

2008

NSUARB-P-884

NOVA SCOTIA UTILITY AND REVIEW BOARD

IN THE MATTER OF: The Public Utilities Act, R.S.N.S. 1989, c.380 as amended

-and-

IN THE MATTER OF: an application to approve Nova Scotia Power
Incorporated's Demand Side Management Plan

FINAL SUBMISSIONS ON BEHALF OF THE ECOLOGY ACTION CENTRE

Submitted: April 15, 2008
Brendan Haley, Energy Coordinator
Ecology Action Centre
2705 Fern Lane
Halifax, NS B3K 4L3
Phone: (902) 442-0199
e-mail: energy@ecologyaction.ca

PART I - OVERVIEW

1. The Ecology Action Centre (EAC) supports Board approval of the “settlement” agreement.
2. The Ecology Action Centre (EAC) appreciates the opportunity to make comments on NSPI’s Integrated Resource Plan (IRP) and supports the IRP as a reasonable planning document for the electricity system in Nova Scotia at this point in time.
3. The Ecology Action Centre (EAC) views Integrated Resource Planning as a useful and ongoing process. We recommend updates to the IRP, over a 3-year timeframe, to allow for ongoing learning, expanded consideration of resource options and new regulatory futures.
4. The EAC respectfully requests that the Board allow an application by the EAC for costs.

PART II - ISSUES

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PART III - ARGUMENT

1.1 Should the Board approve the settlement agreement?

5. The EAC is in full support of the settlement agreement, in its entirety, and respectively requests prompt Board approval.

Reference: Hearing Transcript, April 8th, 2008 (Brendan Haley), p. 80-83.

1.2 Should the Board Contract an Evaluation, Monitoring and Verification Expert?

6. NSPI's original filing sought to have the "DSM Steering Committee" manage the Evaluation, Measurement and Verification function.

7. Clause 9 of the settlement agreement revised the issues list to disallow consideration of the DSM Steering Committee in this hearing. However, the settlement agreement does support Evaluation, Monitoring and Verification activities for DSM programs.

8. The settlement does include the Program Development Working Group, comprised of NSPI, Board staff and stakeholder representatives.

9. As shown in cross-examinations of Dr. Nichols and NSPI, a Board contracted Evaluation, Monitoring and Verification (EM&V) expert, installed from the outset, will ensure that EM&V activities operate in smooth and transparent fashion, in the interest of the Board, stakeholders and NSPI as the program administrator.

References: Hearing Transcript, April 7th, 2008 (NSPI Panel – Cross-Exam by Mr. Haley), p. 101 & 102.

Reference: Hearing Transcript, April 8th, 2008 (Dr. Nichols – Cross-Exam by Consumer Advocate)

10. The EAC therefore respectfully requests that the Board contract an EM&V expert as soon as possible to undertake EM&V activities, and that this expert liaise with the Program Development Working Group.

1.3 Ecology Action Centre Comments on the Integrated Resource Plan

1.3.1 Demand Side Resource Action Plan

11. The Ecology Action Centre appreciates the opportunity to make comments on Nova Scotia Power's Integrated Resource Plan.

12. The EAC understands that NSPI's application to the Board does not include approval of the Integrated Resource Plan (IRP).

13. The EAC will make reference to evidence filed in the this proceeding and take the opportunity to comment on the IRP in general, with a recognition that the Board will not be making a specific determination on the IRP itself at this point in time. The EAC will also comment, and provide recommendations, in relation to future IRP processes.

14. With reference to Demand Side Management (DSM)¹, the Integrated Resource Plan recommended that demand side resource programs achieve annual incremental savings of between 1-2% of load. These savings will roughly hold load growth constant in Nova Scotia.

Reference: Hearing Transcript, April 8th, 2008 (Dr. Nichols – Cross-Exam by Mr. Haley), p. 38.

15. The Integrated Resource Plan suggested that a level of investment consistent with 5% of NSPI rate revenue would achieve the required savings goals. NSPI's filed DSM plan sets as a base assumption a ramp-up towards investing 5% of utility revenues in DSM in 5 years time.

16. The EAC supports this as a base assumption and maintains that this is a reasonable plan given circumstances within Nova Scotia and in relation to comparisons with other jurisdictions. When considering Nova Scotia's level of investment over the next 5 years and beyond in relation to comparisons with other jurisdictions, it is most useful to consider not only where other jurisdictions have been with regards to their DSM efforts, but also where they are going. To only consider where other jurisdictions have been is akin to driving forward by only looking through the rear-view mirror. The EAC explains this reasoning below.

17. NewPage/Bowater IR-1 (Exhibit N-20) asked for the level of spending that corresponded to the energy savings achieved in other jurisdictions. Dr. Nichols answered this IR by providing a table, which had 2006 data as its most recent year. This table showed that jurisdictions have met or exceeded the energy savings goals that are consistent with Nova Scotia's Integrated Resource Plan.

¹ The Ecology Action Centre prefers to utilize the term "demand side resources" to better demonstrate that energy efficiency acts as a resource for the electricity sector. Throughout this submission we will utilize the terms "Demand Side Management" and "Demand Side Resources" interchangeably.

18. Dr. Nichols explained further that, looking forward, the levels of investments and savings are expected to continue to increase in other jurisdictions. Mr Nichols stated:

“where these utilities have achieved these results in the past, all of these are jurisdictions in which there are serious ambitions to expand the impact of electric energy efficiency programs in the future”

Hearing Transcript, April 8th, 2008 (Dr. Nichols – Cross-Exam by Mr. Haley), p. 40.

Dr. Nichols further explained

“There is a change afoot in a number of these jurisdictions where the paradigm is being shifted to a minimum budget for energy efficiency and conservation programs to a framework in which the expectation is that either an energy savings target will be achieved, or all cost effective energy efficiency will be pursued over time.”

Hearing Transcript, April 8th, 2008 (Dr. Nichols – Cross-Exam by Mr. Haley), p. 41.

Dr. Nichols went on to explain that Nova Scotia’s Integrated Resource Plan, which aims to level load growth, is consistent with planning goals in other jurisdictions.

Hearing Transcript, April 8th, 2008 (Dr. Nichols – Cross-Exam by Mr. Haley), p. 42.

19. The impact of the previous paradigm of “a minimum budget for energy efficiency and conservation programs”, often through system benefit charges, was to place an artificial cap on the ability of demand side resource programs to achieve cost-effective energy savings.

The “budget cap” effect is highlighted in a report on *Demand-Side Management: Determining Appropriate Spending Levels and Cost-Effectiveness Testing* prepared for the Canadian Association of Members of Public Utilities Tribunals by Summit Blue Consulting and the Regulatory Assistance Project, found in NewPage/Bowater IR-45, Exhibit N-10. To provide just one example, page 32 of the report states that:

“In several cases, even spending 3% of revenues on DSM was not enough to capture the identified cost-effective DSM in the offered programs. For example, Vermont found there were additional energy efficiency projects and customers in the pipeline that could not be captured under the 3% funding cap.”

Exhibit 10 - NPB IR-45, Attachment 1, Page 35 of 181

20. The “budget caps” in other jurisdictions have prevented them from ramping up more rapidly, even though cost-effective opportunities were available. As Dr. Nichols explained, jurisdictions are now correcting these policy failures, by moving towards a paradigm that aims to maximize cost-effective demand side resources. In other words, focusing on achieving energy savings if and when they are cost-effective, instead of artificial “spending” targets, which have created artificial budget “caps”.

21. Nova Scotia is now in a position to learn from other jurisdictions, which can enable it to ramp-up quicker and more effectively. The EAC points to the learning that has occurred with regards to NSPI's Direct Install Lighting Program from National Grid (Reference: Exhibit N-4, DSM Programming Plan 2008-2010, pages 83-95) and Conserve Nova Scotia's Upstream Lighting Program, which is "leap-frogging many other jurisdictions in both innovative program design and efficient technologies" (Reference: Exhibit N-3, EAC Submission, Documentation Related to the DSM Collaborative Process, Page 377 of 389)

22. Failure to ramp-up towards investment and savings goals that are associated with the Integrated Resource Plan could create significant economic, as well as environmental, costs for Nova Scotia. Thus ramping up based on a schedule that will be able to achieve energy savings at investment levels commensurate with the 5% of utility revenues case in the IRP, will ensure Nova Scotia does not lose the option of procuring lucrative and robustly cost-effective demand side resources. Dr. Stutz explained this ramp-up to be based on a "no regrets standard":

"And we don't know how high we'll ramp because we need to gain experience as Dr. Nichols pointed out. I'm simply saying that in our early actions we should do things which are compatible with different outcomes along the way. So I sincerely hope that we'll discover that we can reach five -- the savings associated with the 5 percent spending because that's what looks most economic."

Reference: Hearing Transcript, April 8th, 2008 (Dr. Stutz – Cross-Exam by NewPage/Bowater), p. 67-68.

23. Given the ability of Nova Scotia to learn from best-practice demand side resource strategies elsewhere. Given the ability for Nova Scotia to avoid the experience with budget caps that have limited the procurement of cost-effective demand side resources elsewhere, and given the robust cost-effectiveness of demand side resources in Nova Scotia based on Integrated Resource Plan results, the EAC supports investing 5% of utility revenues, and getting there by way of a 5 year ramp-up, as a prudent base planning assumption for Nova Scotia.

1.3.2 Spending and Savings Performance

24. As was noted in NewPage/Bowater's cross-examination of Dr. Nichols, the level of spending as a percentage of revenues to achieve annual incremental savings can vary by utility. (Reference: Hearing Transcript, April 8th, 2008 (Dr. Nichols – Cross-Exam by Mr. MacDuff), p. 34)

In response, Dr. Nichols offered that,

"all these are multi-year programs, and these are all very different utilities, with different service areas. So I think one would have to do an analysis far more

extensive than is possible from this table, in order to establish exactly what the correlation is – and there is a correlation between how much is spent and how – and what savings levels is achieved”

Reference: Hearing Transcript, April 8th, 2008 (Dr. Nichols – Cross-Exam by Mr. MacDuff), p. 34)

There exist a variety of explanatory factors that could describe differing levels of spending and savings in other jurisdictions.

One is related to start-up costs and program experience. As Dr. Nichols explained in his statement to the Board, Dr. Nichol’s research is finding that “the trim line that we draw through the data for utilities that have had substantial programs for many years, shows that the cost of saved energy as the amount of energy savings increases, actually goes down”. This relationship also means that programs are likely to see fewer energy savings per dollar invested in the early years of operation. (Reference: Hearing Transcript, April 8th, 2008 (Dr. Nichols – Cross-Exam by Mr. Haley, p. 43 & 44). Thus levels of savings actually achieved might be a result of start-up costs in earlier years of operation and potential economies of scale at higher levels of DSM effort.

A discrepancy might also relate to individual market characteristics. For example, if fewer achievable demand side resources exist in Nova Scotia’s industrial sector, which tends to have a lower cost of procurement than other sectors, Nova Scotia might have to invest more in non-industrial sectors, which could lead to a higher overall cost of procurement to achieve the same energy savings as other jurisdictions. Of course, these investments would still need to be cost-effective in comparison to supply-side resources. The “5% spend” assumption which assumes a higher cost of procurement for demand side resources as the level of energy savings increase, suggests that demand side resource acquisition with higher costs of procurement would still be cost-effective in comparison to Nova Scotia’s supply side.

A large amount of energy savings could also be achieved, in one or more years, with a relatively low level of investment if the program administrator is engaging in what is often called “cream-skimming”. This is an undesirable program strategy whereby the administrator only implements the measures that are very cost-effective in a particular site and neglects other cost-effective measures that would have been installed if a comprehensive retrofit were occurring. The lost opportunities this strategy creates could result in fewer cost-effective energy savings in subsequent years.

Other institutional factors relate to the relationship between program spending and energy savings. In a presentation provided to stakeholder by the EAC and its consultant, Blair Hamilton, from the Vermont Energy Investment Corporation, it was stated that “jurisdictions that rank highest in efficiency investments have either performance incentives and/or non-utility administration” (Reference: Exhibit N-2, EAC Presentation Slides in Documentation Related to the DSM Collaborative Process, Page 331 of 389)

In light of the discussions that occurred before the Board with regards to the importance of the energy savings targets in Nova Scotia, the EAC continues to maintain that a “performance-based” approach for any new administrator is important to ensure cost-effective energy savings are most effectively achieved for the ratepayer dollars invested. Performance mechanisms need to balance short-term and longer-term demand side resource acquisition, and perhaps other objectives such as equitable program participation.

From the EAC’s perspective, performance issues are fundamental to the process that led to the “settlement” agreement, which presents a consensus to move towards a non-utility form of administration and highlights the topic of performance measures found in clause 6 of the settlement.

25. With these issues in mind, the EAC requests that the Board express an interest and intention to consider performance measures for the new administrator, at such time as the government provides clarification with regards to the legal and procedural aspects of non-utility administration, or before, if deemed necessary or desirable.

1.3.3 Comments on Industrial Efficiency Potential

26. The question that is of significance with regards to industrial efficiency potential in relation to the Integrated Resource Plan is whether or not the industrial sector as a whole, or particular segments of the industrial sector, have maximized cost-effective efficiency opportunities in comparison to the generation and capacity costs that can be avoided on the supply side *and* in relation to the timeframe considered in the IRP (i.e. until 2029). A related question is how industrial sector potential effects the overall energy savings and investment levels considered in the IRP.

27. Cost-effectiveness as defined above should not be confused with what might be considered to be cost-effective from the perspective of a particular company. A particular plant or company is expected to have shorter economic time horizons than those considered in utility generation and capacity planning. This difference of time horizons is precisely why demand side resource programs provide incentives that change corporate payback and/or return on investment calculations to meet a company’s internal hurdle rates, while also achieving cost-effective energy savings from a utility (or total resource) perspective.

28. Exhibit N-35, presents a three-page copy of an extract from exhibit N-10 entitled, energy performance benchmarking. As was confirmed by Mr. Gunn from Summit Blue Consulting, the “benchmarking” information does not provide information on new efficiency opportunities that would present themselves in relation to the decades-long timeframe considered in the Integrated Resource Plan.

Reference: Hearing Transcript, April 7th, 2008 (NSPI Panel – Cross-Exam by Mr. Haley), p. 101.

29. If we look forward, new efficiency opportunities can present themselves for some of Nova Scotia's largest industries. As was also confirmed by Mr. Gunn from Summit Blue Consulting, a product line change in a plant is often a good opportunity for a DSM program to provide incentives. (Reference: Hearing Transcript, April 7th, 2008 (NSPI Panel – Cross-Exam by Mr. Haley), p. 101.) In the case of Nova Scotia's pulp and paper sector, a product line shift away from newsprint, might be required to maintain ongoing viability and competitiveness within the province.

30. Another potential opportunity, relevant to Nova Scotia's largest electricity consumers, can be found in the utilization of combined heat and power. Combined heat and power was not specifically considered as a demand side resource measure, or considered in the Integrated Resource Plan. Clause 11 of the settlement agreement highlights combined heat and power, and its role as a potential DSM measure, as an important policy issue to consider in the future.

31. Not taking advantage of potential efficiency opportunities, which are cost-effective from a utility or total resource perspective, works to the detriment of all ratepayers. The EAC therefore supports the design of a DSM program portfolio, which includes strategies that will allow for the procurement of cost-effective energy savings in all sectors, including the largest electricity customers. We welcome further, ongoing, program development for particular industrial markets in the context of a new administrator and perhaps through the Program Development Working Group in the future.

32. The EAC would also note that no evidence exists to suggest that the results of the CME study, which is the basis of Exhibit N-35, should lead to a change in the final result of the IRP base-plan. The efficiency potential information that is available in this study suggests industrial opportunities exist. As stated in Volume 1 of Nova Scotia Power's filing with regards to this study:

“A recently-published CME report on industrial DSM potential outlined numerous opportunities to save electricity in CME member facilities, estimating the extent to which these customers will be able to participate in DSM programs. The study indicates that industrial customers will have opportunity to participate and benefit”

Reference: Exhibit N-2, pg. 26, Lines 15-19.

33. If however, less potential exists in the industrial sector than originally anticipated, there still exists a large amount of economic potential in other sectors. As Dr. Nichols stated in his opening remarks:

“When I look at that preliminary DSM potential study that we discussed a bit yesterday in this room, I observed that the economic potential for energy efficiency that was estimated in that preliminary DSM potential study from just the residential and commercial sectors alone exceeded the total in the corresponding years of what became the preferred or five percent DSM plan.

That's a convoluted way of saying that the challenge before us, I believe is to realize the economic potential for energy efficiency. And that the constraints such as they are, that are involved in the various IRP scenarios seem to involve the level of institutional commitment and that can be productively employed.”

Reference: Hearing Transcript, April 8th, 2008, opening comments by Dr. Nichols, p. 12.

With regards to the Integrated Resource Plan, the question before us is how Nova Scotia can achieve cost-effective energy savings by utilizing demand side resource acquisition programs and strategies. This is not solely a question of industrial efficiency potential, but of the efficiency potential of all sectors.

34. Of course, given the robust cost-effectiveness of energy efficiency in comparison to supply side options in the province as a whole, the major task before us to commence ramp-up of demand side resource strategies as directed by the settlement agreement.

1.3.4 Integrated Resource Plan Process

35. The EAC feels the Integrated Resource Plan currently provides a reasonable estimate of demand side resource potential in Nova Scotia. The action plan, today, is to commence ramp-up of demand side resource activities so Nova Scotia can be in a position to maximize cost-effective energy savings in the coming years. Based on where other jurisdictions are moving, we feel Nova Scotia will be placed behind the cutting edge in these efforts. This situation presents an opportunity to learn from the experience of others as well as our own experience.

36. The Integrated Resource Plan also considered other resources and regulatory scenarios. The EAC was pleased to see the inclusion of the “Kyoto” and “Deep-Green” greenhouse gas reduction scenarios, which are consistent with science-based reduction targets currently being discussed at international and national levels of governance.

37. The initial Integrated Resource Plan has produced some clear action plans for the short-term and provides a useful planning document for electricity governance in Nova Scotia. The EAC fully acknowledges that there will always be more opportunities to learn and that circumstances change, and therefore supports Integrated Resource Planning as an ongoing process in the province of Nova Scotia.

38. Elements that were not considered in the Integrated Resource Plan include greater levels of energy savings from efficiency, combined heat and power, energy storage technologies for renewable energy and non-wind renewables such as tidal power technologies. These are resource options that the EAC supports consideration of in the future.

39. The EAC supports the development of Integrated Resource Plans through a collaborative process that directly involves NSPI, Board staff and consultants,

stakeholders, and the new DSM administrator that is considered in the settlement agreement. We support the IRP as a framework document that will guide more specific decisions.

40. The EAC respectfully requests that the Board order that NSPI's Integrated Resource Plan be updated, through a collaborative process, over a 3-year time-line, or sooner if deemed necessary.

1.4 Should the Ecology Action Centre Be Awarded Costs in this Matter?

33. The power to make an order for costs is contained in sections 12 and 28 of the *Utility and Review Board Act*.² Section 6(2) of the Board's Rules of Practice and Procedure Respecting Costs states that:

- 6(2) The Board may consider awarding costs against a utility to non-profit, public interest interveners with limited financial resources who:
- a) have a substantial interest in the proceeding
 - b) will be affected by the proceeding
 - c) participate in the hearing in a responsible way; and
 - d) contribute to a better understanding of the issues by the Board.

34. The Ecology Action Centre is a non-profit, public-interest organization dedicated to respecting and protecting Nova Scotia's environment. The EAC is an organization that represents over 1,500 members in Nova Scotia

35. The environment has a substantial interest in the application before this hearing. Energy efficiency is one of the most abundant and cost-effective solutions to reducing the emissions that are the cause of global warming.

36. As a membership based, non-profit organization we have no commercial interest in the outcome of these hearings.

37. The EAC retained the consulting services of the Vermont Energy Investment Corporation for the purposes of this hearing and the process that preceded it.

38. The EAC, and its consultant, were actively involved in consultations and stakeholder meetings throughout this process. We contributed to a better understanding of the issues for all parties involved and through our comments, presentations and discussions contributed to development of the Final Collaborative Report (Exhibits N-2, N-3, N-4)

39. The EAC and its consultant were instrumental in the development of the settlement agreement brought before the Board (Exhibit N-11).

40. It is submitted that the EAC acted responsibly and prudently in these hearings. The EAC has behaved in a responsible manner to incur only such costs as were necessary to complete the evidence before the Board.

41. It is submitted that the settlement agreement that the EAC signed and the arguments submitted by the EAC have contributed to a "better understanding" of issues related to demand side resource acquisition.

² *Utility and Review Board Act*, R.S.N.S. +1992, c. 11

42. *It is respectfully submitted that the Board should allow the application by the Ecology Action Centre for costs in this application.*

43. If requested, the EAC can provide further documentation on this matter.

44. All of which is respectfully submitted.

A handwritten signature in black ink, appearing to read "B. Haley". The signature is written in a cursive, somewhat stylized font.

Brendan Haley, Energy Coordinator, Ecology Action Centre