. Stakeholder Engagement

NSPI will seek stakeholder input at key points during the collaborative process.

The DSM Collaborative process will provide focus on issues and programming and enable direct stakeholder input. It is possible that uncertainty and contrasting views may continue to exist in some areas. Regardless, timely completion of the process is important to ensure progress is made with regard to DSM.

The DSM planning process is both technical in nature and time-consuming. NSPI plans to engage expert DSM consultants, and consult with stakeholders in an efficient and effective manner at key planning stages in the process, as outlined in the process timeline which follows.

6. DSM Process Timeline Summary

1.	Terms of Reference submitted to UARB for approval	September 20, 2007
2.	UARB approval of Terms of Reference	October 4, 2007
3.	Preliminary DSM administrative issues analysis along with supporting documentation compiled and issued to stakeholders. Early DSM activity / baseline work identified.	October 15, 2007
4.	Stakeholder Session for input on DSM administrative issues approach	November 1, 2007
5.	Written comments from stakeholders	November 15, 2007
6.	Updated DSM administrative issues analysis and draft programming report issued to stakeholders	December 11, 2007
7.	Stakeholder Session	January 11, 2008
8.	Written comments from stakeholders	January 18, 2008
9.	Final DSM Collaborative Report filed with UARB	January 31, 2008

October 15, 2007
Draft Preliminary Administrative Issues Analysis

NOVA SCOTIA POWER INCORPORATED

Preliminary
DSM Administrative Issues Analysis

DRAFT

For Discussion with Stakeholders

October 15, 2007

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1.0 INTRODUCTION

On September 20, 2007, NSPI filed Terms of Reference for the Demand Side Management (DSM) Collaborative with the Nova Scotia Utility and Review Board (UARB). This was amended and approved by the UARB on October 4, 2007. A deliverable of the Collaborative is to issue an analysis of DSM administrative issues to stakeholders.

This document is submitted in fulfillment of this. A stakeholder session to discuss these DSM administrative items will be held on November 1, 2007. Following this session, stakeholders will then have until November 15, 2007 to provide written comments on these issues.

1.1 Background

In 2005, NSPI prepared a plan to increase its annual investment level in DSM programs by $5 million. This plan was included as part of NSPI's General Rate Application for 2006.

In its Decision, issued March 10, 2006, the UARB directed NSPI to retain an external DSM consultant to assist NSPI in completing its Demand Side Management Plan. The selection and retention of NSPI's consultant and the preparation of the Terms of Reference for the consultant's work was overseen and approved by the Board. NSPI awarded the DSM contract for consulting services to Summit Blue in June 2006. Following stakeholder engagement on DSM over the summer of 2006, a revised DSM Plan was filed with the UARB in September 2006.

Subsequent to this, the Board directed that further discussion on DSM would become part of NSPI's Integrated Resource Planning (IRP) analysis. Synapse Energy Economics Inc. (Synapse) and Dr. Stutz were hired to assist the UARB in this collaborative undertaking with NSPI, which was concluded in July 2007. The IRP identified the next step for DSM as:

> NSPI will initiate the development of a comprehensive DSM program, aimed at realizing the potential indicated in the IRP analysis. The ramp-up proposed in the IRP analysis can serve as a benchmark for the plan. The program is expected to include reporting mechanisms to track expenditures and assess changes in electricity demand and energy across the various customer segments to capture the effect of significant 'ramp up'.[1]

In Appendix 3, Volume 1 of the IRP Final Report, the Board's consultants recommended "…To move work along on DSM we suggest continuation of the process which has served us well in developing the IRP-collaboration and consultation under the general direction of Dr. Stutz."

1.2 Scope of Administrative Issues Analysis

The Collaborative has been directed to consider previous DSM planning work by NSPI, the UARB, stakeholders, and their consultants. This document compiles input from NSPI's consultant, Summit Blue, and the Board's DSM consultants, Dr. Stutz and Synapse.

The September 2006 DSM filing focused on five key administrative items identified in the original Terms of Reference for the DSM work of NSPI's consultant. These are:

1. NSPI's role in administering the DSM program
2. The appropriate level of DSM investment
3. The details of the DSM program
4. How the DSM Program costs and effects will be recovered in rates
5. The methods by which the DSM program will be tracked and reported

These topics are discussed in detail in the following sections.

[1] NSPI Integrated Resource Plan (IRP) Report Volume 1, July 2007, Page 41.

2.0 NOVA SCOTIA POWER'S ROLE

NSPI will be the administrator of its DSM program. NSPI will implement DSM efforts using in-house staff, through partnerships and by outsourcing the delivery of DSM services on a competitive basis as appropriate.

NSPI seeks to develop successful partnerships at all levels, with customers, trade allies, trade associations, non-profit organizations and local, provincial, and federal government agencies dedicated to mutual and complementary goals of energy efficiency and conservation. NSPI will seek to leverage the work being done by Natural Resources Canada and the provincial government. NSPI has a track record of working well with Conserve Nova Scotia and considers them as a key partner in the success of DSM in this province.

In outsourcing delivery of appropriate aspects of the DSM program, NSPI would develop a Terms of Reference and issue competitive Requests for Proposals, subject to Board oversight. These opportunities would be open to experienced and professional entities (whether for profit or not-for-profit) which can demonstrate the ability to understand the marketplace, to design and implement high quality DSM programs, to operate these programs, and to track activity and results.

While the Collaborative does not consider the issue of administration as open, it recognizes that others may disagree. Discussion of administrative options will be on the agenda for the November 1 stakeholder session.

3.0 LEVEL OF INVESTMENT

In NSPI's September 8, 2006 DSM filing, the spending on DSM programs was contemplated to start at 0.7 percent of in-province electric revenues and ramp up to 2 percent by 2010. The subsequent IRP analysis considered additional scenarios of DSM

investment and suggests that positive benefits accrue at levels of spending up to five percent of total revenue.

A key issue arising from the IRP report relating to the level of investment in DSM is that of determining how fast DSM can be effectively and economically ramped up in Nova Scotia. In the IRP statement concerning IRP development, results and recommendations[2] issued by Dr. John Stutz and Bruce Biewald of Synapse, this level of DSM spending was strongly supported. However, it was noted that this was a very aggressive savings target and that it is unclear at present whether NSPI can ramp up successfully to achieve the savings projected in this case.

It is important to start scaling up DSM programs as soon as practical, but to do so in a manner that is most likely to be successful and sustainable. This includes starting with a portfolio of programs that is likely to be successful and to start with goals that are achievable. Experience will be gained in the early years of this program; DSM spending should meet a "no regrets standard"

The level of spending contemplated in the 2006 DSM filing offers a reasonable range of suggested spending over the initial years of the DSM program. Since the Integrated Resource Plan advocates increased levels of DSM spending and all parties are in favour of moving quickly towards higher levels, it is proposed that the DSM spending level beyond year 2 should be evaluated after year 1 results are known. It is anticipated that spending levels will ramp-up quickly towards those spending levels (and savings) established as the preferred plan in the IRP.

An appropriate strategy for more aggressive implementation of DSM in Nova Scotia is a combination of resource acquisition (paying for savings immediately through incentive based programming) and market transformation (investing in long term partnerships, education, training, standards and regulations) that will realize both immediate and lasting savings for Nova Scotia. The initial years of the DSM program will set the stage

[2] Appendix 3 Vol 1 IRP Report

for these activities to be as successful as possible in achieving the best value for Nova Scotians.

4.0 DSM PROGRAMMING

Summit Blue's work for the September 2006 DSM filing provided discussion and recommendations on an overall approach to DSM. The following identifies these recommendations with regard to DSM programming:

- Calculate the Total Resource Cost (TRC) test to determine the program cost-effectiveness, and also calculate Rate Impact Test (RIM) to determine the impact of the DSM programs on customer rates and the Utility Cost Test (UCT) to determine the benefits to the utility.
- NSPI should promote and leverage Natural Resources Canada, including program delivery where possible.
- Funds for additional demand response program development and pilot programs should be included in the DSM portfolio.
- The DSM programs should provide rebates & incentives to overcome the high first cost market barrier.
- The NSPI DSM programs should only provide incentives for electricity savings measures.
- The DSM plan should include programs for all sectors: residential, low-income, commercial, and industrial.
- Overcome the split incentive for low-income renters by working with the multi-family building owners to install DSM measures.
- NSPI should continue and perhaps expand their education and outreach efforts, not only as a means to increase awareness and knowledge, but to direct consumers to one of their programs.
- The energy/demand savings from education and outreach should not be included in the overall portfolio impacts.

In general, NSPI is supportive of the above recommendations taking into consideration the discussion below on Large Industrials and Low Income.

Industrials:

In its DSM Report and proposed DSM Programming, the consultant suggested an increased level of DSM activity for the Industrial customer sector. NSPI is supportive of this as it aligns with the Canadian Electricity Association (CEA)'s national DSM Potential study *"Demand Side Management Potential in Canada"* conducted by Marbek Resource Consultants Ltd., as well as another recent DSM potential study for Industrial customers in New Brunswick entitled *"Energy Performance Benchmarking & Best Practices in the New Brunswick Industrial and manufacturing Sector"* conducted by the Canadian Manufacturers and Exporters Association in association with Neill and Gunter Ltd. and Marbek Resource Consultants Ltd. A similar Industrial DSM potential study for Nova Scotia is currently underway. This study is being facilitated by CME Nova Scotia and is co-funded by the Province of NS, ACOA, NRCan, and NSPI. The "Achievable Potential" report is expected to be completed in the fall of 2007.

Based on feedback from NSPI's Pulp and Paper sector customers that there has been substantial investment in energy efficiency over recent years and very little DSM potential remains in their sector, NSPI will defer DSM programming associated with this portion of the Industrial sector pending completion of the Nova Scotia study.

Low Income:

NSPI recognizes that customers with low income can be particularly affected by rising energy costs. This group was identified during last year's planning work with stakeholders as an important sub-group of residential customers. The consultant's DSM Report and proposed DSM Programming suggest ways of reaching this important sub-group. Should the Board conclude that such a program is permitted under regulation, NSPI is prepared to adopt Summit Blue's recommendation.

The following items for consideration are brought forward by Synapse:

- New construction program for electrically heated homes, incentives for shell and equipment measures:
  a) Simultaneously, advocate activity for NS building code reform.
  b) Promptly evaluate whether fossil space and water heating are societally cost-effective in lieu of electric in typical new construction. If so, consider also adding incentives for the choice of efficient fossil systems (discourages electric heating).
- Program for existing electrically heated homes, incentives for shell and equipment measures:
  a) Promptly evaluate whether fossil fueled water heating is societally cost-effective in lieu of electric in certain types of existing construction. If so, consider also adding incentives for the choice of efficient fossil systems (discourages electric water heating) in appropriate house types (e.g., space heated with natural gas).
- Low-income @ 10 percent of budget for above program, with no participant cost, if UARB OKs segmentation:
  a) It might be useful to contract delivery of this effort to community agencies if they are in the field with effective activity at present; otherwise solicit delivery proposals from all potential vendors.
- Energy Star:
  a) Consider clothes washers incentive as part of Energy Star program
  b) Energy Star fridge incentive - An alternative approach is to offer a bounty for fairly old fridges which can accelerate their retirement (the efficiency of replacements units is better), including collecting second fridges that are certified to be operating. Such appliance bounty programs use specialized vendors.
- Commercial and Industrial (C&I) new:
  a) New construction design assistance, plus incentives toward efficiency systems, with custom consulting for >50,000ft^2 projects - Simultaneously, advocate for NS building code reform
- C&I existing:

a) To maximize impact consider two additional program approaches:
   i) A turnkey direct efficient lighting installation track for small customers, using one delivery contractor and higher incentives than would the general C&I program.
   ii) A "performance contracting" track whereby energy service companies are paid for measured and verified kWh savings from efficiency projects at host facilities.

- Education & outreach:
  a) Within the schools sector, consider a "green schools" approach using school facilities themselves as laboratories for student learning about energy, while enhancing the schools' own ability to understand and manage energy efficiently.

5.0 RECOVERY IN RATES

The Collaborative supports the allocation of DSM program costs across the entire rate base and contribution by all electric customer classes. To do otherwise would result in some classes benefiting from the savings associated with a DSM program (i.e. deferral of investment in generation infrastructure) but not contributing their fair share to the investment required to achieve this.

An implication of a demand side initiative for NSPI is that its margins (the difference between the revenues and costs) would decline due to lower electricity sales. These lost margins should be addressed through a reconciliation procedure (annual rate case or a lost revenue adjustment mechanism (LRAM)). An alternative to this is that the utility's revenue could be decoupled from its electricity sales, by instead linking revenue to the number of customers and weather adjusted sales. This results in DSM having a neutral effect on revenue and thereby removes the utility's throughput incentive.

Full decoupling, however, would be a regulatory shift in how the utility recovers its revenue requirement. To decide whether this is appropriate for Nova Scotia this would require significant education and consultation. This does not appear to match with the

pressing requirement for DSM implementation, and for this reason, the first option, an LRAM, may be more suitable. If the LRAM approach is to be undertaken, it would not preclude the ability of the Board, NSPI or indeed stakeholders, to revisit this decision in future years.

Stakeholders have urged for performance assurance to be part of any DSM program. Additional incentives to invest in DSM and for meeting or exceeding DSM targets could be considered. Regulated utilities earn a return on equity. However, investments in a DSM programs do not typically add to a utility's rate base and does not, on a financial basis, provide incentive for the company to invest in such a program. Shared savings mechanisms, for which many designs exist, can create incentives for the utility and could be assessed in this process.

6.0 TRACKING AND REPORTING OF RESULTS

Detailed monitoring and evaluation plans would be developed for each of the DSM programs. These plans could include the use of an integrated data collection system to provide adequate data for program evaluation and reporting purposes.

DSM results, spending levels and future DSM plans would be reviewed regularly. DSM potential studies are currently underway for all three customer sectors, which will further inform DSM efforts.

7.0 CONCLUDING COMMENTS

The information provided in this document has been compiled for the purpose of further discussion at the upcoming November 1, 2007 DSM stakeholder conference on this matter. NSPI welcomes further input from stakeholders on these key administrative issues. Stakeholders are encouraged to review both the IRP Report and NSPI's Sept 8, 2006 DSM Programming Report to further understand the administrative issues presented in this document.

October 15, 2007
Draft Early DSM Programming

NOVA SCOTIA POWER INCORPORATED

EARLY DSM INVESTMENT PROPOSAL
Commercial Lighting Direct-Install Program

DRAFT

For Discussion with Stakeholders

October 15, 2007

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Executive Summary

Nova Scotia Power (NSPI) proposes to pursue approval from the UARB for a substantial Commercial Lighting Direct-Install program. NSPI's application to the UARB would include the details of the proposed program, the expected benefits and costs and a detailed monitoring and evaluation plan. NSPI's investment would be contingent on recovery of associated costs in rates.

This program is recommended for four primary reasons:

1. Such programs are well established in other jurisdictions:
   - Proven results
   - Positive Total Resource Cost (TRC) benefit/cost (B/C) ratio
2. This program would be expected to form part of NSPI's future DSM Plan.
3. NSPI anticipates broad support for this type of program.
4. Opportunities exist to leverage NSPI's investment to achieve greater energy savings.

1.0 INTRODUCTION

On September 20, 2007, NSPI filed Terms of Reference for the Demand Side Management (DSM) Collaborative with the Nova Scotia Utility and Review Board (UARB). This was amended and approved by the UARB on October 4, 2007. A deliverable of the Collaborative is to identify early DSM activity.

This proposal was created in alignment with this objective. A stakeholder session to discuss this proposal and other DSM items will be held on November 1, 2007. Following this session, stakeholders will have until November 15, 2007 to provide written comments.

Comments from the UARB's consultant with respect to the Integrated Resource Plan (IRP) include "Moving quickly and vigorously on DSM is particularly important since, as the IRP results show clearly, any significant delay in DSM development is likely to be accompanied by significant increases in costs." (Final Report Volume 1, Appendix 3).

In the September 17, 2007 letter from the UARB's counsel, regarding electric energy efficiency administration and planning, it was suggested that "…there may well be significant DSM opportunities currently available which it is obvious will ultimately form part of the DSM Plan. If NSPI can identify such opportunities, then the Board would be prepared to consider approving them prior to finalization of the DSM Plan. Such applications could be dealt with by way of "paper hearings" in which all stakeholders would be able to provide input."

The Commercial Lighting Direct-Install program is one such program which NSPI is proposing at this time.

2.0 PROPOSED PROGRAM CONCEPT

The Collaborative supports the early implementation of a Commercial Lighting Direct-Install program as one that meets the needs of moving quickly and vigorously on DSM and would ultimately form part of NSPI's DSM Plan.

Experts agree that lighting in existing commercial buildings account for a large percentage of their load and that significant energy savings potential exist in efficient lighting system retrofits (such as converting from incandescent to fluorescent, converting T12 magnetic ballast lighting systems to electronic ballast T8 or T5 systems, and converting to LED exit signs)**.**

A detailed Commercial Lighting Direct-Install program will be designed to provide a turnkey service, from an on-site audit (identifying lighting retrofit opportunities along with a benefit/cost payback analysis), to direct installation of the identified lighting measures, with an option for on-bill financing for approved participants. NSPI will use expert DSM consultants to design the program details while exploring partnership opportunities to leverage its investment in the program. Additionally, NSPI has arranged to meet with National Grid in Massachusetts to understand their experience with such a program. National Grid has many years of successfully running Commercial Lighting Direct-Install programs.

NSPI (itself or potentially with partners) would issue an RFP to select one or more service providers to deliver the program across the province. The service providers would manage the program delivery, but may subcontract with local electricians or electrical contractors to conduct the direct install of the efficient lighting. Competitive procurement and the potential for high job volume could help to minimize installation labor costs. Another consideration could be to bid out the equipment purchases, providing participating electricians with access to equipment from distributors at the preferred program price.

The service providers would provide trained staff to conduct the on-site lighting audits, arrange for the direct install of the energy efficient lighting, conduct post-installation inspections, and provide reporting on pre-defined program metrics.

NSPI (itself or potentially with partners) would develop and approve the marketing approach and any associated materials, as well as create and maintain a marketing database. The service providers would be responsible for the direct customer marketing. Marketing would include targeted mailing to potential participants within the commercial sector.

When a potential participant calls, the service provider collects basic information, such as the name and location of the facility, utility account number, and contact name and phone number. They also schedule the free lighting audit.

The auditor looks for energy savings opportunities on-site in the form of lighting retrofits. When cost-effective opportunities are present, the auditor will explain the technologies that are available through the program, in terms of both energy savings and lighting quality. If no significant savings opportunities are identified, the auditor explains that to the customer before leaving the facility.

The auditor compiles the data in a program that produces a report estimating the facility's lighting energy consumption. The report also estimates the current cost to operate the existing lighting and contrasts that with the proposed cost and estimated operating savings of the recommended energy efficient lighting retrofit.

The proposed program pays for all the project cost up-front and the participating customer contributes a percentage (co-pay) once the job is complete. The proposed participant co-pay amount is expected to be in the range of 20-50 percent, based on direct-install programs in New England, and will be evaluated further as partnership opportunities to leverage investment in the program are

explored. A 50 percent co-pay amount is assumed for illustrative purposes. Lower co-pay percentages would be expected to result in higher participation and also lower marketing costs. It is also expected that an on-bill financing option would help to mitigate some of the co-pay barrier.

3.0 PROPOSED PROGRAM OVERVIEW

Highlights of the proposed approach and products and services are outlined below:

Approach

- Turnkey energy efficient lighting retrofit program for:
  - Small commercial customers
  - Medium commercial customers ≤ 200 kW average billing demand
- Province-wide program with phased geographical launch.
- Direct marketing to targeted customers.

Products and Services Provided

- On-site lighting audit conducted by trained auditors.
- Cost savings analysis and recommendations.
- Rebate incentives up to $600/kW or 50 percent of installed cost for lighting upgrades (participating customer co-pay at 50 percent).
- Direct-installation retrofit of energy efficient lighting by local pre-qualified contractors with approved standard pricing.
- On-Bill financing option for customer co-pay for qualified participants.
- Pre- and post-light level readings.
- On-site inspections (minimum 10 percent of jobs), as well as phone survey.

November 1, 2007
Stakeholder Session – EAC Presentation Slides

DSM Stakeholder Session

Brendan Haley, EAC
Blair Hamilton, Vermont Energy Investment Corp
Michael Stoddard, Environment Northeast

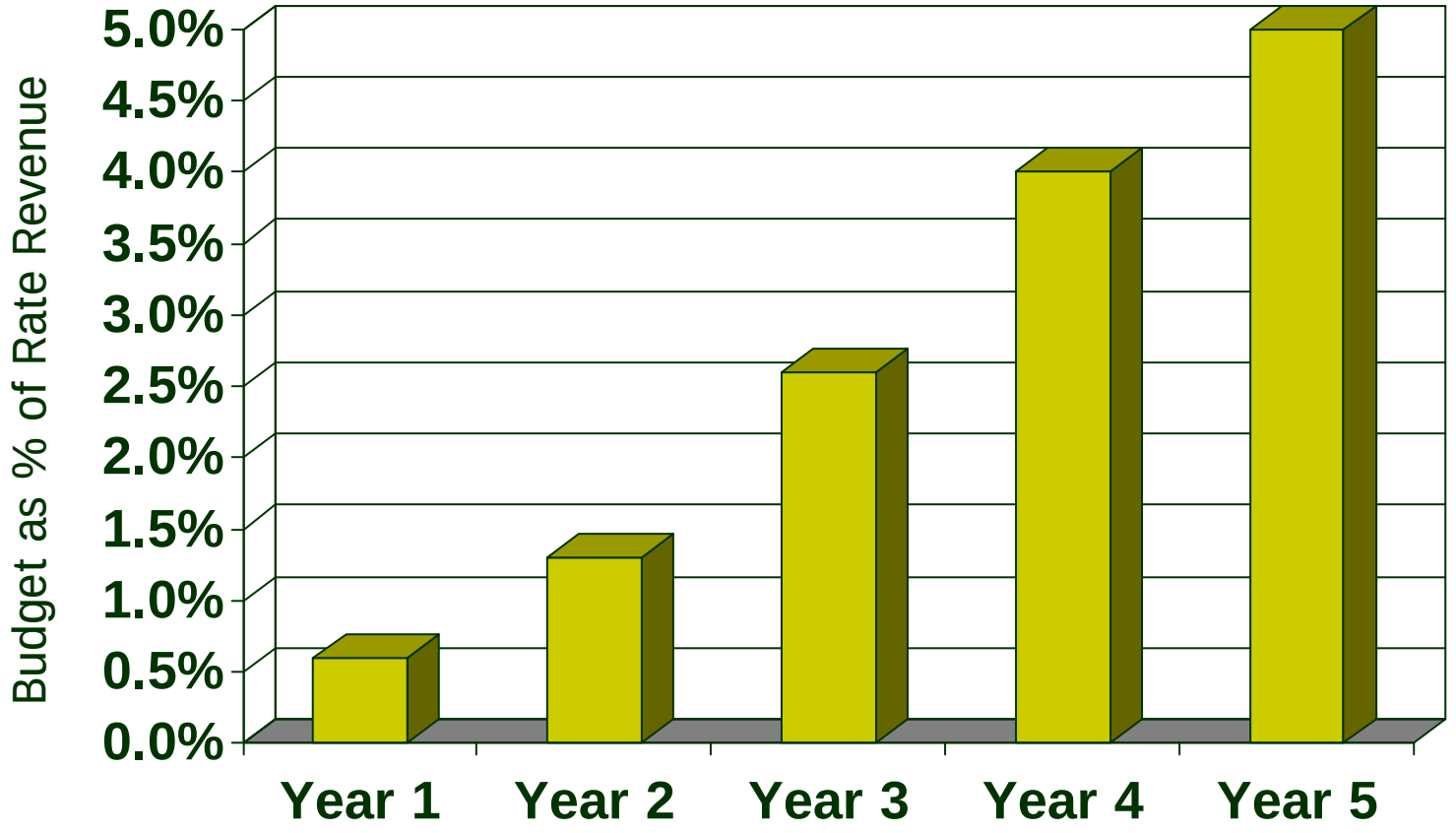
November 1, 2007

Ecology Action Centre

Need for Clarity on Assumed Budget and Savings Goals for Near Term

- DSM study and IRP analysis have established that efficiency potential need not constrain investments level in the near term (there's lots of cost-effective opportunity)
- In the near term, the budget and savings goals can be set based primarily on the limits of *capability* and *time* to responsibly plan and ramp-up implementation
- Propose 5-years as "near term"
- Planning assumptions should be set as soon as possible for budget and goals for each of the next five years
- Does not prevent modification for second year and beyond based on early experience
- How can this be moved forward in a timely manner?

For Example.....



Ecology Action Centre

One Way Forward: A Formal Collaborative Process

- Saves time and money by reducing reliance on contested proceedings
- Better exchange of information, new ideas, timely feedback
- Broader, deeper support among policymakers and stakeholders leads to greater flexibility, responsiveness, quality of programming
- Characteristics of a Good Collaborative Process
  - Balanced, diverse stakeholder participation
  - Timely, meaningful participation at critical points in the process
    - Equal access to data and analysis
    - Access to paid, professional consultants
    - Equal weight to non-utility party positions

Types of Questions that Could be Addressed in a Structured Collaborative Process:

- 5 Year Budget (ramp up) & Savings Goals
- Appropriate Performance Indicators
  - Choice of indicators, Appropriate metrics for indicators, etc.
- Details of Performance Incentives & Penalty Mechanisms
- Equity Requirements or Goals
  - Geographic, sector, etc
- Evaluation
  - Roles and Responsibilities, Budget
- Appropriate Balance
  - between “Lost Opportunities” and Retrofit
  - between resource acquisition and market transformation
  - between highest benefit-cost ratio and quality programs
    - avoiding cream skimming
- Could also Brainstorm (but not prescribe) Program Ideas

Cost Recovery and Incentives for Utility Performance

- Utility should be made whole for prudently incurred costs for least-cost demand resource acquisition

- Financial returns to utility should be based on performance results

Performance Indicators

- Provide clarity to all parties on how success will be measured
- Provide clarity on the relative importance of multiple, potentially-competing objectives through weighting
- Provide a basis for performance incentives and penalties

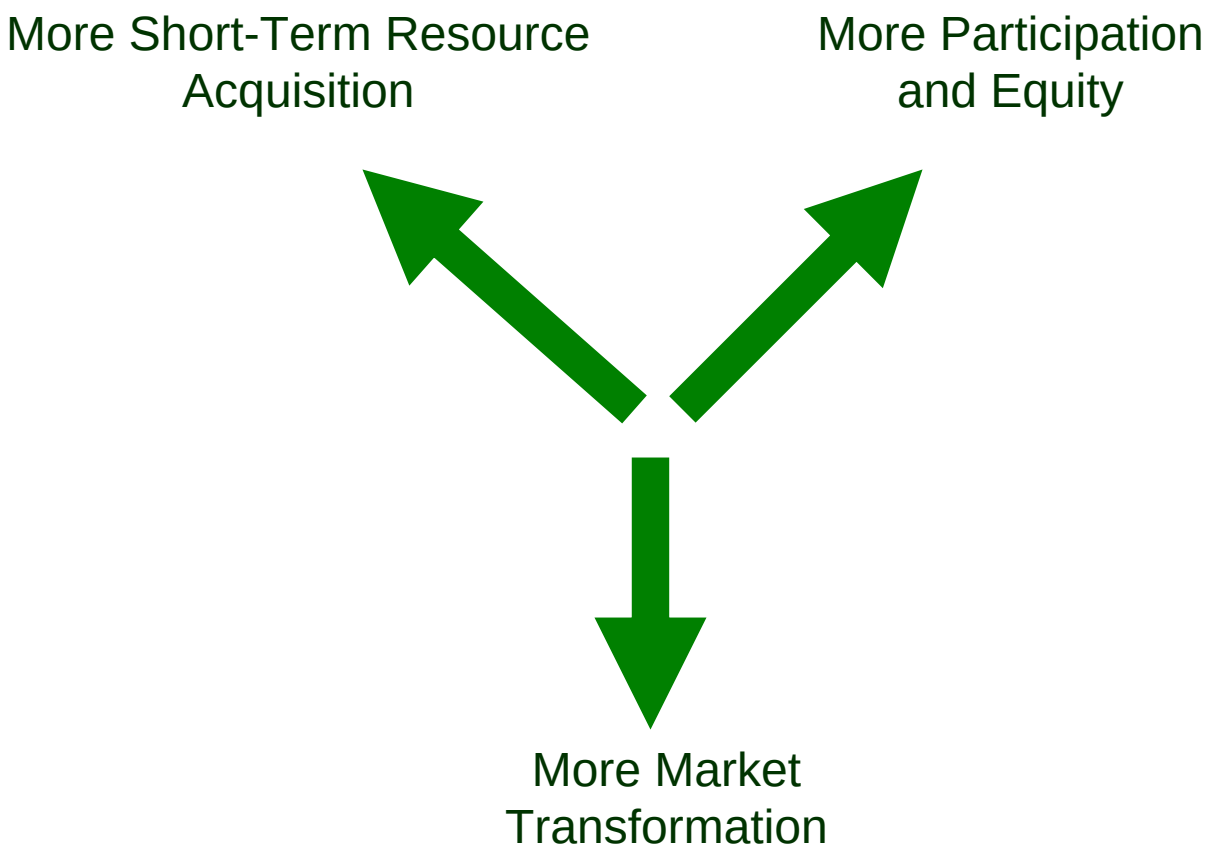
Examples of Minimum Requirements:

- Overall portfolio cost effectiveness
- Minimum benefits or spending by rate class
- Minimum spending on low-income customers

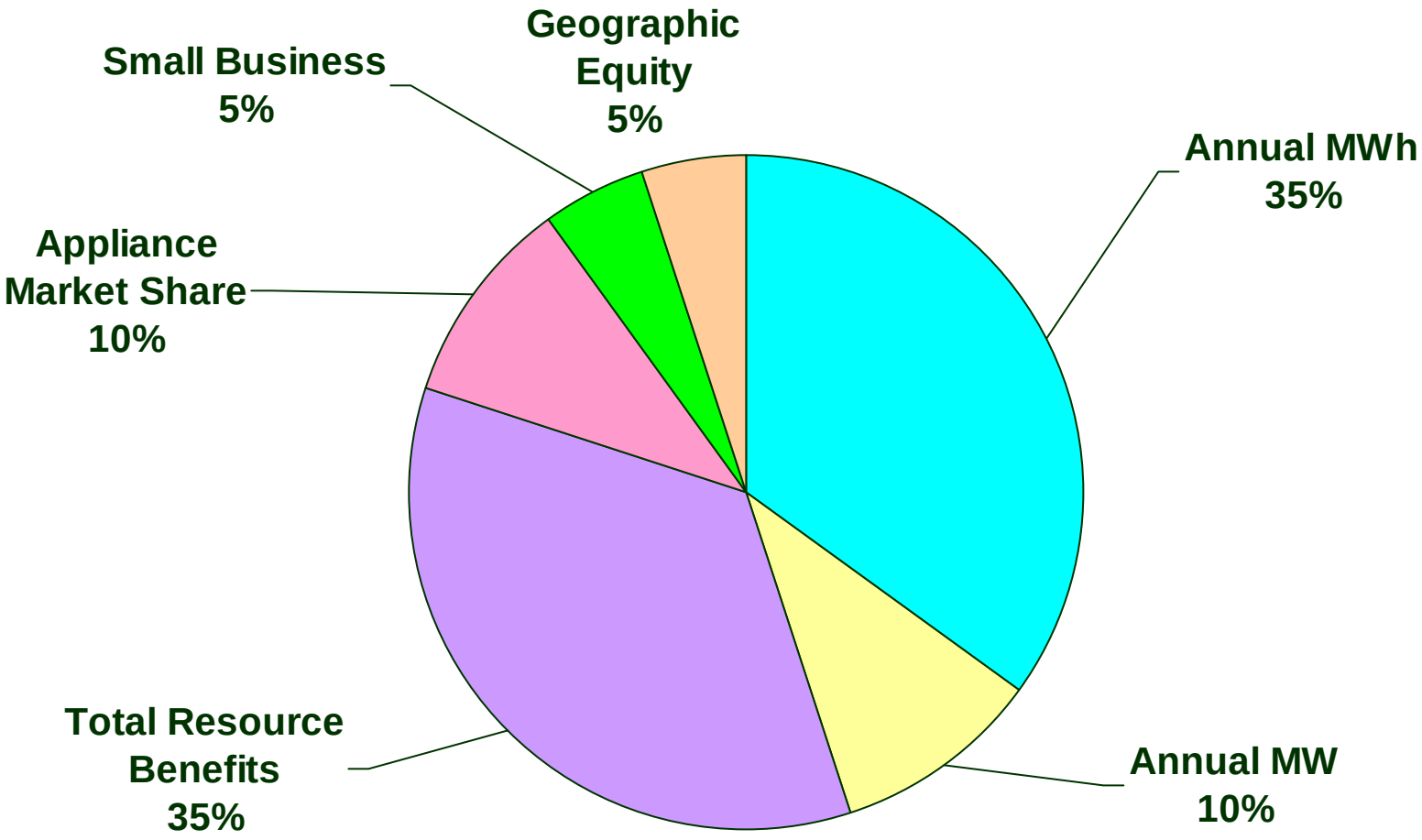
Examples of Performance Indicators:

- NPV of Total Resource Benefits (or Societal Benefits)
- Annual MWh savings
- Annual MW savings
- Minimum benefits by geographic region
- Minimum benefits for small business customers
- Market share % indicators

Objectives Can Pull in Different Directions



Example Weighted Performance Indicators



Ecology Action Centre

Use of Performance Indicators to Address Equitable Distribution of Benefits

Require and/or Reward Equity by :

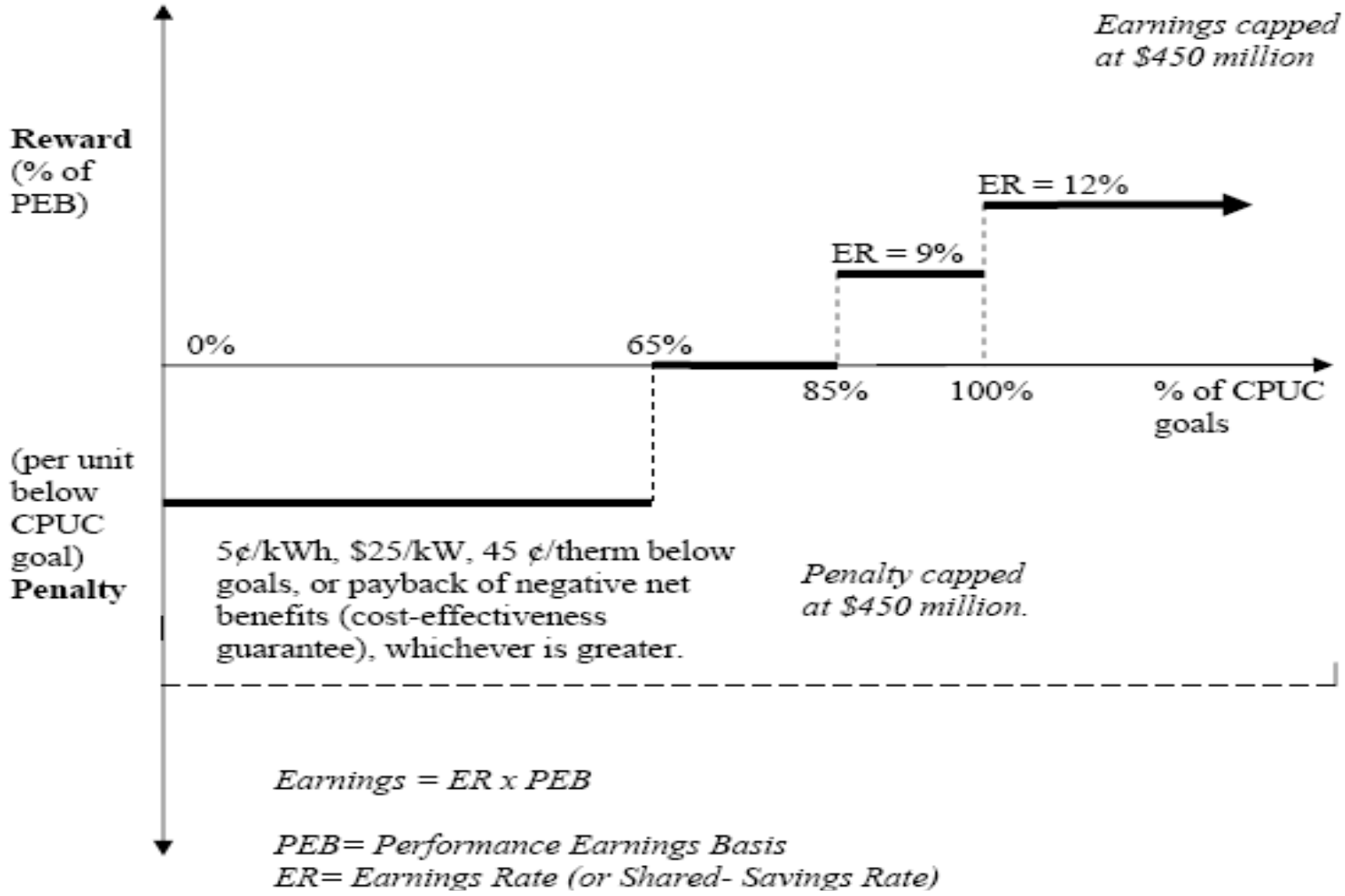
- Rate Class or Customer Sector (residential / commercial / industrial
  - e.g., benefits roughly = contributions
- Geographic Location
  - e.g., benefits 1.3 times contributions by county
- Customer Size
  - e.g., xx MWh from small business customers
- Income
  - e.g., 15% of total spending on low-income
- Other

Cost Recovery and Incentives for Utility Performance – an Example

Meet Minimum Requirements and Performance Indicators	Full recovery of all costs
Failure to Meet Minimum Requirements and/or Performance Indicators	Penalties and/or reconsideration of administration
Meet Exemplary Performance Goals Specified in Performance Indicators	Financial incentive scaled to attainment of goals (e.g. earn 50% - 100% of available incentive for 75% - 110% of goals) -or - Share of savings

California Example

Energy Efficiency Incentive Mechanism Earnings/Penalty Curve
(D.07-09-043, p. 8)



Suggested Criteria for Initial Programming

- Should be relatively easy to ramp up
- Should provide substantial first-year savings
- Should provide opportunities to participate to all customers
- Should establish a record of success in the first year
- Must consider potential implications of unresolved structural issues
- Should include appropriate evaluation from the outset
- Should focus on lost-opportunity markets
- Should not create lost opportunities

Initial Programming Suggestions

1. Massive CFLs - Retail and/or Community-Based
2. Commercial Lighting - Upstream High Performance
3. Appliances – Clothes Washers and Refrigerators
4. Industrial & Municipal – Self-Administration & Custom
5. Low-Income – Community-Based
6. Large Commercial – Direct Install

Ecology Action Centre

Massive CFL Implementation Options

- **Retail**
  - Point-of-purchase awareness, education and promotion
  - Transform stocking practices (availability, variety and quality)
  - Discount coupons or negotiated buy-downs
- **Community-Based Events and Campaigns**
  - Short or long term
  - May be tied to broader community efforts
  - Ties to retailers
  - Goal-driven
  - Use of social marketing
- **Other Options**
  - Partner w/school fundraisers
  - Partner w/environmental organization campaigns
  - Partner with other membership or community-based organizations
  - Partner with employee benefit program

Evaluation – Early Issues to Address

- Initial evaluation plans should be in place at outset to assure critical evaluation data is captured
  (e.g. customer costs and non-electric benefits to include in TRC)
- Three types of evaluation activities to consider:
  - Savings Verification (impact assessment)
  - Process Evaluation
  - Market Assessment
- Who performs each of these types of evaluations?
  - Implementing Entity (e.g., utility)?
  - Government?
  - Another Designated Entity?
- What should the budgets be?

November 15, 2007
Written Comments from Stakeholders

Affordable Energy Coalition

Adsum for Women and Children

Affordable Housing Association of Nova Scotia

Bayers Westwood Family Resource Centre

Canadian Mental Health Association – Nova Scotia

Community Action on Homelessness

Community Advocates Network

Council of Co-Chairs for Capital District Health

Dalhousie Legal Aid Service

Diaconate of All Nations Church

Disabled Individuals Alliance

Ecology Action Centre

Family SOS

Feminists for Just and Equitable Public Policy

Halifax Coalition Against Poverty

North End Community Health Centre

Nova Scotia Association of Social Workers

Nova Scotia Public Interest Research Group

Social Activist Law Student Association

Society of St. Vincent de Paul

Transition House Association of Nova Scotia

Women's Centres Connect!

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902.422.8067 f

November 15, 2007

Via Email: uarb.nmcneil@gov.ns.ca

Ms. Nancy McNeil
Regulatory Affairs Officer
Nova Scotia Utility and Review Board
1601 Lower Water Street, Suite 3000
Halifax, NS B3J 3P6

Dear Ms. McNeil,

Re: Demand Side Management – Comments from Stakeholders

The Affordable Energy Coalition welcomes the opportunity to provide initial comments in the development of a Demand Side Management Plan.

The Affordable Energy Coalition is supportive of many of the principles in support of accountability for energy efficiency investments expressed in a letter addressed to the Board from stakeholders submitted on Sept 7th, 2006.

As you will be aware from the evidence filed in previous proceedings before the Board concerning rates, particularly the evidence of Roger Colton, energy efficiency and energy savings programs for low income customers have been put forward by the Coalition since 2004, and serve many important purposes in terms of both reducing usage and maintaining access to electricity. The proposal for a Universal Service Program, which includes low income energy efficiency measures, provides a guide, based a wealth of information and long history of such programs in the United States. It is hoped that the approach taken through the DSM process will be designed with these guidelines in mind, and will be reflective of other low income initiatives currently before the Board.

With respect to the particular DSM plan, one of the principles supported in the Sept 7th stakeholder letter, which was reiterated by the presentation provided by the Ecology Action Centre (EAC), was to construct performance indicators for energy savings as well as equitable service provision.

It is common for DSM programs to target a *minimum* amount of spending on low-income customers to meet equity objectives. NSPI's *Proposed General DSM Programming* that was filed on Sept 8th, 2006 specified a target of "Up to 10% of the total Existing Houses budget would be allocated to the low-income component of the programs".

The descriptor "up to" indicates a maximum, instead of a minimum. The maximum discussed would seek to exclude low-income Nova Scotians from equivalent benefits of energy efficiency, since 19% of low-income households fall below the Low-Income Cut Off.

We note that the Ecology Action Centre's presentation at the November 1st, 2007 Stakeholder Conference provided an example of an equity target for 15% of total

spending to be on low-income programs. This level is consistent with the minimum low-income expenditure in Vermont. We further note that Nova Scotia's poverty rates are more than twice the levels of those in Vermont. Therefore, a higher expenditure than 15% of overall budget for low-income customers could be justified in Nova Scotia.

The Affordable Energy Coalition is urging that the DSM plan specify a minimum, instead of a maximum, investment in low-income spending and that this minimum be re-tabulated through a collaborative process involving interested parties. The Affordable Energy Coalition would be pleased to participate in any collaborative process regarding a minimum, and on any other low-income energy issues generally.

Low-Income Programs

The AEC is supportive of much of the program design features that were outlined in the low-income component of the Sept 8th filing. We believe efficiency programs must tackle the multiple barriers to energy efficiency encountered by low-income Nova Scotians, including the first-cost barrier as well as barriers related to trust, renter split-incentives, special needs and access to audit and contractor services. Programs should be accessible to both renters and homeowners.

We would like to also note that legislative changes are likely to be necessary to complement the roll out of a low-income program for tenants. Currently Nova Scotian tenants are not provided with security of tenure until they have lived in a residence for 5 years. Without security of tenure, we fear that it could be possible for a landlord to upgrade a unit with low-income specific tenants and then evict the low-income tenant to rent to a higher income tenant.

This concludes the Affordable Energy Coalition's comments at this time. We look forward to working with many parties on energy efficiency issues in the future.

Yours truly,

Megan Leslie
Community Legal Worker

Claire McNeil
Staff Lawyer

ML/

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File Reference: NS31672-7

November 15, 2007

Dr. John Stutz
Vice President
Tellus Institute
11 Arlington Street
Boston, MA
U.S.A. 02116-3411

Dear Dr. Stutz:

Re: DSM collaborative
Comments on preliminary DSM administrative issues analysis

On October 4, 2007 the Utility and Review Board amended and approved NSPI's Terms of Reference for the Demand Side Management ("DSM") Collaborative. The terms of reference included a DSM process timeline summary that contemplated written comments from stakeholders on November 15, 2007. Please accept this letter as the preliminary written comments from Avon Valley et al.

INTRODUCTION

The Board's DSM Terms of Reference direct Nova Scotia Power to collaborate on the development of an enhanced DSM plan, starting from the September 8, 2006 DSM filing, aiming to realize the potential identified in the Integrated Resource Plan ("IRP") analysis, while addressing the DSM administrative issues and taking into consideration stakeholder input.

In its letter of October 4, 2007 to NSPI, the Board directs that: "The terms of reference clearly provide for consultation with the stakeholders. In accordance with various submissions received, the Board requires that these consultations be meaningful." As such, we present the following preliminary points on behalf of our clients in the Large Industrial Class. In order for DSM to be successful, we believe that it is important that its administration and programming account for the legitimate desires and concerns of the Large Industrials.

NOVA SCOTIA POWER'S ROLE

On September 17 and October 1, 2007, Board Counsel wrote to all stakeholders and indicated that the Board does not have jurisdiction to establish and implement a DSM program administered by an agency that the Board does not regulate. In the Board's view, Utility administration (whether directly or through third parties contracted by the Utility) will ensure

that an organization the Board regulates will be responsible to the Board for administration of DSM efforts.

We appreciate that the question of who will administer DSM will not be an issue addressed by the Collaborative. That being said, on October 29, 2007, Conserve Nova Scotia announced that the Province will seek input on administrating an electricity-based DSM program. Government lead discussions are tentatively scheduled to begin in February 2008. The discussion will examine different administration and accountability models, including administration by an independent utility, a Crown corporation, Nova Scotia Power, or some other form determined through the consultation process.

For now it is sufficient to say that Avon et al. are interested in exploring and discussing possible non-utility administration of DSM. Regardless of which entity is administering DSM, Avon et al support rigorous Board oversight of DSM expenditures.

LEVEL OF INVESTMENT

NSPI's recently released IRP indicates that spending at 5% of revenues on DSM is "optimal." Based on the IRP, almost $60,000,000 could be spent annually on the DSM efforts in the near future. With the level of investment being contemplated, it will be important that the DSM efforts are targeted to achieve the greatest possible savings.

Given the level of investment contemplated in the IRP, it is expected that some period of DSM ramp up will be necessary. In the circumstances, Avon et al. support a gradual ramp up of DSM programming so that the reasonableness of the expenditures, and the success of the programs, may be monitored.

Discussions amongst the stakeholders have revealed that a 5% DSM spend is on the high side relative to other jurisdictions. There is support for the position that the DSM spend should be less, especially in the short run, to allow thoughtful evaluation of whether the programs are working. For example, the September 2006 Summit Blue Report at p. 72 states that:

> *4. The spending on DSM programs should start at 0.7% of in-province electric revenues, and ramp up to 2% by 2010.*

Avon et al. do not object to the level of investment contemplated in the IRP, *per se*. However, given the enormity of the potential expenditure, it is absolutely essential that responsible DSM investments be made. While the level of investment is important, the details of DSM programming and DSM cost allocation will ultimately determine whether the investment being contemplated is reasonable.

DSM PROGRAMMING

Creating DSM programming that will achieve real, sustainable savings will be challenging. This is especially true given that the Large Industrials have already worked hard to control and shape their usage of electricity to exploit all available efficiencies. Jennifer A. Jordan and Steven M. Nadel's "Industrial Demand-Side Management Programs: What's Happened, What Works,

What's Needed", (1994) Vol. 9 Issue 3 Cogeneration and Competitive Power Journal at p. 40 & 53, provide as follows on the issue of industrial DSM programming:

> *Industrial customers want to know how to improve the productivity of their facilities, not simply how to improve their energy efficiency. Therefore, utilities need to understand the industrial processes of their customers and their associated efficiencies in order to begin to find the links between increased efficiency and increased productivity. By hiring contractors, consulting engineers, and/or staff who have specific expertise with different types of industrial customers, the utility will more likely succeed in identifying appropriate measures and in assuring the confidence of the industrial customer.*
>
> *[...]*
>
> *Through offering a flexible DSM package to an industrial customer, the utility will be working with the diverse nature of industries rather than against it. Offering joint custom and prescriptive rebate programs helps to address the need for achieving long-term impacts through high customer participation and significant energy savings per customer.*

Avon et al. submit that comprehensive DSM programming, with flexible features that meet the specific needs of customers, is the type of programming that is most likely to be successful. Our province is small enough and the large users few enough that tailored and specific programming is appropriate. The complexity of industrial customers' energy efficiency needs is the biggest difference between industrial and other market sectors. The complexity of the industrial customer's energy use also deserves consideration when designing DSM programs. While it may be challenging, it will be essential for the Collaborative and ultimately the administrator to address these complexities in designing and implementing DSM programs.

We await, with interest, the "Achievable Potential" report from the industrial DSM potential study currently being undertaken in Nova Scotia.

RECOVERY AND RATES

One of our chief concerns to be addressed by the Collaborative is the allocation of DSM costs and benefits. It is possible that enormous DSM costs, up to 5% of NSPI revenues, will have to be allocated amongst the classes. It is our submission that the costs of DSM programming should be allocated to rate classes in a manner that accounts for the cost of running the programming for each class. For example, it is our understanding that the costs of running DSM for the residential class are generally greater than for the industrial class given the sheer number of residential customers to whom DSM programming will have to be offered. Avon et al. believe the greater cost of DSM programming for non-industrial customers should not be subsidized by the Large Industrials.

Furthermore, in determining how to distribute costs and benefits of DSM, we believe it necessary to account for the extensive DSM activities that have already been undertaken by the Large Industrial Class. Our clients have undertaken various DSM efforts of their own accord, often

incurring considerable expense in doing so. While we would not go so far as to say that the Large Industrial load is unavailable for DSM, as our friend Mr. Patzelt would say, the "low hanging fruit" has already been harvested. There are relatively few easy DSM opportunities remaining for the Industrial Class. As such, tightly focused and tailored efforts will be necessary to achieve DSM savings from the Industrials. In sum, we assert that the DSM program should fairly account for the efforts that have already been made by the Large Industrial Class.

TRACKING AND REPORTING OF RESULTS

The tracking and reporting of results will be of critical importance in determining whether DSM expenditures are being incurred in a beneficial way. The above referenced Industrial DSM article, by Jordan & Nadal at p. 44, provides the following helpful commentary on the issue of tracking and reporting DSM results:

> *Little data are currently available to assess the performance of different types of industrial DSM programs in a highly accurate manner. It appears that for even the better industrial DSM programs, data are not being tracked in an efficient and systematic manner. Such data are needed if utilities wish to accurately analyze lessons learned from past DSM program experience.*
>
> *An obvious first step in making the necessary data available is for those utilities still offering C&I programs to begin tracking their commercial and industrial program results separately. This data will help utilities in analyzing how industrial customers have responded to their DSM programs and what program designs best fit their customers' needs.*
>
> *Better yet, utilities should offer DSM programs which target industrial customers only, rather than both industrial and commercial customers. In so doing, utilities will be able to address the industrial sector in a more comprehensive manner and gain greater understanding of their industrial customers as a result.*
>
> *BC Hydro, within its DSM department, not only has separate divisions for both residential and commercial DSM, but also has an entire division focused on industrial DSM.*

Jordan & Nadal, at p. 45, provide further helpful commentary on the issue of evaluating DSM results. The following should be considered by the Collaborative in determining how to evaluate the success of NSPI's DSM programming:

> *Industrial customers will have greater confidence in, and will be more likely to participate in, their utility's DSM programs if they know that energy savings claims have been verified. Utilities will benefit from improving the accuracy of industrial DSM savings data for a number of reasons.*
>
> *Utilities need evaluation data in order to accurately assess the cost-effectiveness of the program. Incentive payments paid by utilities to industrial participants in DSM programs are based on energy savings. Accurate savings figures are*

> *needed in order to pay the proper incentive; through impact and process evaluations, utilities can improve the accuracy of the data and thus the incentive payment.*
>
> *In addition, by conducting evaluations, utilities can improve upon their programs as they incorporate the lessons learned from the past and gain the much-needed credibility of their industrial customers. Persistence of savings needs to be addressed in these evaluations, as does the number of free riders.*
>
> *Better industrial program evaluation will help the DSM field by providing an improved understanding as to how different industrial energy-efficiency measures affect industrial facilities and how different program designs have fared.*

It will be important for robust tracking, reporting and evaluation of DSM to be in place immediately upon the initiation of DSM programming. At this stage, how DSM will be evaluated, by whom and at what expense are issues that the Collaborative has identified for further discussion and work. We look forward to working towards consensus on program tracking, reporting and evaluation as the DSM process goes forward. For now, we assert that the above noted commentary on tracking, reporting and evaluation should be considered as starting points by the Collaborative.

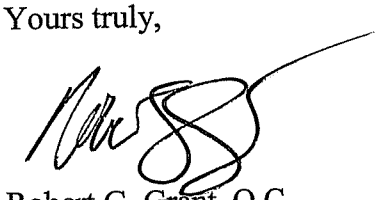
CONCLUSION

Ultimately, DSM programming must be focused and tailored to individual rate payer needs and their unique situations. In his study, Hopkins, M.E.F. et al., *Industrial Demand Side Management: A Status Report (Synopsis)* (NSDOE: Washington DC, 1995) discussed difficulties associated with Industrial DSM programming. In order to address the commonly experienced difficulties, NSPI's DSM programming should be:

- *customized to meet industrial customer needs*
- *easy for the utility to implement*
- *management-friendly, minimizing staff time*
- *minimal in its disruption to industrial operations*
- *attuned to the industrial decision-making process*
- *equitable in terms of rate structure*
- *trusted to reduce the customer's perceived risk*
- *measured by the utility, using sound measurement techniques*
- *expert in its treatment of the intricacies of particular industries.*

At this stage of the process, Avon et al. are supportive of these broad DSM programming principles. NSPI's DSM program must offer tailored, innovative, made in Nova Scotia solutions if the DSM program is to be a long term success. We look forward to working with the Collaborative to ensure that DSM programming is developed and administered in the public interest.

Yours truly,



Robert G. Grant, Q.C.
Counsel to Avon et al.

RGG/am

cc: Bruce Outhouse, Q.C., Board Counsel
Rene Gallant, Regulatory Counsel, NSPI
Eric Ferguson, Manager, Regulatory Affairs, NSPI
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Formal Intervenors – P – 884
Nancy Rubin

November 15, 2007

Dr. John Stutz, Ph. D.
Tellus Institute
11 Arlington St.,
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02116-3411

Dear Mr. Stutz:

Re: Stakeholder Feedback - Proposed DSM Programming

The CME fully supports the development of a Demand Side Management (DSM) program for the province of Nova Scotia. Through two CME initiated studies, that focus on New Brunswick and Nova Scotia, and by reviewing similar programs in the United States, our organization understands the benefits of DSM to be diverse and far-reaching. We are mindful that NSPI's fleet of fossil fuel generators run at less than 35% efficiency and the benefits of a successful DSM program could be great, including decreasing the Manufacturing Sector's impact on the environment, utilizing power in a more efficient manner, deferring the need and cost of developing future generation, helping to maintain low electricity rates over the long-term, and increasing Nova Scotian manufacturers' competitive advantage.

Although the CME supports investment in a DSM program, the value of this investment will only be realized if the program is properly designed. As an organization, we have a vested interest in ensuring that such a program is properly designed and achieves maximum savings. We welcome the efforts of the UARB and NSPI to solicit stakeholder input in this design process for these reasons. Our comments within this letter are meant to express our main design concerns and provide constructive feedback to ensure our common goals are achieved.

The CME is hesitant to support the proposed level of spending on DSM put forth by NSPI. According to the results of the IRP analysis, the optimal level of DSM spending is 5% of NSPI annual revenues. Based on the 2007 compliance filing, which set NSPI revenues at roughly $1.16 billion, this would equate to a budget in excess of $50 million. This is a substantial investment for any program and worthy of close review before its allocation to initiate an unprecedented program in this province.

Our first concern focuses on the urgency, previously expressed by NSPI, to initiate early DSM programs in order to achieve projected savings. The two year "ramp up" period appears to be relatively short when compared to an annual budget approval process used by most companies. The CME questions whether adequate time has been allocated for proper research, program development, implementation, and results measurement. Our concern is

that if the dates set are unrealistic, the value of this investment will not be achieved. Rate payers will pay twice, once for a DSM program that failed to decrease load requirements and again for the additional generation to meet the increased load. Our recommendation is to thoroughly review these initial "ramp up" target dates to ensure achievability before any spending is approved. Although Tufts Cove 6 will be addressed in a separate communication, should this additional capacity be brought on, the need to haste may be lessened.

A second concern highlights DSM program design and performance. Program design should be flexible, easy to implement and customized to meet manufacturers' needs. If a program is underperforming, the authority should exist to either tweak the program or end it altogether. The funding of ongoing, unproductive initiatives results in DSM payments that act more as a tax than as an incentive. The CME supports a discussion point raised by HRM regarding self administration of DSM programs. Discussion on this topic was facilitated by Blair Hamilton, Policy Director for Vermont Energy Investment Corporate an expert assisting the EAC. The CME is of the view that self administration of DSM initiatives should be given serious consideration. Not only has this been successful in other jurisdictions, but also it could aid in quick and effective "ramp up" to meet targets identified in the IRP. The delegation of program administration will require proper oversight and measurement as well as clear accountability for underperformance.

Third, the CME would like to address the need for the coordination and integration of existing DSM programs with new programs developed through this DSM initiative. Both Government sponsored projects, via Conserve Nova Scotia and privately funded studies like the CME initiatives mentioned previously, are well underway. It will be important to identify and coordinate all such initiatives. This will help to ensure that funding is not wasted on the duplication of efforts and that measured results can be properly attributed to programs.

Finally, DSM oversight and administration has not been thoroughly discussed by stakeholders to date. To reiterate, the CME commends the efforts of NSPI for beginning the process of DSM planning and implementation for this province. The planning process has progressed under the assumption that NSPI would continue to develop, administer and measure the results of DSM initiatives. There is merit in making this assumption. NSPI is a well known entity with existing channels to customers and, through the IRP, is in a good position to integrate efficiency resources into overall least-cost procurement planning. However, it is significant that the goals of DSM initiatives are in direct conflict with the public utility's shareholders' interests of maximizing revenue, ROE and EPS. "Specific disincentives that have been noted in customer energy efficiency programs include: (1) utilities may not recover DSM program expenses when these expenses have not been accounted for in some previous rate-setting process; (2) utilities may lose revenue from sales not made because of the success of customer energy efficiency programs; and (3) utilities may forego earnings opportunities because resources are devoted to DSM programs rather than to other profit-making activities."[1]

For these reasons, it is felt that the energy efficiency program should follow a RFP Model, where a third, independent party is contracted to implement, oversee and be accountable for the implementation of DSM. The CME understands that the UARB does not currently have

[1]Joseph Eto, Steven Stoft, and Timothy Belden, *The Theory and Practice of Decoupling*, January 2004, p. xvii

the jurisdiction to order that DSM be administered by a party other than NSPI. However, serious consideration should be given to changes to the *Public Utilities Act* to allow an independent, third party to administer and manage DSM initiatives going forward.

If it is not possible to make these necessary changes in order to prevent delays in early implementation of DSM programs, the CME suggests consideration be given to addressing DSM-induced net lost revenues. Care should be taken to ensure the following would occur:

- Remove disincentive to energy-efficiency programs
- Remove incentive to build load
- Retain utility incentives to:
    a) control costs
    b) promote economic development
    c) improve customer service
- Simple to understand for customers
- Easy to implement by utility
- Difficult to manipulate
- Minimize volatility of electricity prices for customers
- Stabilize revenues for the utility
- Maintain current risk allocation between customers and utility[2]

The CME fully supports the development of a Demand Side Management (DSM) program for the province of Nova Scotia. We commend the efforts of the UARB and NSPI to solicit stakeholder input in this design process to ensure our common goals are achieved.

Respectfully submitted,

Robert G.H. Patzelt, Q.C.
CME, Nova Scotia Division

Cc: Rene Gallant, NSPI
Bruce Outhouse, Q.C., Board Counsel
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[2] Eric Hirst, Eric Blank, David Moskovitz, *Three Ways to Decouple Electric-Utility Revenues From Sales*, December 31, 1994

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Mark V. Rieksts
Solicitor

File No.:

November 21, 2007

Nova Scotia Utility and Review Board
3rd Floor, 1601 Lower Water Street
Suite 3000
Halifax, NS B3J 3P6

Attention: Ms. Nancy McNeil
Regulatory Affairs Office

Dear Ms. McNeil:

RE: NSPI-Demand Side Management (DSM) Collaborative
DSM Administrative Issues Approach-Comments from Stakeholders

Further to the stakeholder session hosted by NSPI on November 1, 2007 with respect to Demand Side Management (DSM) administrative issues, the following comments on the proposed DSM plan are submitted jointly on behalf of Conserve Nova Scotia and the Nova Scotia Department of Energy (DOE).

Emphasis on a Collaborative Approach

Both Conserve Nova Scotia and DOE note that successful DSM models in many jurisdictions rely extensively on a structured collaborative approach. This comment is not meant to challenge NSPI's current legislated role to serve and ensure long term reliability (balance supply and demand), or suggest that this responsibility can be delegated to a committee. Rather, this comment simply reflects that there is a broad common interest in energy efficiency and conservation related to electricity, and considerable opportunities available in this regard through stakeholders working cooperatively. Key to a collaborative approach is stakeholder agreement on a small (approximately 10 members) steering committee that will broadly represent all stakeholder interests. However, a consensus approach cannot require unanimity or work with open-ended timelines. What is critical is to build broad agreement on as many issues as possible and move forward promptly. A minority report is always an option if a minority viewpoint is strongly held.

Conserve Nova Scotia and DOE urge recognition that a steering committee or collaborative must represent the interests of low income households and small business, and that the DSM program must include significant DSM measures for these customers.

Early Implementation of Electricity DSM for Nova Scotia

NSPI's Integrated Resource Plan (IRP) outlines not only the need and opportunities for DSM but also the numerous challenges which face the development of a comprehensive DSM program; i.e, program design and initiation, ramping up, building capacity, etc. Every day of delay contributes to lost opportunities, with the added consideration that the DSM option is working against a deadline. Supply side options become the only alternative if the DSM program cannot deliver timely reductions in electric power and energy use.

In furtherance of early implementation of DSM program goals, Conserve Nova Scotia and DOE endorse the initial programming suggestions tabled by the Ecology Action Centre at the November 1, 2007 stakeholder meeting as good starting points for collaborative discussion on early implementation of a DSM program.

Attention should also be given to making early implementation programs readily transferable if ultimately a decision is made for an entity other than NSPI to administer the electricity DSM program.

Measurement and accountability elements built into DSM programs

Conserve Nova Scotia and DOE recommend that measurement and accountability elements be built into DSM programs from the outset, and that the DSM collaborative contribute extensively to the establishment of performance indicators.

Yours truly,

Mark V. Rieksts

Department of Justice
MR/jn

cc: J. Rene Gallant, NSPI
Bruce Outhouse
Interested Parties

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November 15th, 2007

Ms. Nancy McNeil
Regulatory Affairs Officer
Nova Scotia Utility and Review Board
1601 Lower Water Street, Suite 3000
Halifax, NS B3J 3P6

Dear Ms. McNeil,

Re: EAC Demand Side Resource Comments from Stakeholders

The EAC would like to start our comments by expressing a sense of urgency in ramping up energy efficiency efforts in Nova Scotia. We believe there is a sense of urgency in both establishing an initial set of programming and in developing an administrative framework that will ensure effective efficiency resource acquisition over the long-term.

This sense of urgency should call upon us to work together to provide assurance that we will develop an effective efficiency plan. We would urge all parties to approach these issues with a spirit of collaboration, openness and exploration. With such a spirit in mind, the EAC wishes to take this opportunity for stakeholder input to articulate a number of suggestions and proposals that we hope can be the topic of future discussions.

Level of Investment

The EAC supports a level of investment in demand side resources that is consistent with effectively securing *all cost-effective* opportunities that are cheaper than supply, from a societal perspective. Pursuing the objective of *all cost-effective* procurement ensures that we avoid arbitrary levels of investment that have, in other jurisdictions, led to stifling budget caps.

We believe all parties would agree that in the near term, it is not the constraint of available energy savings, but the constraints associated with capability and time to responsibly plan and ramp-up implementation that concern us.

In the submission regarding *Preliminary DSM Administrative Issues Analysis* it was stated that savings and investment levels beyond year 2 should be evaluated after year 1 results are known. This leaves a great deal of ambiguity. We would like to emphasize that a planning assumption will be necessary to successfully implement ramp-up (i.e. the program administrator will need to plan in year 1, based on expected funding levels and savings goals in year 2, and so on).

For planning purposes, we propose that a 5-year planning assumption for budget and savings goals be constructed, that will be coupled with a mechanism to adjust the budget savings goals within this period based on further information and experience.

Nova Scotia has an opportunity to learn from the experience of others in program design and demand side resource acquisition. This should enable Nova Scotia to ramp-up quicker and more effectively than jurisdictions that did not have the benefit of experience

available to them. The IRP has also shown substantial benefits if we ramp-up energy savings in the more immediate future.

As a starting point for collaborative discussions, we propose year-by-year costs and savings goals for a 5-year planning assumption that can be consistent with ramping up to investments of 5% of rate revenue in 5 years time.

This planning assumption will not prevent modification of the savings goals and investment levels based on early program experience or other information. Indeed, the EAC wishes to strongly support the formalization of a future planning process that will be iterative and participatory to allow for frequent reviews of program experience and allowance for flexibility, innovation and mid-course corrections.

Future Planning Processes

The EAC supports a high degree of public oversight in demand side resource planning and implementation. We believe frequent evaluations of efficiency programs and resource plans conducted in a collaborative manner is essential to ensure program effectiveness.

We would like to suggest that a framework for future planning processes be articulated. Below we present some suggestions for such a framework.

We suggest that Nova Scotia develop a Collaborative, with broad public stakeholder representation, including the utility, to work together to develop the demand side resource plan. We suggest that any formal decisions of this Collaborative should be required to pass a supermajority vote. The plans developed by the Collaborative would then be submitted to the Board for revision and/or approval.

We would propose that the Collaborative be comprised of a representative from each of the following:

a) A manufacturing association *(e.g. Canadian Manufacturers and Exporters)*
b) A small business association (*e.g. Can Federation of Independent Business)*
c) A consumer advocate
d) A low-income advocate (*e.g. Affordable Energy Coalition)*
e) An environmental organization knowledgeable in energy efficiency programs (*Selected by the NS Environmental Network)*
f) A municipal government association (*e.g. Union of NS Municipalities)*
g) Municipal Electric Utilities Co-operative of NS
h) Nova Scotia Power Inc.
i) The Department of Energy
j) The Department of Environment and Labour

The Collaborative can be tasked with working closely with Board staff and the Program Administrator to develop a 3-year demand side resource plan for both short-term (3-year) and long-term (20-year) time frames and to review status and performance related to the plan's implementation.

We recommend that an updated Integrated Resource Plan (IRP) be submitted to the Board every 3-years and that following from the IRP, the Collaborative work to develop a 3-year demand side resource plan. The plan's objective can be to secure all cost-effective energy efficiency, to work in the public interest, and to help implement the province's *Environmental Goals and Sustainable Prosperity Act*. The plan will articulate budget and savings goals, performance indicators, performance incentive/penalty mechanisms, evaluation and review, and suggestions for programming.

The Collaborative will hold public workshops during the development of the plan. The final plan will be submitted to the Board for approval and/or revision through a hearing process with opportunities for parties to intervene.

We also recommend that the Collaborative meet with the program administrator and Board staff, no less than 6 times a year, to review progress.

The Collaborative will need to be provided with equal access to information, data and analysis and access to paid professional consultants. The resource needs of non-profit, public interest organizations will need to be fully considered. We suggest that funds for the Collaborative to retain expert consultants and fund reasonable administrative costs be capped at a certain level, such as 5%of the total cost of the demand side resource plan.

The Collaborative should play a strong role in both the assessment of future demand side resource potential and the evaluation and review of programs. We recognize that it is appropriate for the program administrator to undertake market studies and potential analyses. However, we also believe that an independent body accountable to the public should undertake similar analyses. We suggest therefore that the Board also commission its own demand side resource analyses, working in close cooperation with the collaborative.

Verification of energy savings and program reviews must be conducted by an entity that is independent of the program administrator to avoid any conflicts of interest. We suggest that the Board conduct evaluation and review, in close cooperation with the Collaborative.

The EAC supports establishing clear rules, preferably through legislation, to ensure that funds invested in energy efficiency are not utilized for other purposes. We also recommend establishing minimum annual energy efficiency spending and savings levels in order to not lose capacity in the energy efficiency industry that will be very costly to rebuild. We note that Nova Scotia would currently have more capacity to secure the benefits of energy efficiency if NSPI did not terminate previous efficiency initiatives. After ramp-up, we suggest that establishing annual incremental savings of 1% is appropriate as a minimum level, and that efficiency plans will find many cost-effective opportunities above this level.

In the process we describe above, the Collaborative plays principally an advisory function. We believe this function is appropriate, provided the Board ensures that the program administrator is held accountable for achieving results.

Performance Indicators & Performance Assurance

In order to provide clarity to all on how to measure the success of demand side resource initiatives, the EAC supports the establishment of clear performance indicators. These indicators should seek to balance short-term energy savings, market transformation, and participation and equity to ensure all customers can participate.

The indicators should be the primary basis for providing incentives and issuing penalties to the program administrator. The ideal incentive/penalty level will encourage exemplary performance from the program administrator, while ensuring that the vast majority of benefits accrue to the ratepayers of Nova Scotia.

Through clear performance indicators and performance assurance mechanisms, the Board and ratepayers can ensure that a program administrator is held accountable for achieving results. This accountability framework should also provide a high degree of flexibility for the program administrator to meet the goals outlined.

We suggest, first establishing a set of minimum indicators related to:

1) Cost-effectiveness of the portfolio
2) Minimum benefits by sector
3) Minimum expenditures for low-income

To assure cost-effectiveness of the portfolio we suggest that the final independently verified present value of lifetime electric benefits in a 3-year plan must be greater than the portfolio costs. If this minimum requirement is not met, and NSPI is the program administrator, we recommend that the shareholders of NSPI be obligated to pay ratepayers back dollar-for-dollar for these negative net benefits up to the cost of the efficiency portfolio. This will provide an incentive to achieve overall cost-effectiveness and protect ratepayers against financial losses on their investment in energy efficiency.

To ensure that benefits to the commercial, industrial and residential sectors roughly equal contributions, while also providing adequate flexibility for the program administrator to seek system benefits through cost-effective energy efficiency, we suggest that a minimum ratio of resource benefits to sector contributions be established. For example, a minimum ratio of 1.3 to 1 for each sector when 3-year cumulative total resource benefits are compared to contributions paid by ratepayers in each sector.

The minimum expenditure on low-income should be based on the program costs associated with reaching the portion of the population that is reasonably above the households Low-Income Cut Off. The expenditure suggested in the Sept 8th DSM filing was not a minimum and did not seem to be based in the Nova Scotian context. We suggest that this issue be revisited.

In the event that the sector and low-income minimums are not reached, the program administrator could face a penalty equal to 25% of the maximum incentive available.

In addition to the minimum indicators, Nova Scotia should establish a series of performance indicators. As a starting point for collaborative deliberation, we propose indicators based on:

1) Annual MWh savings
2) The net present value of Total Resource Benefits
3) Annual MW savings
4) Market share % indicators
5) Benefits by geographic region
6) Benefits to small business sector

The first three indicators are related to resource acquisition and the goals can be derived from savings levels specified in the Integrated Resource Plan. For the Total Resource Benefit indicator, we believe it is essential to include the present worth of lifetime costs and benefits of all resources, specifically including electricity, fossil fuels, water and customer operation and maintenance costs.

A small number of market share indicators should be chosen to focus attention on market transformation initiatives that might not be pursued if indicators only related to short-term resource acquisition. We suggest that an initial set of market share indicators could be constructed based on implementation of early programs.

The geographic equity and small business sector indicators can relate to the resource benefits accruing to these target groups.

The performance indicators chosen should characterize superior performance by the program administrator. The goals specified should be aggressive, but achievable and extra incentives should be provided for surpassing these goals.

Each performance indicator, should in turn, be weighted. As a starting point for collaborative deliberation, we propose the following weighting:

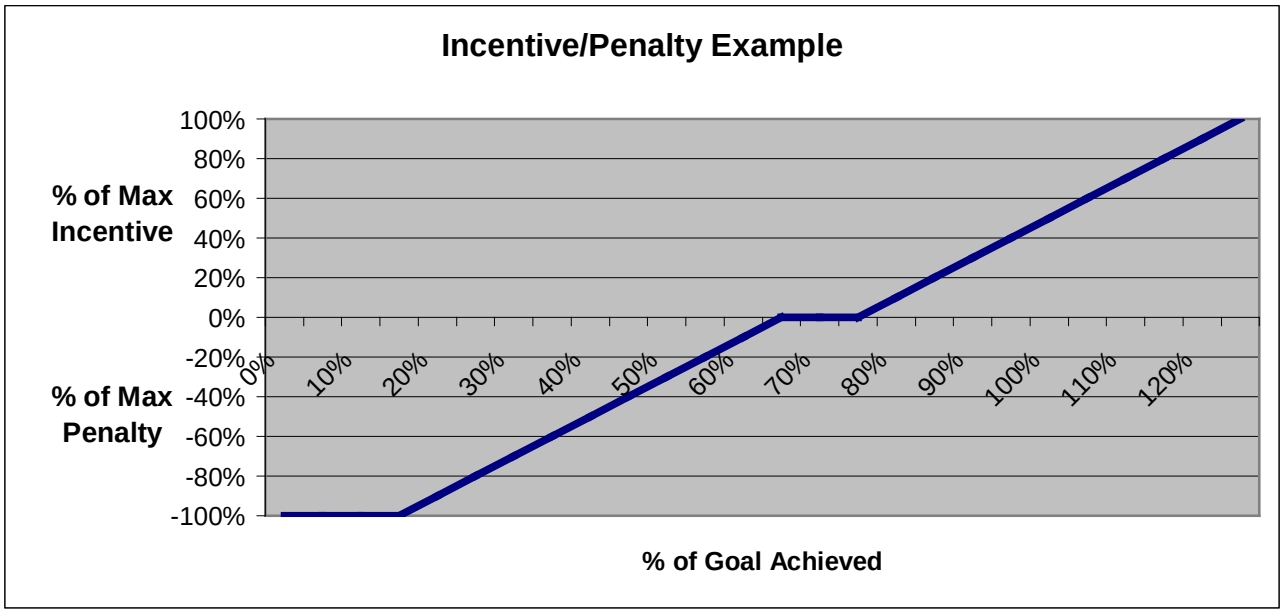
35% - Annual MWh Savings
35% - Total Resource Benefits
5% - Annual MW Savings
15% - Market Share Indicators
5% - Benefits by Geographic Region
5% - Benefits to Small Business

An overall maximum level of incentive/penalty can be established. Establishing a cap on the incentives and penalties will aim to avoid undue risk for both shareholders and ratepayers while still providing strong incentives for the program administrator to meet exemplary performance goals. We suggest that the maximum incentive available (and maximum penalty) should be no higher than a conservative estimate of comparable earnings for supply-side resources.

The overall maximum incentive/penalty dollar amount will be segmented based on the weighting of the performance indicators to provide incentive/penalty levels for each indicator. Goals can be achieved over a 3-year time period.

As a starting point for collaborative deliberation, we propose that scaled incentives be earned, for each indicator, for achieving 75%-125% of a given goal and that no incentives or penalties are issued if 65-75% of goals are attained. If less than 65% of a goal is attained penalties can be issued, with the penalties being proportional to the incentives. For these scaled indicators, over-performance in one indicator can compensate for underperformance in another.

The graph below is provided as an illustrative example of the proposed incentive/penalty mechanism:



Cost Recovery and Allocation

We also believe the utility should be made whole for prudently incurred costs for least-cost demand resource acquisition. Well-designed performance incentives could accomplish this objective.

Given the systems benefits provided by demand side resources, the EAC supports allocation of demand side resource costs across the entire rate base and contribution by all customers. We also support ensuring that all customers are able to participate in programs by establishing equity-based performance indicators and ensuring stakeholder oversight and providing a guarantee that ratepayers will be left no worse off through their investments in energy efficiency through the performance mechanisms discussed above.

In the future, we suggest that Nova Scotia explore decoupling revenue from electricity sales, as a more fundamental solution to perverse throughput incentives. Full decoupling can prevent savings verification gaming by the utility and more fully align the utilities' interests with societies' in achieving energy savings through mechanisms such as standards, rate design, and energy savings programs implemented by non-utility entities. In the near future much more experience will be gained with decoupling mechanisms, from which Nova Scotia will be able to learn.

DSM Programming

Given the urgent need to begin demand side resource acquisition, we are supportive of establishing an initial set of programming that can become operational in 2008. The EAC articulated a series of criteria for initial programming in our presentation to the stakeholder conference. Some of these criteria included ease of ramp-up, providing opportunities for wide participation, and considering potential implications of unresolved structural issues.

As a starting point for collaborative deliberation, EAC proposed:

1) Massive CFL programs
2) Commercial Lighting – Upstream High Performance
3) Appliances – Clothes Washers and Refrigerators
4) Industrial & Municipal programs through custom programs or self-administration
5) Low-Income
6) Large Commercial – Direct Install

We request, in turn, that drafts and estimates of budgets, savings goals and timelines for initial programming under consideration by NSPI be put forward as soon as possible for collaborative review and discussion.

To allow for quick deployment of programs we suggest that electric ratepayer fundsmay be able to complement staff capacity already available at *Conserve Nova Scotia*. Moreover, using electric ratepayer funds to acquire cost-effective electric efficiency resources could free *Conserve Nova Scotia* resources to better address efficiency in the use of other fuels.

We note that the programs suggested are ideas for some initial quick-start programs. A fuller portfolio of programs will need to be developed in a multi-year demand side resource plan. We would also like to suggest that the programs we propose are ideas and guidelines. If accountability for achieving results specified in the performance indicators can be established, we are supportive of providing the program administrator with a high degree of flexibility to encourage program innovation and rapid changes to programs and strategies in order to achieve results.

Custom Approaches

Custom programs are best suited for industrial and municipal facility programs. In the near to long term the custom approach, with account managers that build working relationships with industrial and municipal customers, stands in contrast to retrofit or overly prescriptive approaches. Account managers can work within a given company's capital budget plans and help meet return on investment targets.

For early custom programs, a customer-driven approach can be adopted that builds upon private sector engineering firm audits and analysis. This initiative could build on national programs and the model being followed by Efficiency New Brunswick.

Self-Administration Approaches

If administrative and technical expertise already exists in the industrial or municipal sectors it increases the effectiveness of the overall program approach to avoid duplication. Avoiding this duplication increases the system benefits for all ratepayers, which is the fundamental reason why the Board will order the acquisition of demand side resources. A self-administration option, seeks to avoid duplication of resources, which is the reason why the EAC would be supportive of these options, if customers can clearly demonstrate that they possess adequate capacity and expertise.

The self-administration option can be appropriate for customers that can clearly demonstrate the capability to administer their own energy efficiency efforts. This option is often reserved for customers who pay a large amount into the efficiency fund (e.g. 1 MW capacity). For these customers, the EAC would be interested in discussing establishing a separate "energy savings account". To ensure that a fair contribution is also made to acquiring system benefits from the overall efficiency program, about 30% of the energy efficiency contributions by the customer will go to the general efficiency fund and the rest into the energy savings account. The measures supported by the energy savings account should seek to leverage longer-term investments that might not otherwise have occurred. And the energy savings would need to be at least as cost-effective as those achieved in the general program, and subjected to the same savings verification and screening processes as the general program.

In the long-term, it is not clear to the EAC at this time, whether a custom or self-administration approach would be best for a customer such as the Halifax Regional Municipality. We believe this issue should be the topic of collaborative deliberation with a variety of interested parties. In the short-term, if a customer such as the Halifax Regional Municipality can clearly demonstrate that they can implement measures that will be cost-effective from a societal perspective we would be very supportive of enabling these energy savings measures to move forward promptly by providing immediate funding. The measures would need to be screened for cost effectiveness and independently verified, which will require the establishment of a tracking system from the outset.

Low-Income

The EAC has previously presented NSPI and Summit Blue with a report titled *Proposed Framework for a National Low-Income Energy Efficiency Program for Canada* by Green Communities Canada and *Framework for a Low-Income Energy Efficiency Program in Nova Scotia*, which discusses some provincial specific context. These two reports represent best-practice low-income energy efficiency programming and should be the basis upon which we construct low-income programs.

In response to the comments by Synapse, the EAC would also be interested in exploring the opportunity to build capacity for program delivery within non-profit organizations that are closely connected to low-income communities.

Fuel-Switching, Fuel Choice & Combined Heat and Power

Following on comments by Synapse, the EAC supports evaluating fuel switching and fuel choice (in new construction) measures in terms of Total Resource Cost (or societal cost) costs and benefits. We would also support evaluating Combined Heat and Power (CHP) as a measure in the same manner.

Programs should fully consider, based on circumstances and costs and benefits, options to choose among or switch to fuels such as natural gas, propane, wood chips, other biomass, solar, CHP and other options instead of electricity. New construction is a high priority area for discouraging, and preferably banning through legislation, the utilization of electric resistance heat. We also offer our concern that the capital costs of heat pumps may not be warranted if a house is meeting high efficiency requirements and that heat pumps could contribute to the building of costly electric load.

Evaluation and Review

A proper, transparent and independent process for performance review and evaluation will be very important to ensure accountability for demand side resource investments. Proper savings verification will be very important to assure that promised savings are actually being delivered and to avoid arguments over lost revenues and incentive amounts.

Initial evaluation plans should be in place at the outset to assure critical evaluation data is captured. We urge that programs account for all costs and benefits, including non-electric and customer costs and benefits, to provide a more accurate accounting of program costs and benefits from a total resource and societal perspective. We also suggest that programs account for GHG reductions achieved.

Program costs should be specified for the purpose of evaluation and review, with a realization that evaluation and research have tended to be under-funded in many jurisdictions.

Conclusion

The EAC has provided these comments in a spirit of collaboration and mutual learning. We have outlined options that we believe will result in accountability, equity and effectiveness. We would be very interested in discussing the ideas mentioned above, and new ideas, with all parties.

Yours Sincerely,

Brendan Haley
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November 15, 2007

Nova Scotia Utility and Review Board
3rd Floor, 1601 Lower Water Street
PO Box 1692, Station M
Halifax, Nova Scotia
B3J 3S3

Attention: Ms. Nancy McNeil
Regulatory Affairs Officer

RE: NSPI – Demand Side Management Program - P-884

Dear Ms. McNeil,

Thank you for the opportunity to participate in the November 1, 2007 technical conference on DSM. The following are the Halifax Regional Municipality's comments on the discussion and information provided by NSPI.

DSM Framework for success

HRM would agree that timely and cost effective DSM implementation requires a great deal of collaboration between NSPI and its customers. Ultimately it is Nova Scotia electricity consumers that will benefit and pay the charges for DSM on their bills. However, it is not a simple matter to convince consumers extra charges are a good thing, especially when the benefit is future avoided costs. Regardless, as the Integrated Resource Planning (IRP) clearly demonstrated, the business-as-usual, do nothing approach will clearly lead to higher costs under constrained generation capacity and further environmental restriction scenarios.

NSPI must be given the regulatory and financial framework to implement DSM with the same enthusiasm as they supply kWh. DSM is cheaper than building power plants, but the reality is that NSPI shareholders are rewarded for growth and return on equity, not saving consumers energy or reducing infrastructure. If a new power plant is required, it will be the consumers who will pay for this through rates.

The Board has a difficult decision to make in levying extra charges on consumers. It must, ensure, among other things, fairness between rate classes, transparency of charges, prudent expenditures, and equitable treatment of NSPI and its shareholders. It is important that a framework is established with the flexibility to allow early actions for quick ramp up while ensuring the long term implementation and administration of DSM is given careful consideration. Most future choices on supply capacity will involve tough

choices; in contrast, an effective DSM plan is a relatively painless choice that has broad stakeholder support.

HRM's corporate energy situation

Corporately, the Halifax Regional Municipality will have energy expenditures of more than $20 million annually for 2008. Two-thirds of this operating expenditure is electricity. HRM Council has approved more than $5 million in energy efficiency projects during the past 3 years. Despite investing heavily in successful energy efficiency projects[1], the municipality has still experienced a dramatic increase in energy costs. HRM's total corporate energy expenditures have risen by almost 60% in the last 5 years mostly due to rapidly increasing fossil fuel prices.

Importance of early DSM action

HRM fully supports the concept of early action required on DSM. Analysis, study, and modelling can all prove to be useful guides in implementing energy efficiency, but nothing speaks like experience with a strong feedback mechanism to tune programs. It must be remembered *"All models are wrong, just that some are more useful than others."* HRM would encourage leadership in early implementation of real, concrete energy efficiency projects with a strong reporting mechanism. The IRP points to a very near horizon for a decision on the addition of significant generation capacity. DSM can only forestall this decision (and cost) if action is started immediately.

HRM can speak from experience that planning and identifying cost effective energy expenditures, benchmarking, financing, implementing and measuring results can and will take time. Ramping up energy efficiency is not an easy process. HRM can also speak from experience that, generally speaking, the cost effectiveness of energy efficiency is usually under estimated. Financial (and environmental) returns are usually larger than first estimated while more opportunities are discovered as the organization starts to actually implement improvements. HRM has gained a wide variety of useful experiences in energy efficiency projects that have encouraged it to seek accelerated and increasing investments in energy efficiency. Examples of projects include:

Energy Benchmarking	Use of NSPI "Smart Metering" / Building Automation Metering / Corporate Benchmarking, CBIP Modelling, Energy Audits, Post retro-fit measurement and verification using IPMVP.
Implementation	In house building retrofits (lighting, HVAC, DDC automation upgrades), traffic lighting (LED conversions), water conservation and control, Adopting LEED Silver for all new construction, energy performance contracting, commissioning and retro commissioning.

1. These projects have saved over $600,000 in energy costs (oil+electricity).

Financing Multiple projects have leveraged HRM Capital/Operating funds with over $2 million in external funding for energy efficiency.

Energy Leadership HRM is drafting a Community Energy Plan (will be used as a template for Canadian cities) that has had input from a wide group of stakeholders. HRM is implementing innovative and efficient technologies like geothermal heating & cooling in two new buildings (which is now being replicated elsewhere in Nova Scotia) as well as a retrofit of four existing buildings that will use seawater cooling, and a world first, seasonal, geothermal cold storage system (with no heat pumps) for 100% renewable energy for air conditioning in over 300,000 ft^2 of property.

NSPI Early Action Plan

HRM has reviewed NSPI's Draft Early DSM Investment Proposal for Commercial Lighting and offers the following suggestions and comments:

1. The Commercial lighting retrofit program should not be exclusively targeted at small & medium sized businesses first. From HRM's lighting retrofit experience the mobilization and auditing costs do not scale down for smaller buildings. However, a lighting retrofit program should be quickly implemented that can produce sizable savings. HRM would strongly encourage the program to target large commercial customers first. This would be similar to the successfully run NSPI pilot program in 1998-1998 where over 200 audits were conducted and 50 retrofits implemented in approximately 1 ½ years. We understand that given the work already done in the commercial sector, the greatest opportunities may lie in the MUSH (Municipalities / Universities / Schools / Hospitals) sector.
2. HRM fully supports the concept of a "turn-key" lighting retrofit program. Bundling the audit, implementation, warranty, follow-up reporting and financing functions will expedite projects and avoid complications of multi-party involvement.
3. HRM fully supports the concept of the on-the-bill financing option for customers. This would remove one of the greatest barriers to customers in implementing energy efficiency measures.
4. HRM is not sure that the level of DSM program investment versus participant investment in individual projects is warranted. NSPI is suggesting the DSM program will be supplying 50-80% of the project costs. This would appear to be overly generous, draining available DSM funding. Grants should be just large enough to entice customer action but must also be justified through the TRC test. NSPI has provided no overall budget or analysis on the cost effectiveness in the draft plan. At the stakeholder forum representatives from Conserve NS mentioned that a commercial lighting program is to be implemented shortly. How will these programs stack? From HRM's experience, the suggested lighting

retrofits typically average 3 ½ - 4 ½ years in simple payback (from the customer's perspective). HRM would suggest DSM grants of 30-40% (with on-the-bill financing) would be more than enough to encourage customer action. These DSM grants could probably leverage another 10-20% in grants for project costs.

HRM Early Action Proposal & Self-Administration

HRM would strongly encourage the Board and NSPI to consider a self-administration option for early ramp up of energy efficiency measures. This option should be made available to qualified customers – those that have large electricity bills and those with the resources to identify and implement projects. Self-administration does not preclude other forms of implementation or reporting.

There are multiple benefits to HRM self-administering corporate DSM initiatives including:

1. **Early Results.** HRM has a proven track record and the resources to implement projects quickly. Resourcing DSM expertise and project management will be a challenge for DSM delivery and ramp-up; HRM already has these resources in place, undertaking projects. HRM has an extensive list of unfunded energy efficiency prospects that could be ramped up fairly quickly if funding were available.

2. **Transparency**. HRM is a public organization, with a high degree of transparency. Expenditure approvals and results would be easily tracked. HRM would suggest that the self-administration option should be discontinued for any customer if energy efficiency spending proves ineffective.

3. **Leveraging.** HRM is usually able to quickly leverage other funding, increasing the size and scope of energy efficiency projects that can be implemented. As an example, approximately $2 million in outside funding has been leveraged through HRM's $5 million investment in energy efficiency over the last 3 years. There are multiple programs exclusively available to municipalities including the $500 million Federation of Canadian Municipalities Green Municipal Fund, and the recently announced Union of Nova Scotia Municipalities $7.5 million Eco trust Municipal Programs. DSM efforts are complementary to these funding programs. Self-administration would provide more incentive to leverage DSM funding.

4. **Opportunities.** HRM would be better able to integrate Capital/Operating Budget opportunities to multiply the cost effectiveness of energy efficiency investments. With over 250 buildings, and a large annual Capital building program, there are many opportunities to make incremental, cost effective, energy efficiency investments. HRM has done extensive benchmarking on energy usage, and has identified a long list of energy efficiency projects, which are currently under-funded and awaiting implementation. HRM would not constrain energy efficiency

investments to a specific % of electricity consumption, it would target delivery of however many projects made economic sense.

5. **Influence.** HRM also has a strong policy influence that could encourage a transformation in energy use. Municipalities have influence or control of over 50 percentage of community greenhouse gas emissions. Municipalities can play a strong role, acting as a catalyst for smart energy use; however, these policy changes are to be approached cautiously. Keeping, learning and building internal energy expertise within a municipality is extremely useful in not only managing corporate costs but sensibly applying policy shifts. As an example, HRM is learning corporately the costs and benefits of LEED buildings. HRM has learned there are immediate returns for certain aspects of LEED construction that would be very positive to encourage in the wider community through multiple policy changes. Some leading municipalities have gone as far to adopt and enforce LEED standards for all new community development/construction.

6. **Equity.** Money spent to reduce electricity consumption and operating costs directly affects HRM's bottom line, which translates into taxpayer savings – both corporate and residential (who are also the NSPI ratepayers). Corporately, HRM has hundreds of electricity accounts, in every rate class. Projects would be targeted based solely on the "lowest hanging fruit" principle, with lessons learned from the experience.

All of the above is respectfully submitted.

Yours truly,

HALIFAX REGIONAL MUNICIPALITY

M. E. Donovan
Director of Legal Services & Risk Mgt.

cc. J. René Gallant, Q.C., NSPI
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Berwick Electric Commission

INCORPORATED
MAY 1923

BERWICK, NOVA SCOTIA

236 Commercial Street
P.O. Box 130
Berwick, Nova Scotia
B0P 1E0

November 15, 2007

Dr. John Stutz, Ph. D.
Tellus Institute
11 Arlington St.
Boston, MA
02116-3411

Dear Dr. Stutz:

Member utilities of MEUNSC support the development of DSM programs within Nova Scotia, for the emissions reductions sought in the IRP process and because we should be obliged to use energy wisely and efficiently. We have perhaps a different perspective than most stakeholders, given that we are re-sellers of energy and will inevitably be affected by DSM activities. We will, like NSPI, see loss of kWh sales and will need to recover lost margins or perhaps decouple revenue from sales. We could argue that we should develop and manage our own DSM programs and be exempt from DSM surcharges on NSPI's billings to us. We prefer to submit that DSM programs should be administered province wide and by an entity selected by a competitive process. NSPI is not in our eyes a "natural" choice for this role, but if that company can demonstrate in a competitive process that they are the *best* choice, well and good. The DSM program identified in the IRP process is an ambitious and very expensive program. We need to be assured that its managers are well qualified, agile, and responsible. The managing agency must be accountable for results and able to refocus and adjust programs as experience dictates. The selection of the managing agency is far too important to be left to default.

In the Electricity Marketplace Governance Committee deliberations of a few years ago, Mr Huskilson, then President and COO of NSPI, more than once affirmed his company's support for competition for new sources of generation and for DSM. Since then we have had an "emergency" application for Tuft's Cove 5, a work order request for TC 6 triggered by terms of the environmental approval given for TC 5, and now DSM roll out by stealth, a proposal that NSPI commence a program without formal approval, at a level of expenditure that is at the leading edge of North American programs. Surely it is time to make certain that the DSM manager has demonstrated that it is the best selection we could make.

Let's be clear that the 5% of revenue funding level proposed will come from the ratepayers of NSPI not its shareholders. It is not known what portion of that if any is intended to maintain NSPI's ability to pay dividends, or if that cost will be additional, or if indeed we will decouple the utility's earnings from sales volumes. We recognize and support that NSPI should be kept whole in this new paradigm we are entering, we simply make the point that this is a public interest initiative funded with ratepayer's money and that NSPI doesn't own it.

Indeed of all potential managers NSPI would appear to be the least motivated to succeed in DSM management. If NSPI is in charge and the results do not reach required levels of emissions reduction, NSPI will have been kept whole in the process and will propose to build new generation to rescue the province from the failure of DSM, truly a "no regrets standard." A separate entity would be dependent on success in DSM for its profitability and for its continued holding of that franchise. It would be incented to be efficient and effective and surely that is what is required.

We recognize that delay could be harmful, but with NSPI's request for approval of Tuft's Cove 6 already before the Board, it may be that the first generation increment we could potentially defer will be built anyway and since NSPI concedes that this plant is not now needed for capacity we have some headroom for load. A properly conceived and managed competition to select the appropriate entity to build DSM in Nova Scotia would be well worth the investment in time. We urge Government to direct the Board to initiate and oversee such a competition.

We thank you for the opportunity to make these comments.

Yours truly,

Donald Regan
On behalf of MEUNSC
cc Mr Rene Gallant, Q.C.
Mr Bruce Outhouse, Q.C.
Ms Nancy McNeil
Mr George Foote

DSM Administrative Issues Analysis

SEB Written Comments to the NSPI DSM Collaborative
November 15, 2007

1. Introduction

On October 15, 2007, NSPI's DSM Collaborative circulated a document entitled "Preliminary DSM Administrative Issues Analysis" ("Draft Analysis") for discussion with Stakeholders. On p. 2 of the Draft Analysis, the Collaborative identifies five key "administrative items" for discussion. These are:

1. NSPI's role in administering the DSM program;
2. The appropriate level of DSM investment;
3. The details of the DSM program;
4. How the DSM program costs and effects will be recovered in rates;
5. The methods by which the DSM program will be tracked and reported.

Furthermore, section 3 of the Board-approved Terms of Reference for this matter identifies several "primary steps" to be undertaken by the DSM Collaborative in respect of these five administrative issues. The steps include the identification of administrative issues for consideration, as well as the development and evaluation of options around each of the key administrative issues, with analysis as required.

Following the circulation of the Draft Analysis, NSPI hosted a consultation session with stakeholders on November 1, 2007, with written comments to be provided to the Collaborative by November 15, 2007. Please accept this as the submission of our clients, Stora Enso Port Hawkesbury Limited ("Stora Enso") and Bowater Mersey Paper Company Limited ("Bowater Mersey") (collectively "SEB"). For ease of reference, the comments have been organized to coincide with the major sections as presented in the Draft Analysis.

2. NSPI's role in administering the DSM program

The Draft Analysis assumes that NSPI will be the administrator of DSM programs, and notes at p. 3 that "the Collaborative does not consider the issue of administration as open". Since the release of the Draft Analysis, however, the Nova Scotia government has announced that it will seek input to determine the proper administrator of electricity-based demand-side management in the province. According to a press release issued October 29, 2007, these government-led consultations will begin in February and "will examine different administration and accountability models, including administration by an independent utility, a Crown corporation, Nova Scotia Power, or some other form determined through the consultation process."

SEB recognizes that the present NSPI-led consultations on other administrative issues will continue in advance of the discussions and determination of the actual DSM

program administrator. However, SEB believes it is important for all parties to acknowledge the real possibility that NSPI may not prove to be the administrator of the programs currently under discussion. As a result, the options need to be addressed in a manner that will enable a flexible and cost-effective transition, should an entity other than NSPI be selected to carry out DSM programs in Nova Scotia.

3. Level of DSM investment

The Draft Analysis states as follows on p. 4:

> The level of spending contemplated in the 2006 DSM filing offers a reasonable range of suggested spending over the initial years of the DSM program. Since the Integrated Resource Plan advocates increased levels of DSM spending and all parties are in favour of moving quickly towards higher levels, it is proposed that the DSM spending level beyond year 2 should be evaluated after year 1 results are known. It is anticipated that spending levels will ramp-up quickly towards those spending levels (and savings) established as the preferred plan in the IRP.

SEB would like to make a number of comments regarding the statements above. First, it is our understanding that the level of spending contemplated in the 2006 DSM filing (as referenced on p. 3 of the Draft Analysis) was a start at 0.7 percent of in-province electric revenues, with a ramp-up to 2 percent by 2010. SEB is generally supportive of an initial investment in this range. Yet SEB would also note that in initially proposing this expenditure level, Summit Blue acknowledged (at p. 56 of its report) that its benchmarking study found no correlation to spending levels and the impact achieved. Accordingly, Summit Blue recommended "NSPI base their DSM plan on the best practice programs, which should deliver the savings more efficiently." This suggests that a more appropriate focus for DSM spending in the early stages of the plan should be on achievable results.

Second, SEB disagrees that "all parties are in favour of moving quickly towards higher levels" of DSM spending, as the Draft Analysis suggests. It is vital, in our view, that the amount to be collected for DSM investments not be set arbitrarily high. Determination of the appropriate funding level by the UARB should be based on detailed forecasts and with due consideration of past experience, in implementing DSM in Nova Scotia. Possible rate impacts, the identified market potential for DSM, and the cost-effectiveness of individual programs will all need to be carefully scrutinized as part of the process. Any approved levels of spending should be subject to ongoing reviews by the Board.

Third, as we noted throughout the IRP process, SEB is highly skeptical of the potential for DSM originally identified in the Summit Blue report (and the simple mathematical extrapolation for the 5% level) which was used as a direct input in the IRP. Although Summit Blue's "top down" analysis may be valid for a large sample size with a broad age group and greater industrial density, it is not applicable to the industrial class in

Nova Scotia. Many other utilities serve a large number and diversity of industrial users. Unlike these utilities, NSPI's customer base is clearly unique in that 56% of all the energy purchased by the entire industrial class (small, medium and large together) is consumed by only two customers (over 2/3 of the large industrial class), namely SEB, who have each invested heavily in recent years in new plant capacity and are already using best available technology. For this reason, a study such as Summit Blue's, that may have relevance in other jurisdictions, may have little if any direct relevance to Nova Scotia, and particularly to industrial customers here. Moreover, the typical improvements suggested by Summit Blue have already been implemented by Stora Enso and Bowater Mersey, and as such that potential is no longer available to be realized. Other industrials with plant expansions or modernization may have similar experience, thereby leading to a further over estimation of DSM potential.

Thus, SEB remains wholly unconvinced that the opportunities for cost-effective DSM implementation are necessarily as widespread in Nova Scotia as may be assumed, based on analysis of other jurisdictions. As well, we note that significant funds are already being spent, or are planned to be spent, on electricity-based DSM activities by organizations such as Conserve Nova Scotia. Such alternative sources of spending must be taken into account in determining the appropriate level of DSM investment to collect in rates.

For these reasons, SEB does not share the Collaborative's view that spending levels should necessarily "ramp-up quickly" to the 5% of annual revenues suggested by the IRP. Even Summit Blue's 2006 report appeared to suggest that expenditure targets beyond 3% of revenues were fairly aggressive and that caution must be exercised to ensure such increases were being spent efficiently (p.57). It also bears repeating that no jurisdictions in North American other than Vermont (and possibly California) currently collect and spend upwards of 5% of utility revenues on DSM. And even in these two jurisdictions, significant time elapsed (and multiple regulatory oversight proceedings occurred) before spending was ramped up to the current level.

To take into account the points noted above, SEB recommends that the Collaborative's analysis with respect to the appropriate level of DSM investment be revised as follows:

> The level of spending contemplated in the 2006 DSM filing offers a reasonable range of suggested spending over the initial years of the DSM program. Since the Integrated Resource Plan advocates increased levels of DSM spending ~~and all parties are in favour of moving quickly towards higher levels~~, it is proposed that the DSM spending level beyond year 2 should be evaluated after year 1 results are known, with a view to determining over time whether ~~It is anticipated that spending levels will ramp up quickly towards~~ those spending levels ~~(and savings)~~ established as the preferred plan in the IRP will achieve the anticipated savings in Nova Scotia.

4. Cost Recovery in Rates

As noted in the November stakeholder session, the issues of program cost recovery and cost allocation are critically important to SEB. Both Stora Enso and Bowater Mersey believe strongly in the potential benefits and savings offered by DSM programs. Each of these companies has been motivated to become as efficient as possible, given the size of their monthly electrical bills, and to that end have expended large amounts of capital that has benefited both themselves and the system as a whole. NSPI's two largest customers have been motivated to take "early" action prior to the establishment of utility- or government-led programs in order to minimize the total electricity consumed, and both have in recent years already invested heavily in new plant and modernizations using the best available technology.

This leaves SEB in a difficult position with respect to the administration of new DSM plans in Nova Scotia. As Blair Hamilton of Efficiency Vermont noted in his presentation at the November stakeholder meeting, DSM programs typically require that each rate class receive some minimum benefits and/or spending of DSM amounts so that all customer classes are treated roughly equally. To do otherwise would require some customer classes to fund substantial DSM efforts for others through an efficiency surcharge, without a corresponding ability to participate in and benefit from the programs themselves. In the event of a proposed systems benefit charge, SEB (as a rate class) would find itself in just this inequitable circumstance, due to the "early" efficiency actions already taken and further magnified by the size of their respective loads compared to other ratepayers. SEB believes that no customer class should be harmed by implementation of the DSM program, as DSM's goal is to increase efficient use of electricity and reduce system costs. Thus there should be no DSM inter-class subsidization.

The Draft Analysis, as currently written, does not take the possible occurrence of this type of inequitable treatment into account. It states on p. 8:

> The Collaborative supports the allocation of DSM program costs across the entire rate base and contribution by all electric customer classes. To do otherwise would result in some classes benefiting from the savings associated with a DSM program (i.e. deferral of investment in generation infrastructure) but not contributing their fair share to the investment required to achieve this.

SEB raised the issue of a customer's "fair share" at the November stakeholder meeting and asked whether the Collaborative could provide any further specifics on this point. The Collaborative indicated that it is conscious of the potential inequities that can arise between participants and non-participants, and that it continues to consider the matter. The Collaborative also expressed its general view, as reflected in the language cited above, that DSM provides broad benefits to all customers in terms of the avoided cost of generation. SEB would note that such benefits can only accrue to customers if the DSM program is effective in achieving the assumed reductions. These benefits are also

difficult (if not impossible) to quantify at the time DSM charges are to be collected, as compared to the direct benefits received by those able to use DSM funds to reduce their electric consumption.

Also in this section, the Draft Analysis raises issues with respect to decoupling, lost revenue adjustment mechanisms, and shared-savings mechanisms. SEB agrees that a move to full decoupling would result in a regulatory shift requiring significant education and consultation, particularly since none of the consultants at the stakeholder meeting could identify a model jurisdiction where this is being done successfully. With respect to the other mechanisms (LRAM, SSM), SEB believes that further details as to their operation are required before the merits associated with their use can be adequately assessed by stakeholders. For example, how would lower electricity sales associated with DSM programs be accurately quantified? What jurisdictions employ these mechanisms, and to what effect? Will cost recovery/allocation differ on the basis of customer class? What types of penalties are appropriate if anticipated savings are not achieved? Further, SEB would also note that the appropriateness of a particular mechanism may vary greatly depending on the identity of the administrator of the DSM programs (itself an open question as previously noted).

Given the concerns and comments above, SEB will reserve its final comments on these points until the Collaborative brings forward a firmer position on issues associated with cost recovery/allocation in rates in the next draft of the DSM administrative issues analysis. SEB is hopeful that the concerns identified in these submissions will be addressed.

5. DSM Programming / Methods for Evaluation and Reporting

The Draft Analysis highlights several Summit Blue recommendations with respect to DSM Programming at p. 5 and indicates that, "in general", NSPI is supportive of the referenced points. The Draft Analysis also cites several items for consideration brought forward by Synapse with respect to various programs. SEB believes these may serve as appropriate starting points, but also believes the characteristics of early programs and the sample portfolio approach outlined in Blair Hamilton's presentation at the November stakeholder session should be explored further. Again, without further detail regarding the specifics of the proposed programs and associated costs, it is difficult to provide meaningful comment. SEB may have further thoughts on the nature of the programs once such detail is provided.

One point is clear, though. In the preliminary discussions with respect to DSM programming, it is evident to SEB that a more formal plan needs to be put in place to consider the effect of electricity-based DSM programs already undertaken (or proposed) by other organizations in the Nova Scotia market in order to coordinate implementation and ensure that resources are not wasted. Conserve Nova Scotia and its recent efforts with respect to commercial lighting offers one example, but there will likely be many others. Ratepayer funds collected for use on electricity efficiency programs must be

carefully targeted so that programs will succeed at the lowest possible cost to ratepayers, and all efforts should be made to avoid unnecessary duplication.

SEB also notes that this section of the Draft Analysis proposes a deferral of DSM programming associated with the Pulp and Paper sector pending completion of Neill and Gunter's "Achievable Potential" report (p. 6). [We would also refer the Collaborative to the information with respect to energy efficiency efforts undertaken by Stora Enso and Bowater Mersey which was submitted in confidence as part of the IRP.] On this point, we would simply re-iterate our comments regarding appropriate cost recovery and allocation and the equity concerns that arise in this type of circumstance.

Finally, the Draft Analysis also states on p. 9 that "Detailed monitoring and evaluation plans would be developed for each of the DSM programs" and that "DSM results, spending levels, and future DSM plans would be reviewed regularly." SEB supports these positions, and submits that the evaluation plans must be developed at the outset and presented to the UARB alongside the DSM programs, and that proper consideration be given to which entity (whether the UARB or otherwise) is best suited to evaluate the final results.

6. Conclusion – Further Collaboration

At the end of the November stakeholder meeting, Brendan Haley of the Ecology Action Center suggested that there was a need for deeper collaboration between all parties on DSM, given the large framework of issues left to be resolved and the desire to begin the implementation of cost-effective programs. He noted that it should be possible to develop a series of working groups within the Board-established consultation process that would allow for broader stakeholder engagement on DSM than occurred previously in the IRP. SEB supports such further collaborative efforts.

SEB encourages the Collaborative to carefully consider and incorporate its comments in the ongoing review and final Report. SEB is available to discuss any of the issues raised in this submission with the Collaborative at its convenience.

(1110488.4)

December 11, 2007
Draft Administrative Issues Analysis

NOVA SCOTIA POWER INCORPORATED

Updated
DSM Administrative Issues Analysis
and
Discussion of Stakeholder Feedback
on DSM Programming

DRAFT
For Discussion with Stakeholders

December 11, 2007

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APPENDICES

EXECUTIVE SUMMARY

This document has been prepared as part of a Demand Side Management (DSM) collaborative and stakeholder engagement process. This document has been updated to respond to stakeholder input received as part of the process and provides additional information regarding electric DSM to be administered by Nova Scotia Power Inc. (NSPI).

Stakeholders have advocated for enhanced stakeholder engagement in DSM programs and administration. In response to this, a Steering Committee and Advisory Council are proposed and preliminary details on these bodies are provided. Stakeholders have expressed interest in DSM program flexibility and in particular, the ability for customers to self-administer DSM. A Custom Partners Program is proposed, in which qualified customers may propose DSM projects for funding.

A number of stakeholders described the need for a targeted DSM program for low-income customers. The Company's plan to reach this DSM market is discussed. Parties have commented on the potential to broaden electric DSM programs and address other fuels and other benefits and this is discussed in this document.

The Integrated Resource Plan (IRP) context for DSM Investment is described, considering the current timeline and the potential for limited DSM opportunity in NSPI's Extra-Large Industrial customer class. DSM Investment of $10.6 and $21.5 million are proposed for 2009 and 2010. The DSM Programming Plan provides details for these years and proposed program highlights for 2011-2013. Stakeholder input was received on DSM programming and a potential early DSM program in 2008, which are discussed in this document.

Stakeholders have urged that a proper, transparent and independent process for performance review and evaluation be established. Details on the Collaborative's proposed approach to DSM program evaluation, monitoring and verification are described in this document and in the DSM Programming Plan.

Program costs and lost revenues are components of DSM costs that will be recovered from NSPI's electric customers and would need to be recovered via a DSM cost recovery mechanism. The rationale and structure of these components are described and preliminary details are provided. The Collaborative proposes that DSM costs be treated as would an investment in base load generation capacity. Recovery of DSM costs from all customer classes and in accordance with its Cost of Service methodology is proposed.

In order to assist stakeholders in understanding next steps, an outline of the filings anticipated for January 31 is provided in an appendix. A timeline of DSM activities for 2008-2010 has been prepared as an appendix for stakeholder comment.

1.0 INTRODUCTION

The Nova Scotia Utility and Review Board (UARB) approved the Terms of Reference for the DSM Collaborative on October 4, 2007. In fulfillment of the Terms of Reference, this analysis was initially circulated to stakeholders on October 15, 2007.

A stakeholder session to discuss DSM was held on November 1, 2007. At this session, Ecology Action Centre (EAC) and StoraEnso-Bowater (SEB) led discussion on a number of DSM-related topics.

Following the session, stakeholders provided written feedback on these issues. Comments were received from the Affordable Energy Coalition (AEC), Avon et.al (Avon), the Nova Scotia Division of the Canadian Manufacturers and Exporters (CME), Conserve Nova Scotia and the Nova Scotia Department of Environment (NSDOE), the EAC, Halifax Regional Municipality (HRM), the Municipal Electric Utilities Nova Scotia Co-operative (MEUNSC) and SEB. This document reflects this input.

In addition, this report provides information on a variety of DSM-related topics, including DSM Program Costs, Cost Recovery and DSM Rate Design. In conjunction with the separately submitted Draft DSM Programming Report, this document provides a preview of the January 31, 2008 DSM Filing, which will lead to a hearing in April 2008. This document also suggests how NSPI's DSM initiatives can unfold from 2008 to 2010.

1.1 Background

In 2005, NSPI prepared a plan to invest $5 million annually in DSM programs. This plan was included as part of NSPI's General Rate Application for 2006.

In its Decision, issued March 10, 2006, the UARB directed NSPI to retain an external DSM consultant to assist NSPI in refining its DSM. The selection of NSPI's consultant and the preparation of the Terms of Reference for the consultant's work was overseen and approved by the Board. NSPI awarded the DSM contract for consulting services to

Summit Blue in June 2006. Following stakeholder engagement on DSM over the summer of 2006, a revised DSM Plan was filed with the UARB in September 2006.

Subsequent to this, the Board directed that DSM would be included in NSPI's IRP analysis. Synapse Energy Economics Inc. (Synapse) and Dr. John Stutz were engaged to assist the UARB in this collaborative undertaking, which was concluded in July 2007. The IRP identified the next step for DSM as:

> NSPI will initiate the development of a comprehensive DSM program, aimed at realizing the potential indicated in the IRP analysis. The ramp-up proposed in the IRP analysis can serve as a benchmark for the plan. The program is expected to include reporting mechanisms to track expenditures and assess changes in electricity demand and energy across the various customer segments to capture the effect of significant 'ramp up'.[1]

In Appendix 3, Volume 1 of the IRP Final Report, the Board's consultants recommended:

> …To move work along on DSM we suggest continuation of the process which has served us well in developing the IRP-collaboration and consultation under the general direction of Dr. Stutz.

1.2 Scope of Administrative Issues Analysis

The Collaborative has been directed to consider previous DSM planning work by NSPI, the UARB, stakeholders, and their consultants. This document compiles input from stakeholders, NSPI's consultants, Summit Blue and the Prime Group and the Board's DSM consultants, Dr. Stutz and Synapse.

The scope of administrative issues was originally defined by the UARB. The list of considerations has been expanded as a result of stakeholder input and further work by the Collaborative.

[1] NSPI Integrated Resource Plan (IRP) Report Volume 1, July 2007, Page 41.

2.0 DSM FRAMEWORK FOR SUCCESS

Stakeholders submitted a number of comments sharing their perspectives on the requirements for successful implementation of electric DSM. All parties were supportive of DSM as a whole and many urged early action for DSM. The Collaborative envisions DSM being initiated as early as possible, with program spending possibly beginning in 2008, but no later than 2009.

Parties noted that it was important for NSPI's DSM efforts to co-ordinate with other DSM efforts, for example, the work of federal, provincial and municipal governments, as well as industry associations and other non government organizations. The Collaborative agrees.

MEUNSC and Avon indicated that the managing agency for DSM must be held accountable for results and that UARB oversight of DSM expenditures is warranted. Stakeholders noted that the DSM program must be flexible and be able to refocus and adjust programs as the need arises. The Collaborative agrees and proposes both a UARB Steering Committee and a Stakeholder Advisory Council. Details are provided in Section 2.2.

2.1 NSPI Role in Administering DSM Programs

On October 29, 2007, the NSDOE and Conserve Nova Scotia announced a government-led stakeholder consultation process to examine alternatives for administration of DSM programming. This process is scheduled to begin in February, 2008 after the UARB DSM Collaborative concludes its work.

Assignment of administration to a party other than NSPI would require a change in legislation. While stakeholders generally appear to support the announcement of a government-led consultation, they also do not want to slow progress towards establishing DSM programs.

In alignment with direction provided by the UARB, the DSM Collaborative will continue its work with NSPI as the administrator of DSM investments made on behalf of its customers. NSPI will implement its DSM efforts using in-house staff, through partnerships and by outsourcing the delivery of DSM services on a competitive basis as appropriate.

NSPI will seek to develop successful partnerships, with customers, industry associations, non-government organizations and local, provincial, and federal government agencies dedicated to mutual and complementary goals of energy efficiency and conservation. NSPI will seek to leverage the work being done by Natural Resources Canada and the provincial government. NSPI has a track record of working well with Conserve Nova Scotia and considers it a partner in the success of energy efficiency in this province.

In outsourcing delivery of appropriate aspects of the DSM program, NSPI will develop Terms of Reference and issue competitive Requests for Proposals. These opportunities will be open to experienced and professional entities (whether for profit or not-for-profit) that can demonstrate the ability to understand the marketplace, to design and implement high quality DSM programs, to operate these programs, to track activity and most importantly, deliver results.

2.2 An Enhanced Stakeholder Engagement Process

Stakeholders have urged the DSM Collaborative to consider processes for enhanced stakeholder engagement in, and influence over, DSM programs and administration.

Conserve Nova Scotia, NSDOE and other stakeholders noted that there is a broad common interest in energy efficiency and conservation related to electricity, and considerable opportunities may be available through stakeholders working cooperatively. The Collaborative agrees and proposes the establishment of two bodies; a DSM Steering Committee and a DSM Advisory Council.

The purpose of the DSM Steering Committee is for Board staff to work closely with NSPI on DSM program plans, budgets, and strategies prior to filing of documents for UARB approval. The Steering Committee will consist of NSPI, UARB staff and consultants. This group will work together to prepare DSM program plans, budgets, and proposed performance indicators and incentives for submission to the UARB for review and decision. At least one NSPI Steering Committee member will attend Advisory Council meeting and liaise between the two bodies.

The DSM Advisory Council will be composed of up to 12 stakeholders who will broadly represent stakeholder interests. The Advisory Council will advise NSPI and UARB staff on policies, high level design, implementation and evaluation strategies associated with NSPI's DSM programs and will provide recommendations to the Steering Committee for consideration. The Advisory Council will provide a forum for exchange of information and transparency with respect to electric DSM. It will allow NSPI and Board staff to receive substantive input and suggestions from stakeholders, for consideration in NSPI's DSM strategy and ultimately, UARB decisions. As noted by Conserve NS and NSDOE, though the Council will work towards building agreement on as many issues as possible, unanimity is not required.

The Collaborative has reviewed stakeholder input and adopts a list similar to that proposed by EAC for membership on the Advisory Council:

1. A manufacturing association (e.g. Canadian Manufacturers and Exporters)
2. A small business association (e.g. Can Federation of Independent Business)
3. A consumer advocate
4. A low-income advocate (e.g. Affordable Energy Coalition)
5. An environmental organization knowledgeable in energy efficiency programs (Selected by the NS Environmental Network)
6. A municipal government association (e.g. Union of NS Municipalities)
7. Municipal Electric Utilities Co-operative of NS
8. The Department of Energy/Conserve Nova Scotia

9. The Department of Environment and Labour

Further details are provided in Appendix A.

2.3 Custom Approaches

At the November 1, 2007, stakeholder session, HRM advocated for self-administration of DSM programs. The benefits cited by the municipality included the ability to leverage funding from federal sources. CME and EAC supported this option and noted that such a program could aid in quick and effective ramp up of DSM.

The Collaborative recognizes that certain stakeholders may be in the best position to identify and potentially implement DSM measures involving their own facilities.

A Custom Partners Program is proposed, in which certain customers can propose DSM projects. This program could be similar to the BC Hydro Industrial Partners Program. It will be made available to large customers, whether commercial, municipal or industrial – those that have significant electricity DSM opportunities and the resources, capacity and expertise to identify and implement projects.

The proposals of interested partners must demonstrate that the project meets the Total Resource Cost (TRC) test, and can be completed in an established timeframe. As noted by EAC, measures need to be screened for cost effectiveness and independently verified. This requires the establishment of a tracking system from the outset. Projects will be considered for approval based on overall effectiveness.

The guidelines and administration requirements for such a program will be established following these preliminary requirements:

- Customer size > (to be determined)
- Project size> (to be determined)

- The project is complementary and not a duplication of other initiatives that have been undertaken or are planned for the near future
- Upon acceptance, a contract will be signed between the utility and the partner to implement DSM
- Project spending, completion and DSM targets will be subject to audit

Further details of the Customer Partners Program will be developed by NSPI in conjunction with Board staff. Once the Advisory Council and Steering Committee are formed, changes or enhancements to the program details may be considered as appropriate

MEUNSC prefers that its members come under the province wide DSM program. The Collaborative confirms that NSPI's industrial, commercial and residential DSM programs will include the customers of its municipal utility customers and agrees that there is no requirement for a separate program.

2.4 Low-Income

Conserve Nova Scotia and NSDOE suggest that a steering committee or collaborative represent the interests of low-income households and small business. The Collaborative agrees that the proposed Advisory Council could include low-income and small business representation.

Conserve Nova Scotia and NSDOE also noted that the DSM program must include significant DSM measures for low-income households and small business. AEC discusses appropriate percentages of DSM program spending that could be assigned for investment with low-income customers.

The primary goal of the Low Income Program is to acquire cost effective electrical energy savings within this customer group. The Collaborative recognizes that low-income customers can be particularly affected by rising energy costs. This group was identified during last year's planning work with stakeholders as an important component

of residential customers. It is also recognized that, in order to capture the energy savings opportunities within this target area, programs should be tailored to overcome barriers that otherwise could prevent low-income customers from implementing cost effective DSM measures. Low-income DSM programs, like other programs, must meet the TRC test.

Opportunities to deliver conservation programs to low-income customers may be supported by the existing network of organizations that work on the needs of these customers. The EAC indicated an interest in exploring the opportunity to build capacity for program delivery within non-profit organizations that are closely connected to low-income communities. This expertise and assistance is welcomed by NSPI.

The AEC noted that Nova Scotian tenants are not provided with security of tenure until 5 years and that legislative changes are necessary to complement roll out of a low-income program for tenants. This issue is not in the scope of the Collaborative to pursue, but the advice of AEC about avoiding potential pit-falls of this challenge is welcome.

This item could be further discussed by the proposed Advisory Council at an appropriate time in the future. In the meantime, further input of AEC, EAC and other interested stakeholders is welcomed.

2.5 Multi-Fuels, Fuel-Switching, Fuel Choice & Combined Heat and Power

NSPI's investments in DSM are part of the least cost resource plan to meet the future electricity needs of NSPI's customers. The criterion used to make this determination is the TRC test, a benefit to cost ratio of total electricity program benefits to the total electricity program costs.

Savings from reduced costs of other fuels, such as home heating oil, or societal benefits such as job creation, are not considered in calculating the TRC test for electric DSM investments. The existence of non-electrical benefits to customers can be expected to

increase the take-up of the electricity based program, and therefore indirectly be taken into account in the economic evaluation of program alternatives.

Capturing non-electric benefits may be difficult to do with any accuracy. The Collaborative is interested in stakeholder input in how this could be accomplished in an appropriate and efficient manner.

There may be projects that are broader than electricity in scope of spending and/or effect. In this instance, the utility will seek partnerships to fund those components of the project which are not strictly electrical in scope. Again, projects such as these may have different take-up rates than those that are strictly electrical in scope and affect.

The EAC suggests that the utilization of electric resistance heat could be discouraged or even "banned" for new construction. The Collaborative agrees that while support of more efficient electric systems may be part of DSM programming, it does not favor a ban of resistance heating for new construction. While it may be possible to evaluate whether or not electrical space heating is in the short term interest of customers and society as a whole, it is difficult to know that for certain in the future, as the utility's resource options may change over the long term. For similar reasons, it is not clear whether permanent fuel switching (change of energy supply) should be funded by electric DSM programs. This is an area that will require further analysis.

3.0 DSM TARGETS AND LEVEL OF INVESTMENT

Targeted Plan

In NSPI's September 8, 2006 DSM filing, spending on DSM programs was contemplated to start at 0.7 percent of in-province electric revenues and ramp up to 2 percent by 2010. Year 1 spending was proposed at $6.5 million.

The subsequent IRP analysis considered additional scenarios of DSM. It established that cumulative DSM savings of 871 GWh and 146 MW by 2012 was a feature of the preferred plan for the utility/province. This was referred to as the "5 percent DSM & Renewables Scenario". Associated with this preferred plan was an increase in DSM investment to up to 5 percent of electric utility revenues by year 5 of the program (anticipated in the IRP to be 2012). As part of that ramp up, the level of investment anticipated for year 1 was $16.4 million and year 2 was $26.2 million.

As part of the IRP, a number of sensitivities to the preferred scenario were evaluated. One of these addressed the question of whether significant investment in DSM and renewables remained the preferred plan in the absence of DSM opportunities by NSPI's Extra-Large Industrial Customers. Significant investment in DSM and renewables remained the preferred plan. Associated with this scenario, was a Year 1 investment of $13.7 million and Year 2 $22 million. A study of the industrial DSM potential is expected to be released early in 2008.

Another relevant sensitivity that was evaluated in the IRP addressed whether the reference plan remained the preference if investment in DSM was delayed by two years. The conclusion of this work was that significant investment in DSM and Renewables would not be the least cost plan and that a delay of this length could result in a shift in focus. DSM investment has not been delayed by two years – investment is anticipated for 2009.

Level of Investment for the Early Years of DSM

The DSM Programming Report includes details for 2 years, including 2009 and 2010. Beyond those years, it includes high level information on spending and potential savings targets for 3 additional years.

A key issue arising from the IRP report relating to the level of investment in DSM is how quickly DSM can be effectively and economically ramped up. In the IRP statement concerning IRP development, results and recommendations[2] issued by Dr. John Stutz and Bruce Biewald of Synapse, the preferred plan level of DSM spending was strongly supported. However, it was noted as a very aggressive savings target.

It is important to start scaling up DSM programs as soon as practical, but to do so in a manner that is most likely to be successful and sustainable. This includes starting with a portfolio of programs that is likely to be successful and to start with goals that are achievable. Experience will be gained in the early years of this program; DSM spending should meet a "no regrets standard".

The actual level of investment chosen is significant in that it relates to the amount of kWs and kWhs saved. Stakeholders have expressed some concern about the long term level of DSM spending. There appears to be consensus on the early spending amount (1-3 percent of electric revenues). If early DSM work indicates that the achievable DSM potential is less than anticipated, there will be a mid-course correction in the targeted plan if required. The preferred plan will be re-evaluated in the next IRP initiative to ensure that it is on track.

The Collaborative accepts SEB's mark-up characterizing the early years of the DSM program.

> The level of spending contemplated in the 2006 DSM filing offers a reasonable range of suggested spending over the initial years of the DSM

[2] Appendix 3 Vol 1 IRP Report

> program. Since the Integrated Resource Plan advocates increased levels of DSM spending, it is proposed that the DSM spending level beyond year 2 should be evaluated after year 1 results are known, with a view to determining over time whether those spending levels established as the preferred plan in the IRP will achieve the anticipated savings in Nova Scotia.

The evidence suggests that the opportunity for investment or achievable savings as contemplated in the IRP is achievable and cost-effective. The early years of investment should be maximized to the extent that the savings can be achieved and the DSM program can be successful. The program should recognize that ramp up may take some time.

A strategy for more aggressive implementation of DSM may be a combination of resource acquisition (paying for savings immediately through incentive based programming) and market transformation (investing in long term partnerships, education, training, standards and regulations) that will realize both immediate economic and lasting savings.

Stakeholders have suggested that other funding sources and staff capacity, such as may be available at NRCan or Conserve Nova Scotia, should be considered when determining the appropriate DSM investment level to collect in rates. The Collaborative agrees that NSPI's program should leverage and avoid duplicating the work of other parties actively pursuing conservation and energy efficiency, such as the three levels of government, industry associations, and Non Governmental Organizations (NGOs). The Collaborative believes close co-ordination among the parties is essential. Partnerships will be a feature of future DSM programs and resources are expected to be pooled when appropriate.

NSPI, in conjunction with Summit Blue, have evaluated DSM Programming options for the early years, recognizing the need to achieve the savings targets in the near term and balancing this with the need to establish a realistic and successful program. NSPI's draft DSM plan proposes an initial investment of $10.6 million to target 51 GWh in Year 1, and increasing annual investment levels to attain 978 GWh (cumulative annual energy

savings) by Year 5. In this way, the level of savings anticipated in the IRP Reference Plan is achieved.

4.0 THE DSM PLAN

EAC requested that a Draft DSM plan with estimates of budgets, savings goals and timelines for initial programming under NSPI be put forward as soon as possible for collaborative review and discussion. This has been accomplished in the Draft DSM Programming Report, in which NSPI revised its September 8, 2006 DSM Plan by incorporating both the highlights identified in the October 15, 2007 DSM Administrative Issues Analysis provided to stakeholders, and the feedback of stakeholders submitted on November 15, 2007.

The EAC articulated a series of criteria for initial programming in its presentation including, ease of ramp-up and providing opportunities for wide participation.

The EAC proposed initial quick-start programs as ideas and guidelines, including:

1. Massive Compact Fluorescent Light Bulb (CFL) programs
2. Commercial Lighting – Upstream High Performance
3. Appliances – Clothes Washers and Refrigerators
4. Industrial & Municipal programs through custom programs or self-administration
5. Low-Income
6. Large Commercial – Direct Install

A number of these ideas have been reflected in the DSM Programming Report as follows:

- CFLs and refrigerators are targeted in the Efficient Products program.
- Industrial and municipal customers are addressed in the Commercial and Industrial Custom Rebate program.
- A Low Income program will target the energy savings of this customer sector.
- The Direct Install Lighting program will target customers with demand < 100 kW, or 300,000 kWh annual energy usage.

For the most part, the following programs meet the ease of ramp-up criteria:

Residential:

- Efficient Products.
- Energuide for Existing Houses
- Energuide for New Houses

Commercial and Industrial:

- Commercial and Industrial (C&I) Prescriptive Rebates
- Custom, Rebates – Custom Partners Component and Small Commercial Direct Install Lighting.

The proposed portfolio of DSM programs provides opportunities for wide participation for all customer classes and segments. Residential programs address efficient products and target existing and new houses, including low-income. Commercial and industrial programs target efficient products, custom applications, small businesses and new construction. Customers who may not be specifically targeted in the DSM Plan, such as NSPI's Extra-Large customers, can consider participating in the Custom Partners Program.

As noted by EAC, a fuller portfolio of programs will need to be developed in a multi-year demand side resource plan. EAC also supported enabling a high degree of flexibility to encourage program innovation and rapid changes to programs and strategies in order to achieve results, provided the program administrator is held accountable for achieving results. The need for flexibility is echoed by Avon, who notes that flexible, comprehensive programs will be successful with industrial customers.

Under its proposed DSM Program, NSPI will be accountable for achieving results. This is reflected throughout this document and the DSM Programming Report. The DSM

Collaborative supports the need for flexibility in achieving program results and is mindful that the proposed DSM Advisory Council will be integral in reviewing and proposing adjustments to DSM investment to achieve success.

Industrials

In the 2006 DSM Report and proposed DSM Programming, NSPI's consultant suggested an increased level of DSM activity for the Industrial customer sector, as it aligns with the Canadian Electricity Association (CEA)'s national DSM Potential study "Demand Side Management Potential in Canada" conducted by Marbek Resource Consultants Ltd., as well as another recent DSM potential study for Industrial customers in New Brunswick entitled "Energy Performance Benchmarking & Best Practices in the New Brunswick Industrial and manufacturing Sector" conducted by the Canadian Manufacturers and Exporters Association in association with Neill and Gunter Ltd. and Marbek Resource Consultants Ltd.

A similar Industrial DSM potential study for Nova Scotia, the "Achievable Potential" study is underway and is now expected to be released in early 2008. This study is being facilitated by CME Nova Scotia and is co-funded by the Province of Nova Scotia, ACOA, NRCan, and NSPI.

While NSPI has removed DSM programming measures targeted to the pulp and paper portion of the Industrial sector, the Custom Partners Program is available to large customers, as previously noted.

Avon notes complexity of industrial customer's energy efficiency needs and states that it is essential to address these complexities in designing and implementing DSM programs.

The DSM Collaborative agrees and believes this can be accomplished in the following manner:

- Representation by Industrials on DSM Advisory Council
- Potential to participate in the Custom Partners Program

- The proposed Commercial and Industrial New Construction Program

4.1 NSPI Early Action Plan

NSPI plans on submitting an Early Action Plan to initiate the Small Commercial Direct Install Lighting, Commercial and Industrial (C&I) Custom Rebates and the Custom Partners Programs in 2008 through a request to the UARB for an expedited review before the full DSM Plan is formally approved by the UARB. To the fullest extent, NSPI will develop and implement the early action DSM programs so these can be readily transferable if ultimately a decision is made for an entity other than NSPI to administer the electricity DSM program.

Small Commercial Direct Install Lighting

NSPI has decided to implement a direct install energy efficiency program for small business customers, with launch targeted for mid-2008. The program design will be patterned after the National Grid program model, which we know to be successful, and target customers with annual demand < 100 kW or annual energy use < 300,000 kWh. The long history of program implementation in New England has produced a wealth of market characterization and measure mix data. We know, for example, that the overwhelming potential for electric energy savings (space heating aside) in small customer facilities is lighting, with refrigeration equipment running a very distant second. Therefore, while there is potential in other technologies, the program will initially be operated as a lighting-only program.

The Small Commercial Direct Install Lighting program will be a full service, turnkey program. Competitively-selected vendors will recruit potential customers, assess their efficiency opportunities, prepare job cost estimates, complete program applications, secure customer agreements, and obtain installation approval from the program administrator. After the application has been approved, installations and equipment disposal will be performed by the same vendor or its subcontractors. The program strategy is to use direct contact marketing, low costs of labour and materials (achieved by

prior competitive bidding for these items), and large-scale implementation to achieve significant savings. While the exact amount of incentive offered is to be determined, NSPI believes requiring a customer co-pay in the range of 20-40 percent of project cost is reasonable, and necessary to entice customer participation, as has been the experience with other, similar programs.

The service providers will provide walk through audits, develop the work order for the installers, install and dispose of equipment, conduct post-installation inspections, assist in managing the customer's co-pay obligation, manage their own budget allocations and performance goals, and provide reporting to and interface with NSPI.

The Small Commercial Direct Install Lighting Program will be complementary to and not duplicative of Conserve Nova Scotia's Smart Lighting Choices (upstream lighting) program.

The Small Commercial Direct Install Lighting Program will address retrofit opportunities where customer would not upgrade equipment absent the program. The equipment incentive covers a portion of the retrofit equipment cost, and NSPI will explore financing options for the customer's remaining cost. This turn-key program will include conducting an on-site energy assessment, providing a contract to the customer with a savings estimate, incentive offer, and dispose of and install equipment, and recommend that the customers take action where they would otherwise not do so. The Direct Install Lighting Program will target small C&I customers above.

Custom Rebates - Custom Partners Component

In addition, a "Custom Partners" component will be tested during the first two years of the C&I Custom Rebates program operation. This program component will allow larger NSPI customers to propose custom projects for which they can specify the amount of rebate that they would need to implement the project. All projects submitted must pass the TRC test, and if more projects are submitted than the program budget allows to be funded, then the most cost effective and reliable projects would move ahead first. The

"Custom Partners" program will be open to larger customers who are not eligible to participate in the Small Commercial Direct Install Lighting program.

The proposed actions, identified above, address the majority of stakeholder input on this topic.

4.2 Evaluation, Monitoring and Verification

Stakeholders have noted that it will be critical to ensure accountability for demand side resource investments and that proper savings verification will be very important to assure that promised savings are actually being delivered and to avoid arguments over lost revenues and potential incentive amounts. The DSM Collaborative agrees.

It has been appropriately suggested that detailed monitoring, evaluation and reporting plans be in place at program onset. Evaluation, Measurement, and Verification (EM&V) will be an integral component of the proposed NSPI DSM Portfolio. A three part (EM&V) approach is proposed which includes:

- Annual savings verification
- Process and results evaluation
- Other NSPI EM&V related activities

Stakeholders have urged that a proper, transparent and independent process for performance review and evaluation be established. It is proposed that the first component of the EM&V plan, annual savings verification of DSM programs, be carried out by an independent consultant, under the direction of UARB staff on the proposed DSM Steering Committee. The second component, process and results evaluation, will be performed every three years by an independent consultant. The third part of the EM&V program will be carried out by NSPI. The Steering Committee will be kept abreast of all activities and regular updates provided to the Advisory Council.

EAC requested that program costs be specified for the purpose of evaluation and review, as evaluation and research have tended to be under-funded in many jurisdictions. NSPI proposes four percent of program costs be assigned to this activity, which is consistent with defined amounts in a number of other jurisdictions.

It has been suggested that there should be regular review of DSM results, spending, and future plans. This could take place early in the year to review the results of the previous year's program results, and again at some point during the year. Course corrections should take place if and when warranted to achieve program success.

SEB notes that a formal plan is needed to consider the effect of DSM by other organizations. The Collaborative acknowledges that in all cases where NSPI is one of multiple partners investing in a DSM program, it will need to illustrate its assumptions related to the share of electric benefits attributable to its investment.

While the capture of non-electric benefits associated with electric DSM investment, such as fossil fuels and water usage, will not be a focus for electric DSM, the merits and feasibility of this activity could be evaluated for each program and pursued if reasonable.

NSPI proposes performance indicators as follows:

1. Total net electric resource benefits[3];
2. Minimum electric benefits;
3. Energy savings; and
4. Winter peak demand savings

Avon supports separate review of industrial efforts and separate programs for industrial customers. It is envisioned that the primary sectors of residential, commercial and

[3] For the total resource benefit performance indicator, NSPI will include the present worth of lifetime costs and benefits of all electricity and customer operation and maintenance costs.

industrial will have defined programs which would be evaluated independent of the entire program.

Others have suggested that geographic equity and small business sector indicators can be indications of the resource benefits accruing to these target groups. While this may be the case, the DSM Collaborative does not support separate identification of these groups in EM&V efforts. Specific market, sector or other performance indicators should only be developed after there is more information to support their development, such as market or baseline studies to better characterize and define a market or sector. Additionally, given the need to defer new generation, it is most important to focus on the key resource acquisition indicators of MWh and MW savings.

Conserve Nova Scotia and NSDOE suggest that the stakeholder collaborative contribute extensively to the establishment of performance indicators. For the purpose of gaining consensus and obtaining stakeholder feedback on this matter, the following table contains proposed performance indicators for 2009 and 2010. Further details are provided in the Draft DSM Programming Plan.

2009 and 2010 NSPI DSM Program Goals

#	Performance Indicator	Definition	2009 Target	2010 Target	Form of Verification
1	Minimum electric benefits or NSPI customers	Total electric system benefits for all DSM programs have benefit/cost ratio greater than 1.0	≥1.0	≥1.0	UARB Annual Savings Verification Process
2	2009 Total Net Electric Resource Benefits (TRB)	Present worth of lifetime net electric benefits	$59,124K	$132,222K	
3	2009 GWh Savings	Annual incremental net GWh energy savings at generator	40.14	85.39	
4	2009 Winter Peak MW Savings	Annual incremental winter peak net MW demand savings at generator	6.88	14.75	

5.0 DSM COST RECOVERY MECHANISM

Regulatory approaches can be designed that motivate utilities to implement programs that reduce sales and improve energy efficiency when it is cost effective to do so. Key components of a cost recovery mechanism that would provide the appropriate financial incentives for NSPI to actively pursue DSM programs include:

1. A mechanism to recover the cost of developing and implementing DSM programs,
2. A mechanism that would offset lost fixed cost recovery due to DSM related sales reductions, thus eliminating the throughput incentive, and

A true up mechanism is also required to ensure that the costs recovered by these components are neither over-collected nor under-collected.

Some stakeholders suggested that NSPI implement a mechanism to recover lost revenues and remove the disincentives for NSPI to pursue energy-efficiency programs. A cost recovery mechanism that includes these two components identified above would be consistent with these stakeholder recommendations.

5.1 Program Cost Recovery

In most regulatory jurisdictions, DSM program costs are expensed, which means that costs incurred for DSM and energy efficiency are placed into rates during the year that the expense is incurred and considered as part of a rate filing. Between rate filings, the utility would not recover the cost of any DSM or energy efficiency programs above the level of program costs included in the utility's base rates. Even if such costs are authorized by the regulator for DSM and energy efficiency programs, there can subsequently be a significant delay in recovering these costs. An essential component of successful DSM and energy efficiency programs is the recovery of costs on a timely basis.

There are alternatives for providing utilities recovery of program costs in a timely fashion. The alternative that NSPI would like to pursue is to determine a budget level for DSM spending that would be included in base rates and that would be designed to achieve some amount of cost-effective DSM. After setting this base level of DSM spending, a tariff rider for DSM would be used to allow for periodic rate adjustments to account for the difference between DSM costs that are included in base rates and actual DSM project costs in a given year, either up or down. This would allow NSPI to recover program costs in a timely fashion.

NSPI's IRP shows a ramp up in DSM programs as a significant resource for meeting customer energy needs. A program cost recovery mechanism would provide a way to recover the cost of implementing DSM and energy efficiency programs without the necessity of general rate cases. Such a cost recovery mechanism subject to UARB oversight would provide flexibility to pursue new programs as they are identified or to change program direction rapidly as cost effective program modifications were identified. This flexibility with regard to cost recovery would assist in taking full advantage of the DSM opportunities identified in the IRP.

5.2 Revenue from Lost Sales

As demand is reduced, a utility loses fixed cost recovery on these lost sales. To offset this disincentive, a reconciliation procedure known as the lost revenue adjustment mechanism (LRAM) is often used.

An LRAM restores revenue to a utility that would have gone to coverage of fixed costs but is lost due to sales reductions resulting from DSM programs. It allows a utility to recover the "lost" contributions to fixed costs associated with not selling additional units of energy as a result of the success of DSM programs in reducing electricity consumption. Thus, an LRAM removes a disincentive for utilities to actively pursue demand-side and energy efficiency alternatives. This disincentive is particularly strong when customer charges are kept artificially low and a significant portion of fixed costs and margin are recovered through a volumetric energy charge.

In an LRAM, the estimated reduction in customer usage measured in kWh for approved programs is multiplied by the non-variable revenue requirement (revenue requirement less fuel and variable operations and maintenance costs) per kWh for purposes of determining the lost revenue to be recovered.

In their comments, EAC and MEUNSC indicated that NSPI should explore decoupling revenue from electricity sales in order to eliminate the throughput incentive and keep NSPI whole. The LRAM that NSPI is proposing eliminates a disincentive for pursuing DSM programs and is consistent with the recommendations made by these stakeholders.

5.3 Incentives

Through the program cost and lost revenue adjustment mechanisms for DSM, the utility recovers its costs and financial disincentives are mitigated. Stakeholders have urged that incentives to invest in DSM should be considered.

NSPI assures stakeholders that it is committed to working toward the preferred IRP plan as to do so is in the best interest of the Company, its stakeholders and its customers. The Collaborative believes that financial incentives and/or penalty mechanisms should not be introduced at this time. This could be revisited once the Company's DSM programs have been more fully established.

5.4 True-Up Mechanism

In order to assure that the costs recovered through the components described above are neither under-collected nor over-collected, NSPI proposes inclusion of a true-up mechanism as a part of the DSM cost recovery mechanism. Each of the components in the DSM cost recovery mechanism will be calculated in September based on estimates of program costs and lost revenues for the next year and will go into effect on the following January 1 after approval by the UARB. A true-up for DSM costs in the previous year would also be calculated in September and will go into effect the following January after approval by the UARB. For example, in September 2010, the true-up for the calendar

year 2009 will be calculated as well as rates to recover program costs and lost revenues for 2011. These rates will go into effect on January 1, 2011 after approval by the Board.

The true-up for program costs would be based on the actual program costs during the year compared to estimated program costs. The true-up for lost revenues would adjust for any difference between the estimated reduction in customer usage and the verified program results, in accordance with the EM&V procedures, discussed both in this document and the DSM Plan and Programming Report. The discount rate and the assumptions in the IRP that were used to calculate the present value of future savings would be used for both estimating and true-up purposes.

All balances in the true-up mechanism will include the carrying charge at the Company's weighted cost of capital.

5.5 Proposed DSM Cost Recovery Mechanism

As previously noted the DSM cost recovery mechanism would operate on a forecast basis and have several components, namely program cost and lost revenues recovery. A true-up mechanism would operate to balance these components from year to year. A draft DSM Mechanism Tariff is provided in Appendix B which describes how the cost recovery mechanism operates. To illustrate how the tariff would be applied, an example of the DSM cost recovery mechanism is provided in Appendix C.

5.6 Calculation of Rates

The components of the DSM cost recovery mechanism for the next year and the true-up mechanism for the previous year would be calculated in September and summed to obtain the total DSM costs that NSPI would be allowed to recover through rates during the next year. The next step is to allocate these DSM costs to the various customer classes for the purpose of establishing appropriate charges for each customer class.

Stakeholders have indicated their preferences for allocation of DSM program costs. The Collaborative appreciates the input of stakeholders on this matter. There were a variety of opinions regarding cost recovery with no apparent consensus.

The Company continues to support the allocation of DSM program costs across the entire rate base and recovery of DSM costs from all electric customer classes. However, considering stakeholder input, the Company is proposing an allocation methodology that recognizes that both demand and energy savings will result from DSM program investment. This methodology is somewhat more complex than a flat charge per kWh across all customer classes, but is consistent with NSPI's Cost of Service Study Methodology.

From a cost of service perspective, NSPI proposes that DSM costs be functionalized as 100 percent generation. These DSM costs would be classified as demand or energy related on the same overall basis as NSPI's overall demand and energy costs from its most recent class cost of service study.

For example, if 60 percent of NSPI's costs are classified as energy-related and 40 percent are classified as demand-related in its most recent class cost of service study, then 60 percent of the DSM costs for the next year would be allocated to the rate classes on the basis of an energy allocator (each classes' pro rate share of kWh) and 40 percent would be allocated to the rate classes on the basis of a demand allocator (each classes' pro rata share of a 3-CP allocator). Once the costs are allocated to the rate classes using the appropriate demand and energy allocators, the allocated costs would be converted to a charge per kWh. This approach to allocating the costs and calculating rates recognizes that the DSM programs produce both demand and energy savings, while keeping the calculation and application of rates relatively simple.

6.0 THE PROPOSED JANUARY 31 FILING

To assist stakeholders in understanding next steps, an outline of the January 31 filing has been provided. The Collaborative envisions three UARB filings. The first is the Report of the DSM Collaborative, which discusses the administrative analysis issues and stakeholder input on DSM-related topics. The second is the evidence of NSPI, in which the Company applies to the UARB for approval of its DSM Cost Recovery Mechanism and which includes the testimony of the NSPI's DSM experts. Appendix D provides a draft outline of these two filings. The third submission will be NSPI's DSM Plan and Programming Report, which will be similar to that provided today to stakeholders in this process.

7.0 POTENTIAL DSM IMPLEMENTATION TIMELINE AND PROCESS

Appendix E contains a preliminary timeline and process overview for DSM implementation from 2008-2010 for stakeholder review and commentary. The timeline reflects the Collaborative's preliminary thoughts on the appropriate process for the establishment of the advisory council, development of the DSM Plan of Administration and the timing and frequency of future filings.

8.0 CONCLUDING COMMENTS

The information provided in this document has been compiled for the purpose of further discussion at the upcoming January 11, 2008 DSM stakeholder conference. NSPI welcomes further input from stakeholders on these key administrative issues. Stakeholders are encouraged to review the IRP Report, NSPI's September 8, 2006 DSM Programming Report and the documents circulated to and from stakeholders in this process to further understand the discussion presented in this document.

APPENDIX A

Draft Steering Committee &

Advisory Council Details

DSM Steering Committee

The Steering Committee process/role would be as follows:

- Composed of UARB board staff, UARB technical support consultants, NSPI staff and technical support consultants.
- Chaired by NSPI.
- Review on a regular basis NSPI's DSM programs progress, key milestones, and strategic directions.
- Liaise with the DSM Advisory Council and review recommendations.
- Review and comment on NSPI draft DSM filings
- UARB staff will oversee NSPI's DSM Annual Savings Verification process and submit report to the UARB Commissioners
- The Committee will work jointly to prepare and contract periodic independent evaluations
- Meet/teleconference as needed.

DSM Advisory Council

The Advisory Council would have the following purpose/roles/objectives:

- To establish a collegial forum resulting in increased public confidence, across a broad spectrum of stakeholders, leading to greater transparency and partnership.
- Regular opportunity to advise and be updated on DSM planning, program design, implementation, and evaluation.
- Forum for input from stakeholders and opportunity for the general public to provide comment.
- The types of items that would be considered and commented on by the advisory group would be similar to the following:
    - Project proposals by Custom Partners

- Regular review of existing programs and incentives
- Review and proposals for upcoming initiatives
- Consideration of partnerships

Proposed Structure

- This group would have a formal structure and membership.
- Composed of up to 12 members approved by UARB
- Chaired by a member nominated by the Steering Committee and approved by the UARB
- Membership of 2 or 3 year staggered terms.
- Minutes of meetings would be taken.
- Meet 4-6 times per year or as decided by members, but no more frequently than once per month.
- Members who do not attend meetings for six months will be asked if they wish to continue membership; a year's non-attendance may be deemed withdrawal from the Council.

Proposed Process

- Members will be invited to suggest topics for meeting agendas. Agendas and background materials shall be made available to Council members a week in advance if possible.
- All Council members shall be provided an opportunity for comment.
- The advisory group would vote on various items and would issue either a consensus report or majority/minority reports to the steering committee. These reports would become part of the regulatory record if pertinent to a Board decision. Provide at least two rounds of discussion on non-consensus recommendation before a vote. Document carefully majority and minority opinions and justification.

- To assist Advisory Council members, up to $100K would be available from the DSM Program for advice and participation from consultants.
- The Advisory Group will recommend the process for public input and participation.

NSPI's Role

- At least one NSPI member of the Steering Committee would liaise with the Advisory Council. This individual would act as a resource, communicate with the Steering Committee and perform other functions as necessary, but would not have a vote on the Advisory Council.
- Would fund the administration of the group and support the Chair person's requirements

APPENDIX B

Draft DSM Tariff

NOVA SCOTIA POWER INCORPORATED

DRAFT DEMAND-SIDE MANAGEMENT COST RECOVERY MECHANISM

APPLICABILITY:

This schedule is a mandatory rider to all electric rate schedules, except the following tariffs: Generation Replacement and Load Following Tariff, Extra High Voltage Time-of-Use Real Time Pricing Tariff, High Voltage Time-of-Use Real Time Pricing Tariff, Distribution Voltage Time-of-Use Real Time Pricing Tariff, and the Mersey System Tariff. For the Extra Large Industrial Two Part Real Time Pricing Tariff, the DSM tariff will apply to the energy associated with the Customer Baseline Load (CBL).

DEMAND SIDE MANAGEMENT COST RECOVERY MECHANISM:

The monthly amount computed under each of the rate schedules to which this Demand-Side Management Cost Recovery Mechanism Rider is applicable shall be increased or decreased by the DSM Cost Recovery Mechanism (DCRM) at a class-specific rate per kilowatt hour of monthly consumption in accordance with the following formula:

DCRM = DCR + RLS + DBA

Where:

DCR = DSM PROGRAM COST RECOVERY. The DCR shall include all estimated costs for each upcoming twelve-month period for demand-side management and energy efficiency programs that have been approved by the Board ("approved programs"). Such program costs shall include the cost of planning, developing, implementing, monitoring, and evaluating DSM programs. In addition, all costs incurred by or on behalf of the collaborative process, including but not limited to costs for consultants, employees and administrative expenses, will be recovered through the DCR. The DCR shall be computed for each applicable rate schedule using the cost allocation methodology as approved by the UARB.

RLS = REVENUE FROM LOST SALES. Revenues from lost sales due to DSM and energy efficiency programs implemented on and after the effective date of this tariff will be recovered as follows:

For each upcoming twelve-month period, the estimated reduction in each customer class sales, as determined for the approved programs, shall be multiplied by the non-variable revenue requirement per kWh of each rate class as determined from the last general rate case. The lost revenues for each customer class for the upcoming twelve-month period will be recovered through the class-specific RLS component. Recovery of revenue from lost sales calculated for a twelve-month period shall be included in the RLS components until implementation of new rates pursuant to a general rate case at which time the RLS components will be reset to zero.

RLS revenues for each applicable rate class will be calculated based on engineering estimates of energy savings, expected program participation and

estimated sales for the upcoming twelve-month period. At the end of each such period, any difference between the lost revenues actually collected hereunder and the lost revenues determined after any revisions to account for actual program participation shall be reconciled in future billings under the DSM Balance Adjustment (DBA) component.

DBA = DSM BALANCE ADJUSTMENTS. The DBAs shall be calculated on a calendar year basis for each applicable rate class and are used to reconcile the differences between the amount of revenues actually billed through the DCR, RLS and previous application of the DBA and the revenues which should have been billed, as follows:

(1) For the DCR, the balance adjustment amount will be the difference between the amount billed in a twelve-month period from the application of the DCR unit charges and the actual cost of the approved programs during the same twelve-month period.

(2) For the RLS, the balance adjustment amount will be the difference between the estimated lost revenues in each class based on the expected number of programs installed and the actual number of programs installed. The engineering estimates used to calculate lost revenues and the non-variable revenue requirement per kWh will not be trued-up.

(3) For the DBA, the balance adjustment amount will be the difference between the amount billed during the twelve-month period from application of the DBA and the balance adjustment amount established for the same twelve-month period.

Each change in the DCRM shall be placed into effect with bills rendered on and after the effective date of such change.

APPENDIX C

Illustrative DSM

Mechanism Calculation

NOVA SCOTIA POWER

REVENUE FROM LOST SALES (DRLS)

January 1, 2009 to Dec 31, 2013

Illustrative Example Only

Line No.	Description	Reference	Unit	Jan 1, 2009 - Dec 31, 2009	Jan 1, 2010 - Dec 31, 2010	Jan 1, 2011 - Dec 31, 2011	Jan 1, 2012 - Dec 31, 2012	Jan 1, 2013 - Dec 31, 2013
	Forecast Component							
(1)	Estimated fixed costs per kwh		$/kWh	0.0513	0.0513	0.0513	0.0513	0.0513
(2)	Engineering estimate reduction in KWh due to current year programs		kWh	20,000,000	120,000,000	130,000,000	135,000,000	140,000,000
(3)	Engineering estimate reduction in KWh due to prior year programs		kWh	-	21,000,000	137,859,562	265,458,194	404,116,043
(4)	Total Engineering estimate reduction in KWh	Line (2) + Line (3)	kWh	20,000,000	141,000,000	267,859,562	400,458,194	544,116,043
(5)	Estimated Sales net of DSM		kWh	12,180,000,000	12,303,600,000	12,419,672,000	12,533,065,440	12,643,726,749
(6)	Estimated DSM Revenue from lost sales	Line (1) x Line (4)	$	1,026,000	7,233,300	13,741,196	20,543,505	27,913,153
(7)	Estimated DSM Revenue from lost sales per kWh (DRLS)	Line (6) / Line (5)	$/kWh	0.000084	0.000588	0.001106	0.001639	0.002208
	Actual							-
(8)	Estimated fixed costs per kwh	Line (1)	$/kWh	0.0513	0.0513	0.0513	0.0513	0.0513
(9)	Engineering estimate reduction in KWh due to current year programs		kWh	21,000,000	116,859,562	127,598,632	138,657,849	141,431,006
(10)	Engineering estimate reduction in KWh due to prior year programs		kWh	-	21,000,000	137,859,562	265,458,194	404,116,043
(11)	Total Engineering estimate reduction in KWh	Line (9) + Line (10)	kWh	21,000,000	137,859,562	265,458,194	404,116,043	545,547,049
(12)	Actual DSM Revenue from Lost sales	Line (8) x Line (11)	$	1,077,300	7,072,196	13,618,005	20,731,153	27,986,564
(13)	Actual Sales		kWh	12,165,156,879	12,324,258,963	12,370,159,879	12,537,859,874	12,788,617,071
(14)	Collected DSM revenue from lost sales	Line (12) x Line (13)	$	1,024,750	7,245,445	13,686,415	20,551,364	28,233,023
	Balance Adjustment							
(15)	Actual Adjustment Amount	Prior 2 yr Line (12) - Prior yr line (14)	$	-		52,550	(173,250)	(68,410)
(16)	Actual Adjustment Amount per kWh	Line (15) / Line (5)	$/kWh	-	-	0.000004	(0.000014)	(0.000005)
(17)	Balance Adjustment Amount collected	Prior 2 yr Line (16) x Prior 2 yr Line(13)	$	-	-	-	-	52,341
(18)	Balance Adjustment Amount	Prior 2 yr line (15) - line (17)	$	-	-	-	-	209
(19)	**Total actual & Balance Adjustment on Revenue lost sales**	Line (15) + Line (18)	$	-	-	52,550	(173,250)	(68,200)
(20)	**Total DSM revenue from lost sales charge on estimates**	Line (6)	$	1,026,000	7,233,300	13,741,196	20,543,505	27,913,153
(21)	**Total from lost sales(DRLS)**	Line (19) + Line (20)	$	1,026,000	7,233,300	13,793,746	20,370,255	27,844,953

NOVA SCOTIA POWER

PROGRAM COSTS RECOVERY (DCR)

January 1, 2009 to Dec 31, 2013

Illustrative Example Only

Line No.	Description	Reference	Unit	Jan 1, 2009 - Dec 31, 2009	Jan 1, 2010 - Dec 31, 2010	Jan 1, 2011 - Dec 31, 2011	Jan 1, 2012 - Dec 31, 2012	Jan 1, 2013 - Dec 31, 2013
(1)	**Forecast Component**							
(2)	Estimated DSM Program Costs		$	16,000,000	25,000,000	30,000,000	35,000,000	40,000,000
(3)	Estimated sales with no DSM reduction for that year		kWh	12,200,000,000	12,423,600,000	12,549,672,000	12,668,065,440	12,783,726,749
(4)	Engineering estimate reduction in KWh due to programs		kWh	20,000,000	120,000,000	130,000,000	135,000,000	140,000,000
(5)	Estimated Sales net of DSM	Line (3) - Line (4)	kWh	12,180,000,000	12,303,600,000	12,419,672,000	12,533,065,440	12,643,726,749
(6)	Estimated DSM Program Costs per kWh (DCR)	Line (2) / Line (5)	$/kWh	0.001314	0.002032	0.002416	0.002793	0.003164
	Actual							
(7)	Actual DSM Program Costs		$	19,000,000	22,123,567	28,000,000	36,000,000	40,000,000
(8)	Actual Sales		kWh	12,165,156,879	12,324,258,963	12,370,159,879	12,537,859,874	12,788,617,071
(9)	Collected DSM Program Costs	Line (6) x Line (8)	$	15,980,502	25,041,977	29,880,402	35,013,389	40,458,379
	Balance Adjustment							
(10)	Actual Adjustment Amount	Prior 2 Year (7) - Prior 2 yr Line (9)	$	-		3,019,498	(2,918,410)	(1,880,402)
(11)	Actual Adjustment Amount per kWh	Line (10) / Line (5)	$/kWh	-	-	0.000243	(0.000233)	(0.000149)
(12)	Balance Adjustment Amount collected	Prior 2 yr Line (11) x prior 2 yr Line(8)	$	-	-	-	-	3,007,461
(13)	Balance adjustement amount	Prior 2 yr (10) - Line (12)	$			-	-	12,037
(14)	**Total actual and balance Adjustment on program costs**	Line (10) + Line (13)	$	-	-	3,019,498	(2,918,410)	(1,868,365)
(15)	**Total DSM Program charge based on estimates**	Line (2)	$	16,000,000	25,000,000	30,000,000	35,000,000	40,000,000
(16)	**Total DSM rider on bill for program costs (DCR)**	Line (14) + Line (15)	$	16,000,000	25,000,000	33,019,498	32,081,590	38,131,635

APPENDIX D

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January 31, 2008

DSM COLLABORATIVE REPORT
DRAFT
JANUARY 31, 2008

Volume I– The DSM Report

Administrative Issues Analysis and
Discussion of Stakeholder Feedback on DSM Programming

Table of Contents - Similar to Dec 11

Volume II – Documentation of DSM Collaborative Process

Oct 15 Circulation to Stakeholders
- Draft Administrative Issues Analysis
- Draft Early DSM Programming

Nov 1 Stakeholder Session - EAC Presentation Slides

Nov 15 Written Comments from Stakeholders

Dec 11 Circulation to Stakeholders
- Draft Administrative Issues Analysis
- Draft Progamming Plan

Jan 18 Written Comments from Stakeholders

NSPI DSM PROGRAMMING PLAN
DRAFT

Table of Contents – similar to Dec 11

NSPI EVIDENCE
DRAFT
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APPENDIX E

DRAFT

DSM Implementation

Timeline and Process

DRAFT
Monthly Calendar for DSM
2008

2008 Month	Early DSM	Collaborative Timeline	Advisory Council	Steering Committee
Jan	Submit Application for Approval for Early DSM Program (DSM costs to be recovered in DSM mechanism or defer to recover in next GRA)	**Jan 31-File DSM Report (and Application)**		
Feb	**Paper Hearing** Stakeholder IRs/Comments			
Mar	**Board Decision & Order**			
Apr	Begin Implementation of 2008 Program	**DSM Hearing**		
May				
June		**Decision & Order**	**(June 20)** **1st Meeting** Terms of Reference Schedule/Logistics RFP Consultant-Approve RFP DSM Plan of Administration	Establish Steering Committee
July				
Aug				
Sept			**(Sept 20)** **2nd Meeting** DSM Plan of Administration Update on Early DSM RFP Consultant-Approve Selection	
Oct				**(Oct 15) Filing** **Plan of Administration** **and** **Annual Report for 2009** includes: DSM Program details for 2009/10, DSM Mechanism for 2009
Nov			**(Nov 20)** **3rd Meeting** 2009 DSM Miscellaneous	
Dec				**(Dec 1)** Board Decision and Order

DRAFT
Monthly Calendar for DSM
2010 - Typical

2010 Month	Advisory Council	Steering Committee
Jan		
Feb	**1st Meeting** 2009 Results 2010 Plans	
Mar		
Apr		**(Apr 15) Filing** 2009 DSM Program Costs, Results and DSM Mechanism Adjustments for 2009
May	**2nd Meeting** 2009 Results 2010 Plans	
June		
July		
Aug		
Sept	**3rd Meeting** 2010 Plans 2011 Plans	
Oct		**(Oct 15) Filing** **DSM Plan for 2011** DSM Program details for 2011/12 DSM Mechanism for 2011 (projections for 2011, adjustments for 2009)
Nov	**4th Meeting** 2011 Plans 2011 Timeline	
Dec		**(Dec 1)** Board Decision and Order

December 11, 2007
Draft Programming Plan

NOVA SCOTIA POWER INCORPORATED

DSM Programming Plan 2008-2013 with Details 2009-2010

DRAFT

December 11, 2007

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1.0 EXECUTIVE SUMMARY

1.1 Overview

Nova Scotia Power is committed to leadership in conservation and energy efficiency. We believe these programs provide value for our customers and our province as we strive to achieve a sustainable economy in Nova Scotia. We will work with our customers and partners to find new energy everywhere electricity is consumed by creating opportunities to conserve.

Nova Scotia Power Inc (NSPI) is pleased to submit this Demand Side Management (DSM) plan to the Utility and Review Board (UARB). In 2007 NSPI completed its integrated resource planning (IRP) analysis which showed demand side management (DSM) as a cost competitive alternative when compared to supply-side alternatives for meeting future customer load requirements. This DSM plan is designed to achieve the energy and demand savings presented in the IRP.

DSM will therefore become one of NSPI's significant resources in meeting the energy needs of our customers over the long term. The magnitude of DSM identified as optimal through the IRP process is larger than most DSM efforts being conducted in North America. NSPI's high DSM scenario for the IRP anticipates spending somewhat more than 5% of retail revenues on DSM at full scale. For comparison, the New Jersey Clean Energy Program spent about 1% of retail revenues on DSM in 2005 and Efficiency Vermont spent about 2.4% of retail revenues on DSM in 2006. To meet the 2007 IRP High DSM Scenario energy and demand savings, NSPI projects spending above 5% of retail revenue in year five.

NSPI believes that it is important to begin investing in its DSM programs as soon as practical but to do so in a manner that is most likely to be successful and sustainable. This includes starting with a portfolio of programs with goals that are achievable. NSPI

proposes a subsequent ramp up starting in 2008 to move toward the fifth year energy and demand savings in the 2007 IRP; the six year period for this plan is from 2008 to 2013.

This 2007 DSM Plan projects savings that achieve the goals included in the 2007 IRP High DSM Scenario. The revised DSM plan forecasts cumulative annual energy and demand savings at generator through 2013 of 978 GWh and 148 MW, respectively, while the 2007 IRP forecasts 872 GWh and 147 MW in savings through year five.

Table 1-1 shows the anticipated 2007 DSM Plan cumulative annual energy and demand savings at generator through 2013 in comparison to the 2007 IRP High DSM Scenario.

Table 1-1. Projected Cumulative Annual MW Demand and GWh Energy Savings

Revised 2007 DSM Plan				2007 IRP High DSM Scenario			
Year		Cumulative Annual Demand Savings at Generator (MW)	Cumulative Annual Energy Savings at Generator (GWh)	Year		Cumulative Annual Demand Savings at Generator (MW)	Cumulative Annual Energy Savings at Generator (GWh)
1	2009	8.5	51.9	1	2008	11.4	77.8
2	2010	23.3	141.9	2	2009	29.6	202.4
3	2011	50.8	327.8	3	2010	60.2	389.2
4	2012	92.3	606.6	4	2011	100.8	622.8
5	2013	147.8	978.4	5	2012	147.0	871.9

Note: Year 1 Revised 2007 DSM Plan includes early (2008) DSM programming estimates

Total net present value lifetime electric benefits in 2008$ are projected to be approximately $10 million in 2008, $60 million in 2009, and $130 million in 2010. In other words, all the measures installed from 2008 through 2010 will save about $200 million over their lifetime.

This refined DSM plan is similar in many respects to the plan that NSPI filed with the Board in September 2006. The overall magnitude of the program goals and budgets in this plan are higher in this plan, which is consistent with the 2007 IRP. This plan specifies additional details regarding program design, implementation, strategies, and

tactics. However, additional program development work remains to be done before the DSM programs outlined in this document will be ready to be implemented.

The additional program development tasks include the following:

- Developing detailed program design, implementation, and marketing plans
- Issuing requests for proposals (RFPs) for third party professional implementation contractors/partners to deliver selected programs under the administration of NSPI staff
- Developing detailed program materials such as rebate schedules, brochures, web content, and application forms
- Developing technical requirements for the eligible DSM measures

NSPI recognizes that DSM, when properly designed, implemented, and structured with the appropriate rate recovery system, is a win-win-win proposition for customers, shareholders, and the environment. NSPI recognizes the inherent "throughput" incentive for a regulated utility and the perceived conflict of interest this presents for a utility-sponsored DSM program. This issue is addressed in the separate DSM Administrative filing.

DSM programs provide benefits, including:

- Customer energy and demand savings
- Improved system reliability
- Reduced need for generation
- Reduced emissions from NSPI's fossil fired power plants (compared to generation only capacity expansion plans) due to the reduced need for generating plants
- With aggressive DSM investments, the potential to significantly reduce load growth

1.2 Implementation Approach

NSPI believes an appropriate strategy for more aggressive implementation of DSM in Nova Scotia at this time is primarily a combination of resource acquisition strategy and to a lesser extent, market transformation (investing in long term partnerships, education, and training). Our enhanced plan builds upon some existing programs already offered in Nova Scotia and introduces new programs.

As directed by the UARB, NSPI will be the DSM program administrator for investments of our customers' money in programs that are directly producing electric savings for our customers. For the specific implementation and delivery of the various aspects of DSM programs, NSPI plans to issue competitive requests for proposals, open to experienced, qualified, and professional for-profit and not-for profit entities that can demonstrate success in the marketplace and to design and implement high quality, effective DSM programs.

NSPI believes successful partnerships at all levels, with customers, trade allies, trade associations, non-profit organizations, and local, provincial, and federal government agencies dedicated to mutual and complementary goals of energy efficiency and environmental protection will help ensure a successful DSM program. NSPI believes it is appropriate for its customers to fund and focus on DSM investments for electricity-focused energy efficiency opportunities. NSPI recognizes the benefit of having DSM programs that address both electric and fossil fuel saving opportunities.

NSPI intends to partner with government,[1] Conserve Nova Scotia, or non-profit agencies to provide program delivery and encourage a uniform set of efficiency options for Nova Scotia residents. Government agency funds, (federal, provincial, or municipal), which are fuel neutral, could be used to capture efficiency opportunities from DSM investments

[1] As outlined in the NS DOE 2006-2007 Business plan, the government objectives in energy conservation and efficiency are two fold. Firstly, to keep energy costs affordable to lower income consumers and secondly, as a method of reducing GHG emissions in the Province. At present the Department offers conservation programs under its *Smart Energy Choice* brand. Of specific note, it offers a low income program called *Keep the Heat*, and its own in-house program called *Government House in Order*.

targeted toward fuel oil and natural gas upgrades, and NSPI will use its DSM funds to target savings from the electric sector.

To simplify program design and marketing, NSPI plans to work with groups such as Conserve Nova Scotia, Natural Resources Canada, Nova Scotia Homebuilders Association, Clean Nova Scotia, Ecology Action Centre, ACAP Cape Breton, Affordable Energy Coalition, and other provincial organizations that are involved with energy conservation. Such partnerships can enable NSPI to offer customers a province-wide DSM program, available to all residents, and allow NSPI to act as a conduit to other programs, such as Conserve Nova Scotia for additional efficiency opportunities. NSPI believes a team approach is desirable to address our common energy, environmental, and social goals.

NSPI proposes to facilitate a DSM Advisory Council among interested stakeholders to solicit input and feedback on NSPI's DSM programs on an on-going basis. Stakeholders have indicated to NSPI their interest in participating in a collaborative effort to support the design, development, implementation, and evaluation of NSPI's DSM programs. NSPI views the establishment of such a partnering process as a component of this DSM Plan. The DSM Advisory Council would provide input to the DSM Steering Committee, to be comprised of NSPI and UARB staff.

1.3 Implementation Timeline

This section provides an introduction to the overall program plan for the first full two years of the proposed programs, 2009 – 2010. NSPI also proposes to initiate some programs in 2008 (subject to cost recovery), with most programs fully implemented in 2009. The two programs proposed for early action in 2008 are: 1) Small Commercial Direct Install Lighting; and Commercial and Industrial Custom Rebate - Custom Partners component. NSPI plans on submitting both of these early action programs to the UARB for approval and anticipates receiving UARB approval for the early action programs prior

to UARB approval for the full DSM Plan. This DSM Plan includes program descriptions for the early action efforts.

Table 1-2 presents a rollout schedule for each program for an interim year, and the first two full years of programming, 2009-2010. All programs are targeted to be fully implemented in 2009, except for the Commercial and Industrial New Construction Program, which would be implemented in 2010.

Table 1-2. 2008-2010 Implementation Schedule for NSPI's DSM Portfolio

NSPI DSM Programs	2008 (Interim)				2009 (Year 1)				2010 (Year 2)			
Residential	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
1. Efficient Products												
2. EnerGuide for Existing Houses												
3. Low Income												
4. EnerGuide for New Houses												
Commerical and Industrial	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
5. Commercial and Industrial Prescriptive Rebate												
6. Commercial and Industrial Custom Rebate												
7. Small Commercial Direct Install Lighting												
8. Commercial and Industrial New Construction												
Multi-Sector	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
9. Education and Outreach												
10. Development and Research												

Program Development
Program Implementation, Maintenance & Measurement

1.4 Overview of Goals, Budgets, and Benefit-Cost Ratios

Table 1-3 is an implementation schedule for the six year period from 2008-2013, and projected cumulative annual GWh energy and MW demand savings at generator for each

program through 2010. The proposed implementation schedule will be modified as required to maximize program and budget effectiveness.

Table 1-4, Table 1-5 and Table 1-6 present program budgets, the number of program participants or units, the incremental annual GWh energy and the MW demand savings at generator, total resource cost test ratio, and the lifetime GWh energy savings at generator from measures installed in each year, for 2008, 2009, and 2010, respectively.

Table 1-3. 2008-2013 DSM Plan Implementation Schedule and Projected Savings

NSPI DSM Programs	2010 Cumulative Annual Energy Savings at Generator (GWh)	2010 Cumulative Annual Demand Savings at Generator (MW)	2008-2010 Number of Participants or Units	2008-2010 Total Resource Benefit/Cost Ratio	Lifetime Energy Savings from 2008-2010 Installations at Generator (GWh)	2008 (Interim)				2009 (Year 1)				2010 (Year 2)	2011 (Year 3)	2012 (Year 4)	2013 (Year 5)
Residential						Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4				
1. Efficient Products	21.40	4.89	24,212	2.4	148.21												
2. EnerGuide for Existing Houses	16.61	3.04	2,599	2.8	340.75												
3. Low Income	1.75	0.32	825	3.9	36.00												
4. EnerGuide for New Houses	4.10	0.84	636	2.1	57.69												
Commerical and Industrial				**C / I**		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4				
5. Commercial and Industrial Prescriptive Rebate	42.08	5.16	1,143	4.0 / 7.8	669.81												
6. Commercial and Industrial Custom Rebate	47.77	6.31	663	3.2 / 9.2	850.21												
7. Small Commercial Direct Install Lighting	7.50	1.50	568	1.6	119.39												
8. Commercial and Industrial New Construction	0.69	1.22	118	5.7 / 10.1	182.92												
Multi-Sector						Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4				
9. Education and Outreach	N/A	N/A	N/A	N/A	N/A												
10. Development and Research	N/A	N/A	N/A	N/A	N/A												
TOTALS	**141.91**	**23.28**	**-**	**4.6**	**2404.98**												
Cumulative Annual Energy Savings at Generator (GWh)						**6.66**				**51.90**				**141.91**	**327.81**	**606.65**	**978.43**
Cumulative Annual Winter Peak Demand Savings at Generator (MW)						**1.65**				**8.53**				**23.28**	**50.85**	**92.34**	**147.75**
Annual Program Budgets (2008$ million)						**$2.633**				**$10.398**				**$21.519**	**$39.035**	**$58.630**	**$78.226**

Notes:
Cumulative Annual Savings = savings through that year
Lifetime Savings = savings over the period that a measure is operating

Program Development
Program Implementation, Maintenance & Measurement

Table 1-4. 2008 DSM Budget, Participants, and Savings

NSPI DSM Programs	2008 (Interim)				2008 Budget (2008$ million)	Percent of Budget	Number of Participants or Units	2008 Incremental Annual Energy Savings at Generator (GWh)	2008 Incremental Annual Demand Savings at Generator (MW)	2008 Total Resource Benefit/Cost Ratio	Lifetime Energy Savings at Generator (GWh)
Residential	Q1	Q2	Q3	Q4							
1. Efficient Products					$0.050	2%	0	0	0	-	0.0
2. EnerGuide for Existing Houses					$0.475	18%	200	1.31	0.24	2.8	26.9
3. Low Income					$0.081	3%	25	0.05	0.01	3.9	1.1
4. EnerGuide for New Houses					$0.140	5%	50	0.33	0.07	2.1	4.6
Commerical and Industrial	Q1	Q2	Q3	Q4						**C / I**	
5. Commercial and Industrial Prescriptive Rebate					$0.050	2%	0	0	0	-	0.0
6. Commercial and Industrial Custom Rebate					$0.500	19%	100	3.30	1.00	3.2 / 9.2	58.7
7. Small Commercial Direct Install Lighting					$0.750	28%	125	1.67	0.33	1.6	26.5
8. Commercial and Industrial New Construction					$0.000	0%	0	0	0	-	0.0
Multi-Sector	Q1	Q2	Q3	Q4							
9. Education and Outreach					$0.088	3%	N/A	N/A	N/A	N/A	N/A
10. Development and Research					$0.500	19%	N/A	N/A	N/A	N/A	N/A
	Totals				**$2.633**			**6.66**	**1.65**	**4.6**	**117.9**

Notes:
Incremental Annual Savings = savings in that year
Lifetime Savings = savings over the period that a measure is operating

Program Development
Program Implementation, Maintenance & Measurement

Table 1-5. 2009 DSM Budget, Participants, and Savings

NSPI DSM Programs	2009 (Year 1)				2009 Budget (2008$ million)	Percent of Budget	Number of Participants or Units	20098 Incremental Annual Energy Savings at Generator (GWh)	2009 Incremental Annual Demand Savings at Generator (MW)	2009 Total Resource Benefit/Cost Ratio	Lifetime Energy Savings at Generator (GWh)
Residential	Q1	Q2	Q3	Q4							
1. Efficient Products					$2.648	25%	7,861	7.13	1.63	2.4	49.4
2. EnerGuide for Existing Houses					$1.819	17%	779	5.10	0.93	2.8	104.6
3. Low Income					$0.202	2%	260	0.57	0.10	3.9	11.6
4. EnerGuide for New Houses					$0.479	5%	190	1.26	0.26	2.2	17.7
Commerical and Industrial	Q1	Q2	Q3	Q4						**C / I**	
5. Commercial and Industrial Prescriptive Rebate					$1.590	15%	381	14.03	1.72	4.0 / 7.8	223.3
6. Commercial and Industrial Custom Rebate					$2.225	21%	188	14.82	1.77	3.2 / 9.2	263.8
7. Small Commercial Direct Install Lighting					$1.020	10%	175	2.33	0.47	1.6	37.1
8. Commercial and Industrial New Construction					$0.047	0%	0	0.00	0.00	5.7 / 10.1	0.0
Multi-Sector	Q1	Q2	Q3	Q4							
9. Education and Outreach					$0.231	2%	N/A	N/A	N/A	N/A	N/A
10. Development and Research					$0.136	1%	N/A	N/A	N/A	N/A	N/A
	Totals				**$10.398**			**45.24**	**6.88**	**4.6**	**707.6**

Notes:
Incremental Annual Savings = savings in that year
Lifetime Savings = savings over the period that a measure is operating

Program Development
Program Implementation, Maintenance & Measurement

Table 1-6. 2010 DSM Budget, Participants, and Savings

NSPI DSM Programs	2010 (Year 2)				2010 Budget (2008$ million)	Percent of Budget	Number of Participants or Units	2010 Incremental Annual Energy Savings at Generator (GWh)	2010 Incremental Annual Demand Savings at Generator (MW)	2010 Total Resource Benefit/Cost Ratio	Lifetime Energy Savings at Generator (GWh)
Residential	Q1	Q2	Q3	Q4							
1. Efficient Products					$5.297	25%	16,351	14.27	3.26	2.4	98.8
2. EnerGuide for Existing Houses					$3.638	17%	1,620	10.20	1.87	2.8	209.3
3. Low Income					$0.404	2%	540	1.13	0.21	3.9	23.3
4. EnerGuide for New Houses					$0.958	4%	396	2.51	0.52	2.2	35.4
Commerical and Industrial	Q1	Q2	Q3	Q4						**C / I**	
5. Commercial and Industrial Prescriptive Rebate					$3.180	15%	762	28.05	3.44	4.0 / 7.8	446.5
6. Commercial and Industrial Custom Rebate					$4.449	21%	375	29.65	3.54	3.2 / 9.2	527.7
7. Small Commercial Direct Install Lighting					$1.530	7%	268	3.50	0.70	1.6	55.7
8. Commercial and Industrial New Construction					$1.369	6%	118	0.69	1.22	5.7 / 10.1	182.9
Multi-Sector	Q1	Q2	Q3	Q4							
9. Education and Outreach					$0.442	2%	N/A	N/A	N/A	N/A	N/A
10. Development and Research					$0.252	1%	N/A	N/A	N/A	N/A	N/A
	Totals				**$21.519**			**90.01**	**14.75**	**4.6**	**1579.5**

Notes:
Incremental Annual Savings = savings in that year
Lifetime Savings = savings over the period that a measure is operating

Program Development
Program Implementation, Maintenance & Measurement

2.0 APPROACH TO EVALUATION, MEASUREMENT AND VERIFICATION

2.1 Overview

Section 2.0 presents NSPI's approach to evaluation, measurement and verification (EM&V), which is an integral component of the proposed NSPI DSM Plan. Four percent of program costs will be allocated to the following EM&V activities:

- Independent annual savings verification
- Independent process and savings evaluation
- Other NSPI EM&V related activities

2.2 Annual Savings Verification

A savings verification contractor will be hired and directed by the UARB staff and directed to engage with NSPI at least annually to review, audit, and verify NSPI claimed savings for the previous program year and make recommendations.

The DSM Steering Committee, under primary direction of UARB board staff, will request the contactor to:

- Review NSPI's savings estimates, including free ridership and spillover estimates
- Review NSPI's custom savings based on a file review and potentially targeted field verification
- Review NSPI's data tracking system for consistency and accuracy
- Prepare a draft and final report for the UARB regarding suggested revisions to NSPI's annual savings claims and progress toward DSM program goals

NSPI envisions the annual savings verification process to be an independent and collegial endeavor, with an opportunity for NSPI to comment and discuss items of concern identified by the savings verification contractor prior to the final savings verification

report being issued to the UARB. Ultimately, the UARB will decide on NSPI's progress toward attaining established performance goals.

2.3 Process and Results Evaluations

NSPI proposes that an evaluation schedule whereby all NSPI programs with annual budgets exceeding $500,000 per year are evaluated at least once every three years. The key components of the process and results evaluations will be:

- Evaluations conducted by an independent nationally recognized DSM evaluation consultant obtained through an RFP process by NSPI
- Verification, by an appropriate sample, that energy-efficiency measures are installed as expected
- In-field measure performance measurement and data collection
- Energy and demand savings analysis to compute the results that are being achieved
- Total resource cost-effectiveness analysis by program and overall DSM portfolio
- Process evaluation to indicate how well programs are working to achieve objectives
- Identification of important opportunities for improvement

NSPI anticipates that final conclusions from the process and results evaluations will be reviewed and discussed closely with the UARB, DSM Advisory Council, and implementation contractors to implement changes that continue to improve DSM program design and delivery.

2.4 Other NSPI EM&V Related Activities

NSPI plans to manage DSM implementation and evaluation support contractors to ensure that key program and evaluation related components for the DSM plan are developed. These include:

- Development and documentation of deemed savings estimates for prescriptive measures in a Technical Reference Manual (TRM). The TRM will detail all measure savings assumptions including base efficiency, high efficiency, measure size, measure life, free ridership, and spillover estimates.
- Development of a DSM program tracking system database to track savings and program participants
- Direct market baseline research and market characterization to support improved DSM implementation
- Review assumptions and cost-effectiveness
- Engagement with DSM Advisory Council and DSM Steering Committee on issues related to savings verification and process and impact evaluations

3.0 NSPI DSM PROGRAMS

The following section discusses the programs included in NSPI's DSM plan and the key attributes of each program. These are general program descriptions with key highlights and are not meant to be the entire program implementation plans. It will require several months after receiving regulatory approval before the DSM programs will be ready for implementation. Residential programs are presented first, followed by programs for commercial and industrial customers. NSPI will explore the potential for a low-interest loan program component for programs, as appropriate.

3.1 Efficient Products Program

3.1.1 Description

The objective of the Efficient Products Program is to promote the availability and purchase of primarily ENERGY STAR® lighting and appliances that will help consumers save money and energy. The goals of this program are to transform the lighting and appliance markets through the promotion of ENERGY STAR® qualified products.[2] To start the program, NSPI will focus on the promotion of compact fluorescent lamps (CFLs) with instant rebate coupons and retailer product buy-down agreements in supermarkets, hardware stores, and big-box retailers. NSPI also plans to initiate promotions for ENERGY STAR® appliances such as refrigerators and clothes washers, as well as LED holiday lights.

Eligible Participants

All NSPI residential and small commercial customers are eligible for this program.

[2] To ensure cost-effectiveness for ENERGY STAR® appliances, NSPI may tier incentives for appliances based on their efficiency tier ranking as determined by the Consortium for Energy Efficiency.

Program Description

Once the CFL program component is firmly established, with implementation contractors and participating retailers in place, NSPI will conduct limited or year-round promotions such as instant rebates, mail-in rebates, or marketing only promotions for other ENERGY STAR® products which may include lighting fixtures, clothes washers, refrigerators, dehumidifiers, other appliances, windows, etc.

Additionally, NSPI will consider the introduction of an appliance early-retirement initiative; for example, a refrigerator replacement limited time offer promotion. The specifics of an early retirement/recycling initiative will be addressed in greater detail upon overall DSM portfolio approval.

The program will address the following market barriers:

- *Customer awareness:* related to both the existence of the technology and applications
- *Higher prices* of efficient products relative to baseline
- *Quality of technology:* past perceptions of the early generations of efficient products (e.g. CFLs) may be poor
- *Availability:* NSPI's programs will generate greater customer interest, which will result in increased retail stocking and selection of efficient products

Compact Fluorescent Lamps (CFLs)

Compact fluorescent lamps (CFLs) typically offer significant energy savings potential in the residential sector. On average, lighting accounts for approximately 13% of a household's energy bill, and the average household has upwards of 30 light bulbs. Given that CFLs can use up to 75% less energy last up to eight times longer than standard incandescent bulbs, and that retail prices for CFLs lower each year, they are very cost effective. CFLs also provide peak demand savings, especially in winter.

Key program features include the following:

- CFL price reductions to about $1, which has been found to be an acceptable price to consumers through many programs
- Consumer marketing and education regarding CFLs so that customers better understand the benefits of CFLs and also understand that the products have considerably improved in recent years
- Program support for hardware stores, grocery stores, big box stores, and other retail outlets that sell CFLs. These trade allies act as the primary program sales force.

Second Refrigerator Recycling

The appliance recycling component can produce cost-effective long-term coincident peak demand reduction and long-term annual energy savings in residential and non-residential market sectors by removing operable, inefficient refrigerators and freezers. Given the continued market saturation for working refrigerators and freezers, the program offers significant opportunities for cost-effective long-term coincident peak demand reduction and long-term annual energy savings. The success of the program will be attributed to the accelerated retirement and removal from the potential secondary markets of the older and less efficient refrigerators and freezers. Nonresidential customers will also be allowed to participate since a number of office complexes and industrial buildings have standard, residential size refrigerators and freezers.

The program will emphasize the energy-efficiency benefits associated with the disposal of spare refrigerators and freezers. It will also encourage the accelerated retirement of older and least efficient primary refrigerators and freezers, with more energy efficient (e.g., ENERGY STAR®) units. The program will disseminate program information and collaborate with other NSPI DSM programs to educate customers on taking these actions.

Approximately ten percent of Nova Scotia households have a second refrigerator that is at least ten years old. NSPI will target these inefficient appliances and partner with municipalities and waste resource agencies for proper environmental disposal. Incentives will be provided for the recycling of operating refrigerators or freezers that are old and inefficient. Recycling service may either be provided for free to program participants, or customers may be reimbursed any fees paid to the recycler for a to-be-determined amount. Customers will also be informed about incentives for the purchase of a new ENERGY STAR® appliance.

The program will encourage customers and property owners/managers to replace the older, inefficient appliances by offering bundled incentives/rebates for the turn in of the older inefficient units and the purchase of new ENERGY STAR® units. These promotions would be conducted through point-of-sale materials located at retail appliance stores and other cross promotional marketing activities.

3.1.2 Planning and Administration

NSPI proposes to plan and administer this program using a minimum of internal Company staff to manage the program design and implementation by third parties as much as practicable.

3.1.3 Delivery and Implementation

NSPI proposes to deliver and implement the lighting component of this program in collaboration with Conserve Nova Scotia. Company staff will conduct program marketing and promotion, as discussed below, as well as specifying program requirements.

For appliance recycling services, NSPI plans to work with municipalities and local waste resource agencies to obtain suggestions on ways to improve the program from both a program delivery and customer service perspective. The recycling vendor will be

responsible for scheduling and collections of refrigerators and freezers, including "Pick Up Day Events". The vendor is also responsible for the recycling process of dismantling the refrigerators and freezers, and removing oils and refrigerants. The vendor must meet the comprehensive toxic material recycling and disposal standards in conformance with Canadian environmental laws and regulations, along with relevant permitting requirements.

3.1.4 Marketing and Communications

For the lighting component, NSPI will explore co-branding the initiative with the national "Switch and Save" Program sponsored by Natural Resources Canada. In addition, NSPI will seek to develop marketing, co-branding, and additional program promotion partnership opportunities with potential partners such as Conserve Nova Scotia, Clean Nova Scotia, and other provincial organizations involved with energy efficiency and education.

NSPI will advertise the program using a mix of web site, direct mail, newspaper and/or TV ads. Retailer point-of-sale materials will also play a supporting role in informing customers about the program.

This program will coordinate marketing tactics with manufacturers, distributors, retailers, home improvement centers, contractors, and other energy efficiency and demand response programs to achieve the desired levels of customer awareness and program participation.

Marketing activities may include, but are not limited to:

- Point of Sale collateral materials (clings, shelf talkers, counter stands, etc.) – at participating retail locations
- Advertisements in retail circulars (as available and appropriate)
- Bill inserts

- Community outreach (e.g. community-based organization outreach to low-income households, in conjunction with the delivery of utility- and government-funded efficiency programs; promotions at home shows, etc.)
- Direct mail (e.g. targeted program promotions to customers who may be most eligible or interested in recycling services.). This may include cross-promotional direct mail with other DSM programs.
- E- mail to customers participating in home energy survey programs or other NSPI service offerings
- Province wide advertising campaigns

3.1.5 Timeline, Budget, and Projected Savings

The program, pending authorization of cost recovery, could begin in January 2009. Table 3-1 projects program MW and GWh savings, program budgets, and estimated participation for 2009 and 2010.

Table 3-1. Efficient Products: Program Goals and Budget

ENERGY STAR Products	Incremental Impacts		Program Budgets and Participation	
	MW	GWh	Budget (million 2008$)	Units
2009	1.6	6.3	$2.754	8,176
2010	3.3	12.6	$5.508	16,351

The program has an approximate benefit-cost ratio of 2.4 for the total resource cost test. The program benefits are estimated using NSPI's updated levelized avoided cost estimates of 9.5 cents per annual kWh saved, plus $63.39 per annual peak KW saved.

3.2 EnerGuide for Existing Houses Program

3.2.1 Description

NSPI will seek to partner with Conserve Nova Scotia and NRCan to expand participation in the EnerGuide for Existing Homes Program (NRCAN's ecoENERGY Retrofit-Homes Program). NSPI's Existing Homes Program will adopt EnerGuide NRCAN ecoENERGY Retrofit-Homes Program platform and use their existing incentive schedule. NSPI will invest in marketing and promoting the program to increase participation by electrically heated homes, offer building science workshops to participating contractors and energy raters, and provide additional incentive funding.

Eligible Participants

The program will be available to owners of single family homes including detached, semi-detached and low rise multi-unit residential buildings in Nova Scotia Power's service area. The program will target owners of existing electrically heated houses, including electric resistance, heat pump and Electric Thermal Storage (ETS) heated houses.

Program Description

Property owners can qualify for federal grants for improving the energy efficiency of their homes, and reducing their home's impact on the environment. The maximum federal grant one can receive per home or multi-unit residential building is $5,000; whereas the total grant amount available to one individual or entity for eligible properties over the life of the program is $500,000[3]. Similar to the NRCAN program, NSPI would offer additional financial incentives for eligible homeowners that implement recommendations of the initial assessment. NSPI's program, while promoting the NRCAN ecoENERGY

[3] Current NRCAN ecoENERGY Retrofit-Homes grant schedule and details are available online: http://www.oee.nrcan.gc.ca/residential/personal/retrofit-homes/retrofit-qualify-grant.cfm?attr=4

Retrofit Program in general, will limit any additional NSPI incentives to electrically heated houses, since the funding is provided by NSPI customers.

NSPI's program will increase participation and savings in the provincial or federal program by:

- Helping to subsidize the initial energy audit which was covered 100% by NRCan and is now covered 50% by Conserve Nova Scotia
- Encouraging that the measures are implemented (e.g. help customers find contractors)
- Providing additional financial incentives for customers to install recommended measures

Thus the program seeks to stimulate the installation of energy-efficient measures in existing houses. Specifically, the program will:

- Encourage homeowners to improve the overall efficiency of the building envelope of their house through higher levels of insulation and air-sealing
- Encourage homeowners to install ENERGY STAR® labeled windows, HVAC equipment, and water heaters as appropriate when renovating their house[4]
- Educate customers about the benefits of installing energy-efficient technologies in their homes and influence their buying decisions

Market Barriers that the program will seek to overcome include the following:

- Low customer awareness of how efficient their existing homes are
- Low builder and residential customer awareness of energy efficiency options in building renovation projects
- Low builder and residential customer awareness of some building envelope measures such as air sealing

[4] NSPI may promote highly efficiency products by providing a greater incentive. For example, a second (higher efficiency) tier level may be promoted, and over time, incentives for the lower, first tier would be phased out.

Customers will benefit from the program by:

- Reducing energy usage
- Having a more comfortable home
- The energy-efficient improvements may improve resale value of the home

Typical retrofit measures are as follows:

- Most homes will benefit from air-leakage control. Weather-stripping and sealants will stop drafts, reduce energy bills, improve comfort, and protect the structure. Moisture control and ventilation may help reduce condensation problems.
- Air sealing and insulating attics
- Insulating empty frame walls
- Insulating basements. Basements are areas of significant heat loss in most houses.
- Making the most of repair and renovation work. Some repairs and renovations around the house may have an energy-efficient component of the work.
- Replace old inefficient appliances such as refrigerators and switch incandescent bulbs to CFLs

The program will focus on making real efficiency gains while ensuring homeowners receive the full benefits.

3.2.2 Planning and Administration

NSPI desires to partner with Conserve Nova Scotia and the federal government in promoting the EnerGuide for Existing Homes / ecoENERGY Retrofit Program. NSPI proposes to work with Conserve Nova Scotia to harmonize program designs into a uniform province wide program offering, where funding from the federal government is maximized. Also, additional targeted funding from NSPI could be dedicated to address electrically heated homes.

3.2.3 Delivery and Implementation

At the provincial level, Conserve Nova Scotia currently runs the EnerGuide for Existing Homes Program. NSPI plans to partner with Conserve Nova Scotia and use the existing infrastructure including delivery agents (e.g., Clean Nova Scotia, ACAP Cape Breton and Sustainable Housing Education Consultants) and provide additional incentives for targeted electrical heating (HP/ETS) and education for both home owners and contractors.

3.2.4 Marketing and Communications

NSPI will promote the program by adding an element of educational information on the behavioral aspects of conservation and energy efficiency. This may take the form of written material as well as direction to NSPI's web-based information on conservation and energy efficiency. Customers can combine information on house efficiency with that of simple and practical behavioral tips to maximize their potential energy savings. NSPI will promote the program also to renovators and contractors.

3.2.5 Timeline, Budget, and Projected Savings

The program, pending authorization of cost recovery, could begin in the fourth quarter of 2008. Table 3-2 projects program kW and kWh savings, program budgets, and estimated participation for 2009 and 2010.

Table 3-2. EnerGuide for Existing Houses: Program Goals and Budget

EnerGuide for Existing Houses	Incremental Impacts		Program Budgets and Participation	
	MW	GWh	Budget (million 2008$)	Participation
2009	0.9	4.5	$1.892	810
2010	1.9	9.0	$3.784	1,620

The program has an approximate benefit-cost ratio of 2.8 for the total resource cost test. The program benefits are estimated using NSPI's updated levelized avoided cost estimates of 9.5 cents per annual kWh saved, plus $63.39 per annual peak KW saved.

3.3 Low Income Program

3.3.1 Description

The primary goal of the Low Income Program is to assist low income customers to install cost effective electrical energy savings measures, and to do so in a manner that passes the total resource cost test. Low income customers will not be required to pay for any part of the cost of the DSM measures installed through the program.

Eligible Participants

The NSPI Low Income Program will be targeted to low income owners of existing electrically heated houses in Nova Scotia Power's service area.

Program Description

The program design will resemble NRCAN's EnerGuide for Low Income Households, with the exception that NSPI incentive payments will be focused on those improvements that target the most cost-effective electrical savings opportunities within program budget constraints.

The program's deliverables are to:

- Identify the most important areas for energy efficiency improvements that will yield the greatest savings in electrical consumption within available program budgets. This may include immediate direct installation of low-cost measures (CFLs, faucet aerators, etc.) upon the first visit and more significant actions for subsequent visits, such as refrigerator replacement,

targeted thermal shell repair, insulation and air sealing, weather stripping etc.

- Achieve the most significant and cost effective electrical energy savings
- Educate homeowners about behavioral actions they can take to further reduce their electricity consumption

Participation in the low-income component will not require participant spending. Program spending per house will be in the range of $500 to $3,500, with a specific per level spending cap per house pending further program design.

Market Barriers that the program will seek to overcome include the following:

- Low income households often cannot afford upfront costs for energy efficiency, thermal shell improvements, or lighting and appliance upgrades
- Low builder and residential customer awareness of energy-efficiency options in equipment replacement markets
- Low builder and residential customer awareness of building envelope measures such as air sealing

Customers will benefit from the program by:

- reducing energy usage
- having a more comfortable home
- energy-efficiency improvements that may improve resale value of the home

Typical retrofit measures are as follows:

- Most homes will benefit from air-leakage control. Weather-stripping and sealants stop drafts, reduce energy bills, improve comfort and protect the structure. Moisture control and ventilation may help reduce condensation problems.
- Insulating poorly insulated attics
- Insulating empty frame walls

- Insulating basements. Basements are areas of significant heat loss in most houses.

Making the most of repair and renovation work. Some repairs and renovations around the house may have an energy-efficient component of the work.

Replacing old inefficient appliances such as refrigerators and switch incandescent bulbs to CFLs

3.3.2 Planning and Administration

The program will be administered and designed by NSPI. Actual field implementation will be completed by firms/agencies selected through an RFP process. In the event other Nova Scotia energy agencies, such as Conserve Nova Scotia, have funds available to promote efficiency in the low income sector, efforts will be made to partner with such agencies in the program design so a uniform offering can be designed for low income households of all fuel types. NSPI would contribute financially for electrically heated homes.

3.3.3 Delivery and Implementation

NSPI will issue an RFP, open to qualified for profit and not-for profit agencies, including community action agencies, with the demonstrated ability and expertise to conduct energy audits and oversee direct installation of energy efficiency measures and thermal shell improvements. Ideally, a single “umbrella” agency can then serve as the overall logistical coordinator and financial agent for sub-contracts to implementation agencies located throughout the province. Subject to NSPI’s review, modification, and approval, this umbrella agency will work closely with NSPI to identify an appropriate and fair method of identifying and prioritizing eligible households. One reasonable possibility for program eligibility is that it could be based on households that have with an income which is at or below Statistics Canada pre-tax, post-transfer Low-Income Cut-off (LICO).

NSPI will consult with government agencies and low-income non-profit agencies during detailed program development for advice on this matter.

Sub-contracted agencies will be responsible for completing the energy audit and using their professional judgment to identify measures/actions that will most economically realize electrical savings (e.g. air sealing or refrigerator replacement). NSPI and the evaluation contractors will be actively involved in quality control and periodic review of program design, implementation, and results.

3.3.4 Marketing and Communications

Due to the potential popularity of the program, DSM revenues are not allocated for advertising and promotion. When appropriate, NSPI employees will inform customers about the program during outreach presentations. NSPI's Web site will direct interested parties to call the participating agencies. The bulk of the program promotion will occur through the participating agencies. The participating agencies will be directed to promote the Low Income Program during presentations to community organizations, leave information at neighborhood community and recreation centers, and respond to customer calls directed from NSPI.

3.3.5 Timeline, Budget, and Projected Savings

The program, pending authorization of cost recovery, could begin in the fourth quarter of 2008. Table 3-3 projects program kW and kWh savings, program budgets, and estimated participation for 2009 and 2010. The program savings estimates are based on the residential sector analysis previously completed by Summit Blue Consulting.

Table 3-3. Low Income: Program Goals and Budget

Low Income	Incremental Impacts		Program Budgets and Participation	
	MW	GWh	Budget (million 2008$)	Participation
2009	0.1	0.5	$0.210	270
2010	0.2	1.0	$0.420	540

The program has an approximate benefit-cost ratio of 2.8 for the total resource cost test. The program benefits are estimated using NSPI's updated levelized avoided cost estimates of 9.5 cents per annual kWh saved, plus $63.39 per annual peak KW saved.

3.4 EnerGuide for New Houses Program

3.4.1 Description

Each year, approximately 3,000 new homes are built in Nova Scotia Power's service area, creating new load. These new homes offer untapped opportunities to implement energy efficiency measures.

Eligible Participants

The target market for NSPI's Residential New Construction (RNC) program will be purchasers, developers and builders of new houses in Nova Scotia. New homes with conventional electric resistance space heat initially planned will be encouraged through the program participation process to upgrade to heat pumps or thermal energy storage heating or install another fuel source for home heating.[5]

[5] NSPI believes that a customer should be able to select the type of fuel source for a particular application. However, NSPI will actively discourage the installation of inefficient systems and recommend the most efficient system for a particular fuel source; hence the program will not provide incentives for homes with electric resistance space heat. NSPI understands that a customer may have a strong preference for or opposition to installing one fuel source or another due to concerns related to issues of health, safety, availability, etc. While it may be possible to evaluate whether or not electrical space heating is in the short term interest of customers and society as a whole, it is difficult to know that for certain in the future, as the utility's resource options may change over the long term. For

Program Description

The primary objective of the program is to stimulate construction of energy efficient, durable, safe, comfortable, and healthy new homes. The program will rely on existing Canadian programs to achieve program goals. While the Federal Government discontinued incentives for the EnerGuide and R-2000 programs in May, 2006, on a provincial level, the Nova Scotia Department of Energy, through Conserve Nova Scotia, revived the programs with financial incentives for participation. NSPI's objectives are to partner with Conserve Nova Scotia to more widely market the program, assist with training contractors, educating prospective homeowners, and advance the adoption of highly efficient residential building practices throughout the province.

The EnerGuide for New Houses program provides home energy ratings and efficient construction practice design advice to builders prior to the completion of new homes. The program is delivered by the Nova Scotia Home Builders Association, who collect data on a home's planned building envelope and heating system and then use software to model the home's expected energy consumption. Suggested improvements are given to the builder and can be built into the home's design to improve its expected energy performance. The home is then rated on a scale of 0-100 based on its modeled energy performance. Labeling the home provides homebuyers with a benchmark of how energy-efficient a home is relative to other homes. R-2000 is another program design of NRCAN which promotes the construction of super efficient residential new construction homes. The features and benefits of an R-2000 home are presented in Figure 4-1.

similar reasons, it is not clear whether permanent fuel switching (change of energy supply) should be funded by electric DSM programs. This is an area that will require further analysis.

Figure 4-1: Features and Benefits of an R-2000 Home[6]

Features: R-2000 Home	**Benefits: R-2000 Home**
Here are some of the features of an R-2000 home: • Continuous whole house ventilation • Environmentally friendly building products • A continuous building envelope to reduce drafts and cold spots • Energy-efficient appliances, lighting, doors and windows • Higher levels of insulation • Advanced heating and cooling systems • R-2000 receives a certificate from Natural Resources Canada	There are many benefits to owning an 2000 home: • Healthier indoor air quality • Healthier building products and materials • Reduced energy bills • Reduced greenhouse gas emissions • Reduced water consumption • Increased thermal comfort • Backed by 20 years of research by the government and industry • Rigorous, third-party quality assurance • Built by licensed R-2000 professionals

Participating customers who have builders upgrade the design of their new home utilizing the EnerGuide for New Houses software to achieve an EnerGuide rating of 80 or better will be eligible for a $750 rebate. Homes that achieve R-2000 status will be eligible for a $1,000 rebate.

While NSPI plans to adopt the existing program design and participation structure, NSPI-specific RNC rebates will be available only to homes under construction or planned construction that use either a Heat Pump or Electric Thermal Storage (ETS) systems. NSPI incentives will be offered for such new houses that 1) use either a Heat Pump or Electric Thermal Storage, 2) participate in the EnerGuide for New Houses Program, and

[6] Source: Nova Scotia Homebuilders Association

3) upgrade to achieve an EnerGuide rating of 80 or higher. NSPI incentives will also be available for R-2000 homes that use a Heat Pump or Electric Thermal Storage system.

The program will provide an additional incentive for an "Appliance and Lighting Bonus" package for homes that achieve an EnerGuide rating of 80 or R-2000 status. The bonus package will offer $200-$500 in additional incentives and be available to all homes regardless of heating system type. The details of the specific bonus package will be addressed further in the detailed program design phase and after consultation with anticipated program delivery partner Conserve Nova Scotia.

The program's deliverables are as follows:

- Encourage homebuilders to utilize the EnerGuide for New Houses (EGNH) labeling tool to build a more energy-efficient home and go beyond and complete the construction of an R-2000 home.
- Encourage homebuilders to install ENERGY STAR® labeled products including windows, heating systems, insulation, lighting, and appliances. Encourage homebuilders to include additional energy efficient products that are not captured within the EGNH or R-2000.
- Educate customers about the benefits of having energy-efficient technologies in their homes and influence their buying decisions.
- Continue to support the establishment and growth of a high performance residential new construction building community, promoting energy efficient products and high performance building materials.

3.4.2 Planning and Administration

NSPI proposes to plan and administrate this program using a small internal staff to manage third party service providers and partnerships. NSPI will propose a partnership with Conserve Nova Scotia for coverage of cost-effective non-electric measures. In particular, NSPI would like to structure the partnership design with Conserve Nova

Scotia to minimize the possibility of the builder choosing one heating system type over the other, simply for a higher rebate amount.

3.4.3 Delivery and Implementation

At the provincial level, Conserve Nova Scotia currently runs the EnerGuide for New Homes (which was run by the federal government until May 2006). NSPI plans to partner with Conserve Nova Scotia and use the existing infrastructure including delivery agents and provide additional incentives for targeted electrical heating (HP/ETS) and education for both new home buyers and contractors.

3.4.4 Marketing and Communications

Advertising in targeted media to builders and new home buyers will be used to generate interest, understanding, and ultimately market demand. NSPI would work with developers to help enhance their knowledge and gain support for the program.

To launch the program, NSPI proposes to endorse the existing Natural Resources Canada (NRCAN) program design platform for the promotion of efficient residential new construction. NSPI will support the marketing and incentives for a two tier program design offering: EnerGuide for New Houses and R-2000. NSPI proposes to partner with Conserve Nova Scotia, which is already promoting the NRCAN program, and add value through additional program marketing and financial rebates.

3.4.5 Timeline, Budget, and Projected Savings

The program, pending authorization of cost recovery, could begin in the fourth quarter of 2008. Table 3-4 projects program MW and GWh savings, program budgets, and estimated participation for 2009 and 2010.

Table 3-4. EnerGuide for New Houses: Program Goals and Budget

EnerGuide for New Houses	Incremental Impacts		Program Budgets and Participation	
	MW	GWh	Budget (million 2008$)	Participation
2009	0.3	1.1	$0.498	198
2010	0.5	2.2	$0.996	396

The program has an approximate benefit-cost ratio of 3.2 for the total resource cost test. The program benefits are estimated using NSPI's updated levelized avoided cost estimates of 9.5 cents per annual kWh saved, plus $63.39 per annual peak KW saved.

3.5 Commercial and Industrial Prescriptive Rebate Program

3.5.1 Description

The Commercial and Industrial (C&I) Prescriptive Rebate Program promotes the purchase of qualifying high-efficiency equipment. Rebates serve to buy down the difference between the cost of high-efficiency versus standard equipment, thereby making the high-efficiency equipment a more attractive option for customers and trade allies promoting the products. Traditional prescriptive rebate programs have been successful across North America as a means of providing cost-effective energy savings for utilities and their customers.

Eligible Participants

This program will target commercial and industrial customers purchasing new or replacement equipment in existing facilities. The program will also be available to customers installing efficient equipment in new commercial facilities if the customer does not participate in the more comprehensive Commercial and Industrial New Construction Program.

Program Description

Specifically, the program will offer customers pre-determined rebates for the installation of eligible efficiency measures for the following end-uses: lighting, heating, ventilation, and air conditioning.

Key program features include the following:

- A single consolidated program design covers a wide range of common efficient C&I measures
- Clearly defined rebates and measure eligibility criteria reduce administrative costs while simultaneously encouraging customer participation
- Rebates and eligibility criteria are measure-specific. For example, lighting rebates may be per fixture while HVAC rebates may be defined per unit of equipment.
- Rebates are designed to overcome customer investment barriers
- Program provides support to trade ally firms in key delivery channels who act as the primary sales force

Measures and Incentives

Measures will be defined through the program. Typical measures include the following:

- ***Lighting:*** high-performance fluorescent lighting systems, high-bay fluorescent lighting systems, compact fluorescent fixtures and lamps, day lighting controls, occupancy sensors, pulse start metal halide, and high pressure sodium systems, LED exit signs, LED traffic lights and signals
- ***HVAC:*** rooftop air conditioners, air-source heat pumps, water-source heat pumps, dual enthalpy economizer controls, ECM furnace fan motors, and chillers

The program will offer pre-determined rebates for qualified lighting and HVAC energy efficiency measures. Eligibility standards will also differ by end-use. For example, in the case of lighting, the eligibility standard may be for a specific type of lamp, such as a four foot high performance T-8 fluorescent fixture; or in the case of a HVAC system, it may be a specific efficiency rating.

Rebates for high-efficiency equipment will be developed based on rebates offered elsewhere in effective North American DSM programs and a review of the specific market forces and characteristics for the NSPI territory. If the cost of a measure (such as a CFL) drops below the specified rebate, the rebate will be adjusted downward. NSPI will institute a process to screen measures for cost-effectiveness and revise incentive levels as needed to adjust to changing market demand and available budgets.

3.5.2 Planning and Administration

NSPI proposes to plan and administer this program using Company staff together with program design and implementation support consultants. NSPI will explore possibilities for partnership opportunities to cover non-electric HVAC measures.

3.5.3 Delivery and Implementation

Company staff will conduct program marketing and promotion, as discussed below, as well as specify program requirements. The program delivery model is straightforward: customers and/or trade allies fill out an application form. The information is then processed and paid by NSPI. NSPI may develop an on-line interface for the program that allows customers and trade allies to file applications through a web interface.

3.5.4 Marketing and Communications

NSPI will promote this program primarily through a trade-ally support program. Since customers often rely on the advice of contractors and other local professionals, it is

essential that the program identify and work closely with key market participants and trade allies. For the Prescriptive Rebate Program, trade-ally support will focus on the following:

Point-of-sale brochures and other materials to target customers during their purchase decision

- Training on program requirements (qualifying equipment, rules, regulations, application requirements, etc.)
- Sales training covering the features and benefits of high efficiency equipment and techniques for "upselling" customers to high-efficiency models
- Ongoing communication and education through regular seminars, emails, and a dedicated trade ally web site
- Training and communications that promote general awareness of all programs

NSPI will also seek to support the program through personal customer contacts. NSPI representatives will be trained on program operations and will be responsible for educating large customers on program features and helping customers identify qualifying projects. Call center and other customer service staff serving smaller customers will also be trained on general program features and can funnel customer inquiries to the NSPI energy efficiency web page for more information.

NSPI will also provide broad marketing support, which may include direct mail campaigns, bill inserts, the Company web site, brochures, appearance at trade shows and other large-scale events, and broadcast advertising through radio, Internet, newspaper, and television.

3.5.5 Timeline, Goals, Budget, and Projected Savings

The program, pending authorization of cost recovery, could begin in the first quarter of January 2009. Table 3-5 projects program kW and kWh savings, program budgets, and estimated participation for 2009 and 2010.

Table 3-5. C&I Prescriptive Rebate: Program Goals and Budget

C&I Prescriptive Rebates	Incremental Impacts		Program Budgets and Participation	
	MW	GWh	Budget (million 2008$)	Participation
2009	1.7	12.4	$1.590	381
2010	3.4	24.7	$3.180	762

The program has approximate TRC benefit-cost ratios of 6.6 for commercial customers and 10.3 for industrial customers. The program benefits are estimated using NSPI's updated levelized avoided cost estimates of 9.5 cents per annual kWh saved, plus $63.39 per annual peak KW saved.

3.6 Commercial and Industrial Custom Rebate Program

3.6.1 Description

The Commercial and Industrial (C&I) Custom Rebate Program promotes the purchase of innovative high-efficiency equipment. This includes process, refrigeration, and other types of measures not covered by the C&I Prescriptive Rebate Program. Rebates serve to buy down the difference between the cost of high-efficiency and standard equipment, thereby making the high-efficiency equipment a more attractive option for customers. Custom rebate programs have been successful across North America as a means of providing cost-effective energy savings for utilities and their customers.

In addition, a "Custom Partners" program component will be tested during the first two years of program operation. This program component will allow larger NSPI customers to proposed custom projects for which they can specify the amount of rebate required to implement the project economically. All projects submitted must pass the TRC test.

Eligible Participants

This program will target larger commercial and industrial customers purchasing new or replacement equipment in existing facilities. The program will also be available to customers installing efficient equipment in new commercial facilities if the customer does not participate in the more comprehensive Commercial and Industrial New Construction Program. Most of the participants will likely be larger C&I customers since smaller C&I customers are primarily expected to participate in the Small Commercial Direct Install Lighting Program or the C&I Prescriptive Rebate Program.

Program Description

The program will offer customers rebates for the installation of eligible efficiency measures. The rebates will be based on a standard amount per kilowatt and/or kilowatt-hour reduced by the equipment, up to 50% of the measures' incremental costs.

Key program features include the following:

- A single consolidated program design covers a wide range of innovative C&I measures. Any measure not covered by the C&I Prescriptive Rebate Program is potentially eligible for this program
- Clearly defined rebates and measure eligibility criteria reduce administrative costs while simultaneously encouraging customer participation
- Specific energy engineering analyses to help customers identify applicable measures for their facilities and quantify their savings and costs are included as a feature of this program. NSPI will pay for half of the costs for such analyses and will waive the customer portion of the analysis costs if customers implement most of the key measures analyzed.[7]
- Rebates are application-specific and are based on the demand savings from an energy efficient product compared to a similar standard efficiency

[7] NSPI will consider waiving the upfront cost share for the audit for municipal and nonprofit customers should this prove to be a barrier to program participation.

product. For example, savings from installing adjustable speed drives vary considerably from application to application, even when installed on the same size motors.

- Rebates are designed to overcome customer investment barriers
- Program provides support to trade ally firms in key delivery channels who act as the primary sales force

Measures and Incentives

A range of measures will be defined through the program. Typical measures include the following:

Process: energy efficient motor and air compressor system upgrades and controls, new motors and efficient air compressors, fixing compressor line leak reductions, as well as many other types of manufacturing system improvements

- ***Refrigeration system upgrades:*** energy efficient refrigeration system upgrades, including controls
- ***Variable Frequency Drives:*** VFDs are covered in both process and HVAC applications
- ***Lighting:*** advanced lighting systems and controls not covered by the C&I Prescriptive Rebate Program
- ***HVAC:*** Advanced HVAC system and controls not covered by the C&I Prescriptive Rebate Program

Rebates for high-efficiency equipment will be $200/kW (connected) and possibly an additional amount based on the measure energy savings reduced by the efficient equipment, or 50% of the difference between the cost of high-efficiency and comparable standard-efficiency equipment, whichever is less.

3.6.2 Planning and Administration

NSPI proposes to plan and administrate this program primarily using Company staff and consultants. NSPI will propose partnership arrangements with other agencies regarding covering non-electric Custom measures.

3.6.3 Delivery and Implementation

NSPI proposes to deliver and implement this program primarily using Company staff. Company staff will conduct program marketing and promotion, as discussed below, as well as specifying program requirements. Applications for the C&I Custom Rebate Program will undergo additional review and analysis in comparison to the more standard measures covered by the C&I Prescriptive Rebate Program. NSPI pre-approval for custom measure applications will be required. Monitoring and evaluation will be undertaken for the larger savings applications, as the ability to accurately estimate measure energy savings is often dependent on establishing customer and application specific baseline information on customers' existing equipment before the replacement with high efficiency equipment is made.

3.6.4 Marketing and Communications

NSPI will promote this program primarily through a broad trade-ally support program. Since customers may rely on the advice of consulting engineers, design consultants, equipment vendors, and other local professionals, the program will identify and work closely with key market actors and trade allies.

For the C&I Custom Rebate Program, trade-ally support will focus on the following:

- Case studies of sample measure installation results
- Point-of-sale brochures and other materials to target customers during their purchase decision
- Training on program requirements (qualifying equipment, rules, regulations, application requirements, etc.)
- Sales training covering the features and benefits of high efficiency equipment and techniques for "upselling" customers to high-efficiency models
- Ongoing communication through regular seminars, emails, and possibly a dedicated trade ally web site
- Training and communications that promote general awareness of all programs

NSPI will also support the program through personal customer contacts. NSPI representatives will be responsible for educating large customers on program features and helping customers identify qualifying projects. Call center and other customer service staff serving smaller customers will also be trained on general program features and will funnel customer inquiries to the NSPI energy efficiency web page for more information.

NSPI will also provide broad marketing support, such as direct mail campaigns, bill inserts, the company web site, brochures, appearance at trade shows and other large-scale events, or possibly broadcast advertising.

An NSPI program manager will retain responsibility for overall program strategy, authorization of rebate payments, and management of in-house or outsource program staff.

3.6.5 Timeline, Budget, and Projected Savings

The Custom Partners component of the program, pending authorization of cost recovery, could begin in the third quarter of 2008. Table 3-6 projects program kW and kWh savings, program budgets, and estimated participation for 2009 and 2010.

Table 3-6. C&I Custom Rebate: Program Goals and Budget

C&I Custom Rebates	Incremental Impacts		Program Budgets and Participation	
	MW	GWh	Budget (million 2008$)	Participation
2009	1.8	13.1	$2.225	188
2010	3.5	26.1	$4.449	375

The program has approximate TRC benefit-cost ratios of 1.6 for commercial customers and 5.1 for industrial customers. The program benefits are estimated using NSPI's updated levelized avoided cost estimates of 9.5 cents per annual kWh saved, plus $63.39 per annual peak KW saved.

3.7 Small Commercial Direct Install Lighting Program

3.7.1 Description

This program provides full service retrofit energy efficiency services to small businesses (as defined below) – a market that has little access to market-based expertise to identify energy savings opportunities or administer project implementation on their behalf. The market is considered too small to be effectively served by private sector energy services companies.

Eligible Participants

The program will target businesses with less than 100 kW demand, or 300,000 annual kWh. Participants can include small businesses, non-profits, government and school facilities and, optionally, small (four/six units and under) apartment building in this size category. Chains with one business owning many stores with large cumulative loads will be directed to participate in the Prescriptive Rebate Program. Franchisees which own one or a few small stores in Nova Scotia will be included.

Program Description

This is a turnkey program. Competitively-selected vendors recruit potential customers, assess efficiency opportunities, prepare job cost estimates, complete program applications, secure customer agreements, and obtain installation approval from the program administrator. After the application has been approved, installations and equipment disposal are performed by the same vendor or its subcontractors.

The program strategy is to use direct contact marketing, low costs of labour and materials and large-scale implementation to achieve savings.

3.7.2 Planning and Administration

NSPI proposes to plan and administer this program primarily using Company staff and explore possible partnership arrangements with Government agencies. The Company will issue an RFP to hire contractors to conduct program marketing and promotion, as discussed below, as well as specifying program requirements and monitoring compliance.

3.7.3 Delivery and Implementation

Nova Scotia Power will issue tenders for implementation contractors over the first year of operation. Tenders will the sequenced in order to: 1) incorporate lessons learned from

early implementation into subsequent contracts, and 2) allow a business service infrastructure capable of delivering the full range of desired services to develop in the province.

Selected service providers will serve defined geographic areas. These firms, which are anticipated to be local firms organized to respond to this specific service request, will manage the delivery and will be required to subcontract with electricians or electrical contractors for actual installations.

The service providers will provide walk through audits, develop the work order for the installers, install and dispose of equipment, conduct post-installation inspections, assist in managing the customer's co-pay obligation, manage their own budget allocations and performance goals, and provide reporting to and interface with NSPI.

3.7.4 Marketing and Communications

The program is direct marketed. NSPI will provide (or approve of) all marketing materials and furnish contractors with lists of eligible customers in their contract areas. Marketing will generally be via a targeted mailing to these customers. The mailing will include a detachable post card for the customer to complete and return. Returned cards will be verified for eligibility and then forwarded to the appropriate vendor for follow up. Alternatively, customers can call a toll-free number that will be directed to the appropriate vendor for their area. (Toll-free numbers can be programmed to respond to the prefix of an incoming call and direct the inquiry to the vendor servicing that geographic area.)

Other marketing strategies can include personalized letters from local business or community groups introducing the program to customers and enclosing the business reply card.

3.7.5 Timeline, Budget, and Projected Savings

The program, pending authorization of cost recovery, could begin in the second quarter of 2008. Table 3-7 projects program kW and kWh savings, program budgets, and estimated participation for 2009 and 2010.

Table 3-7. Small Commercial Direct Install Lighting: Program Goals and Budget

Small Commercial Direct Install Lighting	Incremental Impacts		Program Budgets and Participation	
	MW	GWh	Budget (million 2008$)	Participation
2009	0.5	2.3	$1.020	175
2010	0.7	3.5	$1.530	263

The program has an approximate TRC benefit-cost ratio of 8.6. The program benefits are estimated using NSPI's updated levelized avoided cost estimates of 9.5 cents per annual kWh saved, plus $63.39 per annual peak KW saved.

3.8 Commercial and Industrial New Construction Program

3.8.1 Description

An opportunity to achieve energy efficiency and transform building and equipment specification practices at minimal cost exists when new buildings are designed and constructed, and when existing ones are renovated or expanded. The energy impact of early building design decisions may continue for its full life

Eligible Participants

The program will target all new commercial and industrial substantial renovation, and expansion (including common areas in high-rise and multi-unit residential facilities) construction projects in Nova Scotia. Most program participants will likely be larger

commercial facilities (such as office buildings and retail) and institutional facilities (such as schools, and health care). Industrial projects are likely to be process-related, rather than building-related.

Program Description

Program Option Paths

The NSPI program will have several participation options, depending where the building is in its design or construction schedule and the owner's preference. Customers will be able to participate in the program via three distinct avenues: 1) Prescriptive Path, 2) Custom Path, or a Comprehensive Building Design Path.

1) Prescriptive Path

Prescriptive Path allows customers to choose equipment from a pre-qualified list of measures and receive an incentive that averages a percentage of incremental cost based on best practice similar programs, adjusted for consideration of market barriers, baseline construction practices, and market transformation objectives. This path is designed for customers who have projects that are beyond the design phase and perhaps are under construction. It may also include new construction, renovation, remodeling, and equipment replacement projects. Available technologies would include efficient lighting, HVAC and motors.

Often a Prescriptive Path serves as a customer's initial exposure to the program. Following an initial satisfactory experience, they may choose the more sophisticated Comprehensive or Custom Paths for subsequent projects.

2) Custom Path

A Custom Path allows customers to request technical assistance to qualify unique measures that are not on the prescriptive list. Measures identified receive an incentive that is based on the results of an independent cost and savings analysis. Custom path program incentives will be based on the practices of similar programs.

The Custom option encourages and rewards the customer and design team initiative and creativity. Because the savings generated by these measures are usually site and end use-specific, project viability, eligibility and incentives are assessed on a case-by-case basis through a technical study, which details energy and demand savings, and project costs. The baseline standard practice against which each proposal is judged is determined on a case-by-case basis, using resources such as current baseline studies and other market research as well as utility or public program experience from other comparable jurisdictions.

Common Custom measures include lighting system designs and controls, HVAC systems, motor systems and drives, refrigeration measures, and a variety of industrial process end uses. A comparison to baseline study will be conducted according to program specified procedures and is subject to review and approval.

3) Comprehensive Building Design Path

A Comprehensive Building Design Path allows the customer, the design team, and program-supported experts to work together from the conceptual design stage of a new construction or substantial renovation project to consider holistic design and equipment options to improve the overall efficiency of a building. Under this approach customers are eligible for both program-sponsored technical assistance in defining and costing efficiency options, as well as reimbursement to the customer's design team for additional design work or analysis necessary to accommodate program recommendations. All such work must be pre-approved by NSPI. The customer's financial incentive is calculated and awarded based on an analysis of the entire project design and the interrelationship between the various building energy-consuming systems. Customer incentives will be calculated based on similar best practice programs, and will require that the entire agreed-upon package of measures is installed.

Whole Building Simulations: As discussed below, a service available to Custom and Comprehensive Path participants and their designers is access to technical services

provided as a program service by experts who have been prequalified by the program. For Comprehensive Path participants, one key program service is modeling of anticipated energy performance with hourly, whole-building computer simulations (utilizing the U.S. Department of Energy's DOE2 modeling system or the NRCAN's EE4 computer modeling tool that is designed to work with the Model National Energy Code for Buildings). Modeling first establishes a building-specific "pre-program" baseline, and then generates combinations of different energy system strategies that are modeled independently, providing the design team with a choice of solutions. All such work must be pre-approved by NSPI.

Because a Comprehensive Building Design Path provides technical support and incentives which allow building owners and their design teams to pursue high efficiency options that integrate building envelope, lighting, and mechanical systems, the result is an efficient building. The combination of technical consultation and incentives provided by the program will cover a significant portion of the additional design, modeling, and equipment costs required to turn an average building into an exemplary one.

Ancillary Services

Participating customers will be offered ancillary and supportive services targeted to their specific needs, including: 1) Building Commissioning, 2) Technical Assistance Services, and 3) Plan Review.

1) Building Commissioning

Building Commissioning for larger comprehensive or custom projects where both the customer and the program's investment can be substantial. A Building Commissioning service should have two objectives: (a) to demonstrate the value of commissioning services to customers, thereby building a market-based demand for the service, and (b) demonstrate quality control. The target market for Commissioning Services is larger new construction and renovation projects with controls or complex mechanical systems present.

2) Technical Assistance Services

Technical Assistance Services are provided either directly by program consultants or on a cost shared basis from a pool of province wide contractors that have been pre-qualified for subsequent competitive selection by program staff, or through a combination of these approaches. The Technical Assistance Services component of the program will provide technical support matched to the needs and capabilities of commercial and industrial customers, including detailed and comprehensive efficiency options studies for new buildings, as well as specialized technical studies, of potential industrial process improvements, chiller optimizations, and compressed air projects. The purposes of this service are: (1) to ensure effective customer participation in program; (2) ensure the best utilization of core program services and incentives; and (3) encourage energy efficient design, specification, installation and construction practices.

3) Plan Review

A plan review service, outsourced to third party contractors, will focus on the needs of smaller building owners and their design teams. It will target new construction and major renovation projects between 15,000 and 50,000 square feet that are in the early to mid stages of design. The service will provide a professional review of existing construction documents and specifications within a two-week period. This review will allow the program to fit into the design-build model that is prevalent in smaller new construction projects and could be completed before major equipment goes out to bid. The review service would make recommendations for energy-efficient upgrades (most frequently proscriptive options, although there will be opportunities for changes in lighting design and controls). It would also promote their adoption during the design phase of new construction projects. The goal is to develop a partnership and teamwork relationship between the customer, their A&E firm, and NSPI's expert advice. Financial incentives will be provided to building owners for installed equipment above the baseline condition observed in the original plan set. NSPI will also complete a verification of the installed equipment.

Baseline Building Practice

Establishing accurate baselines and incentives is critical to program credibility and cost-effectiveness. In the absence of an energy code that reflects current market conditions, NSPI will conduct a detailed baseline study of new construction design and equipment specification practices in its market area. This study will provide an analytical and defensible basis to establish program eligible prescriptive and custom measures and to set appropriate incentive levels.

3.8.2 Planning and Administration

NSPI proposes to plan and administer this program primarily using Company staff and consultants. NSPI will propose teaming arrangements with other agencies for coverage of cost-effective non-electric measures. Company staff will conduct program marketing and promotion, as discussed below, as well as specifying program requirements and monitoring compliance.

3.8.3 Delivery and Implementation

NSPI proposes to implement this program primarily using Company staff. The Company will train and use its field staff to identify prospective projects and to make initial owner and/or design team contacts. For Custom and Comprehensive projects, after project review and management approval, field staff can manage implementation and conduct post-installation inspections. Applications can be developed and administered in the field after management approval of those projects.

The program may prequalify a pool of third-party technical assistance service providers who can consult to the program and to building owners on specific projects.

3.8.4 Marketing and Communications

Successful new construction programs have relied on “relational” marketing for program

launch and delivery. Once the target submarkets for the initial program introduction have been identified and selected, the following vehicles can be used to identify projects and potential design firm partners:

- *Lunch and Learn sessions with A&E firms*. A successful model has been to provide a brief training session that is CLU- eligible (lighting design, new technologies, etc.). This is followed by a program briefing and a roundtable discussion of current or future projects that might be program eligible and hypothetical services or incentives. The training vehicle not only encourages attendance (due to professional continuing education requirements), but it is also a demonstration of program staff expertise.
- *One-on-one meetings with developers and or their design teams.* These require a brief, professional, overview of the program, followed by a case study discussion of a completed building project similar to the one being proposed. A general discussion follows of the technical services and incentives potentially available to the clients through the program. Prospects for these presentations are identified by reviewing a number of sources (media information, field staff referrals, referrals from various economic development agencies, etc.).
- *Presentations at professional association meetings.* Depending on the target markets selected, these would be organizations with broad representation, such as the Nova Scotia Association of Architects, Halifax ASHRAE, the Construction Association of Nova Scotia, etc.

Because of the nature of the professions involved, other programs have been successful by placing a design professional – usually an architect – under part time contract to present the program to his/her peers. If the program value proposition is presented by a peer, it is usually more readily accepted.

3.8.5 Timeline, Budget, and Projected Savings

The program, pending authorization of cost recovery, could begin in the first quarter of 2010. Table 3-8 projects program kW and kWh savings, program budgets, and estimated participation for 2009 and 2010.

Table 3-8. C&I New Construction: Program Goals and Budget

C&I New Construction	Incremental Impacts		Program Budgets and Participation	
	MW	GWh	Budget (million 2008$)	Participation
2009	0.0	0.0	$0.047	0
2010	1.2	6.3	$1.369	118

The program has approximate TRC benefit-cost ratios of 7.5 for commercial customers and 6.0 for industrial customers. The program benefits are estimated using NSPI's updated levelized avoided cost estimates of 9.5 cents per annual kWh saved, plus $63.39 per annual peak KW saved.

4.0 MULTI-SECTOR PROGRAM PLANS

4.1 Education and Outreach Program

4.1.1 Description

NSPI understands that to meet performance guidelines for energy reductions, the concept of energy efficiency must be supported and embraced by customers. Messages that communicate the general concept of Demand Side Management (DSM) and the importance of energy efficiency to the customer will be included in many areas of communication. This education and outreach is intended to help customers understand and embrace the concept of DSM to encourage higher levels of participation in DSM programs offered by NSPI. Education and outreach is an important undertaking.

The Education and Outreach Program has the potential to deliver messaging that will result in energy and demand reductions. This program also supports individual DSM program marketing and advertising efforts. The Education and Outreach Program provides the opportunity for all utility customers to hear supporting messages and become more knowledgeable about energy use and energy cost saving opportunities in their homes and businesses. The planned Classroom Education strategy offered to schools can lead to more aware energy consumers in the coming generation.

It is difficult to track the effectiveness, level of participation or demand and energy reduction created by educational and outreach programs. Utilities and regulatory agencies throughout North America recognize this limitation but understand the importance of the process. Savings resulting from the Education and Outreach Program will be captured via participation in the other NSPI programs.

Eligible Participants

The target market for NSPI's Education and Outreach Program are all NSPI customers.

This includes owners and renters living in all housing types, from single family to multi-family dwellings, as well as commercial and industrial customers. Additionally, education and outreach programs will be designed to introduce the importance of energy efficiency to school children in grades 4-8. Finally, NSPI will sponsor trade ally professional training seminars for architects, engineers, HVAC contractors, and facility managers on energy management, design, and high efficiency equipment options.

Customers may not be well informed on energy efficiency technologies and strategies and how different technologies and strategies might help reduce energy consumption in their home or business. Customers may not be well informed on the potential benefits from energy conservation in reducing greenhouse emissions and water use. The program's goal is to inform consumers on ways to conserve energy, lower their electric utility bills, achieve cost effective energy savings, and reduce peak demand. The Education and Outreach Program is intended to help customers understand and embrace the concept of DSM to encourage higher levels of participation in DSM programs offered by NSPI. Further, the goal is to generate awareness among tomorrow's consumers about the value of energy and the need to conserve it for a better future for all. The goal of Education and Outreach Program is to increase awareness of energy efficiency. The success of this program will lead to more participation in one of NSPI's conservation and energy efficiency programs and educate the NSPI customers of the future about the importance of energy and energy efficiency.

4.1.2 Planning and Administration

NSPI's approach to Education and Outreach is to create awareness and provide residential and C&I consumers with information on energy conservation. The goal is to encourage customers to incorporate conservation habits into their everyday lives and business practices. To reach and influence the diverse residential and C&I markets, energy conservation education needs to address different lifestyles, learning preferences, and areas of interest.

To appeal to these broad markets, the program will provide a wide array of educational programs and products including, but not limited to:

- *On-Line Free Energy Audit Software*. The goal of residential and C&I education is to inform NSPI's residential consumers on how to conserve energy and lower their electric utility bills. NSPI will increase the content of energy savings information available to residential and C&I customers on the NSPI website. This will include the use of a free on-line residential or C&I energy audit. This will help customers profile the characteristics of their home/business and learn about suggested energy efficiency opportunities. Additionally, NSPI will provide links to existing ENERGY STAR® calculators that allow customers to do their own research on efficient appliances and lighting options prior to making a purchasing decision.
- *Bill Inserts.* NSPI will feature on customer bill-inserts energy efficiency savings opportunities and available programs to raise awareness of the importance of energy efficiency and how residential, commercial, and industrial customers can participate.
- *Trade Ally Training.* NSPI will launch a trade ally training series to inform existing and the next generation of architects, engineers, HVAC contractors, facility managers, builders, etc. on best practices related to energy efficiency for their respective professional areas. NSPI will cover certain training event costs, including hiring the appropriate trade professional or instructor to deliver the training event, venue rental costs, etc. NSPI will charge a modest registration fee for program participants. Examples will likely include "Efficient Lighting for Commercial Facilities" or "R-2000 Builder Training". NSPI will market these training events jointly with participating efficiency partners such as Conserve Nova Scotia, Nova Scotia Homebuilders Association, etc. and seek input from efficiency partners on ideas for future training events.
- *Association Newsletters.* NSPI will develop targeted newsletter articles or case studies for incorporation in association newsletters. The purpose of

the association articles or case studies is to raise awareness of existing programs, feature successful case studies, and generate increased participation in NSPI DSM programs.

- *Low Income Outreach.* NSPI will work with recognized low income housing and energy related organizations to provide energy efficiency related printed materials for inclusion in their newsletters and distribution during customer contact events. Details of the specific program material needs and best methods for reaching the low income sector will be identified following consultations with potential partner organizations such as the Affordable Energy Coalition and Conserve Nova Scotia.
- *Classroom Curriculum.* The goal of energy-related curriculum is to educate school children, provide early understanding and appreciation for energy efficiency, and to encourage students to take the information home. NSPI proposes to issue a sub-contract to an education focused organization with energy efficiency expertise. This will be done through an RFP process, for field delivery of a grade school energy efficiency program. This initiative will focus on the design and delivery of a school-based science education curriculum on energy and energy efficiency, including demonstrations of in-home applications of simple energy conservation measures such as CFLs and weatherization. The target audience will be Nova Scotia grade school children in Grades 4-8, and their teachers. The program will be designed to offer 1-3 hours of classroom instruction. The emphasis will be on raising children's energy efficiency awareness. More specific details and implementation ideas will be generated through the request for proposals process.
- *Academic Initiative.* NSPI will contact elementary and high school teachers by mail or individual telephone contact to schedule appearances. In addition, direct mail to elementary schools will outline the programs offered and provide opportunities for teachers to order classroom sets of grade-appropriate energy conservation booklets and study guides for students grades K-6.

- Broader efforts to work with schools to increase customers' energy knowledge and awareness will also be piloted in 2009 and 2010.

4.1.3 Delivery and Implementation

This program will be administered in-house by NSPI employees, but much of the program implementation will be contracted out, where possible, to partner organizations, such as Clean Nova Scotia's Towards a Brighter Future program. NSPI will provide program administration, marketing, planning, and consumer education activities.

4.1.4 Marketing and Communications

NSPI will communicate and educate residential and commercial customers through a variety of avenues:

- Bill messages will be used to provide information to current customers
- The NSPI Web site will display information to help Web users identify the energy savings information
- NSPI customer representatives will be trained to address customer inquiries
- Brochures will be created to be mailed on demand. These will be provided through the call center and the NSPI Web site
- Inserts will be added to customer bills to provide information on ways to help lower their electricity costs
- Email newsletter article featuring energy savings tips will be sent to all registered NSPI.com users
- Metro, traffic and radio advertising may be used communicate with customers

Electrical energy efficiency technologies will be promoted, including but not limited to:

- CFLs, T-5s, Super T-8s and other efficient lighting technologies

- High-efficiency HVAC equipment
- High-efficiency refrigerators
- Horizontal axis clothes washers
- Building envelope measures, (i.e. insulation and air sealing)
- Efficient motors and air compressors

Education material will be developed for the residential and C&I sectors separately since the applications of the energy-efficiency technology can vary by sector.

4.1.5 Timeline and Budget

The Education and Outreach Program, pending authorization of cost recovery, is expected to begin in the last quarter of 2008. As an education and outreach program, there is no calculation for energy and demand savings. NSPI seeks approval to recover the cost of the program through DSM. NSPI believes that this program encourages participation in, and thus savings from, its other DSM programs.

NSPI also is proposing not to assess the cost effectiveness of educational programs. Savings are difficult to quantify and typically are not tracked. NSPI believes that the cost effectiveness of its other DSM programs is enhanced by the Education and Outreach Program. Table 4-1 projects the program budget for 2009 and 2010.

Table 4-1. Education and Outreach: Program Budget

Education & Outreach	Budget (million 2008$)
2009	$0.231
2010	$0.442

4.2 Development and Research Program

4.2.1 Description

NSPI will explore and evaluate opportunities for future DSM programming including rate design as well as use of emerging technologies in areas of lighting, smart metering, load monitoring, and load control. This may include activities such as studies, baseline evaluations, pilot programs or program design.

4.2.2 Planning and Administration

NSPI proposes to plan and administer this program primarily using Company staff and will seek partnership opportunities, when appropriate, with other entities. The Company will issue RFPs to hire contractors to conduct research and development, as appropriate.

4.2.3 Delivery and Implementation

NSPI will develop a research and development plan to focus attention on promising energy-saving technologies. Program activities will primarily include monitoring research on emerging DSM technologies in other jurisdictions.

Key results from research and development efforts will be shared with NSPI DSM staff to facilitate consideration and movement of new technologies into ongoing DSM program activities. NSPI will also evaluate new technology, to ensure that it does in fact do what it is intended to do and produces the projected energy and/or demand savings. Partnerships with local colleges and universities may also be explored to encourage interest and participation in energy efficiency research.

4.2.4 Marketing and Communications

Not applicable to this program.

4.2.5 Timeline and Budget

The Research and Development Program is expected to begin in 2009. NSPI is not proposing to track the cost effectiveness of the programs. Savings are difficult to quantify and typically are not tracked in these types of programs. NSPI believes that the cost effectiveness of its other DSM programs will be improved over time by the Research and Development Program. NSPI is requesting approval to recover the cost of the program through DSM but will claim no energy or demand savings. Table 4-2 projects the program budget for 2009 and 2010.

Table 4-2. Research and Development: Program Budget

Research & Development	Budget (million 2008$)
2009	$0.500
2010	$0.252

5.0 APPENDICES

5.1 Overview

This section describes the DSM measure characterization analysis approach and methods. There are three primary aspects to the DSM measure analysis conducted: characterizing residential and commercial/industrial customers, characterizing applicable DSM measures for each customer sector, and estimating DSM measure characteristics from those two sets of inputs. The approach for the residential sector will be discussed first, then for the commercial and industrial sectors. Summit Blue did not analyze data on individual NSPI customers as part of this DSM measure analysis, since customer information beyond electricity billing histories was not readily available, and due to customer data confidentiality concerns.

5.2 Customer Energy Use

Energy use in NSPI's territory is balanced among customer classes, as 2005 data show in Table 5-1 below. In the industrial sector, a small number of customers account for a large proportion of energy used: about 60 large commercial and industrial customers account for 30% of the total energy consumption.

Table 5-1. NSPI 2005 Electricity Data by Customer Sector[8]

Customer Sector	Customers	Energy (GWh)	Demand (MW)[9]	Revenue ($million)	Percent Energy (%)	Percent Demand (%)	Percent Revenue (%)
Residential	420,462	4,000	1,056	411.4	35	43	42
Commercial	33,564	3,000	624	263.9	26	25	28
Industrial	2,470	4,200	734	235.1	36	29	25
Other[10]	8,848	300	66	44.9	3	3	5
TOTAL	**465,344**	**11,500**	**2,480**	**955.3**	**100**	**100**	**100**

Electricity demand has been increasing in use for space and water heating in Nova Scotia. Statistics Canada data show that in 2003, 52% of existing homes were oil heated but 62% of new home heating systems are electric and over 70% of new water heating is electric[11].

5.3 Residential DSM Analysis

5.3.1 Residential Customer Characterization

Summit Blue primarily used NSPI customer statistics and previously conducted market research, a Natural Resources Canada report on residential energy use and equipment,[12]

[8] 2005 data reflects a more normal weather year in terms than does 2006.
[9] Non-coincident demand for 2005.
[10] Unmetered and municipal utilities.
[11] Although wood is estimated to be used to heat about 100,000 homes, it is usually not the primary fuel as it is not dependably available.

and information from the Nova Scotia Statistical Review[13] to characterize NSPI's customer base. Information from these sources included:

- The average home's heated area in the Atlantic region of Canada was 1,245 sq. ft. in 2003.[14]
- In 2003, approximately 27% of Nova Scotia residents heated their homes principally with electricity, only 7% of residents own room air conditioners, and almost no residents own central air conditioners.[15]
- In 2003, about 19% of Atlantic Canada's residents had a second refrigerator in their household, and about 69% of Atlantic Canada's residents had a freezer in their household. [16]
- In 2003, about 71% of Atlantic Canada's residents used electricity for water heating. [17] This estimate is similar to NSPI's internal estimate of 60% electric water heating for their customers, which is the statistic that Summit Blue used to estimate water heating DSM potentials.
- The average Canadian household owns about 26 light bulbs in 2003, of which 75% are incandescent lamps, or about 20 per household. [18]
- The average NSPI customer has installed about five compact fluorescent lamps as of late 2005. [19]

5.3.2 Characterizing Residential DSM Measures

Characterizing DSM measures requires 1) determining the list of DSM measures to evaluate, 2) estimating the incremental savings from each measure - improving from the baseline to the new technology, and 3) estimating the measure costs and lifetimes. In

[12] Natural Resources Canada, "Survey of Household Energy Use" (Natural Resources Canada, Ottawa, ON, December 2005.)
[13] Nova Scotia Department of Finance, "Nova Scotia Statistical Review" (Nova Scotia Department of Finance, Halifax, NS, October 2005.)
[14] Natural Resources Canada: 2005, *op.cit.*, p.9.
[15] Nova Scotia Department of Finance: 2005, *op.cit.*, p. 40-41.
[16] Natural Resources Canada: 2005, *op.cit.*, p.22.
[17] *Ibid*. p.26.
[18] *Ibid, p.28.*
[19] Corporate Research Associates, "Nova Scotia Power Energy Conservation Study Customer Research Highlights" (Corporate Research Associates, November 2005) p. 47. The five CFLs per household estimate was calculated from the percentages of customers reporting having installed various numbers of CFLs.

addition, the baselines must consider that different classes of homes have different penetrations of technologies, such as existing homes compared to new construction.

NSPI's project team first drew up a list of prospective measures from past experience and added to and subtracted from that list as necessary for the project. Additions included new technologies or improvements to existing technologies, while subtractions primarily involved central air conditioner measures, which have almost zero saturation in Nova Scotia's residential market. The goal was a comprehensive list of DSM measures applied in different segments of the residential market: new construction versus existing construction.

Once identified, the project team determined which measures would have a significant climate-dependent savings component. Those measures that were determined to be climate-*independent* (lighting, appliances, and domestic hot water) were characterized using engineering calculations and assumptions for energy savings. Climate-dependent measures (HVAC equipment, insulation, air-sealing, etc.) were simulated with a computer model (Energy 10) to estimate savings.

Climate-independent DSM measures are described in many resources, including: the ENERGY STAR website,[20] the California Database of Energy-efficient Resources,[21] various utility online audit services, and manufacturer data. These resources were particularly useful for appliances. Other end-uses were analyzed using engineering principles such as steady-state heat loss, rated power, and hours of operation. For climate-independent measures, savings were permitted to vary according to construction type, e.g., new homes versus existing construction.

Climate-*dependent* DSM measures were modeled using Energy-10 software, an hourly simulation tool designed specifically for small commercial and residential structures. The project team made two baseline models reflecting typical constructions of two building

[20] http://www.energystar.gov/
[21] http://www.energy.ca.gov/deer/

types: new single family homes and existing single family homes, for the Halifax climate zone.

Model input parameters, such as building size, installed equipment type and age, and insulation levels, were based on the sources previously discussed and model building code (new construction) information. The models were then calibrated to produce energy consumption that corresponded to NSPI's residential customer electricity consumption data.

Variations in DSM measure costs exist for certain higher cost measures such as HVAC equipment and insulation where labor costs factor in more heavily. Measure cost estimates for these measures were weighted by factors contained in industry sources such as the RS Means Mechanical Cost Data.

The project team estimated measure lifetimes from a combination of resources including: manufacturer data, typical economic depreciation assumptions, the California DEER database, and various studies reviewed for this report.

5.3.3 Residential Measure Characterizations

Table 5-2 lists measure characterizations for residential new single family homes.

Table 5-2. Residential New Single Family Homes Measure Characterizations

Measure Name (All energy and peak demand savings are at generator) (Avoided Costs: $0.095/kWh; $63.39/kW-year)	Measure Life (Years)	Average Peak Demand Savings per Unit (kW)	Average Annual Energy Savings per Unit (kWh)	Incremental Measure Cost ($)	Incremental Measure Cost per kW ($/kW)	Avoided Cost Benefits per kW ($/kW)	Program Admin. Cost per kW ($/kW)	Total Program Cost per kW ($/kW)	Total Resource Cost
Lighting									
CFL, 6.0 hr/day	5	0.006	136.5	$3	$539	$11,968	$715	$1,430	9.5
CFL, 0.5 hr/day	7	0.004	11.4	$3	$674	$2,143	$715	$1,430	1.5
CFL, 2.5 hr/day	7	0.006	56.9	$3	$539	$7,240	$715	$1,430	5.8
LED nightlights	10	0.006	13.0	$3	$539	$2,853	$715	$1,430	2.3
LED holiday lights	10	0.050	14.5	$9	$180	$908	$715	$1,430	1.0
Heating/HVAC and Building Envelope									
ENERGY STAR or better Air Source Heat Pump, SEER=18; HSPF=9.4	18	0.00011	2,199.3	$900	$8,086,253	$33,790,949	$1,430	$2,860	4.2
Duct Sealing and insulation	15	0.382	1,335.6	$540	$1,415	$5,938	$1,430	$2,860	2.1
Ceiling insulation (R-20 improved to R-40)	30	0.269	941.4	$1,900	$7,064	$11,877	$1,430	$2,860	1.4
High Efficiency Windows, Low-e; U=0.35	30	0.349	1,220.9	$800	$2,295	$11,885	$1,430	$2,860	3.2
Floor insulation (R-10 to R-20)	30	0.110	502.1	$1,425	$12,914	$14,869	$1,430	$2,860	1.0
Wall insulation (R-10 to R-20)	30	0.205	716.8	$1,800	$8,789	$11,877	$1,430	$2,860	1.2
Programmable thermostat	15	0.111	178.1	$30	$270	$3,231	$250	$501	6.2
ENERGY STAR or better Air Source Heat Pump, SEER=14; HSPF=8.5	18	0.00011	1,402.3	$800	$7,187,781	$21,546,152	$1,430	$2,860	3.0
Water Heating									
HE Water Heater (EF=0.95)	15	0.023	292.9	$80	$3,423	$18,808	$715	$1,430	4.5
Energy Star Dish Washer (EF=0.58)	13	0.035	111.3	$126	$3,652	$4,808	$715	$1,430	1.1
Horizontal-Axis Clothes Washer: Energy Star CW (EF=2.5)	14	0.122	534.2	$500	$4,084	$6,691	$715	$1,430	1.4
Faucet Aerators	15	0.030	37.8	$5	$166	$2,745	$715	$1,430	3.1
Hot water pipe insulation	15	0.029	84.6	$2	$69	$5,116	$715	$1,430	6.5
Drain water heat recovery	20	0.118	1,033.4	$570	$4,832	$17,912	$715	$1,430	3.2
Solar Assisted Water Heating	15	0.318	2,782.5	$2,500	$7,871	$13,434	$715	$1,430	1.6
Refrigeration and Miscellaneous									
High Efficiency Dryer With Moisture Sensor	14	0.012	102.4	$60	$5,133	$12,538	$1,430	$1,430	1.9
ENERGY STAR or better Refrigerator	15	0.009	82.4	$68	$7,232	$13,434	$1,430	$4,290	1.6

Table 5-3 lists results for residential new single family homes for 2009 and 2010.

Table 5-3. Residential New Single Family Homes – Results for 2009 and 2010

Measure Name (All energy and peak demand savings are at generator) (Avoided Costs: $0.095/kWh; $63.39/kW-year)	For Plan Year 2009							For Plan Year 2010						
	Achievable Potential Peak Demand Savings (kW)	Achievable Potential First Year Energy Savings (kWh)	Achievable Potential Lifetime Energy Savings (kWh)	Program Costs	Total Avoided Cost Benefits	TRC Costs	Net TRC Benefits	Achievable Potential Peak Demand Savings (kW)	Achievable Potential First Year Energy Savings (kWh)	Achievable Potential Lifetime Energy Savings (kWh)	Program Costs	Total Avoided Cost Benefits	TRC Costs	Net TRC Benefits
Lighting														
CFL, 6.0 hr/day	12.7	312,249	1,561,247	$18,204	$152,353	$15,965	$136,388	25.5	624,499	3,122,494	$36,409	$304,707	$31,930	$272,777
CFL, 0.5 hr/day	45.8	117,054	819,378	$65,514	$98,170	$63,629	$34,541	91.6	234,108	1,638,756	$131,027	$196,340	$127,257	$69,083
CFL, 2.5 hr/day	12.6	128,522	899,655	$17,983	$91,047	$15,771	$75,277	25.2	257,044	1,799,310	$35,966	$182,095	$31,542	$150,553
LED nightlights	7.0	16,451	164,508	$10,071	$20,092	$8,832	$11,261	14.1	32,902	329,017	$20,141	$40,185	$17,663	$22,522
LED holiday lights	31.7	9,155	91,550	$45,317	$28,786	$28,353	$433	63.4	18,310	183,100	$90,635	$57,572	$56,706	$865
Subtotal	**109.9**	**583,431**	**3,536,338**	**$157,089**	**$390,449**	**$132,549**	**$257,900**	**219.7**	**1,166,863**	**7,072,677**	**$314,177**	**$780,897**	**$265,098**	**$515,799**
Heating/HVAC and Building Envelope														
ENERGY STAR or better Air Source Heat Pump, SEER=18; HSPF=9.4	0.005	89,203	1,605,656	$13	$152,542	$36,510	$116,032	0.009	178,406	3,211,312	$26	$305,085	$73,020	$232,065
Duct Sealing and insulation	26.3	92,092	1,381,376	$75,252	$156,249	$74,860	$81,389	52.6	184,183	2,762,752	$150,504	$312,499	$149,720	$162,779
Ceiling insulation (R-20 improved to R-40)	17.5	61,096	1,832,878	$49,924	$207,319	$148,264	$59,056	34.9	122,192	3,665,756	$99,848	$414,639	$296,527	$118,112
High Efficiency Windows, Low-e; U=0.35	22.6	79,232	2,376,963	$64,687	$268,824	$84,260	$184,564	45.2	158,464	4,753,926	$129,375	$537,648	$168,520	$369,128
Floor insulation (R-10 to R-20)	7.2	32,582	977,472	$20,480	$106,478	$102,716	$3,761	14.3	65,165	1,954,945	$40,961	$212,956	$205,433	$7,523
Wall insulation (R-10 to R-20)	13.3	46,515	1,395,460	$38,010	$157,843	$135,817	$22,026	26.6	93,031	2,790,921	$76,019	$315,685	$271,634	$44,051
Programmable thermostat	28.9	46,226	693,397	$14,460	$93,344	$15,018	$78,327	57.8	92,453	1,386,793	$28,920	$186,688	$30,035	$156,653
ENERGY STAR or better Air Source Heat Pump, SEER=14; HSPF=8.5	0.002	18,959	341,265	$4	$32,422	$10,818	$21,604	0.003	37,918	682,531	$9	$64,844	$21,636	$43,208
Subtotal	**115.7**	**465,906**	**10,604,468**	**$262,831**	**$1,175,022**	**$608,263**	**$566,759**	**231.5**	**931,813**	**21,208,936**	**$525,662**	**$2,350,044**	**$1,216,526**	**$1,133,518**
Water Heating														
HE Water Heater (EF=0.95)	1.9	24,235	363,520	$2,766	$36,373	$8,002	$28,371	3.9	48,469	727,040	$5,531	$72,747	$16,004	$56,742
Energy Star Dish Washer (EF=0.58)	3.4	10,938	142,200	$4,849	$16,303	$14,808	$1,496	6.8	21,877	284,401	$9,698	$32,607	$29,615	$2,991
Horizontal-Axis Clothes Washer: Energy Star CW (EF=2.5)	6.0	26,002	364,033	$8,521	$39,871	$28,596	$11,275	11.9	52,005	728,066	$17,042	$79,743	$57,193	$22,550
Faucet Aerators	2.9	3,653	54,795	$4,148	$7,964	$2,557	$5,407	5.8	7,306	109,589	$8,297	$15,928	$5,114	$10,814
Hot water pipe insulation	2.8	8,165	122,482	$3,995	$14,292	$2,190	$12,102	5.6	16,331	244,964	$7,989	$28,584	$4,381	$24,203
Drain water heat recovery	11.1	96,824	1,936,486	$15,806	$197,979	$61,308	$136,671	22.1	193,649	3,872,972	$31,612	$395,958	$122,616	$273,342
Solar Assisted Water Heating	2.2	19,186	287,787	$3,132	$29,422	$18,804	$10,618	4.4	38,372	575,573	$6,264	$58,844	$37,608	$21,237
Subtotal	**30.2**	**189,004**	**3,271,303**	**$43,216**	**$342,205**	**$136,265**	**$205,940**	**60.4**	**378,008**	**6,542,605**	**$86,433**	**$684,410**	**$272,530**	**$411,880**
Refrigeration and Miscellaneous														
High Efficiency Dryer With Moisture Sensor	0.8	7,120	99,676	$1,162	$10,190	$5,334	$4,856	1.6	14,239	199,351	$2,324	$20,381	$10,668	$9,713
ENERGY STAR or better Refrigerator	1.3	11,358	170,370	$5,562	$17,418	$11,232	$6,186	2.6	22,716	340,739	$11,125	$34,836	$22,463	$12,373
Subtotal	**2.1**	**18,478**	**270,045**	**$6,725**	**$27,608**	**$16,566**	**$11,043**	**4.2**	**36,955**	**540,091**	**$13,449**	**$55,217**	**$33,131**	**$22,086**
Single Family -- New Total	**257.9**	**1,256,819**	**17,682,155**	**$469,861**	**$1,935,284**	**$893,643**	**$1,041,641**	**515.8**	**2,513,639**	**35,364,309**	**$939,721**	**$3,870,569**	**$1,787,286**	**$2,083,283**

Table 5-4 lists measure characterizations for residential existing single family homes.

Table 5-4. Residential Existing Single Family Homes Measure Characterizations

Measure Name (All energy and peak demand savings are at generator) (Avoided Costs: $0.095/kWh; $63.39/kW-year)	Measure Life (Years)	Average Peak Demand Savings per Unit (kW)	Average Annual Energy Savings per Unit (kWh)	Incremental Measure Cost ($)	Incremental Measure Cost per kW ($/kW)	Avoided Cost Benefits per kW ($/kW)	Program Admin. Cost per kW ($/kW)	Total Program Cost per kW ($/kW)	Total Resource Cost
Lighting									
CFL, 6.0 hr/day	5	0.006	136.5	$3	$539	$11,968	$715	$1,430	9.5
CFL, 0.5 hr/day	7	0.004	11.4	$3	$674	$2,143	$715	$1,430	1.5
CFL, 2.5 hr/day	7	0.006	56.9	$3	$539	$7,240	$715	$1,430	5.8
LED nightlights	10	0.006	13.0	$3	$539	$2,853	$715	$1,430	2.3
LED holiday lights	10	0.050	14.5	$9	$180	$908	$715	$1,430	1.0
Heating/HVAC and Building Envelope									
ENERGY STAR or better Air Source Heat Pump, SEER=14; HSPF=8.5	18	0.00011	1,541.0	$800	$7,187,781	$23,676,977	$1,430	$2,860	3.3
Duct Insulation and Sealing	30	0.382	1,335.6	$540	$1,415	$11,877	$1,430	$2,860	4.2
Ceiling insulation (R-20 improved to R-40)	30	0.207	724.2	$1,900	$9,183	$11,877	$1,430	$2,860	1.1
High Efficiency Windows, Low-e; U=0.35	30	0.349	1,220.9	$800	$2,295	$11,885	$1,430	$2,860	3.2
Ceiling insulation (R-0 improved to R-20)	30	2.179	7,627.0	$1,900	$872	$11,877	$1,430	$2,860	5.2
Floor insulation (R-0 to R-20)	30	0.307	1,073.7	$1,425	$4,645	$11,877	$1,430	$2,860	2.0
Wall insulation (R-0 to R-20)	30	1.475	5,163.2	$1,800	$1,220	$11,877	$1,430	$2,860	4.5
Programmable thermostat	15	0.111	178.1	$30	$270	$3,231	$250	$501	6.2
ENERGY STAR or better Air Source Heat Pump, SEER=18; HSPF=9.4	18	0.00011	2,403.6	$900	$8,086,253	$36,929,893	$1,430	$2,860	4.6
Water Heating									
HE Water Heater (EF=0.95)	15	0.023	292.9	$80	$3,414	$18,808	$715	$1,430	4.6
Energy Star Dish Washer (EF=0.58)	13	0.035	111.3	$126	$3,656	$4,808	$715	$1,430	1.1
Horizontal-Axis Clothes Washer: Energy Star CW (EF=2.5)	14	0.122	534.2	$500	$4,084	$6,691	$715	$1,430	1.4
Faucet Aerators	15	0.030	37.8	$5	$166	$2,745	$715	$1,430	3.1
Hot water pipe insulation	15	0.029	84.6	$2	$69	$5,116	$715	$1,430	6.5
Drain water heat recovery	20	0.118	1,033.4	$570	$4,832	$17,912	$715	$1,430	3.2
Low flow showerheads	7	0.030	227.1	$7	$233	$5,468	$715	$1,430	5.8
Solar Assisted Water Heating	15	0.318	2,782.5	$2,500	$7,871	$13,434	$715	$1,430	1.6
Refrigeration and Miscellaneous									
High Efficiency Dryer With Moisture Sensor	14	0.012	102.4	$60	$5,133	$12,538	$1,430	$1,430	1.9
ENERGY STAR or better Refrigerator	15	0.009	82.4	$68	$7,275	$13,434	$1,430	$4,290	1.5
Remove secondary refigerator/freezer	10	0.152	1,335.6	$225	$1,476	$8,956	$1,430	$4,290	3.1

Table 5-5 lists results for residential existing single family homes for 2009 and 2010.

Table 5-5. Residential Existing Single Family Homes – Results for 2009 and 2010

Measure Name (All energy and peak demand savings are at generator) (Avoided Costs: $0.095/kWh; $63.39/kW-year)	For Plan Year 2009							For Plan Year 2010						
	Achievable Potential Peak Demand Savings (kW)	Achievable Potential First Year Energy Savings (kWh)	Achievable Potential Lifetime Energy Savings (kWh)	Program Costs	Total Avoided Cost Benefits	TRC Costs	Net TRC Benefits	Achievable Potential Peak Demand Savings (kW)	Achievable Potential First Year Energy Savings (kWh)	Achievable Potential Lifetime Energy Savings (kWh)	Program Costs	Total Avoided Cost Benefits	TRC Costs	Net TRC Benefits
Lighting														
CFL, 6.0 hr/day	120.6	2,958,929	14,794,644	$172,508	$1,443,726	$151,286	$1,292,440	241.3	5,917,858	29,589,288	$345,015	$2,887,453	$302,572	$2,584,881
CFL, 0.5 hr/day	627.8	1,604,108	11,228,756	$897,798	$1,345,319	$871,966	$473,353	1,255.7	3,208,216	22,457,511	$1,795,596	$2,690,638	$1,743,931	$946,707
CFL, 2.5 hr/day	119.3	1,219,339	8,535,372	$170,612	$863,801	$149,624	$714,178	238.6	2,438,678	17,070,743	$341,224	$1,727,603	$299,247	$1,428,356
LED nightlights	119.4	278,985	2,789,847	$170,783	$340,741	$149,773	$190,968	238.9	557,969	5,579,694	$341,565	$681,482	$299,546	$381,936
LED holiday lights	537.4	155,257	1,552,569	$768,522	$488,170	$480,834	$7,336	1,074.9	310,514	3,105,138	$1,537,043	$976,339	$961,667	$14,672
Subtotal	**1,524.6**	**6,216,617**	**38,901,188**	**$2,180,222**	**$4,481,758**	**$1,803,482**	**$2,678,275**	**3,049.3**	**12,433,234**	**77,802,376**	**$4,360,444**	**$8,963,515**	**$3,606,964**	**$5,356,551**
Heating/HVAC and Building Envelope														
ENERGY STAR or better Air Source Heat Pump, SEER=14; HSPF=8.5	0.1	699,507	12,591,119	$144	$1,196,214	$363,215	$832,999	0.1	1,399,013	25,182,238	$289	$2,392,428	$726,430	$1,665,998
Duct Insulation and Sealing	43.0	150,329	4,509,883	$122,841	$510,119	$122,200	$387,919	85.9	300,659	9,019,767	$245,681	$1,020,239	$244,401	$775,838
Ceiling insulation (R-20 improved to R-40)	6.2	21,737	652,096	$17,762	$73,759	$65,909	$7,850	12.4	43,473	1,304,191	$35,524	$147,519	$131,818	$15,701
High Efficiency Windows, Low-e; U=0.35	156.9	549,685	16,490,539	$448,778	$1,865,007	$584,567	$1,280,440	313.8	1,099,369	32,981,077	$897,556	$3,730,014	$1,169,134	$2,560,879
Ceiling insulation (R-0 improved to R-20)	65.4	228,924	6,867,717	$187,064	$776,817	$150,560	$626,257	130.8	457,848	13,735,434	$374,127	$1,553,635	$301,120	$1,252,515
Floor insulation (R-0 to R-20)	92.1	322,262	9,667,853	$263,334	$1,093,545	$559,379	$534,166	184.1	644,524	19,335,707	$526,668	$2,187,089	$1,118,758	$1,068,332
Wall insulation (R-0 to R-20)	88.6	309,946	9,298,377	$253,270	$1,051,753	$234,689	$817,064	177.1	619,892	18,596,754	$506,540	$2,103,505	$469,377	$1,634,128
Programmable thermostat	157.8	252,405	3,786,075	$78,955	$509,677	$81,999	$427,678	315.5	504,810	7,572,150	$157,911	$1,019,353	$163,998	$855,356
ENERGY STAR or better Air Source Heat Pump, SEER=18; HSPF=9.4	0.004	93,052	1,674,943	$12	$159,124	$34,848	$124,276	0.0	186,105	3,349,885	$25	$318,249	$69,697	$248,552
Subtotal	**609.9**	**2,627,846**	**65,538,602**	**$1,372,160**	**$7,236,016**	**$2,197,366**	**$5,038,649**	**1,219.8**	**5,255,692**	**131,077,203**	**$2,744,320**	**$14,472,031**	**$4,394,733**	**$10,077,299**
Water Heating														
HE Water Heater (EF=0.95)	19.9	249,084	3,736,258	$28,424	$373,844	$82,076	$291,769	39.8	498,168	7,472,516	$56,848	$747,689	$164,151	$583,538
Energy Star Dish Washer (EF=0.58)	23.9	77,092	1,002,196	$34,175	$114,903	$104,458	$10,444	47.8	154,184	2,004,393	$68,350	$229,805	$208,917	$20,889
Horizontal-Axis Clothes Washer: Energy Star CW (EF=2.5)	84.9	370,335	5,184,695	$121,362	$567,863	$407,281	$160,582	169.7	740,671	10,369,391	$242,724	$1,135,727	$814,562	$321,165
Faucet Aerators	17.0	21,454	321,816	$24,363	$46,773	$15,016	$31,756	34.1	42,909	643,633	$48,727	$93,545	$30,033	$63,512
Hot water pipe insulation	20.5	59,946	899,193	$29,326	$104,923	$16,081	$88,843	41.0	119,892	1,798,386	$58,653	$209,847	$32,161	$177,685
Drain water heat recovery	162.3	1,421,657	28,433,144	$232,074	$2,906,899	$900,175	$2,006,724	324.6	2,843,314	56,866,287	$464,148	$5,813,799	$1,800,351	$4,013,448
Low flow showerheads	24.2	182,543	1,277,800	$34,549	$132,112	$22,902	$109,209	48.3	365,086	2,555,601	$69,098	$264,223	$45,805	$218,419
Solar Assisted Water Heating	75.0	657,239	9,858,584	$107,289	$1,007,905	$644,156	$363,749	150.1	1,314,478	19,717,168	$214,578	$2,015,810	$1,288,311	$727,499
Subtotal	**427.7**	**3,039,351**	**50,713,687**	**$611,563**	**$5,255,223**	**$2,192,145**	**$3,063,077**	**855.3**	**6,078,702**	**101,427,374**	**$1,223,125**	**$10,510,445**	**$4,384,291**	**$6,126,154**
Refrigeration and Miscellaneous														
High Efficiency Dryer With Moisture Sensor	10.8	94,641	1,324,978	$15,449	$135,461	$70,905	$64,555	21.6	189,283	2,649,955	$30,899	$270,922	$141,811	$129,111
ENERGY STAR or better Refrigerator	21.5	188,725	2,830,880	$92,424	$289,419	$187,541	$101,878	43.1	377,451	5,661,759	$184,847	$578,837	$375,081	$203,756
Remove secondary refigerator/freezer	72.5	634,724	6,347,243	$310,841	$648,919	$210,542	$438,377	144.9	1,269,449	12,694,486	$621,682	$1,297,837	$421,083	$876,754
Subtotal	**104.8**	**918,091**	**10,503,101**	**$418,714**	**$1,073,798**	**$468,988**	**$604,811**	**209.6**	**1,836,182**	**21,006,201**	**$837,428**	**$2,147,596**	**$937,975**	**$1,209,621**
Single Family -- Existing Total	**2,667.0**	**12,801,905**	**165,656,577**	**$4,582,659**	**$18,046,794**	**$6,661,982**	**$11,384,812**	**5,334.0**	**25,603,810**	**331,313,153**	**$9,165,318**	**$36,093,588**	**$13,323,963**	**$22,769,625**

5.4 Commercial and Industrial DSM Analysis

5.4.1 Commercial and Industrial Customer Characterization

Summit Blue primarily used NSPI customer statistics and previously conducted market research, a Natural Resources Canada report on commercial energy use,[22] and information from two recently completed Canadian DSM potential studies to characterize NSPI's customer base.

Useful information from these sources included:

- The average commercial and institutional facility in Atlantic Canada is about 2,400 square meters in size, or about 25,500 sq. ft.[23]
- The average NSPI commercial and industrial customer has installed about six CFLs in their facilities as of late 2005. [24]
- NSPI staff believes that there is relatively little electric heating in the C&I sectors, in contrast to the residential sector.

[22] Natural Resources Canada, "Commercial and Institutional Consumption of Energy Survey" (Natural Resources Canada, Ottawa, ON, December 2005.)
[23] Natural Resources Canada: 2005, *op.cit,* p.7.
[24] Corporate Research Associates: 2005, *op.cit,* p.48. The six CFL per business estimate was calculated from the percentages of customers reporting having installed various numbers of CFLs.

5.4.2 Characterizing Commercial & Industrial DSM Measures

Summit Blue started the commercial/industrial DSM measure characterization process by developing a list of DSM measures from previous Summit Blue projects and NSPI staff recommendations. After the individual measures were assigned to a primary end use category (i.e., lighting, heating, etc.), the project team estimated the following parameters for each measure:

- Per-unit energy and coincident peak demand savings
- Typical operating hours
- Measure lifetimes
- Measure costs

To do this, the project team first separated the measures into two categories: weather-dependent measures and weather-independent measures. Much of the research and analysis for the weather-independent measures had been conducted by Summit Blue in 2005-2006 for separate studies, and this data was mostly reused with slight modifications, such as for Halifax costs, and US-Canadian exchange rates, for NSPI's service territory. The research consisted of Internet searches and phone calls for manufacturer data concerning end-use demand and energy consumption, and Internet searches and phone calls for retailer data concerning equipment costs. Other research included reviewing estimates of measure lifetimes, operating hours, and coincidence factors for a variety of end-uses and market sectors and from a number of different sources. All of this data was then compiled into a spreadsheet with outputs for per-unit energy and demand savings, incremental cost, payback periods, and benefit-cost ratios. These measure spreadsheets were used as the basis for the values required by the NSPI DSM Potential Study.

These DSM measure spreadsheets were also used as the starting point for the analysis of the weather-dependent measures, such as insulation, windows, etc. Some of the values, such as measure lifetimes, were reused for this potential study. Because of their inherent sensitivity to climate, however, the per-unit energy and demand savings were re-calculated by creating a simulation model using the DOE-2 powered eQuest software

package. Summit Blue chose Halifax as the center of NSPI's service territory. Based on the billing data provided by NSPI, the project team modeled the energy consumption with a 2-story, 25,000 sq. ft. office building with slightly longer operating hours to reflect the higher energy consumption in the retail, college, and health care sectors, which are NSPI's largest commercial building segments. For each measure, a baseline case and an energy-efficient case were modeled separately, and the difference in peak demand and energy consumption per unit was calculated and entered into the measure characterization spreadsheet.

For the Commercial and Industrial Custom Rebate Program, custom measure savings and costs will be calculated specifically for each application, unlike the Commercial and Industrial Prescriptive Rebate Program, where standard engineering estimates will be used for each measure.

5.4.3 Commercial and Industrial Measure Characterizations

Table 5-6 lists measure characterizations for commercial new construction.

Table 5-6. Commercial New Construction Measure Characterizations

Measure Name (All energy and peak demand savings are at generator) (Avoided Costs: $0.095/kWh; $63.39/kW-year)	Measure Life (Years)	Average Peak Demand Savings per Unit (kW)	Average Annual Energy Savings per Unit (kWh)	Incremental Measure Cost ($)	Incremental Measure Cost per kW ($/kW)	Avoided Cost Benefits per kW ($/kW)	Program Admin. Cost per kW ($/kW)	Total Program Cost per kW ($/kW)	Total Resource Cost
Lighting									
CFLs	8	0.023	295.8	$11	$460	$10,124	$250	$501	14.2
T5 w/ EB	20	0.013	161.8	$45	$3,537	$25,310	$250	$501	6.7
Delamping w/ Reflectors	20	0.022	284.6	$21	$928	$25,310	$250	$501	21.5
LED Exit Signs	20	0.014	240.1	$49	$3,429	$33,367	$250	$501	9.1
Occupancy Sensors	12	0.019	600.0	$107	$5,651	$36,823	$250	$501	6.2
Daylighting	15	0.237	3,002.2	$960	$4,048	$18,982	$250	$501	4.4
PS Metal Halides	8	0.016	200.9	$183	$11,508	$10,124	$250	$501	0.9
Subtotal									
Heating/HVAC and Building Envelope									
Hi-E Air-Cooled Chillers	20	0.040	105.0	$69	$1,724	$6,255	$715	$2,218	2.6
Hi-E Water-Cooled Chillers	20	0.019	50.4	$50	$2,613	$6,308	$715	$2,218	1.9
Programmable Thermostats	20	0.100	700.0	$241	$2,413	$14,568	$715	$2,218	4.7
Energy Mgmt System	20	0.764	3,500.0	$690	$902	$9,968	$715	$2,218	6.2
Hi-E Windows (100 sq.ft.)	20	0.259	690.6	$1,770	$6,823	$6,327	$715	$1,110	0.8
Ceiling Insulation (100 sq.ft.)	20	0.024	32.7	$127	$5,283	$3,854	$715	$1,110	0.6
Wall Insulation	20	0.003	3.8	$42	$14,970	$3,827	$715	$1,110	0.2

Table 5-7 lists results for commercial new construction for 2009 and 2010.

Table 5-7. Commercial New Construction – Results for 2009 and 2010

Measure Name (All energy and peak demand savings are at generator) (Avoided Costs: $0.095/kWh; $63.39/kW-year)	For Plan Year 2009							For Plan Year 2010						
	Achievable Potential Peak Demand Savings (kW)	Achievable Potential First Year Energy Savings (kWh)	Achievable Potential Lifetime Energy Savings (kWh)	Program Costs	Total Avoided Cost Benefits	TRC Costs	Net TRC Benefits	Achievable Potential Peak Demand Savings (kW)	Achievable Potential First Year Energy Savings (kWh)	Achievable Potential Lifetime Energy Savings (kWh)	Program Costs	Total Avoided Cost Benefits	TRC Costs	Net TRC Benefits
Lighting														
CFLs	23.6	298,494	2,387,953	$11,807	$238,818	$16,763	$222,055	47.2	596,988	4,775,906	$23,613	$477,637	$33,527	$444,110
T5 w/ EB	26.4	333,717	6,674,334	$13,200	$667,498	$99,893	$567,605	52.7	667,433	13,348,668	$26,400	$1,334,996	$199,787	$1,135,209
Delamping w/ Reflectors	3.8	48,130	962,609	$1,904	$96,270	$4,483	$91,787	7.6	96,261	1,925,218	$3,808	$192,540	$8,966	$183,574
LED Exit Signs	2.5	42,434	848,683	$1,257	$83,809	$9,240	$74,569	5.0	84,868	1,697,365	$2,514	$167,618	$18,481	$149,138
Occupancy Sensors	1.3	42,552	510,625	$673	$49,533	$7,938	$41,594	2.7	85,104	1,021,250	$1,346	$99,065	$15,877	$83,189
Daylighting	16.6	209,643	3,144,645	$8,292	$314,495	$71,217	$243,278	33.1	419,286	6,289,291	$16,584	$628,990	$142,434	$486,556
Heating/HVAC and Building Envelope														
Hi-E Air-Cooled Chillers	0.9	2,368	47,354	$2,001	$5,642	$2,200	$3,442	1.8	4,735	94,708	$4,001	$11,284	$4,399	$6,885
Hi-E Water-Cooled Chillers	0.4	1,136	22,730	$950	$2,703	$1,426	$1,277	0.9	2,273	45,460	$1,901	$5,405	$2,852	$2,553
Programmable Thermostats	22.2	155,301	3,106,011	$49,207	$323,198	$69,403	$253,796	44.4	310,601	6,212,023	$98,413	$646,396	$138,805	$507,591
Energy Mgmt System	22.8	104,382	2,087,647	$50,557	$227,225	$36,861	$190,364	45.6	208,765	4,175,294	$101,113	$454,451	$73,723	$380,728
Subtotal	**46.3**	**263,187**	**5,263,742**	**$102,714**	**$558,768**	**$109,890**	**$448,879**	**92.6**	**526,374**	**10,527,485**	**$205,428**	**$1,117,537**	**$219,779**	**$897,757**
Custom														
Custom	**10.1**	**80,319**	**1,012,217**	**$9,998**	**$104,917**	**$51,826**	**$53,091**	**20.1**	**160,638**	**2,024,433**	**$19,995**	**$209,835**	**$103,652**	**$106,183**
Commercial -- New Total	**130.6**	**1,318,477**	**20,804,808**	**$149,845**	**$2,114,109**	**$371,251**	**$1,742,858**	**261.1**	**2,636,953**	**41,609,616**	**$299,689**	**$4,228,218**	**$742,502**	**$3,485,716**

Table 5-8 lists measure characterizations for commercial existing construction.

Table 5-8. Commercial Existing Construction Measure Characterizations

Measure Name (All energy and peak demand savings are at generator) (Avoided Costs: $0.095/kWh; $63.39/kW-year)	Measure Life (Years)	Average Peak Demand Savings per Unit (kW)	Average Annual Energy Savings per Unit (kWh)	Incremental Measure Cost ($)	Incremental Measure Cost per kW ($/kW)	Avoided Cost Benefits per kW ($/kW)	Program Admin. Cost per kW ($/kW)	Total Program Cost per kW ($/kW)	Total Resource Cost
Lighting									
CFLs	8	0.027	302.3	$11	$402	$9,090	$250	$501	13.9
Regular T8 w/ EB	20	0.017	193.9	$56	$3,242	$22,726	$250	$501	6.5
Premium T8 w/ EB	20	0.025	279.5	$70	$2,812	$22,726	$250	$501	7.4
Delamping w/ Reflectors	20	0.026	290.9	$42	$1,621	$22,726	$250	$501	12.1
LED Exit Signs	20	0.016	245.4	$97	$6,120	$30,554	$250	$501	4.8
Occupancy Sensors	12	0.022	613.3	$107	$4,934	$32,948	$250	$501	6.4
Daylighting	15	0.272	3,068.9	$960	$3,535	$17,044	$250	$501	4.5
Subtotal									
Heating/HVAC and Building Envelope									
Air-Cooled Chillers	20	0.040	105.0	$69	$1,724	$6,255	$715	$2,218	2.6
Water-Cooled Chillers	20	0.019	50.4	$50	$2,613	$6,308	$715	$2,218	1.9
Programmable Thermostats	10	0.100	286.0	$241	$2,413	$3,351	$715	$2,218	1.1
Energy Mgmt System	10	0.320	1,430.0	$690	$2,152	$4,873	$715	$2,218	1.7
Hi-E Windows	20	0.344	715.1	$1,257	$3,649	$5,213	$715	$1,110	1.2

Table 5-9 lists results for commercial existing construction for 2009 and 2010.

Table 5-9. Commercial Existing Construction – Results for 2009 and 2010

Measure Name (All energy and peak demand savings are at generator) (Avoided Costs: $0.095/kWh; $63.39/kW-year)	For Plan Year 2009							For Plan Year 2010						
	Achievable Potential Peak Demand Savings (kW)	Achievable Potential First Year Energy Savings (kWh)	Achievable Potential Lifetime Energy Savings (kWh)	Program Costs	Total Avoided Cost Benefits	TRC Costs	Net TRC Benefits	Achievable Potential Peak Demand Savings (kW)	Achievable Potential First Year Energy Savings (kWh)	Achievable Potential Lifetime Energy Savings (kWh)	Program Costs	Total Avoided Cost Benefits	TRC Costs	Net TRC Benefits
Lighting														
CFLs	173.9	1,964,048	15,712,386	$87,040	$1,580,868	$113,423	$1,467,445	347.8	3,928,096	31,424,771	$174,080	$3,161,736	$226,847	$2,934,889
Regular T8 w/ EB	107.0	1,208,876	24,177,523	$53,573	$2,432,570	$373,847	$2,058,723	214.1	2,417,752	48,355,047	$107,147	$4,865,139	$747,694	$4,117,445
Premium T8 w/ EB	183.2	2,068,867	41,377,342	$91,685	$4,163,093	$561,010	$3,602,082	366.4	4,137,734	82,754,685	$183,371	$8,326,185	$1,122,021	$7,204,164
Delamping w/ Reflectors	66.6	752,142	15,042,846	$33,332	$1,513,504	$124,634	$1,388,870	133.2	1,504,285	30,085,693	$66,665	$3,027,007	$249,268	$2,777,740
LED Exit Signs	94.3	1,453,144	29,062,884	$47,185	$2,880,497	$600,580	$2,279,916	188.6	2,906,288	58,125,767	$94,370	$5,760,993	$1,201,161	$4,559,832
Occupancy Sensors	11.0	310,947	3,731,359	$5,512	$362,857	$57,097	$305,759	22.0	621,893	7,462,718	$11,024	$725,713	$114,195	$611,519
Daylighting	80.3	906,861	13,602,922	$40,189	$1,368,629	$303,919	$1,064,710	160.6	1,813,723	27,205,843	$80,378	$2,737,258	$607,838	$2,129,419
Subtotal	**716.3**	**8,664,886**	**142,707,262**	**$358,517**	**$14,302,016**	**$2,134,512**	**$12,167,504**	**1,432.6**	**17,329,772**	**285,414,524**	**$717,035**	**$28,604,032**	**$4,269,023**	**$24,335,009**
Heating/HVAC and Building Envelope														
Air-Cooled Chillers	7.0	18,390	367,798	$15,538	$43,823	$17,085	$26,738	14.0	36,780	735,597	$31,076	$87,645	$34,170	$53,475
Water-Cooled Chillers	3.3	8,827	176,543	$7,381	$20,990	$11,074	$9,916	6.7	17,654	353,086	$14,761	$41,981	$22,148	$19,833
Programmable Thermostats	182.6	522,248	5,222,481	$405,003	$611,889	$571,232	$40,657	365.2	1,044,496	10,444,963	$810,007	$1,223,777	$1,142,463	$81,314
Energy Mgmt System	72.0	321,383	3,213,835	$159,732	$350,967	$206,454	$144,513	144.0	642,767	6,427,669	$319,463	$701,933	$412,908	$289,026
Hi-E Windows	301.6	626,191	12,523,823	$334,639	$1,572,086	$1,316,090	$255,995	603.1	1,252,382	25,047,645	$669,279	$3,144,172	$2,632,181	$511,991
Subtotal	**566.5**	**1,497,040**	**21,504,480**	**$922,293**	**$2,599,754**	**$2,121,935**	**$477,819**	**1,133.0**	**2,994,080**	**43,008,960**	**$1,844,586**	**$5,199,508**	**$4,243,870**	**$955,638**
Custom														
Custom	**66.3**	**551,400**	**7,154,697**	**$70,129**	**$739,840**	**$232,866**	**$506,974**	**132.6**	**1,102,800**	**14,309,393**	**$140,258**	**$1,479,680**	**$465,732**	**$1,013,947**
Commercial -- Existing Total	**1,349.1**	**10,713,326**	**171,366,439**	**$1,350,940**	**$17,641,610**	**$4,489,313**	**$13,152,297**	**2,698.3**	**21,426,652**	**342,732,878**	**$2,701,879**	**$35,283,220**	**$8,978,626**	**$26,304,594**

Table 5-10 lists measure characterizations for industrial new construction.

Table 5-10. Industrial New Construction Measure Characterizations

Measure Name (All energy and peak demand savings are at generator) (Avoided Costs: $0.095/kWh; $63.39/kW-year)	Measure Life (Years)	Average Peak Demand Savings per Unit (kW)	Average Annual Energy Savings per Unit (kWh)	Incremental Measure Cost ($)	Incremental Measure Cost per kW ($/kW)	Avoided Cost Benefits per kW ($/kW)	Program Admin. Cost per kW ($/kW)	Total Program Cost per kW ($/kW)	Total Resource Cost
Lighting									
CFLs	8	0.049	391.2	$11	$221	$6,605	$250	$501	14.0
T5 w/ EB	20	0.079	634.8	$232	$2,929	$16,512	$250	$501	5.2
Delamping w/ Reflectors	20	0.047	376.4	$21	$445	$16,512	$250	$501	23.7
LED Exit Signs	20	0.029	254.0	$49	$1,680	$17,912	$250	$501	9.3
Occupancy Sensors	12	0.090	1,799.2	$214	$2,390	$23,627	$250	$501	8.9
PS Metal Halides	8	0.126	1,007.5	$70	$554	$6,605	$250	$501	8.2
HVAC									
Air-Cooled Chillers	20	0.040	131.3	$69	$1,724	$7,502	$715	$2,218	3.1
Water-Cooled Chillers	20	0.019	63.0	$50	$2,586	$7,502	$715	$2,218	2.3

Table 5-11 lists results for industrial new construction for 2009 and 2010.

Table 5-11. Industrial New Construction – Results for 2009 and 2010

Measure Name (All energy and peak demand savings are at generator) (Avoided Costs: $0.095/kWh; $63.39/kW-year)	For Plan Year 2009							For Plan Year 2010						
	Achievable Potential Peak Demand Savings (kW)	Achievable Potential First Year Energy Savings (kWh)	Achievable Potential Lifetime Energy Savings (kWh)	Program Costs	Total Avoided Cost Benefits	TRC Costs	Net TRC Benefits	Achievable Potential Peak Demand Savings (kW)	Achievable Potential First Year Energy Savings (kWh)	Achievable Potential Lifetime Energy Savings (kWh)	Program Costs	Total Avoided Cost Benefits	TRC Costs	Net TRC Benefits
Lighting														
CFLs	14.6	116,972	935,776	$7,297	$96,292	$6,866	$89,426	29.2	233,944	1,871,551	$14,594	$192,584	$13,732	$178,853
T5 w/ EB	30.3	242,812	4,856,235	$15,147	$499,711	$96,227	$403,484	60.5	485,623	9,712,470	$30,294	$999,422	$192,454	$806,969
Delamping w/ Reflectors	4.7	37,722	754,442	$2,353	$77,633	$3,269	$74,364	9.4	75,444	1,508,885	$4,706	$155,266	$6,538	$148,728
LED Exit Signs	3.3	29,152	583,035	$1,666	$59,607	$6,424	$53,184	6.7	58,304	1,166,070	$3,331	$119,215	$12,847	$106,368
Occupancy Sensors	1.0	20,355	244,263	$508	$23,977	$2,679	$21,298	2.0	40,711	488,526	$1,016	$47,954	$5,358	$42,595
PS Metal Halides	2.6	21,169	169,356	$1,321	$17,427	$2,123	$15,304	5.3	42,339	338,712	$2,641	$34,854	$4,245	$30,608
HVAC														
Air-Cooled Chillers	0.7	2,192	43,840	$1,482	$5,012	$1,629	$3,383	1.3	4,384	87,681	$2,963	$10,024	$3,258	$6,765
Water-Cooled Chillers	0.3	1,052	21,043	$711	$2,406	$1,058	$1,347	0.6	2,104	42,087	$1,422	$4,811	$2,117	$2,695
Subtotal	**1.0**	**3,244**	**64,884**	**$2,193**	**$7,417**	**$2,688**	**$4,730**	**2.0**	**6,488**	**129,767**	**$4,386**	**$14,835**	**$5,375**	**$9,460**
Custom														
Custom	**217.5**	**1,773,671**	**32,560,570**	**$265,048**	**$3,348,245**	**$289,137**	**$3,059,108**	**435.0**	**3,547,342**	**65,121,140**	**$530,095**	**$6,696,489**	**$578,274**	**$6,118,216**
Industrial -- New Total	**275.0**	**2,245,098**	**40,168,560**	**$295,532**	**$4,130,309**	**$409,411**	**$3,720,898**	**550.1**	**4,490,195**	**80,337,121**	**$591,064**	**$8,260,619**	**$818,823**	**$7,441,796**

Table 5-12 lists measure characterizations for industrial new construction.

Table 5-12. Industrial Existing Construction Measure Characterizations

Measure Name (All energy and peak demand savings are at generator) (Avoided Costs: $0.095/kWh; $63.39/kW-year)	Measure Life (Years)	Average Peak Demand Savings per Unit (kW)	Average Annual Energy Savings per Unit (kWh)	Incremental Measure Cost ($)	Incremental Measure Cost per kW ($/kW)	Avoided Cost Benefits per kW ($/kW)	Program Admin. Cost per kW ($/kW)	Total Program Cost per kW ($/kW)	Total Resource Cost
Lighting									
CFLs	8	0.049	397.5	$11	$221	$6,703	$250	$501	14.2
Regular T8 w/ EB	20	0.031	255.0	$56	$1,780	$16,757	$250	$501	8.3
Premium T8 w/ EB	20	0.045	367.5	$70	$1,544	$16,757	$250	$501	9.3
Delamping w/ Reflectors	20	0.047	382.5	$42	$890	$16,757	$250	$501	14.7
LED Exit Signs	20	0.029	254.0	$97	$3,360	$17,912	$250	$501	5.0
Occupancy Sensors	12	0.090	1,828.1	$214	$2,390	$23,994	$250	$501	9.1
PS Metal Halides	15	0.126	1,023.8	$341	$2,716	$12,568	$250	$501	4.2
Subtotal									
HVAC									
Air-Cooled Chillers	20	0.040	115.0	$69	$1,724	$6,730	$715	$2,218	2.8
Water-Cooled Chillers	20	0.019	55.2	$50	$2,586	$6,730	$715	$2,218	2.0
Energy Mgmt System	15	0.100	784.0	$690	$6,895	$12,123	$715	$2,218	1.6

Table 5-13 lists results for industrial new construction for 2009 and 2010.

Table 5-13. Industrial Existing Construction – Results for 2009 and 2010

Measure Name (All energy and peak demand savings are at generator) (Avoided Costs: $0.095/kWh; $63.39/kW-year)	For Plan Year 2009							For Plan Year 2010						
	Achievable Potential Peak Demand Savings (kW)	Achievable Potential First Year Energy Savings (kWh)	Achievable Potential Lifetime Energy Savings (kWh)	Program Costs	Total Avoided Cost Benefits	TRC Costs	Net TRC Benefits	Achievable Potential Peak Demand Savings (kW)	Achievable Potential First Year Energy Savings (kWh)	Achievable Potential Lifetime Energy Savings (kWh)	Program Costs	Total Avoided Cost Benefits	TRC Costs	Net TRC Benefits
Lighting														
CFLs	140.8	1,147,560	9,180,480	$70,454	$943,532	$66,291	$877,241	281.5	2,295,120	18,360,961	$140,908	$1,887,063	$132,582	$1,754,481
Regular T8 w/ EB	49.6	404,562	8,091,244	$24,838	$831,584	$100,756	$730,828	99.3	809,124	16,182,489	$49,676	$1,663,169	$201,513	$1,461,656
Premium T8 w/ EB	80.5	655,926	13,118,525	$40,270	$1,348,267	$144,360	$1,203,908	160.9	1,311,852	26,237,050	$80,541	$2,696,535	$288,719	$2,407,816
Delamping w/ Reflectors	53.9	439,464	8,789,280	$26,981	$903,326	$61,470	$841,856	107.8	878,928	17,578,560	$53,961	$1,806,651	$122,939	$1,683,712
LED Exit Signs	65.6	574,331	11,486,616	$32,814	$1,174,349	$236,698	$937,651	131.1	1,148,662	22,973,232	$65,628	$2,348,698	$473,397	$1,875,302
Occupancy Sensors	20.2	411,874	4,942,489	$10,115	$484,909	$53,354	$431,555	40.4	823,748	9,884,977	$20,229	$969,818	$106,708	$863,110
PS Metal Halides	28.2	230,050	3,450,756	$14,124	$354,654	$83,698	$270,956	56.4	460,101	6,901,512	$28,248	$709,309	$167,396	$541,912
Subtotal	**438.8**	**3,863,768**	**59,059,390**	**$219,596**	**$6,040,622**	**$746,627**	**$5,293,995**	**877.5**	**7,727,535**	**118,118,780**	**$439,192**	**$12,081,243**	**$1,493,254**	**$10,587,989**
HVAC														
Air-Cooled Chillers	2.7	7,814	156,279	$6,028	$18,292	$6,628	$11,664	5.4	15,628	312,557	$12,056	$36,584	$13,256	$23,328
Water-Cooled Chillers	1.3	3,751	75,014	$2,893	$8,780	$4,306	$4,474	2.6	7,501	150,027	$5,787	$17,561	$8,612	$8,949
Energy Mgmt System	3.3	25,556	383,344	$7,230	$39,517	$24,807	$14,711	6.5	51,113	766,689	$14,460	$79,034	$49,613	$29,421
Subtotal	**7.3**	**37,121**	**614,637**	**$16,151**	**$66,590**	**$35,741**	**$30,849**	**14.6**	**74,242**	**1,229,274**	**$32,303**	**$133,179**	**$71,482**	**$61,698**
Custom														
Custom	**1,703.0**	**14,466,815**	**256,673,573**	**$2,043,977**	**$26,324,139**	**$2,874,149**	**$23,449,991**	**3,406.0**	**28,933,629**	**513,347,147**	**$4,087,954**	**$52,648,278**	**$5,748,297**	**$46,899,981**
Industrial -- Existing Total	**2,149.0**	**18,367,703**	**316,347,600**	**$2,279,724**	**$32,431,351**	**$3,656,516**	**$28,774,834**	**4,298.0**	**36,735,406**	**632,695,200**	**$4,559,449**	**$64,862,701**	**$7,313,033**	**$57,549,668**

5.5 Residential, Commercial and Industrial DSM Measure Descriptions

Lighting Measures

Most of the lighting measures discussed below are only used for DSM potential estimates for the commercial and industrial sector. CFLs and LED night lights also apply to the residential sector, while LED holiday lights only apply to the residential sector.

T8 Lamps and Electronic Ballasts

T8 lamps and electronic ballasts are the most common alternative for standard T12 lamp and magnetic ballast tubular fluorescent lighting systems. T8 fluorescent lamps are one inch in diameter, and are thinner than T12 lamps, which are 1.5 inches in diameter. T8 systems are approximately 30% more efficient than standard T12 systems.

T5 Lamps and Electronic Ballasts

T5 lamps and electronic ballasts are a newer alternative tubular fluorescent lighting system. T5 fluorescent lamps are 5/8 of an inch in diameter, thinner than both T8 lamps and T12 lamps. T5 lighting systems are primarily used in new construction, and are not appropriate for most retrofit situations, as the lamps are only available in metric lengths.

Compact Fluorescent Lamps

Compact fluorescent lamps (CFLs) are the most common alternatives to standard incandescent lamps. CFLs are generally about four times as efficient as incandescent lamps, and last about 10 times as long. The newer “spiral” CFLs are also generally about the same size as incandescent lamps of similar light output.

Occupancy Sensors

Occupancy sensors automatically turn off the lights in a room or an area when the area is unoccupied. Occupancy sensors are an alternative to standard wall mounted on/off lighting switches.

Pulse Start Metal Halide

Pulse start metal halide lamps are a newer type of metal halide systems that use formed body arc tubes and require an ignitor to start the lamps. Pulse start metal halide lamps are more efficient than standard metal halide systems, and also provide better light output maintenance over the lifetime of the lamp, as well as a longer lamp lifetime.

Delamping

The definition of delamping used for this project is replacing a four lamp, four foot fluorescent lighting fixture with a similar two-lamp or three-lamp fixture. This measure is intended for areas that are currently over-lit. Lighting reflectors are often used as part of delamping projects.

Efficient Street Lights

Efficient street lights generally use more efficient high intensity discharge lighting systems than mercury vapor systems. Usually either high-pressure sodium systems or pulse start metal halide systems are used. HPS systems produce a yellow-orange color of light, while pulse start metal halide systems produce “white” light comparable to mercury vapor systems.

LED Exit Signs

LED exit signs are one of the most efficient types of exit signs on the market. They generally only draw about two to three watts of power, compared to 10 watts or more for CFLs, or 20 watts or more for incandescent exit signs.

LED Traffic Lights

LED Traffic lights use LED lamps instead of incandescent lamps for each of the three lights in the traffic signal.

LED Night Lights

LED night lights use LED lamps instead of incandescent lamps.

LED Holiday Lights

LED holiday lights use LED lamps instead of incandescent lamps.

<u>HVAC Measures</u>

Efficient Packaged Commercial Air Conditioning Systems

Standard efficiency units are specified as units with EER ratings of 8.9-9.8, depending on unit size and type. Efficient units are specified as units with EER ratings of 10.4-11.5, depending on the sizes and efficiencies. These specifications are based on the California DEER database.

Efficient Chiller Systems

Chiller efficiency varies by compressor type (centrifugal, reciprocating or screw), condenser type (water-cooled or air-cooled) and vintage (age). Newer, water-cooled centrifugal machines tend to be the most efficient.[25] Chillers are not generally covered by government efficiency standards, so efficient units are usually defined relative to a utility or state-specific baseline. For purposes of this project, Summit Blue defined standard efficiency air cooled chillers as having kW/ton ratings of 1.3-1.4, and efficient units to have efficiencies of 0.95-1.25 kW/ton. For water cooled chillers, standard efficiency units were defined as those with efficiency ratings of 0.65 kW/ton, while efficient units were defines as units with efficiencies of 0.47- 0.61 kW/ton, depending upon the unit size and type. These specifications are also based on the California DEER database.

Energy Management Systems

Energy management systems are automated control systems that customers use to control the energy systems in their facilities. EMS systems most commonly control HVAC systems and lighting systems. They save energy by shutting energy using equipment off at pre-set times, by monitoring and controlling HVAC system operation so that the equipment is operated as efficiently as possible, and by cycling equipment so that energy usage is reduced during peak periods.

ENERGY STAR® Residential Room Air Conditioners

ENERGY STAR® room air conditioners must be at least 10% more efficient than standard Canadian models, which are defined as units with a minimum EER rating of 9.4-10.8 depending upon the size and type of the unit.[26] Canadian 2003 minimum efficiency standards for room air conditioners range from 8.5 EER to 9.8 EER depending on the unit size and type.

[25] Itron, Inc. "Database for Energy Efficiency Resources (DEER) Update Study" (Itron Inc., Vancouver, WA, December 2005), p. 7-26. Available at http://www.energy.ca.gov/deer/.
[26] See Canadian Energy Star web site: http://oee.nrcan.gc.ca/energystar/.

ENERGY STAR® Residential Air Source Heat Pumps

ENERGY STAR® air source heat pumps are units with minimum ratings of 14 SEER, EER ratings of 11.0-11.5, and heating system performance factors of 7.0-7.1 or higher[27]. Canadian 2006 minimum efficiency standards for heat pumps are 13 SEER and 6.7 HSPF.

HVAC Diagnostic Repair, Testing, and Maintenance

Many residential and commercial HVAC systems are not operating as efficiently as possible due to inadequate maintenance. This package of services includes ensuring proper refrigerant charge, lubrication, cleanliness and fan operation.

HVAC Duct Sealing, Operations and Maintenance

Many HVAC ducts are not sealed well and leak conditioned air into unconditioned spaces such as basements and attics. Duct sealing reduces such heat loss.

HVAC Duct Insulation

Uninsulated HVAC ducts that run through uninsulated spaces like basements or attics transfer some of the heated or cooled air into those spaces rather than the conditioned zones. The amount of this heat loss is reduced with duct insulation.

[27] Ibid.

Building Envelope Measures

Ceiling Insulation

Ceiling insulation includes both insulating uninsulated roof areas and adding insulation to under-insulated roof areas. In Nova Scotia, the general estimate is that the proper amount of ceiling insulation is an R-value of about 40.

Wall Insulation

Wall insulation is most cost-effective when insulating un-insulated wall areas. In Nova Scotia, the general rule of thumb is that the proper amount of wall insulation is an R-value of about 20.

Floor Insulation

Many residential basement floors are uninsulated, which results in heat loss to the ground underneath the home. Floor insulation reduces this heat loss.

Efficient Windows

Efficient windows are generally considered to be either triple paned windows, windows with a radiant barrier to reflect heat back into the conditioned space, or windows with low "shading coefficients." Reducing the shading coefficients of glass will reduce the amount of solar heat gain into the building. This reduced solar gain will decrease the cooling load for the building, but may increase the heating load.[28]

Comprehensive Shell Air Sealing

[28] Itron: 2005, *op.cit.*, p. 7-17.

This measure includes caulking, weather stripping, and sealing other visible cracks and penetrations in the building shell.

Commercial and Industrial Refrigeration Measures

The following measures are most applicable to grocery stores. Secondary markets include restaurants or cafeterias in office buildings.

High Efficiency Evaporative Fan Motors

This measure involves replacing shade-pole evaporator fan motors with either permanent split-capacitor (PSC) or electrically commutated (EC) motors. According to the California DEER database, the incremental cost for these measures is small.[29]

Efficient Ice Makers

Energy-efficient ice-makers come as either air-cooled or water-cooled units and are rated based on the pounds of ice produced in a 24-hour period. Energy-efficient ice-makers are defined by the use of high-efficiency compressors, high-efficiency fan motors, and thicker insulation. Energy savings vary by type and capacity and range from 18-28% in most cases.[30]

Strip Curtains and Night Covers

The majority of heat loss from an open display fixture is through infiltration. Covering open fixtures with plastic curtains during low traffic periods and at night can reduce convection by 50% or more when they are applied, thereby reducing refrigeration loads.[31]

Efficient Refrigeration Compressors

[29] Itron: 2005, *op.cit.,* p. 7-72.
[30] "Packaged Commercial Refrigeration Equipment", ACEEE, December 2002.
[31] Itron: 2005, *op.cit.,* p. 7-74.

This measure involves the use of high-efficiency compressors in the place of standard compressors in the refrigeration cycle. Energy-savings potential is in the range of 6-16%.[32]

High Efficiency Multiplex Rack Compressor System

A multiplex-compressor system consists of multiple compressors drawing from a common suction header (suction-group), and serving any number of display fixtures. The suction group is controlled to satisfy the lowest temperature required by any of the attached display fixtures. For this reason the display fixtures served by a given suction group usually have similar temperature requirements; separate suction-groups are typically used for low-temperature and medium-temperature demands.[33]

Residential Refrigeration and Appliance Measures

ENERGY STAR®Refrigerators and Freezers

ENERGY STAR® refrigerators must exceed Canadian minimum energy efficiency standards by at least 15% for full-size units, and 20% for compact size units[34]. ENERGY STAR® freezers must exceed Canadian minimum energy efficiency standards by at least 10% for full-sized units and 20% for compact units.

Remove Secondary Refrigerators and Freezers

Second refrigerators and freezers that customers own are often older and less efficient appliances. For example, the most common refrigerator sold in 1990 used between 60-70 kWh per cubic foot, compared to 2003, when the most common refrigerator sold used

[32] http://www.aps.com/images/pdf/Refrigeration.pdf
[33] Itron: 2005, *op.cit.,* p. 7-67.
[34] See Canadian Energy Star web site: http://oee.nrcan.gc.ca/energystar/.

less than 30 kWh per cubic foot.[35] According to Natural Resources Canada's 2003 household energy survey, 19% of households in the Atlantic region have more than one refrigerator.[36]

Convection Ovens

Convection ovens are similar to traditional ovens except they have circulating fans to increase heat transfer to the food. Food cooks faster and at a slightly lower temperature in a convection oven.

Power Strips with Occupancy Sensors

Power strips with occupancy sensors have several inputs that are controlled by an associated occupancy sensor and some that are not controlled. In an office environment, a computer could be plugged into an uncontrolled input and a monitor and task lamp could be plugged into the sensor controlled inputs.

Commercial and Industrial Process Measures

Compressed Air Leak Maintenance/Detection

Compressed air leak maintenance or detection includes helping customers identify and repair leaks in their air compressor systems. Utility DSM programs often offer this type of service using an ultrasonic inspection device.

[35] Natural Resources Canada, "Energy Consumption of Major Household Appliances Shipped in Canada, Trends for 1990-2003" (NRCAN, Gatineau, QC, December 2005) p.8.
[36] Natural Resources Canada, "2003 Survey of Household Energy Use, Summary Report", (NRCAN, Ottawa, ON, December 2005) p.22.

Efficient Air Compressors

Efficient compressors come in a variety of system types. There are three primary factors determining a compressor's overall efficiency: the compressor type, partial loading controls, and the efficiency of the motor. Incentives for efficient compressors can be most effective as part of evaluating an entire air compressor system, and not just considering the compressor in isolation.

Custom Measures

For purposes of this assignment, Summit Blue has defined "custom" measures as other energy efficiency measures beyond those specifically defined in this section. Generally, "custom" measures are somewhat unique or have application-specific components that make developing generic savings or cost estimates difficult, or subject to considerable judgment. Utilities' definitions of "custom" measures vary, as do their engineering analysis or assistance offers and requirements to screen and evaluate potential custom measures. For example, Otter Tail Power includes adjustable speed drives (ASDs) in its C&I Grants (custom) program, while Xcel Energy includes ASDs in its Motor Efficiency Program, with qualification requirements.

Energy-efficient Motors

NEMA has defined "Premium" efficiency motors, which many utilities, such as Otter Tail Power Company and Xcel Energy, use for their Motor DSM programs. Xcel Energy included the NEMA definitions in its 2005/2006 Biennial CIP Filing.[37]

Variable Frequency Drives

Variable frequency drives (VFDs) or adjustable speed drives (ASDs) vary the speed of motors so that their speeds are proportionate to the loads the motors are serving. This

[37] Xcel Energy: 2004, *op.cit.*, p. 38.

saves energy because motor energy use varies with the cube of the speed for applications such as HVAC fans. So if a motor is running at half speed and is controlled by a VFD, it will only use one-eighth of its full speed energy use (as one-half cubed equals one-eighth). Without a VFD, the motor running at half load will use about one-half of its full load energy use.

Energy Information Assistance

Providing energy information to customers can be done in various ways. One of the most common ways for utilities to do so is through energy audits, which utilities often subsidize with DSM program funding.

Water Heating Measures

Most of the water heater measures discussed below are just included as part of the residential DSM potential estimates. Only efficient water heaters were included in the C&I DSM potential estimates.

Efficient Water Heaters

Traditional electric water heaters have an overall efficiency of about 90% including standby and distribution losses. High efficiency units achieve 95% efficiency with improved insulation and heat traps that minimize convection into under insulated distribution pipes.

Heat Pump Water Heaters

Heat pump water heaters use compressed refrigerants to extract heat from ambient air (or water) and move that heat to stored hot water. During warm weather these machines can move 4 units of heat for every one comparable unit of input energy, thus achieving a coefficient of performance (COP) up to 4.0. COP decreases as ambient air temperature

decreases. At about 10-20°F, heat pumps become less effective. At cold ambient temperatures traditional electric resistance heating elements back-up the heat pump compressor

Tankless Water Heaters

Tankless water heaters are more efficient than standard water heaters since they avoid the energy lost from the hot water that is stored in conventional tanks. Tankless water heaters have “energy factors” of about 98%.

Low Flow Showerheads

Low flow showerheads use an orifice plate inside the fixture to restrict the water flow to a maximum 2.5 gallons per minute versus a 3.5 gallon per minute permitted with standard new showerheads. Water flow from older showerheads typically exceeds 5.0 gallons per minute.

Faucet Aerators

Faucet aerators introduce air into the water as it leaves the faucet. The result is perceived full flow at a much reduced actual flow rate. We estimated that a faucet aerator reduces flow from 2 gallons per minute to 1 gallon per minute.

Hot Water Pipe Insulation

Pre-formed segments of foam insulation are placed around hot water distribution pipes to minimize heat loss. While useful for the entire length of hot water piping, it is most cost-effective in the first 5-10 feet of pipe extending from the hot water heater.

Hot Water Set-back Thermostat

Similar to a HVAC set-back thermostat, a water heater setback thermostat reduces the temperature setpoint of the water tank during periods when full service is not required. Savings accrue from reduced stand-by and distribution system losses.

Drain Water Heat Recovery

These systems recover some of the heat from drain pipe hot water.

ENERGY STAR® Clothes Washers

ENERGY STAR® clothes washers must exceed Canadian minimum energy efficiency standards by at least 36% in 2004 and have a modified energy factor of 40.21, and effective January 1, 2007, the minimum efficiency requirement for ENERGY STAR® status increases to 48.45 L/kWh/cycle, or 1.72 cu.ft./kWh/cycle.[38]

ENERGY STAR® Dishwashers

ENERGY STAR® dishwashers must exceed Canadian minimum energy efficiency standards by at least 25%.[39] The Canadian and American minimum efficiency standards for this appliance are the same.

6.0 GLOSSARY OF TERMS

Achievable (Market) Potential – An achievable or market potential analysis evaluates the amount of savings that would occur in response to specific program funding and measure incentive levels.

[38] See Canadian ENERGY STAR® web site: http://oee.nrcan.gc.ca/energystar/.
[39] See Canadian ENERGY STAR® web site: http://oee.nrcan.gc.ca/energystar/.

Economic Potential – An economic potential analysis goes a step farther to include an examination of measure cost-effectiveness.

Impact Evaluation – Impact evaluations are the estimation of gross and net effects from the implementation of one or more energy efficiency programs. Most program impact projections contain ex-ante estimates of savings. These estimates are what the program is expected to save as a result of its implementation efforts and are often used for program planning and contracting purposes and for prioritizing program funding choices. In contrast the impact evaluation focuses on identifying and estimating the amount of energy and demand the program actually provides.

Integrated Data Collection – An approach in which surveys of key market actors and end-use customers (EUCs) are conducted in "real time" as close to the key intervention points as possible; usually integrated as part of the standard program implementation or other program paperwork process.

Market Characterization – The market characterization evaluations focus on the evaluation of program-induced market effects when the program being evaluated has a goal of making longer-term lasting changes in the way a market operates. These evaluations examine changes within a market that are caused, at least in part, by the energy efficiency programs attempting to change that market.

Market Transformation – An approach in which a program attempts to influence "upstream" service and equipment provider market channels and what they offer end customers, along with educating and informing end customers directly. The emphasis is on influencing market channels and key market actors other than end customers.

Process Evaluation – The process evaluation is a systematic assessment of an energy efficiency program for the purposes of documenting program operations at the time of the examination and identifying improvements that can be made to increase the program's efficiency or effectiveness for acquiring energy resources.

Ratepayer Impact Measure – The Ratepayer Impact Test measures what happens to customer bills or rates due to changes in utility revenues and operating costs caused by the program … This test indicates the direction and magnitude of the expected change in customer bills or rate levels (from California Standard Practice Manual[40]).

Resource Acquisition – an approach in which end customers are the primary target of program offerings (e.g., using rebates to influence customers' purchases of end use equipment).

Societal Cost Test – The Societal Test, a modified version of the TRC, adopts a societal rather a utility service area perspective. The primary difference between the Societal and TRC test is that the Societal Test accounts for externalities… excludes tax credit benefits, and uses a societal discount rate (from California Standard Practice Manual).

Technical Potential – A technical potential analysis evaluates how much energy can be saved from a technical perspective without considering measure economics.

Total Resource Cost Test – The Total Resource Cost Test measures the net costs of a demand-side management program as a resource option based on the total costs of the program, including both the participants' and the utility's costs (from California Standard Practice Manual).

Utility Cost Test – The Utility Cost Test measures the net costs of a demand-side management program as a resource option based on the costs incurred by the utility … and excluding any net costs incurred by the participant. The benefits are similar to TRC benefits. Costs are defined more narrowly (from California Standard Practice Manual).

[40] California Standard Practice Manual, Economic Analysis of Demand-Side Management Programs and Projects, http://www.energy.ca.gov/greenbuilding/documents/background/07-J_CPUC_STANDARD_PRACTICE_MANUAL.PDF.

January 11, 2008
Stakeholder Session – Collaborative Presentation Slides

DSM Stakeholder Session
Jan. 11, 2008

Welcome
Opening Comments

DSM Programming Plan

SUMMIT BLUE
CONSULTING, LLC

Summary of NSPI 2008-2010 Program Plan

NSPI Stakeholder Meeting - January 11, 2008

Stu Slote, Summit Blue Consulting

Introduction

- 10 programs cover major customer and end use markets (4 residential, 4 C&I, 2 multi-sector)
- Programs selected considering:
  - Existing programs in Nova Scotia
  - Best practice programs being conducted at other North American utilities and agencies
  - Feedback from local stakeholders
  - Likely program potentials and costs
- Goal of first five years of programming is to achieve cumulative DSM goals from 2007 IRP

Program Goals and Budgets

NSPI DSM Programs	2010 Cumulative Annual Energy Savings at Generator (GWh)	2010 Cumulative Annual Demand Savings at Generator (MW)	2008 (Interim)				2009 (Year 1)				2010 (Year 2)	2011 (Year 3)	2012 (Year 4)	2013 (Year 5)
Residential			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4				
1. Efficient Products	21.40	4.89												
2. EnerGuide for Existing Houses	16.61	3.04												
3. Low Income	1.75	0.32												
4. EnerGuide for New Houses	4.10	0.84												
Commerical and Industrial			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4				
5. Commercial and Industrial Prescriptive Rebate	42.08	5.16												
6. Commercial and Industrial Custom Rebate	47.77	6.31												
7. Small Commercial Direct Install Lighting	7.50	1.50												
8. Commercial and Industrial New Construction	0.69	1.22												
Multi-Sector			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4				
9. Education and Outreach	N/A	N/A												
10. Development and Research	N/A	N/A												
TOTALS	141.91	23.28												
Cumulative Annual Energy Savings at Generator (GWh)			6.66				51.90				141.91	327.81	606.65	978.43
Cumulative Annual Winter Peak Demand Savings at Generator (MW)			1.65				8.53				23.28	50.85	92.34	147.75
Annual Program Budgets (2008$ million)			$2.633				$10.398				$21.519	$39.035	$58.630	$78.226

Notes:
Cumulative Annual Savings = savings through that year

Program Development
Program Implementation, Maintenance & Measurement

SUMMIT BLUE CONSULTING, LLC

1. Efficient Products

- Residential and small commercial customers
- Promote ENERGY STAR® lighting and appliances and LED holiday lights
- Provide recycling service for unneeded secondary refrigerators
- Offer rebate coupons and retailer product buy-down agreements in supermarkets, hardware stores, and big-box retailers
- Seek partnership with Conserve Nova Scotia

2. EnerGuide for Existing Houses

- Adopt EnerGuide NRCAN ecoENERGY Retrofit-Homes Program platform and use their existing incentive schedule
- Seek partnership with Conserve Nova Scotia to expand the existing program to focus on homes with electric heat and or hot water
- Provide energy audit and financial incentives for customers to install HVAC, electric water heating and weatherization DSM Measures

3. Low Income

- Resemble NRCAN's EnerGuide for Low Income Households, except that incentive payments only for electric DSM savings
- Seek partnership government and energy agencies such as Conserve Nova Scotia
- Provide direct installation of measures for low income customers
- No customer payments will be required

4. EnerGuide for New Houses

- Seek partnership with Conserve Nova Scotia to expand the existing program (EnerGuide and R-2000 programs delivered by Nova Scotia Home Builders Association) to focus on homes with electric heat and or hot water
- Offer home energy rating and financial incentives for customers to install HVAC (electric heat pump or thermal storage), electric water heating and weatherization DSM measures
- Appliance and lighting “bonus package” available regardless of heating system type

5. Commercial and Industrial (C&I) Prescriptive Rebate

- Offer fixed rebates for standard efficient lighting and HVAC measures

6. Commercial and Industrial (C&I) Custom Rebate

- Offer rebates that vary with customer applications and savings for efficient refrigeration and process DSM measures
- Also Custom Partners component that allows customers to propose their financial incentives, subject to passing benefit-cost criteria

7. Small Commercial Direct Installation

- Addresses main commercial “hard-to-reach” market
- Target businesses with < 100 kW demand, or 300,000 annual kWh
- Small businesses, non-profits, government and school facilities and, optionally, small (four/six units and under) apartment building in this size category. Chains with one business owning many stores with large cumulative loads directed to Prescriptive Rebate Program.
- Franchisees which own one or few small stores in Nova Scotia included
- Offer direct installation service to small commercial customers for efficient lighting measures; significant refrigeration opportunities recorded during audit for potential future targeted treatment

8. Commercial and Industrial (C&I) New Construction

- Offer design assistance services and financial incentives to C&I customers building new commercial buildings and substantial renovations/expansions, (including common areas in high-rise and multi-unit residential facilities)
- Participation options: 1) Prescriptive Path, 2) Custom Path, or 3) Comprehensive Building Design Path
- Targeted services: 1) Building Commissioning, 2) Technical Assistance Services, and 3) Plan Review
- Program to be developed in 2009 for implementation in 2010, or sooner if feasible

9. Education and Outreach

- Cross-cutting energy efficiency education and promotion through:
  - Energy audits of different types
  - Direct mail and traditional mass market channels
  - Working with schools on energy efficiency education

10. Development and Research

- Investigate newer DSM technologies and programs
- Conduct baseline research to better understand customers and markets in Nova Scotia

Demand Side Management

C&I Custom Programming

Chuck Faulkner

NSPI

January 11, 2008

Agenda

- What is Custom DSM programming?
- Customer incentives
- Why use custom DSM?
- Proposed timeline

C & I Custom Programming

- What is Custom DSM programming?
  - *Custom Rebates:* for simple measures
  - *Custom Partners*: customer incentives for complex projects
  - Complementing support activities

- Customer incentives ($ values to be determined)
  - $X per kWh saved and/or kW saved
  - X% of eligible costs
  - Reduce customer payback to X year(s)
  - Maximum $X per project

C & I Custom Programming

- Why use Custom programs?
  - Leverage work already completed by customers (e.g.: projects have been scoped but not implemented, due to length of payback or other barriers)
  - Recognize complexities of C&I facilities and systems

- Proposed timeline
  - Program design Q2/2008
  - Begin delivery Q3/2008

C & I Custom Programming

Thank You

C & I Custom Programming

Additional Information

Typical Customers and Projects

- Target market
  - Existing commercial and industrial customers (including municipalities) with a monthly peak demand of 250 kW or more
  - Municipal: facilities and systems (e.g. pumping, sewage treatment)
  - Measures grouped across multiple NS facilities will be considered if other eligibility criteria are met
  - New facilities where eligible (per above) and not funded by other customer incentives

Typical Customers and Projects

- Eligible projects
  - Electricity-saving measures not covered by prescriptive programs
  - Will not include fuel-switching or cogeneration

- Eligibility criteria
  - Must pass TRC test
  - Threshold level of electrical demand & energy savings may apply, at the discretion of the program administrator
  - Projects that can be completed sooner will get higher priority

Typical Customers and Projects

- Eligible costs
  - Costs must be associated with incremental electrical efficiency
  - Customer incentives for feasibility studies (where study is required)
  - Costs for consultants, subcontractors, labour & materials
  - Project-specific M&V costs (e.g.: submetering)
  - Other costs as appropriate

Delivery Process

1. Coordinate with other agencies as available
2. Opportunity identified by customer, NSPI or others
3. Customer (optionally) selects a Technical Partner (TP) from a pre-qualified pool
4. Customer submits application (preliminary savings & cost estimates)
5. Utility reviews application to confirm program eligibility

Delivery Process

6. Customer submits a feasibility study (where required).
7. Utility reviews feasibility study and confirms eligible funding amount
8. Baseline (pre-retrofit) energy use profile established, if required
9. Customer implements measures
10. Utility verifies costs and savings
11. Utility pays the rebate or incentive to the customer

Delivery Process

- Monitoring & Verification (M&V)
  - NSPI verifies savings for each project, using established project M&V plan
  - M&V can vary by measure complexity and magnitude of savings.
    - International Performance Measurement and Verification Protocol (IPMPV) provides a useful framework for choosing the M&V approach for each project
  - Savings verification agent reviews data and conducts site visits as needed to confirm overall program performance

Delivery Process

- Support services address barriers to widespread adoption

- Example services:
  - Guidance on developing of M&V plans
  - Testing equipment loan service
  - Marketing and sales support (printed materials, sales training, general communications)
  - Assist customer in quantifying intangible benefits (e.g. maintenance savings) where helpful
  - Custom programs to be supported by general Education & Outreach initiatives

Demand Side Management

Early DSM Activities

John Aguinaga

NSPI

January 11, 2008

2008 DSM Budget, Participants and Savings

NSPI DSM Programs	2008				2008 Budget (2008 million)	Percent of Budget	Number of Participants or Units	2008 Incremental Annual Energy Savings at Generator (GWh)	2008 Incremental Annual Demand Savings at Generator (MW)	Total Resource Benefit/Cost Ratio	Lifetime Energy Savings at Generator (GWh)
Residential	Q1	Q2	Q3	Q4							
1. Efficient Products					$0.050	2%	0	0	0	-	0.0
2. EnerGuide for Existing Houses					$0.475	18%	200	1.31	0.24	2.8	26.9
3. Low Income					$0.081	3%	25	0.05	0.01	3.9	1.1
4. EnerGuide for New Houses					$0.140	5%	50	0.33	0.07	2.1	4.6
Commerical and Industrial	Q1	Q2	Q3	Q4						C / I	
5. Commercial and Industrial Prescriptive Rebate					$0.050	2%	0	0	0	-	0.0
6. Commercial and Industrial Custom Rebate					$0.500	19%	10	3.30	1.00	3.2 / 9.2	58.7
7. Small Commercial Direct Install Lighting					$0.750	28%	125	1.67	0.33	1.6	26.5
8. Commercial and Industrial New Construction					$0.000	0%	0	0	0	-	0.0
Multi-Sector	Q1	Q2	Q3	Q4							
9. Education and Outreach					$0.088	3%	N/A	N/A	N/A	N/A	N/A
10. Development and Research					$0.500	19%	N/A	N/A	N/A	N/A	N/A
		Totals			**$2.633**			**6.66**	**1.65**	**4.6**	**117.9**

Notes:

Incremental Annual Savings = savings in that year

Lifetime Savings = savings over the period that a measure is operating

Program Development

Program Implementation, Maintenance & Measurement

Break

SUMMIT BLUE
CONSULTING, LLC

Summary of NSPI Evaluation Monitoring and Verification Approach

Randy Gunn
Summit Blue Consulting
1-11-08

Agenda

- Monitoring and evaluation goals and definitions
- Proposed M&E tasks and responsibilities
- General M&E approach for 2008-2010
- Questions and comments

Monitoring and Evaluation Goals

- Provide early and real-time feedback to program managers regarding whether a program is operating successfully and on-track to meeting program goals
- Assess and track customer satisfaction with programs
- Identify opportunities for program improvements
- Determine actual program savings
- Provide some inputs for program benefit-cost analysis

Evaluation Type Definitions

- Process Evaluation: focus on how effectively a program is being implemented, and how satisfied customers are.

- Market Evaluation: focus on customer and vendor markets for programs, and how markets change over time. Can include customer awareness and installation of programs and measures, as well as vendor-contractor infrastructure promoting DSM measures.

- Impact Evaluation: focus on measuring program savings. Considers both savings from DSM measures themselves, as well as likely influence of program in causing more DSM measures to be installed.

Proposed M&E Tasks and Responsibilities

Three-phase evaluation process:

1. NSPI develops program tracking database; Technical Reference Manual with “deemed savings” estimates for all standard measures; and conducts needed baseline customer research.
2. NSPI and DSM Steering Committee hire independent M&E contractor to conduct process and impact evaluations.
3. NSUARB staff hires second contractor to perform annual savings verifications. Additionally, the contractor may audit the initial process and impact evaluation results, and conduct original data collection.

Focus of 2008-2010 M&E Work

- In 2008 the primary focus is to conduct baseline research, get program and M&E systems set up, contractors hired, and collect data for the initial process and impact evaluations.
- In 2009, the focus is to conduct the first round of process and impact evaluations for the largest programs.
- In 2010, the focus is to conduct the second round of process and impact evaluations, primarily for smaller programs.
- Limited market evaluations will be conducted as part of the 2009-2010 process and impact evaluations. Market evaluations will be more of a focus of 2011 and later years when the programs will have had a chance to make measurable changes in the markets.

Advisory Council / Steering Committee

DSM Steering Committee

Composition:

- UARB staff, NSPI staff and technical support consultants

Purpose:

- Review DSM programs progress, key milestones, and strategic directions.
- Liaise with the DSM Advisory Council and review recommendations
- Review and comment on draft DSM filings

DSM Advisory Council

Composition:

- Formal structure and membership
- Up to 12 members approved by the UARB
- Chaired by a member nominated by the Steering Committee and approved by the UARB
- Meet 4-6 times per year or as decided by members

Purpose:

- Advise and be updated on DSM planning, program design, implementation, and evaluation
- Forum for stakeholder input and opportunity for the general public to provide comment
- Establish a collegial forum resulting in increased public confidence, across a broad spectrum of stakeholders, leading to greater transparency and partnership

DSM Advisory Council

Proposed Process:

- Members will be invited to suggest topics for meeting agendas. Agendas and background materials shall be made available to Council members a week in advance if possible.
- All Council members shall be provided an opportunity for comment
- The advisory group would vote on various items and would issue either a consensus report or majority/minority reports to the steering committee. These reports would become part of the regulatory record if pertinent to a Board decision. Provide at least two rounds of discussion on non-consensus recommendation before a vote. Document carefully majority and minority opinions and justification.
- To assist Advisory Council members, up to $100k would be available from the DSM Program for advice and participation from consultants.
- The Advisory Group will recommend the process for public input and participation

NSPI's role:

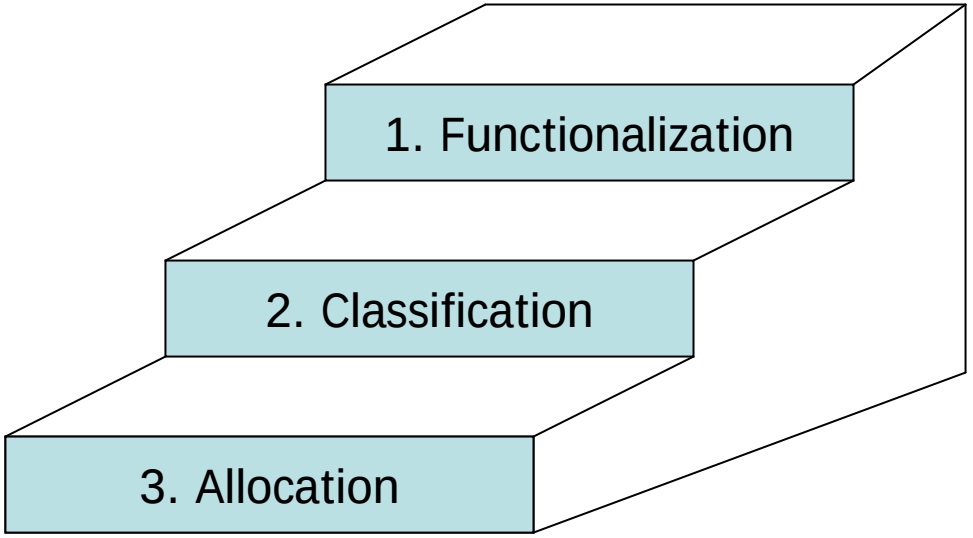
- At least one NSPI member of the Steering Committee would liaise with the Advisory Council. This individual would act as a resource, communicate with the Steering Committee and perform other functions as necessary, but would not have a vote on the Advisory Council.
- Would fund the administration of the group and support the Chair person's requirements

Break

DSM Cost Allocation

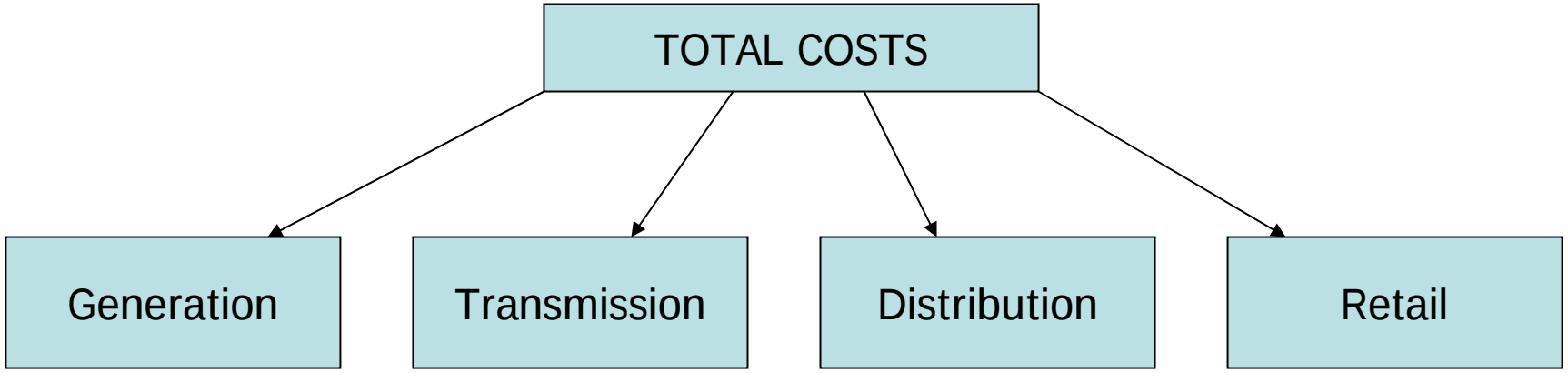
Cost of Service Procedure

The COSS consists of a three step process of functionalization, classification and allocation



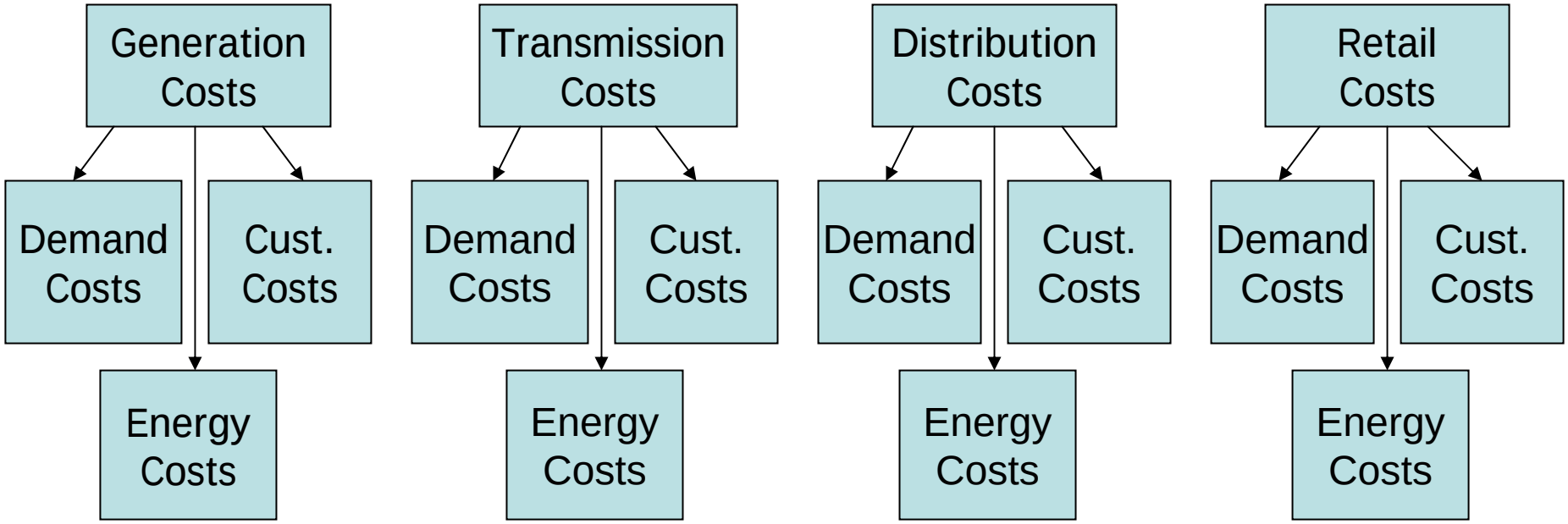
Functionalization

Functionalization is the process of assigning the Company's total revenue requirement to the major functions necessary to providing electric service



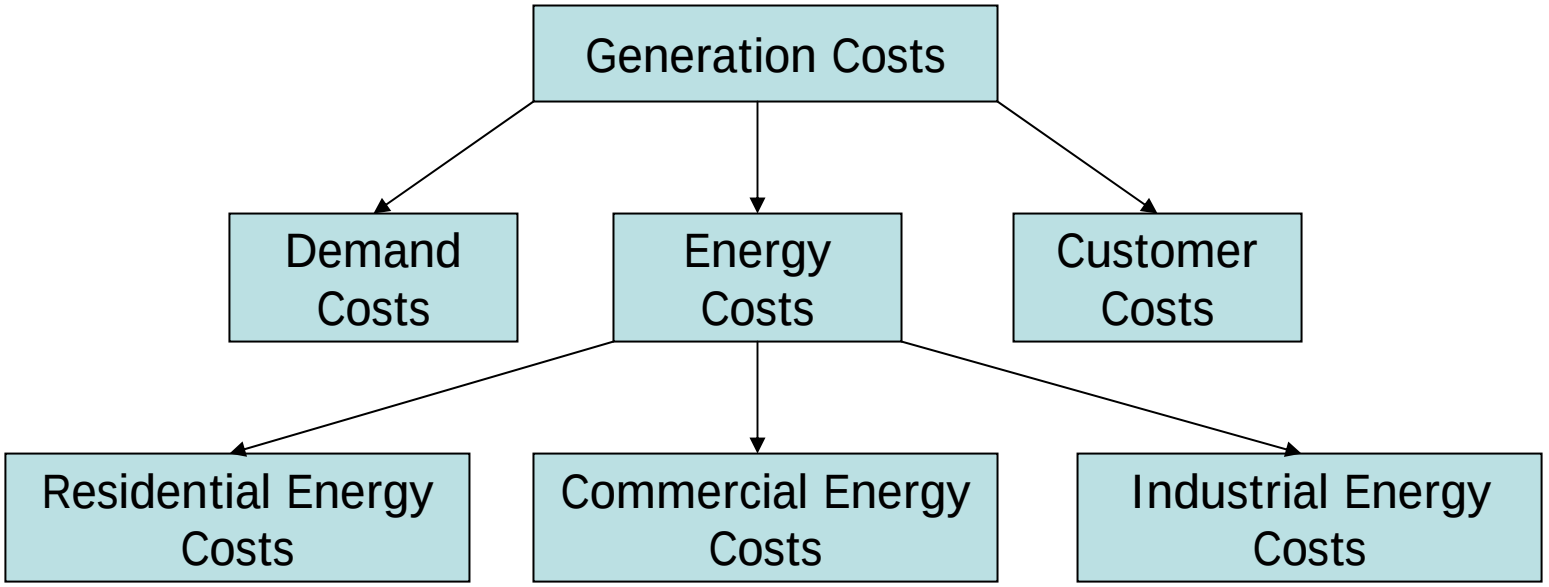
Classification

Classification segregates each functional cost item into demand, energy and customer related categories



Allocation

Allocation assigns the classified costs to individual rate classes according to each class's contribution to the appropriate demand levels, energy requirements or number of customers



DSM Cost Proposal

- Treat DSM costs as a whole, not as “residential”, “commercial”, etc.
- Functionalization
  - DSM is a proxy to avoid supply side additions
    - 100% generation
- Classification
  - DSM is a proxy to avoid supply side additions
    - Classification of average rate base
      - Total plant in service - Exhibit 2b, line 8
    - 32.6% demand, 67.4% energy
- Allocation
  - Per existing COSS procedure
    - Demand based on 3CP
    - Energy based on monthly energy consumption by class

Benefits of Proposal

- Procedure is existing and simple
- COSS concepts already Board-approved
- Other Considerations
  - Follows logic of Total Resource Cost (TRC) test and treatment of DSM in IRP.
  - Avoids creating issues of inter- vs. intra- group equity
  - Consistent with allocation of costs for credits provided by existing interruptible rates.

DSM Mechanism

Synapse
Energy Economics, Inc.

DSM Program Costs

Nova Scotia Utility & Review Board

January 11, 2008

Presented by David Nichols

Addressing Revenue Erosion from DSM

- Successful DSM reduces utility sales revenues
- Some of this lost revenue is offset by concurrent reductions in utility operating costs
- Lost revenue not offset by such cost savings is “net lost revenue” (NLR)
- Many jurisdictions where IOUs deliver comprehensive DSM provide rate mechanisms to address NLR
- One mechanism: periodically adjust rates to account for change in total sales levels (decoupling)
- Another mechanism: specifically identify NLR, with periodic NLR recovery through a rate rider

Rate Riders

Timely recovery of program costs plus NLR through rate riders:

- makes utility “whole” with respect to DSM’s financial impacts from year to year.

Utility Recovery of DSM Program Costs

- To deliver DSM, the utility incurs costs to manage, market, and operate programs
- Incentives and services to participants comprise a large part of these costs
- Utilities track costs specifically attributable to DSM
- Utility DSM costs are expected to increase yearly for several years
- A rate rider can recover DSM costs at about the same time as the utility incurs them
- When IOUs deliver comprehensive DSM in NA, rate riders often used

Incentives & Penalties

- NSPI does not propose an incentive / penalty mechanism for DSM for two primary reasons:
  - Shareholders interests are aligned with DSM
  - It would be pre-mature
    - Not appropriate for start-up phase

Demand-Side Management Cost Recovery Mechanism

Steve Seelye
The Prime Group, LLC

Components of Mechanism

DCRM = DCR + RLS + DBA

Where:

DCR = DSM Program Cost Recovery

RLS = Revenue from Lost Sales

DBA = DSM Balance Adjustment

DSM Program Cost Recovery (DCR)

$$DCR = \frac{\text{Program Costs Allocated to Cust Class}}{\text{Projected kWh Sales for Cust Class}}$$

Purpose:

Provides for recovery of DSM Program Costs

Revenue from Lost Sales (RLS)

$$RLS = \frac{\text{Lost Net Revenues for Cust Class}}{\text{Projected kWh Sales for Cust Class}}$$

Purpose:

Holds the utility harmless from implementing DSM programs that reduce consumer usage resulting in lost net revenues (defined as lost revenues less avoided fuel and variable expenses).

DSM Balance Adjustment (DBA)

$$\text{DBA} = \frac{\text{Over/Under Costs and Lost Rev Recovery}}{\text{Projected Sales for All Cust Classes}}$$

Purpose:

Provides a true-up of actual revenues collected under the mechanism with actual costs, calculated lost revenues, and previous DBA amounts.

Open Forum and Recap

January 11, 2008
Stakeholder Session – EAC Presentation Slides

DSM Stakeholder Session

Brendan Haley, Ecology Action Centre

Blair Hamilton, Vermont Energy Investment Corp

January 11, 2008

Ecology Action Centre

Fundamental Stakeholder Concerns:

Accountability
and
Administration

Ecology Action Centre

Accountability

What are we looking for?

- **Confidence and assurance of performance**

  …….as great as the Province would expect from any entity where as much as $50 million/yr is being paid to deliver specified results

Ecology Action Centre

How can we get confidence and assured performance?

What would one look for from any entity proposing to do this kind of work?

- Staff skills and qualifications
- Organizational capability and experience
- Adequate commitment of resources
- Strength of Quality Assurance systems
- Well-developed and effective evaluation plan to assure timely feedback

Ecology Action Centre

How can we get confidence and assured performance?

Plus

- Strength of tracking system
- Adequate staffing levels
- Strength and credibility of program plan
- Commitment to ongoing transparency
- Mission alignment

Ecology Action Centre

How can we get confidence and assured performance?

Most importantly:

Significant consequences linked to results

- Financial consequences
- Loss of administrative role

Ecology Action Centre

Accountability for Results

Helps to Assure Performance

- Jurisdictions that rank highest in efficiency investments have either performance incentives and/or non-utility administration
- Program staff consider actions in relation to performance results

Ecology Action Centre

Accountability for Results

Better for Stakeholders

- Stakeholders can engage at high level with performance indicators
  - Common benchmarks
  - Avoids misunderstandings
  - Momentum for desired results

Ecology Action Centre

Accountability for Results

Better for Administrator

- Flexibility to change strategies, incentives, etc. to respond to market changes and new opportunities
- Promotes innovation in program approaches

Ecology Action Centre

Performance Indicators

- Provide clarity to all parties on how success will be measured
- Provide clarity on the relative importance of multiple, potentially-competing objectives through weighting
- Provide a basis for performance incentives and penalties

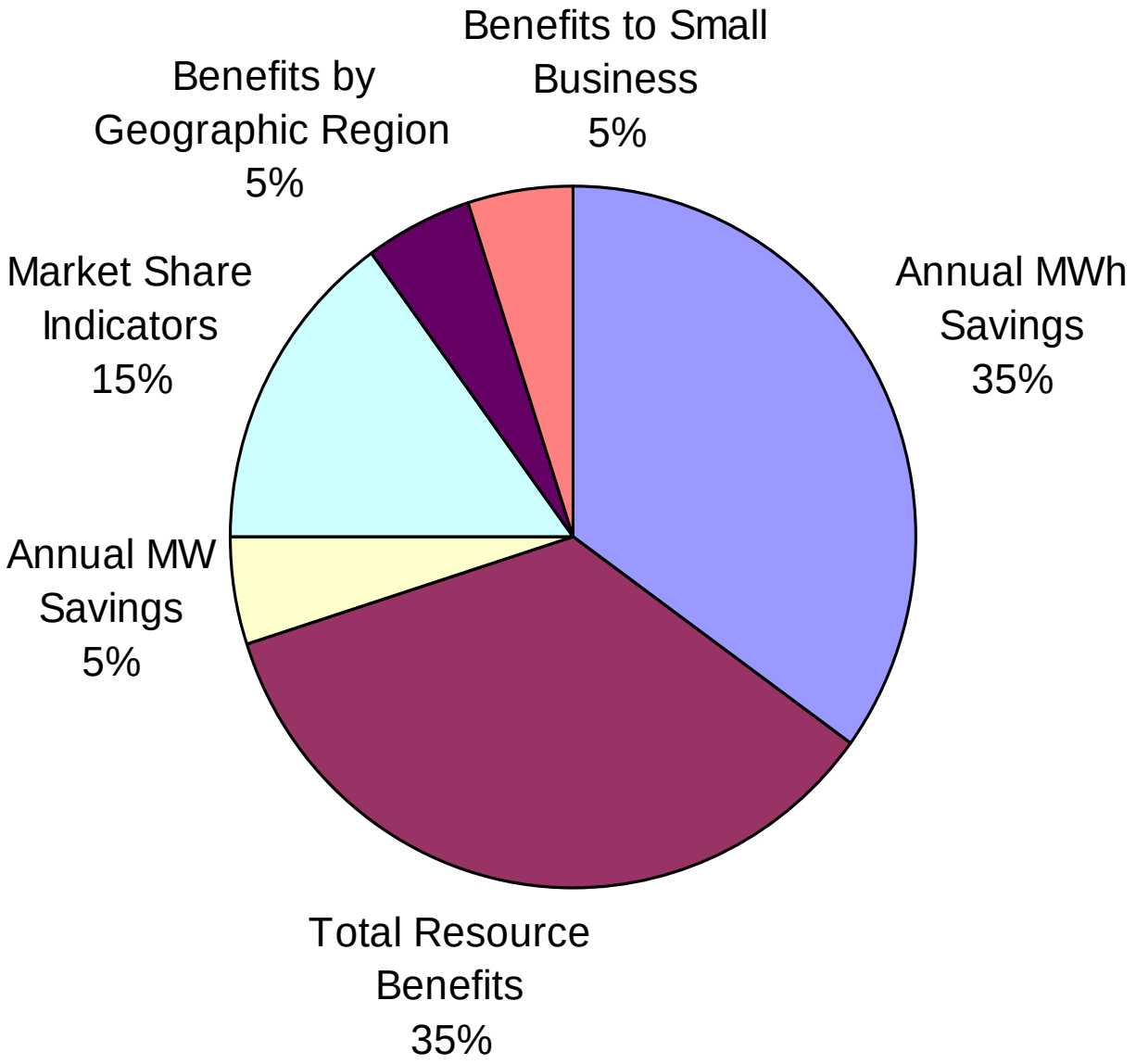
Ecology Action Centre

Minimum Requirements

- Minimum Cost-effectiveness Could be Guaranteed!
  - Any negative net benefits could be paid back to ratepayers
- Minimum Benefits by Sector
  - For example, 1.3 to 1 B/C Ratio
- Minimum Expenditure for Low-Income
  - For example, 15% of overall expenditures

Ecology Action Centre

Sample Performance Indicators



Why Performance Indicators for Equity ?

- Assures that the benefits of participation are available to all customer groups
- Encourages efforts to overcome barriers to participation for customers with the highest barriers
- Avoids disputes about “fairness”

Ecology Action Centre

Why "Market Indicators" as Performance Indicators?

- Can encourage efforts focused on market transformation that would otherwise not be pursued
    - Helps to avoid too much focus on measures and programs that simply maximize short-term resource acquisition

Ecology Action Centre

Performance Consequences

- Motivation to perform is not enough - There also need to be significant consequences for failure to perform
- Level of rewards and/or penalties is dependent on how much is necessary to overcome other motivations of the implementing entity

Ecology Action Centre

Policy Issues Related to Programs

- *Integration* with other resources (e.g. Conserve NS) to provide comprehensive treatment of homes and businesses – not just *complementary* programs
  - o One-stop service with allocation of costs to different sources
  - o Solves policy problem of limiting programs to buildings with electric heat

Ecology Action Centre

Policy Issues Related to Programs

- Continued NSPI use of "TRC" test counting only *electric* costs and benefits as measure of merit for measures, programs and portfolio
- Proposed C&I Custom Program rewards demand reduction only

Ecology Action Centre

Policy Issues Related to Programs

- Low Income Program
  - o Should have minimum spending level (e.g. 15%) (Current proposal is 1.8%)
  - o No per-household cap on cost
  - o NSPI Program is limited to owner-occupied homes
    - **Where is multifamily? social housing?**

Ecology Action Centre

Policy Issues Related to Programs

- Fuel Choice in New Construction
  - Need to address
  - Promote systems with future fuel flexibility
  - Promote renewables
- Fuel Switching in Existing Buildings
  - Just another measure to be screened as such
- Combined Heat and Power not Covered

Ecology Action Centre

Need to Proceed

- While it would be a lot easier if administrative issues were settled, we need to proceed
- Early roll-out of programs should not pre-judge administrative issues
- Capability and systems should be able to be easily transitioned to an alternate administrator

Ecology Action Centre

Ways to Proceed

that address administrative structure uncertainty

- Contract out
- Work through existing Conserve NS infrastructure (integrated delivery)
- Use performance mechanisms with contractors
- Create “Program Working Group” with stakeholder representation

Ecology Action Centre

2008-2009 Programs

- Upstream Lighting – NSPI should fund, and claim savings
- CFLs – If we're going to do it, do it now
- EnerGuide for Existing Homes – proceed contingent on resolving policy and integration issues

Ecology Action Centre

2008-2009 Programs

- Low-Income – proceed contingent on program improvements
- Self-Administration – reconsider for early roll-out (need oversight)
- EnerGuide for New Houses – proceed contingent on integration
- Direct Install – fine to start small

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Once Administration is Settled…

- Focus first on lost opportunities
  - C&I New Construction
  - C&I Prescriptive Rebate
  - Products (starting with appliances)
- Move from program to market focus

Ecology Action Centre

Once Administration is Settled…

- Proceed with R&D
  - including market assessment
  - concerns with work on rate design as DSM
- Proceed with Education and Outreach
  - integrated with Conserve NS

Ecology Action Centre

Thank You

Ecology Action Centre

January 18, 2008
Written Comments from Stakeholders

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Robert G. Grant, Q.C.
Direct Dial: 902.420.3328
rgrant@smss.com

File Reference: NS31672-7

January 17, 2008

Dr. John Stutz
Vice President
Tellus Institute
11 Arlington Street
Boston, MA
U.S.A. 02116-3411

Dear Dr. Stutz:

Re: DSM Collaborative Process
Comments on Updated DSM Administrative Issues Analysis & Programming Plan

On October 4, 2007 the Utility and Review Board amended and approved NSPI's Terms of Reference for the Demand Side Management ("DSM") Collaborative. The Terms of Reference included a DSM process timeline summary that contemplated written comments from stakeholders on November 15, 2007 and again today on January 17, 2008. Please accept this letter as the submission from Avon Valley et al.

INDEPENDENT ADMINISTRATION

Most parties involved in this process recognize that NSPI is in a conflict of interest situation with respect to DSM administration. The Collaborative believes that it can build mechanisms to compensate for, and thereby minimize, the conflict of interest. The Intervenors who signed the January 9, 2008 letter to you submit that the conflict of interest, and the proposed mechanisms, can be mostly avoided if there is independent administration of DSM.

The Board has indicated that it does not have the jurisdiction to implement independent administration without a legislative amendment. The Province has indicated that it will hear submissions on administration and accountability models in February 2008.

Therefore, while the primary questions of administration and accountability are being considered by the Province, the parties to the process will continue to move toward what will likely be a highly contested DSM hearing. However, many of the issues on the Board's issues list for that hearing will become moot if DSM is, ultimately, independently administered.

We intend to pursue the possibility of independent DSM in our submissions to the Province in February 2008. The Collaborative should recognize that there is a lack of certainty on the

administration issue. Therefore, the Collaborative's DSM proposal should remain as flexible as possible so that independent administration can be accommodated.

ACCOUNTABILITY

Accountability is the primary requirement necessary to achieve successful energy efficiency and DSM. Accountability will be demanded of the administrator; therefore, the choice of administrator is critical in defining what the criteria of accountability will be. The program administrator must invest rate payer money in programs that are most economically and environmentally beneficial. The program administrator must be held to account for success or failure in order to ensure proper, effective spending. We feel that without accountability, success is highly unlikely.

The Collaborative's DSM filing refers to Evaluation, Verification and Monitoring ("EV&M"). However, it is cold comfort to rate payers if EM&V merely confirms that the programs have failed and that further capital investment is therefore necessary. Rate payers are being asked to trust that NSPI will work in the public interest in pursuit of DSM success.

An accountable administrator is the single most important prerequisite to rate payers' acceptance of DSM measures. In our submission, the Collaborative's filings to date do not deliver accountable administration of DSM.

INCENTIVES FOR SUCCESS

With proper performance indicators, DSM can be evaluated, monitored and verified. However, to promote DSM success, there must be incentives for success and consequences to the administrator in the event of failure. The administrator must be rewarded for the success it creates. There should be consequences for failures that are within its control.

On the issue of incentives for success,. Blair Hamilton of the Vermont Energy Investment Corp. specifically noted in his January 11, 2008 presentation to the Collaborative that jurisdictions that rank highest in efficiency investments have performance incentives and/or non-utility administration. However, the Collaborative has proposed neither. We support the submissions of NPB on this issue and submit Mr. Hamilton's statement should be specifically quoted in the Collaborative's final report, and its rationale utilized in revising the report.

Without an appropriately incented, accountable administrator, we risk increasing costs significantly in the present while creating economic and environmental issues that will have to be addressed at an even greater cost in the future.

COST ALLOCATION AND REVENUE RECOVERY

Avon Group et al has taken the position on several occasions before the Board that NSPI's Cost of Service ("COS") methodology must be revisited. The COS methodology in place today is not current. The COS study was performed in an era of relatively low fuel costs and numerous changes have come into place that affect the reasonableness of the current COS methodology. For example, new generation has since been added to the system and NSPI's fuel mix and fuel expenses have changed dramatically. As electricity costs rise, it is reasonable for rate payers to

look more closely and with sharper analysis at the manner in which costs have been allocated. In the last several years, NSPI and the Board have had to find several different ways to develop rates for large industrial customers.

This continual struggle suggests that the 1995 COS methodology is not the best basis for designing workable rates. The 1995 COS methodology adopted by the Board no longer holds the confidence of a significant element of NSPI's rate payers. Our principal concern is that the existing COS methodology improperly sets out the allocation of generation and transmission costs relative to energy charges. As a result, high load factor customers may be paying higher rates due to the inappropriate allocation, which is unfair and not in accordance with sound ratemaking principles. Past concerns with the COS methodology aside, the creation of the *Environmental Goals and Sustainable Prosperity Act*, and the Board's mandated DSM process present further fundamental changes to the Nova Scotia electricity market.

In our view, these factors warrant a review and revision of the COS Study. The accepted principles of ratemaking clearly establish that in order for a rate to be fair and reasonable, the methodology from which that rate is derived must be accurate and appropriate. As a result, we submit that a review and a hearing on the COS methodology is required and should be conducted as soon as possible.

The discussion of a Lost Revenue Adjustment Mechanism ("LRAM") makes it clear that NSPI would be in a conflict of interest as DSM administrator. The Province's recently announced consultation on accountability and administration suggests that the Collaborative should consider delaying debate over this recommendation until the administrator of DSM is determined. However, the Collaborative continues to include the proposed LRAM in its proposal.

In the event of utility administration, we submit that the inclusion of an LRAM encourages a focus on measured as opposed to actual savings. On this issue, we concur with the comments of NPB, the EAC and its consultant, Blair Hamilton. Mechanisms like the LRAM, in the case of utility administration, create the wrong incentive. There is an incentive for the utility to maximize measurable energy savings and to minimize actual energy savings. It is additionally troubling that the proposed method of DSM expenditure recovery and the LRAM will result in single issue rate making without consideration of the factors affecting NSPI's rates.

With respect to DSM costs, the Collaborative supports allocation of DSM program costs across the entire rate base and recovery of DSM costs from all classes. The Collaborative suggests that DSM costs be classified as demand or energy related on the same basis as NSPl's overall demand and energy costs from its most recent COS. We agree with NPB's comments on this issue; DSM is a higher level of service for customers that obtain direct benefit from the DSM program, while interruptible rates are a lower level of service with obligations on the interruptible customers. We submit that the COS as it applies to DSM means that those who get the direct DSM benefit should bear the cost of DSM.

DSM costs should be allocated fairly. Those classes that require greater spending to achieve results should shoulder a greater portion of DSM expenses. Classes that benefit the most from DSM spending should bear expenses in proportion to the benefits being received.

MAGNITUDE AND TIMING OF PROPOSED SPENDING

NSPI's December 8, 2006 DSM filing included Year One spending proposed at $6.5 million and Year Two spending $10.6 million. However, the Collaborative's DSM proposal contemplates $10.5 million in spending in 2009 and $21.5 million in spending in 2010. Far greater increases are proposed in the years after 2010. The Collaborative's level of proposed spending is enormous, especially given the lack of accountability and performance based incentives for DSM success.

The magnitude of proposed DSM spending is based in part on the results of the IRP. We note that the IRP has not yet been accepted by the Board and the IRP itself is one of the issues scheduled to be addressed at the upcoming DSM hearing. On multiple occasions we have objected to the inaccurate and unreasonable foundations upon which the IRP is based, including the Summit Blue Report, and we intend to reiterate these views before the Board.

The level of proposed spending, combined with the lack of meaningful accountability, is concerning. We are mindful of the possibility that the proposed DSM plan may not be successful and the estimated savings may not be achievable. Therefore it is important to include the ability for a mid-course correction.

The Board's issues list for the DSM hearing directs that the Board will consider proposed DSM expenditures for 2008 to 2010. Any proposed spending and potential savings targets beyond 2010 fall outside the purview of current process. Much like the recently approved FAM, the Collaborative should expressly acknowledge that a DSM trial run, of sorts, is appropriate. What is required is a reasonable level of spending and substantive proof of success from an accountable administrator. Only then will further increased levels of spending be worthy of consideration. Initial programs, and their level of success, should dictate the direction to be taken after 2010.

THE COLLABORATIVE'S APPROACH TO STAKEHOLDER COMMENTS

In its letter of October 4, 2007 to NSPI, the Board directs that: "The terms of reference clearly provide for consultation with the stakeholders. In accordance with various submissions received, the Board requires that these consultations be meaningful."

One example of how meaningful consultation is lacking is as follows, as the Collaborative's December 11, 2007 filing states:

> *"MEUNSC and Avon indicated that the managing agency for DSM must be held accountable for results and that UARB oversight of DSM expenditures is warranted. Stakeholders noted that the DSM program must be flexible and be able to refocus and adjust programs as the need arises. The Collaborative agrees and proposes both a UARB Steering Committee and a Stakeholder Advisory Council.*

Avon et al. did not request that the Collaborative create an Advisory Counsel that would be subordinate to the direction of NSPI. As can be seen above, "MEUNSC and Avon indicated that the managing agency for DSM must be held accountable for results."

This is simply one example of the way in which the Collaborative has failed to conduct "meaningful consultations" with the stakeholders to date. Listing the names of stakeholders, paraphrasing their submissions, and then ignoring the thrust of their recommendations cannot be considered meaningful consultation.

Our concern with the Collaborative's approach to these consultations serves to highlight our related concerns with the proposed DSM Advisory Counsel and Steering Committee themselves.

ADVISORY COUNCIL & STEERING COMMITTEE

The proposed DSM Advisory Council provides virtually no meaningful ability for stakeholders to give recommendations that will be legitimately considered for inclusion in the DSM strategy. The proposed arrangement merely provides the outward appearance of consultation.

The Collaborative's proposal places the fundamental pillars of the DSM plan including planning, budget allocation, performance indicators and incentives for success under the control of the NSPI-led DSM Steering Committee. Currently, there is no guarantee that critical DSM information held by NSPI and the DSM Steering Committee will be made available, in its entirety, to the stakeholders.

We support accountable administration in part because we are not inclined to regularly delve deeply into the minutiae of DSM programming. Accountability will minimize the necessity for stakeholders to actively oversee DSM programming. Such onerous oversight is simply one further regulatory burden for the stakeholders that should be minimized as much as possible.

Regardless of the identity of the administrator, the proposed roles for the Steering Committee and Advisory Counsel are problematic and unacceptable in their current form. The Participation of the Board Staff and Board Consultants in the Steering Committee will be an impediment to rate payers when they seek to review the appropriateness of expenditures made for unsuccessful programs.

PROGRAMS

We have chosen to reserve our comments on specific programming for the time being. An accountable administrator will be incented to seek the most beneficial programs at the least cost. An accountable administrator will be in a position to select the best programs and deal with the minutiae of implementation. Only once the accountability and administration issues have been resolved can we move on to fully address DSM programming.

We are supportive of early DSM programming, with the caveat that such programs do not predetermine or conflict with stakeholders' express preference for independent administration and accountability. We submit that paper hearings may be conducted on any early DSM initiatives that NSPI may wish to propose. Given that the issue of administration may remain

unsettled in the short term, we feel that early DSM programs must be neutral on the issue of administration. Early DSM programs should also, to the extent possible, utilize existing infrastructure, utilize existing and complementary programs, and be easily transferable to another administrator.

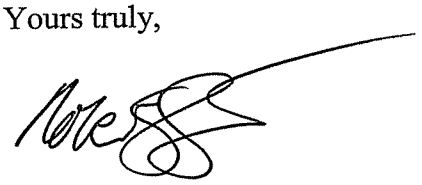
CONCLUSION

The Collaborative is currently proposing spending a great deal of rate payers' money on DSM. The goal is to successfully reduce energy demand and consumption to provide the greatest overall cost savings. We submit that NSPI is not well suited to run DSM, as it is in an inherent conflict of interest situation.

Regardless of who the DSM administrator may be, energy efficiency success will most likely be achieved by an entity that is accountable and appropriately incented. Accountable administration is best achieved by providing rewards for DSM success and penalties for DSM failure.

We would urge the Collaborative to reconsider the scope of the current application to focus upon near term DSM programs most likely to be successful so that we may avoid a pitched battle over DSM cost recovery, lost revenue mechanisms and DSM programming details. We strongly urge the Collaborative to consider the comments of stakeholders regarding the need for accountablility respecting program administration. We would also request consideration of ongoing review of the appropriateness of the unprecedented steep ramp up of DSM expenditure against the effectiveness of programs.

Yours truly,



Robert G. Grant, Q.C.
Counsel to Avon et al.

RGG/am

cc: Bruce Outhouse, Q.C., Board Counsel
Rene Gallant, Regulatory Counsel, NSPI
Eric Ferguson, Manager, Regulatory Affairs, NSPI
Marlene Gargan, NSPI
Formal Intervenors – P – 884
Nancy Rubin

Affordable Energy Coalition

Adsum for Women and Children

Affordable Housing Association of Nova Scotia

Bayers Westwood Family Resource Centre

Canadian Mental Health Association – Nova Scotia

Community Action on Homelessness

Community Advocates Network

Council of Co-Chairs for Capital District Health

Dalhousie Legal Aid Service

Diaconate of All Nations Church

Disabled Individuals Alliance

Ecology Action Centre

Family SOS

Feminists for Just and Equitable Public Policy

Halifax Coalition Against Poverty

North End Community Health Centre

Nova Scotia Association of Social Workers

Nova Scotia Public Interest Research Group

Social Activist Law Student Association

Society of St. Vincent de Paul

Transition House Association of Nova Scotia

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January 17, 2008

Via Email

Dr. John Stutz, Ph. D.
Tellus Institute
11 Arlington St.
Boston, MA

Dear Dr. Stutz,

Re: Stakeholder feedback on Demand Side Management Plan

The Affordable Energy Coalition (AEC) seeks to ensure access to universal access to a reasonable amount of energy services for all Nova Scotians. To implement this principle the AEC works towards the eradication of energy poverty in Nova Scotia and represents the interests of low-income Nova Scotians regarding energy issues. As such, the AEC is greatly invested in any DSM plan that the Company will put forward.

The AEC is supportive of the comments in the submission from the Ecology Action Centre (EAC), including the emphasis on performance indicators, penalties and rewards for the administrator, stakeholder oversight and process issues. We would like to take this opportunity to highlight concerns with the DSM plan specific to programs for low-income energy consumers.

The AEC has strongly advocated that spending on low-income customers should be set as a minimum. Summit Blue's original plan expressed low-income funding as a maximum and the latest plan has a very low level of spending for low-income customers. We recommend 15% of overall budget as the minimum, which is consistent with poverty levels in Nova Scotia and the minimum performance indicator suggested by the Ecology Action Centre.

The AEC would also like to reiterate that low-income programs must be designed to eliminate many of the barriers to energy efficiency encountered by low-income customers. In that regard, programs should take into account the first-cost barrier as well as barriers related to trust, renter-split incentives, special needs and access to audit and contractor services. Programs should be accessible to both renters and homeowners. The budget cap suggested per household will not allow for thorough retrofits of low-income households. The objective per household in the general EnerGuide program suggested is to implement all cost-effective measures. There is no reason why this should not also be the objective in low-income households. Blair Hamilton from the Vermont Energy Investment Corporation (consultant to the EAC), who has expertise in low-income program design strongly recommended against a budget cap at the last stakeholder meeting. The AEC sees such a budget cap as a form of discrimination against low-income customers.

The administration and accountability of the DSM plan has also been identified by stakeholders, including the AEC, as an issue that remains to be resolved. As noted in the submission from the EAC, the issue of administration is interconnected with accountability as both are integral to the success of any DSM plan put forth by

NSPI.The AEC supports the EAC's suggestions for performance indicators and reward/penalty mechanisms and given the potential conflict of interest of NSPI, an independent administrator should be put in place. The AEC reaffirms the comments made in the January 9th, 2008, stakeholder letter which stated "NSPI is ill suited in the current circumstances and climate to carry out these activities [DSM programs], and we are disappointed at the failure of the Collaborative's documents to truly address the legitimate and numerous concerns raised by each of us."

Yours truly,

Kathleen Ives
Senior Law Student

Megan Leslie
Community Legal Worker

MERRICK JAMIESON STERNS WASHINGTON & MAHODY

BARRISTERS

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January 18, 2008

VIA EMAIL
23341

Dr. John Stutz
Vice President
Tellus Institute
11 Arlington Street
Boston, MA 02116-3411

Dear Dr. Stutz:

Re: NSPI – DSM P-884

We write to provide our input regarding the ongoing work of the DSM Collaborative pursuant to the terms of reference issued by the Board on October 4, 2007.

The Consumer Advocate is in the process of assimilating not only the information that has been provided as part of the Collaborative process but also background information on DSM programs. As a result the CA is still developing a position on the issues relevant to the residential consumer. As such this letter will be limited to identifying the current issues that we consider to be of particular concern to our constituency as opposed to making specific recommendations at this time.

We are concerned about the apparent lack of serious consideration given by the Collaborative to the concerns expressed by stakeholders, particularly when those concerns reflect a broadly held consensus on some issues. We continue to hope that the report to be filed by the end of the year will show evidence of having heard what the stakeholders have been saying.

The Consumer Advocate agrees that a fundamental imperative is to begin realistic DSM programming now. But we strongly believe that in doing so there be a clear identification of objectives. Are we trying to save money or are we trying to decrease demand or are we simply trying to spend 5%. Surely it is not the latter.

ADMINISTRATION

We do believe that having NSP administer the DSM program would create a significant conflict of interest. The reasons for that conflict, both actual and apparent, have been stated.

Currently, the Board and the Province are proceeding with independent determinations regarding a program administrator. The determination of whether the DSM program is to be independently administered will, in our view, make a difference in how other components of the plan should be designed. We are sceptical that all aspects of a DSM program can be easily transferrable to another entity.

We believe that an effort must be made to accelerate the decision by the Province as well as unifying these two processes. The company, stakeholders and perhaps the Board need to press the Province to move as expeditiously as possible. We are encouraged by the submission by Mr. Allan Crandlemire of Conserve Nova Scotia at the January 11 stakeholder meeting when he indicated that action by the Province may well occur within 90 days of the February consultative process.

Further, at this early stage, with the issue of administration still undecided, the approval of DSM programming must not foster the build-up of significant administrative structure and costs within NSPI.

Pending the conclusions of the Province regarding DSM administration, the Board process should focus on developing the initial phase of programs and ensuring that data collection systems are established. As the ECA presentation at the recent stakeholders meeting demonstrated, the establishment of a data collect methodology and a number of specific programs can be initiated without delay and would, in any event occupy the first 1 - 2 years of the program. We believe that rather than approaching the initiation of a DSM program in two phases would not only allow time for the decision to be made and implemented as to independent administration, but also be a more rational basis to proceed. Recognition that implementation will occur in two phases will give more of an opportunity to have a full evaluation at the end of two years and to make whatever course corrections are necessary, even if significant.

THE SCOPE OF THE DSM PLAN

Allocating 5% of revenues to DSM spending is an ambitious goal. Considering that NSPI is starting from a standstill, this goal needs to be closely scrutinized by the Board. Initially the Board should consider the approval of a two-year DSM plan so that the DSM undertakings can be fully evaluated prior to further significant increases to the DSM budget. This would also be an appropriate way to allow further assessment of DSM administration.

The programs presented by the Ecology Action Centre at the January 11, 2008 stakeholder session would address the immediate requirement for DSM action in the context of a pending decision regarding administration.

ACCOUNTABILITY - STEERING/ADVISORY COMMITTEE

In its draft plan, NSPI proposes that DSM decisions be made by a Steering Committee comprised of NSPI representatives and Board staff. This structure raises serious concern and is related directly to the independence of the Board.

This issue is closely linked to accountability. Any administrator of a DSM program (whether utility or non-utility) must be held accountable if costs do not conform to budget or if anticipated savings are not achieved. Holding the administrator to account will be made more difficult if Board staff participated in the initial DSM programming decision.

REVENUE AND COSTS RECOVERY BY NSPI

We are concerned with the "automatic" manner in which NSPI intends to recover both the costs of the DSM program and any associated lost revenue. Our concerns in this area are heightened by the fact that this will be NSPI's first significant involvement with DSM programming and a track record of positive performance should be achieved prior to authorizing the automatic recovery of these costs and lost revenues.

We also see the issues of incentives and penalties as important and deserving of thoughtful consideration as this process moves forward.

ALLOCATION OF DSM COSTS

We are aware that various parties will attempt to have the costs of DSM allocated in a specific manner which will yield greater benefit for particular groups. On this issue, we support the current proposal that DSM costs be allocated consistent with the cost of service methodology adopted by the Board.

LOW INCOME ASSISTANCE

This issue is of critical significance if we are to ensure that all customers have an opportunity to meaningfully participate in DSM programs and the associated savings.

Yours truly,

John P. Merrick

William L. Mahody

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January 18, 2008

Dr. John Stutz
Vice President
Tellus Institute
11 Arlington Street
Boston MA, 02116-3411

Dear Dr. Stutz,

Re: CME Stakeholder Feedback on DSM Plan

The CME welcomes the opportunity to provide feedback on this very important initiative. At the outset, we would like to state that the CME fully supports DSM initiatives for our province, despite concerns around the planning process expressed within this letter. It is critical that any DSM plan is properly conceived, thoroughly reviewed and effectively implemented to ensure not only buy-in from all stakeholders but also the eventual achievement of desired results.

The CME would like to reiterate its support of the positions outlined in the joint letter sent to you on January 9, 2008. The extensive list of the intervenors who were signatories to that letter and the constituencies that they represent is of significant importance. This cannot be understated as parties are frustrated by the process to date. Key to all was that matters related to independent administration and accountability are not being properly recognized nor addressed by the present process and proposal. In fact, it continues to be the position of the CME that failure to address those two key elements and the major issues that are subsidiary or related to them will result in the parties having to appear before the UARB in what could prove to be a highly contentious hearing, which, in and of itself, is likely to be damaging to the process and could cause further delay.

Many parties have been working on this issue for a long time and would also find a further delay unacceptable; however, it is not acceptable to force a process or proposals forward by constantly stating that delay will result in an automatic path towards a coal burning generation facility. The results from a poorly designed DSM program will lead to exactly the same undesired outcome, at a greater monetary cost to rate payers.

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The only course forward is to design a DSM program that is realistic, achievable, effective and has the confidence of
stakeholders.

The following are the CME's key points and are in no particular order and therefore they are not representative of their relative importance, however, all are important to the CME.

Independent Administration: It is imperative that DSM be accomplished via an independent administrator. The reasons for this are numerous. One, much needs to be accomplished in a short period of time and it is therefore important the best vehicle be chosen that has buy-in and credibility. Two, there needs to be full accountability. This is more easily achieved if the system that is established is singular in focus (to accomplish DSM), has no conflicts and can be more easily measured because it is not imbedded or saddled with other obligations and administration. Three, it removes an imbedded and inherent conflict of interest that is present when DSM is run by the utility. Four, independence removes many of the proposed design elements because they will not be necessary such as the LRAM, committee structure and mandate. Five, there is higher perceived confidence by ratepayers and others.

Accountability: This is, in part, achieved by independent administration but also performance has to be stated, measured, quantified, and validated. Programs that are underperforming need to be adjusted to either improve or otherwise be terminated. Programs that are doing well should be expanded or their investment increased to achieve maximum results. Therefore, program flexibility is required. The performance indicators must be known in advance, they need to be properly measured and there has to be penalties and incentives for the failure to perform or for having performed. For example, on page 21 of Administrative Issues Analysis document it specifically states that "*the DSM Collaborative does not support separate identification of these groups in EM&V efforts".* What cannot be measured cannot be managed. It is critical that target groups, sectors and specific programs be designed to ensure that information is captured, performance is measured and that there are consequences (good and bad). DSM is a portfolio of programs and each needs to be measurable and accountable to achieve global results.

The present plan has no penalties or incentives and the methodology to measure them, in the opinion of the CME, is severely wanting. The measures of performance need to be in place regardless of who is the administrator or chosen party to deliver specific programs. A substantial expenditure is proposed for DSM, but there will be no confidence in making this investment, in whole or part, if the rate of return cannot be measured. In short, the savings have to equal or be greater than the money spent by ratepayers. Also, this is important as it relates to integration which will be discussed later. There are other DSM programs already in existence that should be levered and coordinated with new

programs, yet care should be taken to ensure the performance of each program can and is measured separately.

Stakeholder input: The consulting mechanism proposed (Advisory Council and Steering Committee) and its related design and process is, in the opinion of the CME, unable to achieve what the stakeholders desire. It is unclear in the proposal as to the role, flow of and access to information, actual accountability, etc. The Advisory Council appears to have no real influence and the Steering Committee is neither independent nor accountable. Also, there is concern that, due to the makeup of the Steering Committee and the role it plays, intervenors would not be in a position to challenge decisions taken or implementation failure by the utility based on those "consultations" and not be able to meet the high and difficult threshold of imprudence.

In fact, with the present proposal which includes annual adjustments (the true up mechanism - pages 24-25), it does not appear that stakeholders would get the opportunity to have this easily addressed in the course of a normal rate hearing. Also, using the UARB in a regularly timed meeting in contested (and potentially acrimonious) matters in reviewing performance is expensive and inefficient. On page 24 of the Administrative Issues Analysis in the section about True-Up Mechanism it is proposed that recovery "*will be calculated in September based on estimates of program costs and lost revenues for next year…".* This is just an invitation for more and expensive formal hearing review processes together with expert review.

Magnitude and escalation of the spending on DSM: The Administrative Issues Analysis is not at all clear as to the spending amounts proposed; however, it is known and widely understood by all stakeholders to be a significant number. On page 12 of the Administrative Issues Analysis its states that "*NSPI's draft DSM plan proposes an initial investment of $10.6 million to target 51 GWh in Year 1, and increasing annual investment levels to attain 978 GWh (cumulative annual savings) by Year 5.*" This is a significant amount of ratepayers' money to spend without having identified true measurable programs to achieve them and it increases exponentially and significantly over time.

This is inextricably tied into the issue of independent administration and accountability. The proposal takes us to spending levels far in excess of what has been done in any other jurisdiction in North America and does so in a DSM market that is in its infancy compared to others that are only reaching or just exceeding levels of 2%. And it is proposing to do so in a very short period of time. In fact, the Draft DSM Programming Plan confirms this by stating that "*The magnitude of DSM identified as optimal through the IRP process is larger than most DSM efforts being conducted in North America…spending somewhat more than 5% of retail revenues on DSM at full scale."* The CME is concerned that not only is this unprecedented, it is risky.

At page 11 of the Administrative Issues Analysis there is confirmation that this is a "*very aggressive savings target*" but defensive measures such as a "no regrets

standard" and a "mid-course correction" have no explanation let alone supporting information and analysis. They are mere phrases but are critical. As noted above, DSM is a portfolio of programs and the need for such initiatives is negated if programs are only embarked upon if they can demonstrate the potential to meet set standards and are consistently reviewed and tweaked as time progresses.

Also, from a practical point of view, in the opinion of the CME, the present plan does not address operational realities of large ratepayers. Programs have to be developed to meet our unique circumstances and the rate of return (and the magnitude of benefit in dollar terms) must first be demonstrated to management and then get into the budgetary and implementation process within those organizations. Changing out motors/lights etc. is not done in the industrial setting as simply as changing bulbs in one's house. Although the CME recognizes that there are always opportunities for DSM initiatives, we have limited confidence that the amount of DSM opportunities being projected will be available given the initiatives organizations have already implemented. For example, the bulk of energy efficiency in our member organizations will come from boilers (which are a hydrocarbon and not electricity matter) and that savings that are achievable from lighting in the industrial sector is overstated.

In short, what is proposed is a very aggressive spending program that starts high, escalates quickly with no known or specific measurement criteria and only a few empty phrases as to what could be done to mitigate the risk in the event things are not turning out as planned. The CME's overall concern is that this huge magnitude of spending could result in more being spent than is achieved in savings (in short – a power tax) and that ratepayers would ultimately have to pay at a later date for new generation because DSM did not meet its aggressive goals. That is, to pay twice. Coupled with the proposed LRAM, cost recovery, no penalties, etc., it is ratepayers who are shouldering most, if not all, of the risk with little or no real say in how DSM will work or be measured for their benefit. In fact, the proposed program cost recovery combined with the revenue for lost sales makes the utility whole with no consequences for not achieving forecasted benefits. There is an inherent conflict of interest and although such proposed measures theoretically may balance the conflict they do nothing to remove it and certainly do not contribute to ensuring success of DSM.

We should start with programs that are known to work, can be adapted for implementation in Nova Scotia and achieve initial real success. The proposed plan is for a quick ramp up for large expenditures that has not yet been supported by any concrete information nor supported by program designs that would get you there. The amount of investment required should first come from plans that can demonstrate an ability to achieve specific and measurable results. One does not take a universal (and arbitrary) financial number and simply state that this amount of expense will achieve a certain result. Program design and good execution achieve results. The cost of programming is built from the bottom up and not dictated to from on high based on speculative numbers and

especially ones that are bold extrapolations of levels of global spending from other jurisdictions.

Programming: It is premature to address specific programs; however, the CME is of the view that programs that have been effective can be implemented in Nova Scotia (compact fluorescent tubes, commercial lighting, etc.) in the short term so as to not delay DSM while issues of administration, etc. can be addressed in the intervening time period. Also, they can be designed to ensure that the performance can be measured regardless of who is the implementer of the program, now or in the future. They can also be designed to be made assignable to a future administrator. The CME, independent of this process, has just completed an energy efficiency study which was estimated to include about 70% of industry. This is an example that DSM initiatives can and have proceeded.

Generally, the CME believes that following is required or absent from the proposal:

- There are no advance known performance mechanisms and processes that ensure the information is clear, usable, easy to understand and accessible.

- That performance must be tied to any specific penalties or incentives. **This is a requirement for the CME regardless of who administers or delivers programs.**

- That to succeed there had to be multiple levels of oversight/administration and other tools that provide a complementary set of checks and balances so that ratepayers do not have to spend time and effort on detailed review but can rely on systemic safeguards and inherent strengths such as,
    - UARB oversight
    - Independent administration
    - Competitive processes
    - Incentives and penalties, etc.

- Measurement and valuation by independent parties is required.

- It is unclear that DSM programming will be competitively contracted out (an EMGC recommendation) thereby achieving not only best pricing and creative development and implementation but also ensuring that structure and overhead are not built and supported if programs need to be reduced, changed or eliminated.

- It is unclear as to how programming will be integrated with other programs presently available, run by others (e.g. NRCAN, Conserve Nova Scotia etc.) to ensure leverage, avoidance of duplication and true measurability of outcomes.

- It is unclear how programs for commercial and industrial ratepayers will be properly tailored to meet their requirements to realistically achieve DSM. Nor is it clear how programs will be funded by ratepayers to be appropriate and equitable including those ratepayers suitable and in a position to self-administer DSM. CME members account for approximately 35% of the load and revenue of the utility and it is not clear, under this proposal, to what extent they will be able to participate, benefit and be required to pay. Organizations need to demonstrate a rate of return that is greater than that of other internal projects to access capital either external or internal. Resources to analyze the cost/benefit are a first constraint even before access to capital. In addition, clear savings or benefits (i.e. incentives) further pushes this to the top of the pile. If DSM is just imbedded in the rate and requires parties to search and apply to programs, the benefits could be delayed, and pick up will not be as high or will not be as large as expected. It is unclear as to how the "cost of service" model proposed will actually work. In its present form, it could actually be an overall disincentive and perhaps even a tax if organizations are forced to pay but may not be able to access the benefits. In this case a direct and close tie between cost and credit is a key element for success.

In closing, the overarching issues of independence and accountability need serious consideration by all parties including the Government of Nova Scotia as well as the Collaborative.

Thank you for the opportunity to be part of the stakeholder sessions and provide our feedback.

Yours truly,

Canadian Manufacturers and Exporters

Robert Patzelt, Q.C.

cc: Rene Gallant
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Stakeholder participants
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January 16th, 2007

Dr. John Stutz, Ph. D.
Tellus Institute
11 Arlington St.,
Boston, MA

Dear Dr. Stutz,

Re: Stakeholder Feedback on Demand Side Management Plan

The Ecology Action Centre recognizes that the demand side resource plan that needs to be created expediently will guide the province's direction in this area for years to come. We see much value in creating a plan from the outset that inspires confidence in its effectiveness.

The EAC also recognizes the urgency in acquiring demand side resources in Nova Scotia. The potential for new coal fired generation will not only be much more expensive for ratepayers; it will also severely jeopardize Nova Scotia's legislated climate change goal of reducing GHG emissions 10% below 1990 levels by the year 2020. Failure to aggressively and effectively acquire demand side resources will either result in a failure to reach the legislated GHG reduction goal or the goal will be achieved in a manner that will be much more expensive for ratepayers.

Stakeholders in the process have highlighted accountability and administration as a fundamental concern. Without accountability for results and performance assurance public stakeholders are at risk of being affected by rate increases, higher energy bills, and environmental degradation in the event of non-performance.

Concerns regarding accountability are related to the choice of administrator for demand side resources. Given NSPI's potential conflict of interest, thus far the DSM plans put forward have yet to inspire confidence or assurance that NSPI has the proper motivation to be highly successful in achieving results with ratepayer funding.

The EAC recognizes that reaching conclusion on the issues of accountability and administration has real potential to alleviate many of the concerns of stakeholders and result in a quicker, smoother, and more effective, flexible and innovative deployment of demand side resources now, and in the future. It is in the long-term interest of Nova Scotia to acquire demand side resources in a manner that provides confidence and assured performance.

We also wish to strongly state that any discussion of further delays in moving forward is unacceptable at this point in time, given that the issues related to administration and accountability have been highlighted in this province since 2005 and throughout the IRP and DSM processes that have occurred for some time now. We urge the Government, the Board, NSPI and stakeholders to take the action required and to swiftly work towards a resolution that can inspire confidence and provide assurance of performance to stakeholders.

The letter written by a large group of stakeholders on January 9th, 2007 clearly demonstrated interest in dealing with issues of administration and accountability. The comments of the EAC will therefore concentrate on how we can resolve these important issues, while achieving the savings goals outlined in the Integrated Resource Plan (IRP).

Performance

The EAC wishes to highlight the need for a framework that assures stakeholders and the public of accountability for results, regardless of the final outcome of the administrative question.

A set of performance indicators can provide a clear indication of the objectives of the demand side resource plan to all parties, and thus avoid misunderstandings in the future.

The *Updated DSM Administrative Issues Analysis and Discussion of Stakeholder Feedback on DSM Programming* included a listing of performance indicators related to overall program cost-effectiveness, total net electric resource benefits, as well as energy and demand savings.

In addition to these performance indicators the EAC has suggested:

1. Minimum benefits by sector
2. Minimum expenditures for low-income
3. Benefits by Geographic Region
4. Benefits to Small Business
5. Market Share Indicators

The first 4 indicators can be seen as relating to equity and the last set of indicators relate to market transformation.

We wish to highlight why it is in both the interest of stakeholders and the administrator to include the equity indicators we propose. Making reasonable efforts to serve all customer groups due to equity and/or administrative ramp-up considerations are characteristic of DSM programs. We do not see the plan in Nova Scotia being an exception. However, without equity indicators, stakeholders cannot be assured that participation will be available to all customer groups – this is

especially relevant to customers that have high barriers to participation. Equity indicators can also be beneficial to the program administrator because the expectations regarding equity will be clear and misunderstandings that will lead to disputes regarding “fairness” will be reduced. We understand that there are some concerns regarding knowledge of markets. We feel the indicators we have proposed are consistent with the already understood intention to serve all customer groups, and that they provide ample flexibility for the program administrator. Indeed, by providing assurances to stakeholders and administrators alike about the program goals, equity indicators can enhance flexibility, innovation and cost-effectiveness.

We also support the inclusion of market share indicators to avoid too much focus on measures and programs that simply maximize short-term resource acquisition. It is again apparent that Nova Scotia's plan will include strategies for both resource acquisition and market transformation. Yet, without clear indicators for market transformation, stakeholders cannot be assured of performance in this area and the administrator will either not pursue market transformation or they will be at risk of criticism or penalization for having pursued market transformation when it was not stated as a clear objective.

The EAC would support defining performance indicators, in cooperation with public stakeholders, as a first step towards achieving greater accountability for efficiency investments.

Performance indicators help *define* performance, but performance can only be *assured* if significant financial consequences are linked to achieving results. We wish to strongly emphasize that we do not see good intentions being sufficient to assuring and achieving performance, even if we do not doubt these good intentions. Nor do we see litigation of efficiency performance after-the-fact as an efficient or effective way to achieve performance. We would note as a non-profit, public interest intervener that the EAC would likely not have the resources available to it to pursue this option to ensure accountability.

We propose that a penalty and reward system for any program administrator is necessary to create the right motivation for success. The magnitude of the penalty/reward for each indicator can depend on its respective weighting.

We understand that some might be concerned with creating a tendency for a program administrator to support easily achievable performance indicators. This potential tendency can be offset through a number of actions, which include:

1. Creating an understanding through a Board directive that the “performance indicators” will be based on 'superlative' performance. (They should be “stretch” indicators)
2. The Board and stakeholders must be integrally involved in the creation of the performance indicators. Both of these entities will have an incentive to push for “stretch” indicators.

3. Ensuring that the program administrator's mission is aligned with energy efficiency and that superior performance in energy efficiency is linked to the entity's mission, purpose and reputation.

We would also note that mechanisms such as a rate rider for program costs and a lost-revenue adjustment mechanism (LRAM) can also create perverse incentives in the case of utility administration. In the case of utility administration, there is an incentive for the utility to maximize measurable energy savings and to minimize actual energy savings.

Many jurisdictions have found themselves in costly and acrimonious arguments over the utilities' savings claims in jurisdictions utilizing an LRAM. It does not appear that the situation in Nova Scotia will be any different. It appears that much would be gained if we were to deal with the utility's "financial concerns" through a performance mechanism or if Nova Scotia were to opt for independent administration through an energy efficiency utility regulated by the Board.

The EAC wishes to strongly support linking financial rewards and penalties for the DSM program administrator with performance, as defined by performance indicators. This should take place regardless of whether Nova Scotia eventually opts for utility or non-utility forms of administration.

The EAC's previous submission presented an example of a penalty/reward mechanism. This mechanism was an example open to modification, but the general approach appears to have broad support. In the case of utility administration penalties as well as rewards are essential because efficiency will not be the utility's only area of business. In the case of independent administration, only receiving program costs will in many cases act as a penalty since the entity's fundamental area of business would likely be energy efficiency.

We wish to urge that a more elaborate list of performance indicators be adopted and weighted in direct consultation with stakeholders and that the program administrator be rewarded or penalized based on results.

Advisory Council/Steering Committee

The EAC considers assurance of proper public oversight integral to achieving accountability for demand side resource investments. Ensuring proper public oversight through an entity such as an advisory council is something that will be needed regardless of the final outcome of the administrative issue, but the nature of the advisory council will change based on issues related to administration and the performance issues discussed above.

It is the EAC's observation that stakeholders would prefer to not wish to spend an inordinate amount of time and resources micro-managing and questioning every detail of demand side

resource planning and programming. However, if stakeholders cannot be assured of accountability for results through clear performance indicators, penalty/reward systems and proper choice of administrator, they can and will utilize significant time and resources to assure accountability. The EAC sees the later situation as a second best option.

Stakeholder resources are much better spent engaging at a high-level by defining the objectives of the demand side resource plan, creating performance assurance mechanisms, and providing helpful suggestions on programs, evaluation and draft plans. This more collaborative situation can occur if high-level accountability for results is achieved and if stakeholder consultant(s) are provided with full access to information.

The EAC does not see why the roles of the "steering committee" related to issues such as program review, evaluation, and review of draft plans would not also be of interest to the proposed "advisory council". We would also note that the advisory council consultants must have full access to information. We propose that ensuring these two steps will lead to quicker, easier and more collaborative outcomes.

The EAC would like to recommend that the proposed "steering committee" be replaced by a Board contracted "Demand Side Resource Administrator". The Administrator will be tasked with implementing Board directives and would work on a continuous basis with the Advisory Committee and Program Administrator.

We further recommend that the Advisory Council be included in oversight over all of the functions presently reserved for the "Steering Committee" and that the Advisory Council and its consultants be assured that they will have full access to all information presented to the program administrator, NSPI, and Board representatives.

To ensure that the "advisory council" exists to complement and enhance the Board's regulatory role, we recommend that a clear purpose be stated. We suggest that the purpose of the council be to "acquire all cost-effective demand side resources in the public interest of the province of Nova Scotia". Clarification on the planning horizon (e.g. 3-year demand side resource plans) is also required.

Evaluation and Review

Proper evaluation and review is essential to ensure accountability for stakeholders regardless of who becomes the final administrator in Nova Scotia.

We are fully supportive of NSUARB hired independent contractors to perform annual savings verifications as well as auditing of the initial process and data collection. Extra confidence and

assurance can be provided if stakeholders are involved in the selection of the monitoring and evaluation contractor.

We also recommend the initial development of a tracking system, which we note as not being a small undertaking. Given uncertainty regarding the final program administrator in Nova Scotia, we recommend that the tracking system be freestanding and transferable to another entity. Given the costs associated with tracking, we recommend that its budget be separate from the 4% of program costs suggested for monitoring and evaluation.

Programs

While the EAC is regretful that the issue of administration has yet to be resolved, we fully recognize the importance of starting efficiency programming. It is important to start soon to meet the savings goals in the IRP to avoid generation options that will be more expensive. Starting earlier will also send a signal to the market and allow Nova Scotia to gain some experience with implementation.

We wish to first highlight a number of policy issues related to programs that are relevant regardless of which entity administers.

Given that the administrative issue has yet to be resolved, we wish to highlight some criteria for early program implementation that will lead to effective programming that will not prejudge the issues of administration.

Below we will discuss program policy issues, programs that can be implemented in 2008/2009 based on criteria outlined, and we will suggest program strategies after the administrative issue is settled.

<u>Program Policy Issues</u>

Integration

Some narratives mentioned limiting programs to buildings with electric heat. This implies that buildings with non-electric heat would not be able to access program services for electric hot water, electric appliances or electric lighting, for example.

If however the electric ratepayer program integrated with Conserve Nova Scotia, or other delivery agents, the existing capacity in these organizations could help the electric administrator achieve energy savings at relatively low incremental cost for itself.

If there is to be more than one central administrator in Nova Scotia, it is best if these multiple programs integrate to provide one-stop-shop, integrated service from a customer perspective while ensuring that electric ratepayer funds are only spent on electric measures.

TRC Test

The documents continue to only count electric costs and benefits and only customer costs (and not benefits) for measures, programs and the overall portfolio. If the TRC test is to be utilized in Nova Scotia, we emphasize that it counts both customer costs *and* customer benefits, including water, oil and operation and maintenance benefits that result from electric measure installation. The EAC is happy to have its consultants engage on how these benefits can be tracked and reported.

Demand Reduction Bias

We would note that the proposed C&I custom program targets demand reduction only. There is no reason why this program would not also target energy savings, and total resource benefits. Such a program should be linked to achieving a full suite of performance indicators.

Low-Income Program

We emphasize the need for a minimum spending level on low-income programs to promote fairness and equity. The need for such an indicator is apparent given the extremely low amount of spending proposed in the plan, despite attractive B/C ratios for the low-income program.

A review of the short-lived EnerGuide for Low-Income Households program in Canada found that budget caps resulted in significant lost opportunities per household. As a general policy, there should not exist a budget cap per household. All cost-effective measures should be implemented in each house in order to meet required performance indicators. The documents that the EAC has provided lists best-practices in low-income program design and they recommend against budget caps.

Eligibility also appears to be restricted to owner-occupied homes. Significant amounts of low-income Nova Scotians live in rental, multifamily and social housing accommodations. They should also be included in program approaches.

Fuel Choice, Fuel Switch and Combined Heat and Power

The EAC does not feel that our discussion on this topic was at all addressed. There is no consideration of fuel choice options in New Housing, fuel switching in existing buildings or evaluating combined heat and power.

These options are just another measure to be screened through the TRC test as such. We wish to emphasize that we are not discussing fuel choice and fuel switch as an issue in a multi-fuel efficiency strategy, but as a cost-effective measure for electric energy efficiency. If one fuel option creates higher resource benefits and will not unduly hamper future flexibility, it is the optimal fuel choice for an electric DSM program, and should be incented in correspondence with general program strategies.

We recognize concerns regarding adaptability to potential energy futures. We suggest promoting heating systems with future fuel flexibility, such as hydronic heating in new houses for this reason.

We wish to also emphasize that Combined Heat and Power can be evaluated as an option within electric efficiency programs, and that CHP has interactive effects with efficiency measures.

Solar hot water was shown to have a beneficial benefit/cost ratio, but is not mentioned in program narratives.

<u>Proposed Criteria for Initial Programs</u>

The fundamental stakeholder concern regarding the issue of administration cannot be ignored, but it is also in everyone's interest to begin initial programming as soon as possible in order to meet the savings goals outlined in the IRP.

We would like to suggest a list of criteria and a process to get programs out and running. To not prejudge the issues of administration we suggest that the following criteria and strategies should be followed to operate initial programming for the year 2008 and potentially 2009.

1. The programs should be contracted out to delivery agents
2. Wherever possible ratepayer funds should flow towards the existing infrastructure within Conserve Nova Scotia and their contractors. This will allow for integrated delivery.
3. Performance mechanisms should be established with contractors
4. We suggest that a “program working group” with stakeholder representation be established to come to agreement on an initial set of programs, their budgets and savings goal.

We believe the last suggestion for a “programs working group” would be much more productive than a “paper hearing” or “general hearing” that will require a large amount of discovery based on the descriptions before us now. From the EAC's review we do not see support for the cost and savings numbers associated with the program narratives. For instance, some measures discussed in the narratives are not in the measure tables at the end of the document and vis-a-versa, and questions remain regarding the B/C tables, staffing and participation levels.

We feel that creating a “programming working group” with full sharing of information and representation by stakeholders can provide confidence in the initial programs that will be proposed in the time-frame that is necessary for achieving savings goals.

Suggested Initial Programs

The EAC feels that the following programs can be deployed in Nova Scotia without prejudging the issues of administration. These programs can operate in 2008 and potentially 2009. Of course, we continue to urge quick resolution of the administrative issue to create a more effective program delivery strategy.

Below is a list of suggested programs and rationale for our suggestions:

1. **Upstream Lighting** – Conserve Nova Scotia has developed a program that will provide incentives for efficient lighting at the same cost or less than standard lighting by providing direct incentives to electrical distributors. A similar program is offered by Efficiency New Brunswick. Such a program is leap-frogging many other jurisdictions in both innovative program design and efficient technologies. Given that this program is entirely focused on electric energy savings, it is appropriate for electric ratepayer investments to fund it. This will provide an opportunity to fully integrate electric and non-electric strategies in a way that will provide further value-added for the electric ratepayer investments. For instance, Conserve NS can focus resources on staff infrastructure that will be able to further aid the electric efficiency program by implementing electric savings measures in non-electric heated homes as a component of multi-fuel retrofits. Conserve NS could also conduct outreach and education that would aid the electric efficiency program's goals.

2. **Compact Fluorescent Light-bulbs** – CFL programs can be easily subbed out. Our comment is that these programs are a good way to achieve immediate energy savings, and if CFL strategies are going to operate they should be deployed sooner rather than later. In Canada and Nova Scotia it is likely that CFLs will eventually become ubiquitous as a result of government standard setting. However, if we wait for this we will miss out on an opportunity for the program to achieve 5 years of energy savings that we would not

otherwise get if we held off on CFL programs. CFL programs should be operated soon for resource acquisition purposes.

3. **EnerGuide for Existing Houses –** In Nova Scotia there is an existing delivery infrastructure for EnerGuide for Existing Houses that is overseen by Conserve NS and contracted to delivery agents. This program can go forward by fully integrating electric measures and incentives into all housing types. By utilizing existing delivery infrastructure electric efficiency measures can be encouraged for both electric and non-electrically heated homes.

4. **Low-Income –** A low-income program can be subbed out to either the general energy efficiency industry or a community-based organization, or both. As mentioned above, we feel the existing program description will result in lost opportunities and fail to serve the entire low-income sector. A program can be launched in Nova Scotia, if the program design is improved.

5. **Self-Administration –** Given the fundamental concerns of stakeholders related to issues of administration and the existence of program plans in organizations such as HRM, we feel self-administration should be re-considered for initial program roll-out in 2008-2009. Performance measures, tracking and oversight will be required for any entity wishing to self-administer programs. We suggest that the Board hire an evaluation contractor or that Conserve NS take over the roll of oversight for self-admin. We also wish to emphasize that an entity opting for self-admin for the initial program period should be able to opt for a custom program once the issues of administration and accountability are resolved.

6. **EnerGuide for New Houses** – We suggest that a New Houses program can move forward if it is operated through Conserve NS and/or third-party contractors and if the program is comprehensive and integrated. We are very concerned with the lack of integration with multi-fuel strategies and the dismissal of fuel choice options will result in the biasing of electric measures (e.g. ETS and heat pump) over efficient fossil measures (e.g. efficient natural gas, propane, wood, solar). Fuel choice options must be fully considered in this program consistent with the policy discussion above.

7. **Direct Install –** In a previous presentation the EAC expressed cost-effectiveness and equity concerns with the initial focus on the small commercial market. It is our understanding at this point that initially starting with a prescriptive program targeted at small commercial is sought to deliver predictable and fast energy savings. We endorse this as an initial strategy, but further recommend that the program quickly move to also address larger markets once it gets started and we recommend against a size cap as a permanent part of program design.

We feel that each of these programs can be effective and can meet the criteria that we suggest above for initial programming which are suggested due to concerns expressed by a wide variety of stakeholders. We urge that all parties seek resolution to the administrative issue as quickly as possible so fuller and more effective program strategies can be implemented in 2009.

<u>After Resolution of Administrative Question</u>

After Nova Scotia resolves the administrative issues a program administrator can expand their staff and operational capacity without regret.

At this point we suggest that the focus on “programs” shift towards a focus on “markets” to better serve customers. A strategy that takes a “market” instead of a “program” perspective can avoid confusion and frustration from customers because of multiple programs competing for attention and ensure that the most effective measures are implemented to meet overall performance goals. Many customers will not easily fit into program categories, but with the right integration strategy one-stop-shopping can be achieved in buildings that might have commercial, residential, low-income, and multi-fuel components, for example.

We would also emphasize a focus on avoiding lost opportunities. At this point programs such as C&I New Construction, C&I Prescriptive Rebate and Products (appliances) should be deployed.

The potential for lost opportunities and competing programs in the interim, speaks once again, to the urgency of resolving the issue of administration.

We also feel that R&D and Education and Outreach should only move forward once the issue of administration is settled. This will avoid competing messaging and “branding” regarding education and outreach.

We feel it would be difficult for R&D to go ahead without resolution of the administrative issue and/or the requisite confidence and assurance with the administrator. We are supportive of R&D and suggest that market assessment is a very important component. While the EAC is supportive of changing rate design to encourage energy efficiency and conservation, we do not feel it is an appropriate area of investment for demand side resource R&D funds. To ensure accountability for R&D expenditures, we suggest that a general plan be presented for comment and approval by an advisory group with disputes going to the Board for final resolution.

Process

As noted above, the EAC feels there is an urgent need to find constructive resolution to the issues that still remain. To achieve resolution, we believe stakeholder concerns must be heard

and that the government's process related to administration and accountability needs to be sped up. If parties can discuss their issues openly and policy makers can show a willingness to take action, the EAC feels that a mutually agreeable resolution can be achieved.

Based on the discussions that occurred at the Friday, January 11th stakeholder meeting we feel that there exist some issues where further collaboration with stakeholders will be useful:

1. The government must expedite its process to consider issues of administration and accountability and show a willingness to take action based on the outcome. In addition to the administrative issue, stakeholders need to be involved in creating performance indicators for Nova Scotia and a system of performance assurance, which includes penalties/rewards tied to goals. The EAC has thus far provided examples and proposals in this area that can be a basis for discussion.
2. The Board and/or Government and/or NSPI can invite further discussion with stakeholders on the steering committee/advisory council role.
3. A "programming working group" with stakeholder and Conserve NS representation should define effective program designs and realistic savings, staffing and budget goals for initial program roll-out.

We feel that further discussion and action on these issues can ensure that we begin to acquire demand side resources consistent with the IRP and in a way that provides the confidence and assurance that stakeholders require.

Sincerely Yours,

Brendan Haley

Energy Coordinator

Ecology Action Centre

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January 18, 2008

Nova Scotia Utility and Review Board
3rd Floor, 1601 Lower Water Street
PO Box 1692, Station M
Halifax, NS B3J 3S3

Attention: Ms. Nancy McNeil
Regulatory Affairs Officer

RE: NSPI – Demand Side Management Program - P-884

Halifax Regional Municipality (HRM) is deeply concerned that the current DSM process will not achieve a sustainable long term approach to DSM.

HRM does not see NSPI as a viable long term DSM administrator. This is not a conclusion that HRM comes to lightly. It is apparent that after several years of stakeholder sessions, comments and discussions with ratepayers, NSPI is unable to overcome its fundamental conflict of interest position on DSM.

The current draft plan submitted by NSPI illustrates why the Utility should not be the administrator of DSM. The plan has not narrowed DSM issues, but broadened them. It has not simplified DSM administration or accountability issues, but complicated them. It has not reflected reasoned, sensible stakeholder input, but minimized it. The conflict which the draft plan is generating threatens to delay effective implementation of DSM. The current process and DSM plan led by NSPI is leading all parties toward a highly contested UARB hearing with little, if any, consensus on issues. This is very unfortunate and unnecessary.

The introduction of a Lost Revenue Adjustment Mechanism (LRAM) so late into the process is but one of many examples underscoring NSPI's conflict of interest in promoting timely and effective energy efficient investments.

HRM has no confidence that NSPI's conflict of interest can be managed over the long term effectively by regulation, UARB oversight, rate payer intervention, advisory boards, steering committees, stakeholder sessions or any other form of government oversight. HRM notes that significant time and effort has been, and will be, expended by intervenors on DSM. Much of this time and effort would be spared with DSM in the hands of an independent administrator as issues generated by the inherent conflict of interest would evaporate.

HRM strongly supports the notion of procuring "competitive DSM" to the same extent as we support competitive new generation. Introducing competition and market forces to promote accountability and cost effectiveness will be a better approach than attempting to regulate a new endeavor in the hands of the utility.

HRM is interested in working with all rate payers, the UARB and the Nova Scotia Department of Energy in crafting a more effective DSM solution involving independent administration.

All of which is respectfully submitted.

Yours very truly,

HALIFAX REGIONAL MUNICIPALITY

Martin C. Ward, Q.C.
General Counsel
Legal Services

/kam
cc Andrew Younger, Chair HRM Energy and Underground Services Committee
HRM Energy and Underground Services Committee Members
J. René Gallant, NSPI
Bruce Outhouse, Q.C., Board Counsel
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Our File: G-2907
January 17, 2008

Dr. John Stutz
Vice President
Tellus Institute
11 Arlington Street
Boston, MA 02116-3411

Dear Dr. Stutz:

Re: DSM Administrative Issues Analysis – Comments on Draft circulated on December 11, 2007

On December 11, 2007, NSPI circulated an updated DSM Administrative Issues Analysis and Draft Programming Report. The Terms of Reference in this matter require written comments by stakeholders on these documents by January 18, 2007. Please accept the following as the comments of NewPage Port Hawkesbury Ltd. and Bowater Mersey Paper Company Limited ("NPB").

General Comments

On November 15, 2007, NPB (then SEB) submitted its written comments to the NSPI DSM Collaborative with respect to its Preliminary DSM Administrative Issues Analysis. Upon receipt of the updated Administrative Issues Analysis in December, NPB was disappointed to see that many of its substantive comments were not adequately addressed in the Collaborative's submission. Particularly, NPB identified numerous areas in the documents in which the Collaborative purported to "agree" with stakeholders, but then proceeded to reject the key substantive concerns that stakeholders had actually attempted to raise with respect to the given issue in the comments.

Following discussions with other stakeholders in early January prior to the stakeholder session on January 11, 2008, it was clear to NPB that this view was widely held among many other participants involved in this process. A group of stakeholders subsequently submitted a joint letter (dated January 10, 2008) indicating dissatisfaction with the Collaborative's approach, particularly with respect to the failure to incorporate any real accountability provisions or to more fully take into account the possibility that recently announced government-led consultations may result in DSM in Nova Scotia being administered by an independent entity other than NSPI.

NPB has identified numerous particular concerns with the approach taken by the Collaborative. A summary of these points follows, in chronological order based on the Administrative Analysis. However, NPB feels it important at this stage to re-emphasize

its broader sense of frustration with the Collaborative's failure to take the possibility of an independent administrator more fully into account in the preparation of this plan given the imminent government-led consultations on the issue. Moreover, NPB is concerned by the failure of the Collaborative's approach to propose any financial consequences or other substantive accountability measures for NSPI as the administrator for the significant proposed DSM investments.

As indicated in the joint stakeholder letter of January 10, 2008, and in our comments at the stakeholder session on January 11, 2008, NPB believes that many of the positions currently adopted by the Collaborative will result in a highly contentious hearing before the Nova Scotia Utility and Review Board ("Board"). This is unfortunate, in our view, as the outcome of many of these issues (such as the scope of the DSM Steering Committee and Advisory Council, cost recovery alternatives, lost revenue adjustment mechanisms, accountability provisions, etc.) will need to either be resolved again, or may disappear entirely, if an independent entity other than NSPI is subsequently chosen to run DSM programs in Nova Scotia in the near future. As it stands, it appears NPB and other stakeholders will be required to expend significant time and resources addressing these issues before the Board in April. NPB would strongly urge the Collaborative to take a broad view of its proposal and modify it as much as possible to avoid such a result with respect to the initial DSM programs to be implemented in Nova Scotia within the 2008 to 2010 time period.

Specific Comments on the Updated Administrative Analysis

The following comments address specific areas and suggested language changes to the documents filed by the Collaborative.

1. Page 3 of the Administrative Analysis ("Analysis") states "Parties noted that it was important for NSPI's DSM efforts to co-ordinate with other DSM efforts, for example, the work of federal, provincial and municipal governments, as well as industry associations and other non-government organizations. The Collaborative agrees." NPB remains unclear as to how any of the DSM programs proposed by the Collaborative will actually be integrated with other DSM efforts in the Province to ensure that resources are not unnecessarily duplicated, particularly in the near term when the question of DSM administration remains uncertain.

2. Page 4 of the Analysis notes "Stakeholders have urged the DSM Collaborative to consider processes for enhanced stakeholder engagement in, and influence over, DSM programs and administration." However, the mechanism proposed in response to this request, the DSM Advisory Council, allows limited opportunity to provide input, suggestions, and recommendations for consideration in NSPI's DSM strategy. This was not the type of substantive stakeholder engagement in the process that was sought by many of the stakeholders. The main work in preparing plans, budgets, proposed performance indicators and incentives for submission to the Board for review and decision is all to be done within the DSM Steering Committee. Furthermore, it is not clear what level of access to information from DSM Steering Committee operations will be available to the Advisory Council.

3. Page 10 of the Analysis notes that NSPI's December 8, 2006 DSM filing included Year One spending proposed at $6.5 million. NPB requests that the Collaborative also note in this paragraph that proposed spending in Year Two of the December 8, 2006 DSM filing was set at $10.6 million. NPB notes that, in contrast, the plan submitted by the Collaborative would spend $10.5 million in 2009 (the first full year of the program), and $21.5 million in 2010.

   NPB also notes that the Collaborative's recommendations on these levels of investment seem at odds with its acceptance of SEB's characterization of the early years of the DSM program on p. 11-12. NPB believes it is fairly clear that "the level of spending contemplated in the 2006 DSM filing... over the initial years" is in the $10 million range. Yet the Collaborative's proposal calls for over twice that level in only the second full year of the program, with far greater increases in each successive year after 2010. NPB believes the Analysis should be clarified to clearly note the magnitude of this increase in contrast to the December 8, 2006 filing.

4. Page 11 of the Analysis states "the actual level of investment chosen is significant in that it relates to the amount of kWs and kWhs saved." NPB notes that this statement appears to contradict Summit Blue's previous report for NSPI, which states at page 56 that its "benchmarking study found no correlation to spending levels and the impact achieved." NPB has consistently raised its concerns regarding the potential availability for DSM in Nova Scotia as estimated by Summit Blue and adopted in the IRP. NPB will not repeat those concerns in this submission, except to note the Collaborative continues to recommend a plan reliant on unprecedented levels of DSM investment, without a corresponding acknowledgment of the limited correlation between savings and the size of the investment alone, as identified in jurisdictions where DSM has been implemented.

   In this regard, NPB notes that Mr. Blair Hamilton of the Vermont Energy Investment Corp. (Consultant to the Ecology Action Centre) specifically noted in his presentation to the Collaborative on January 11 that "jurisdictions that rank highest in efficiency investments have either performance incentives and/or non-utility administration", yet the Collaborative has proposed neither. NPB believes that Mr. Hamilton's statement should be specifically quoted in the Collaborative's final report, and its rationale utilized in revising the report.

   Furthermore, page 11 of the Analysis also references the possibility of a "mid-course correction in the targeted plan". NPB would note that the Issues List for the upcoming DSM hearing clearly specifies that it will only consider proposed DSM expenditures for 2008 to 2010. Thus, NPB believes that any proposed spending and potential savings targets beyond 2010 fall outside the "targeted plan" and remain wholly speculative. Rather than reference a theoretical "mid-course correction", NPB believes the Analysis should clearly state that while the IRP suggests that future increases in the level of DSM investment beyond this timeframe may be economic, these should only occur after careful scrutiny of the plans associated with these investments before the Board in a public hearing and evaluation of the initial programs.

NPB notes that the Analysis goes on to state on page 11 that the DSM programs should "start with goals that are achievable." NPB concurs with this statement, and thus finds it troubling that the Collaborative's approach appears fixated on a ramp-up of DSM spending to unprecedented levels of investment in a few short years, without any practical evidence as to the real effect of DSM spending in the Nova Scotia market.

5. NPB remains concerned that NSPI and the Collaborative continue to underscore the ambitious nature of the DSM proposal contemplated in the IRP (a process whose conclusions have not yet been fully debated or analyzed before the Board). For example, on page 6 of the Draft DSM Programming Plan, the Collaborative states "the magnitude of DSM identified as optimal through the IRP process is larger than most DSM efforts being conducted in North America." In fact, NPB understands the magnitude to be far larger than any other initial 5 year DSM effort ever undertaken in North American. NPB believes the Collaborative's documents should state this explicitly.

6. Page 12 of the Analysis states "stakeholders have suggested that other funding sources and staff capacity, such as may be available at NRCAN or Conserve Nova Scotia, should be considered when determining the appropriate DSM investment level to collect in rates. The Collaborative agrees that NSPI's program should leverage and avoid duplicating the work of other parties actively pursuing conservation and energy efficiency..." NPB believes the Collaborative has overlooked the point stakeholders (or at least some of them) actually raised in this context - that alternative sources of spending should be taken into account in determining the appropriate level of DSM investment to collect in rates. NSPI's proposed level of spending (which is already targeted at unprecedented levels as noted above), will be in addition to any other funds being spent on electricity-based DSM in Nova Scotia. Conserve Nova Scotia's budget (some of which is to be spent on electricity-based energy efficiency) is currently approximately $10 million per year. NPB questions why NSPI proposes that ratepayers fund such extensive amounts of DSM without specific regard to the potential costs (and any corresponding benefits and savings) being incurred by other entities in putting forward its plan before the Board.

7. Page 15 of the Analysis suggests "the proposed portfolio of DSM programs provides opportunities for wide participation for all customer classes and segments." Further in this paragraph, NSPI explicitly acknowledges that "Customers who may not be specifically targeted in the DSM plan, such as NSPI's Extra-Large customers, can consider participating in the Custom Partners Program." As NSPI is well aware, since it states as such on page 6 of the Analysis, the Custom Partners Program is only available in circumstances where proposals of interested partners "demonstrate that the project meets the total resource cost (TRC) test". Thus, it is clear that, under the Collaborative's approach, companies such as NPB who have already undertaken "early action" (at their own expense) to conduct significant energy efficiency initiatives may not be eligible to participate in the Custom Partners Program. NPB requests that the "reference to "opportunities for wide participation for all customer classes" be replaced with explicit acknowledgement that Extra-Large customers will have little opportunity to participate in the proposed portfolio of DSM programs.

Furthermore, NPB requests that the Collaborative explicitly recommend that customers who can demonstrate independent early DSM action be afforded direct credit for these initiatives. NPB also suggests that the Collaborative acknowledge that large industrial entities are likely best situated to carry out their own energy efficiency initiatives (where they remain at a cost effective level), and that the best way to encourage such endeavours (and to credit early action) is to provide direct incentives to such entities by way of monetary offsets to electricity costs where those businesses can demonstrate (by way of third party audit or otherwise) that processes are operating at or near peak efficiency and/or meet performance-based standards on energy efficiency. Such an approach would encourage industry to become (or remain) as efficient as possible and show support for industries that help move (or have moved) the Province towards its environmental goals while also contributing to sustainable development.

8. Similarly, page 16 of the Analysis states "While NSPI has removed DSM programming measures targeted to the pulp and paper portion of the industrial sector, the Custom Partners Program is available to large customers, as previously noted." NPB encourages the Collaborative to adopt the approach suggested in point 7 above, as the Custom Partners Program does not appear appropriate for the pulp and paper portion of the industrial sector in Nova Scotia.

9. Page 19 of the Analysis states "The proposed actions, identified above, address the majority of stakeholder input on this topic." NPB would note that NSPI has completely failed to address points raised in Blair Hamilton's presentation which NPB emphasized on page 4 of its submission of November 15, namely that "DSM programs typically require that each rate class receive some minimum benefits and/or spending of DSM amounts so that all customer classes are treated roughly equally. To do otherwise would require some customer classes to fund substantial DSM efforts for others through an efficiency surcharge, without a corresponding ability to participate in and benefit from the programs themselves." As Blair Hamilton noted in the stakeholder session on January 11, these minimum requirements are generally in place to ensure that DSM programs are not open to criticism on grounds of unfairness as amongst customers. This has been a central concern that NPB has raised throughout this process, and as such we believe it is misleading to simply state that the actions proposed in the Analysis "address the majority of stakeholder input on this topic."

   Furthermore, NPB would note that the issue of a customer's "fair share" was raised at the November stakeholder meeting, and (as stated in NPB's submissions of November 15 on page 4) the Collaborative indicated that it was conscious of potential inequities that might be seen to arise between participants and non-participants in DSM efforts. NPB is disappointed that the Analysis has not addressed this primary concern, and instead includes potentially misleading references regarding its ability to participate in a Custom Partners Program. NPB is hopeful that its concerns will be adequately addressed in the Collaborative's final report, or if not, that these continuing concerns will at least be specifically noted within the Analysis filed with the Board.

10. Page 19 of the Analysis sets out what is referred to as "detailed monitoring, evaluation and reporting plans". The Analysis states "Stakeholders have noted that it will be critical to ensure accountability for demand-side resource

investments and that proper savings verification will be very important to assure that promised savings are actually being delivered and to avoid arguments over lost revenues and potential incentive amounts. The DSM Collaborative agrees." Once again, the Collaborative appears to agree with stakeholders when, in fact, it has rejected the thrust of the comments in the particular area. As noted in the joint stakeholder letter of January 10 and in Blair Hamilton's presentations at the two stakeholder sessions, "ensuring accountability" requires more than proper verification of savings. NPB and other ratepayers are concerned that significant amounts of money will be spent on DSM, and these amounts may well be in vain if promised savings are not delivered. NPB believes that in order to ensure that the administrator of the DSM program is accountable for results, clear financial consequences must attach to failures to deliver promised benefits. The establishment of exceptional verification and evaluation methods will be of little comfort if the process indicates that the programs have not achieved the intended savings targets.

NPB would note that in the stakeholder session on January 11, 2008, Dr. Stutz raised the possibility of the Board finding NSPI imprudent with respect to its DSM spending. NPB believes that the Analysis should elaborate on this possibility in this section, should NSPI remain the administrator. NPB believes that all parties would appreciate the establishment of a clearer understanding at the outset as to what would constitute "imprudent" behaviour in the context of DSM spending plans approved by the Board and overseen by a Steering Committee that includes Board Staff, yet that failed to achieve the intended savings. This comment is not however in lieu of the need for financial consequences for non-performance noted above.

Accountability is a fundamental element of effective DSM and without consequences there is simply no accountability. In NPB's view the Analysis goes in the exact opposite direction of what is required, providing virtually guaranteed cost recovery (including an LRAM and yearly true-ups) with no consequences for non-performing programs.

11. Page 23 of the Analysis states "an LRAM removes a disincentive for utilities to actively pursue demand-side and energy efficiency alternatives." At this stage, NPB would note that this is a prime example of NSPI's conflict of interest in administering DSM in Nova Scotia, and suggests that the Collaborative consider delaying debate over this recommendation until the administrator of DSM is known with certainty. NPB presumes that an independent entity would not require or support an LRAM. NPB would also note an LRAM would intensify debates over the amount of "measured" savings attributable to the DSM programs as opposed to actual savings, and the Collaborative's approach would likely lead to contested proceedings on an annual basis.

12. Page 24 of the Analysis states "NSPI assures stakeholders that it is committed to working toward the preferred IRP plan as to do so is in the best interest of the Company, its stakeholders and its customers." As noted above, and emphasized in the joint stakeholder letter of January 10, NPB and other stakeholders are concerned that under the Collaborative's proposal the ratepayers, not the utility, will ultimately bear the risk if DSM investments fail to achieve the expected savings, with the result that new supply-side generation is required in any event.

Under the current plan proposed by the Collaborative, NSPI will recover all DSM costs annually on a forecast basis and also recover so-called "lost" contributions to fixed costs associated with not selling additional units of energy. NPB is not comforted by NSPI's mere assurances with respect to its commitment to DSM. Rather, NPB believes as noted above that any DSM plan of the magnitude proposed by the Collaborative must contain financial penalties on the administrator for failure to meet the target objectives of the program in order to ensure that ratepayer money is appropriately collected and spent. As previously stated, these consequences should be known at the outset, so NSPI is fully aware of the impact to it if DSM investments fail to provide corresponding benefits.

NSPI is substantially in control of all applications for DSM programs and the costs associated with them. If the anticipated savings fail to materialize and the DSM regime is to be truly accountable, NSPI's shareholders, not its ratepayers, should be the ones at risk. Page 7 of the DSM Programming Plan states that "all measures installed from 2008 through 2010 will save about $200 million over their lifetime." [emphasis added] Since NSPI and the Collaborative are this definitive regarding the savings to be achieved via DSM measures in the Analysis, NPB believes that failures to achieve such measures must carry consequences.

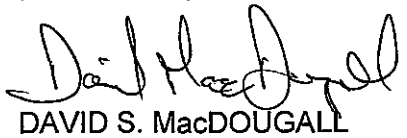
13. Page 26 of the Analysis states "The Company continues to support the allocation of DSM program costs across the entire rate base and recovery of DSM costs from all electric customer classes." The Analysis suggests that DSM costs be classified as demand or energy related on the same overall basis as NSPI's overall demand and energy costs from its most recent Cost of Service Study. Dr. Stutz equates this with how interruptible rates are dealt with in Nova Scotia.

NPB would note however that DSM is a higher level of service for customers that obtain direct benefit from the DSM program, while interruptible rates are a lower level of service with obligations on the interruptible customers. NPB believes that "cost of service" as it applies to DSM means that those who get the direct DSM benefit should pay for the DSM. If in fact DSM is better than other supply alternatives there should be no losers, but under the Collaborative's proposal the Extra Large Interruptible Class would undoubtedly lose out.

Thank you for the opportunity to provide written submissions on the Draft Analysis prior to its filing with the Board.

Yours very truly,

McINNES COOPER



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