P-886 ORIGINAL Exhibit N-46

# 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 by Nova Scotia Power Incorporated for Approval of Certain Revisions to its Rates, Charges and Regulations

## Rebuttal Evidence

## of NSPI

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JAN 18 2007
Nova Scotia Utility and Review Board

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## 1.0 OVERVIEW

Nova Scotia Power's 2007 Rate Application is the third application in succession, and the fourth in five years. In 2007 NSPI and its customers will experience high and volatile fuel prices. The ability to recover these increased costs in 2007 is a critical element of the financial stability of the Company. The ability to recover these costs and previously approved but deferred costs as well as other costs on a timely basis will allow the Company to continue to deliver the service that our customers expect and deserve. It is in the best interests of customers that the utility be provided with rates sufficient to allow it to remain financially stable and capable of delivering safe and reliable service.

For 2007, NSPI's costs will increase $81.3 million above the revenue provided by current rates. Part of this increase is attributable to the recovery of previously deferred expenses, in the areas of taxes and depreciation. Recovery of these costs has received little comment and less opposition from other parties. NSPI will respond in this Rebuttal Evidence to the specific comments raised in this proceeding.

The majority of the 2007 increase is due to the fact that the cost of fuel is higher today than the costs recovered by current rates. No one can dispute that fuel commodity costs are higher in January 2007 than they were in the Spring of 2005, or in March of 2006.

To help manage the volatility of global commodity fuel prices, and as directed by the Board, NSPI has implemented a portfolio strategy and follows the practices and procedures outlined in its Fuel Policy and Procedures Manual ("Manual"). NSPI has worked closely with Board consultants, Liberty Consulting Group, to incorporate their advice and strengthen its procurement of fuel. NSPI has moved expeditiously to implement the Board's directions, and the Company has achieved compliance with the fuel portfolio, one year ahead of schedule.

Liberty has acknowledged, with approval, the Company's efforts in this regard:

> "Overall, NSPI has made good progress in implementation of Liberty's recommendations. Marginal progress has been made on a few recommendations. Perhaps the most important progress has been made by NSPI in completion of its solid fuel portfolio, ahead of the directed deadline of [redacted][1]

In respect of the fuel management directives, Liberty wrote:

> "NSPI has made substantial progress in addressing the fuel management weaknesses that we observed in the last case. A few challenges remain to be met; however, we believe that NSPI has responded well to the Board's directives in its order in the last rate case…"[2]

Liberty also specifically commented upon the Company's execution of the portfolio strategy:

> "NSPI has made significant progress in building the required portfolio. It now holds a portfolio that reflects the sound execution of an effective portfolio strategy…."[3]

At the time of filing this Rebuttal Evidence, and as a result of following the portfolio strategy and Manual, NSPI has [redacted] of its fuel requirements for 2007. This has been accomplished either through contractual commitments or hedges. Various parties and consultants have proposed significant reductions from NSPI's 2007 fuel forecast. These recommendations must, however, be considered in light of NSPI's successful implementation of the portfolio strategy previously approved by the Board and in light of the already committed fuel expense for 2007.

A reduction from a 2007 fuel forecast that is prudently and almost completely committed, consistent with the fuel portfolio strategy, would, in effect, constitute an arbitrary

[1] Liberty Consulting Group, Direct Evidence, December 22, 2006, page 7, lines 13-16
[2] Liberty Consulting Group, Direct Evidence, December 22, 2006, page 10, lines 9-12
[3] Liberty Consulting Group, Direct Evidence, December 22, 2006, page 12, lines 8-9

disallowance. NSPI urges the Board to consider these factors as it reviews the positions of the consultants that seek such improper reductions.

The Company, throughout this Hearing and in Argument at its conclusion, will also urge the Board to recognize how unfair it would be to order disallowances that fly in the face of the portfolio strategy and procurement practices urged on NSPI by the Board and its consultants.

This Rebuttal provides evidence in reply to issues raised by others in their filings regarding fuel and purchased power (including affiliate transactions), revenue and rate matters, and financial matters. As part of the fuel discussions, affiliate transactions have been raised, but no evidence has been presented to suggest that any affiliate transaction caused harm to or failed to benefit NSPI and its customers. Indeed, the evidence of NSPI's natural gas expert contained in this Rebuttal, demonstrates that to the contrary, the Company and customers benefit from the transactions with NSPI's affiliate.

There is a broad and uncontradicted recognition that volatile fuel commodity costs can cause the Company's overall fuel costs to vary substantially. There is also recognition that this volatility can affect the prices customers pay and remove the opportunity for the utility to earn a fair rate of return. NSPI has responded to the request of the Board and the wishes of Intervenors to implement a portfolio strategy.

**2007 Revenue Requirement**

There are Intervenors recommending reductions to NSPI's 2007 revenue requirement. This is understandable. No one likes costs to increase, including NSPI. The reality however, is that the fuel costs NSPI will incur in order to provide electric service to its customers are increasing, and therefore electric rates must also increase.

Dr. Stutz states[4] that he has relied upon Bonbright's Criteria of a Sound Rate Structure, which he provides as Exhibit JS-2 of his evidence. Criterion 3 relates to the effectiveness of the rates in yielding total revenue requirements under the fair-standard return. Several aspects of Dr. Stutz's evidence do not meet Bonbright's third criterion, specifically, the:

1. Proposed deferral of approved depreciation rate phase-in,
2. Proposed methodology for assessing 2007 fuel costs,
3. Recommendation not to approve a 2P-RTP true-up mechanism, and
4. Proposed rejection of the Q1 fuel deferral.

Each of these items impairs NSPI's ability to recover its prudently incurred 2007 costs, or impairs the opportunity to earn a reasonable return in the year in which they are incurred. To paraphrase Professor Bonbright, Dr. Stutz's recommendations if followed, would make the Company's rates ineffective in yielding total revenue requirements under the fair return standard.

This Application seeks approval of rate changes based on a forecast revenue requirement. The estimates of 2007 costs are supported by the evidence filed by NSPI in support of its request for new rates. It would be unreasonable – and manifestly unfair to NSPI – to accept only those updates or changes to the evidence that support a reduction of the revenue requirement. Such an arbitrary reduction in justified revenue requirement is not in the long term interests of NSPI's customers because it puts the Company financially at risk, increases future expenses, and leads to pressure for even higher rate increases in the future.

It is unfair to selectively suggest revisions (only to where costs have decreased) to certain parts of NSPI's costs while ignoring those areas where costs have increased. There are other expenses of which NSPI has become aware since its October 10 Application date which exert upward pressure on NSPI's revenue requirement. There are also other cost components noted in NSPI's application that await a decision from the UARB. It would

[4] Evidence Filed by John Stutz, December 20, 2006. Page 2, lines 8-10.

not be consistent with legally mandated cost recovery requirements, regulatory principles or simple fairness to consider only the decrease of a portion of NSPI's expenses and not the increases in other portions. Therefore, NSPI cannot reasonably be expected to reduce its revenue requirement request as filed in the Application without the Board also including updated information about increased costs that are known to occur in the 2007 test year revenue requirement.

The Public Utilities Act of Nova Scotia stipulates both the obligation to serve, and an entitlement that the utility be provided revenue sufficient to recover its costs. Reducing approved 2007 fuel costs or other known prudently incurred costs below the level of a good faith estimate of what NSPI will actually incur in 2007 would violate this aspect of the regulatory compact. Similarly, using arbitrary and selective evidence to accomplish such a result would equally be a violation.

## 2.0 FUEL AND PURCHASED POWER

### 2.1 Overview

In its response to the Intervenor Evidence in the 2007 Rate Application, NSPI has prepared its own rebuttal on fuel issues as well as solicited the same from external parties, EVA and ICF International.

**REBUTTAL TESTIMONY OF EVA**

**IN SUPPORT OF THE FUEL COSTS INCLUDED IN NSPI'S 2007 RATE APPLICATION**

## 2.2 Rebuttal Evidence of Energy Ventures Analysis

This testimony supplements the earlier testimony filed by Energy Ventures Analysis, Inc. (EVA) on behalf of Nova Scotia Power Inc. (NSPI) in support of its 2007 Rate Application ("the 2007 Application"). At the request of NSPI, EVA reviewed testimony filed by the following experts:

| Consultant | Organization | Sponsor |
|---|---|---|
| Manfred Raschke | ISIS | Avon Group |
| Nancy Brockway | Nbrockway & Associates | Consumer Advocate |
| John Stutz | Tellus Institute | NSUARB Staff |
| John Antonuk et al | Liberty Consulting | NSUARB Staff |
| Colin Gubbins | McCloskey Group | SEB |

The scope of the testimony filed by these entities varied. EVA focused on those portions which dealt with fuel costs in the 2007 Application.

### General Comments

EVA is gratified that Liberty and the intervenors have considerably reduced issues related to NSPI's solid fuel procurement efforts which EVA believes is reflective of NSPI's dedication and success in this arena. Liberty was very supportive of a number of NSPI's accomplishment in this area. While Dr. Raschke provided no explicit praise, from a comparison of his evidence in this proceeding with his evidence and testimony in 2006, one could conclude the issue of transparency has been resolved.[5] SEB retained fewer consultants to review solid fuel activities, also an indication of the reduced scope.

The primary issue in the 2007 Application with respect to fuel costs is how fuel costs are forecasted and whether (or how) fuel costs should be updated. A secondary issue is the prudence of the new [redacted]. The testimony is

[5] Dr. Raschke verbally indicated in November 2006 that the level of documentation on all transactions had dramatically improved.

divided accordingly. The testimony ends with some general comments on the appropriateness of a fuel adjustment mechanism.

**Forecasting and Updating**

As with prior Applications, a significant share of the differences in fuel cost numbers relate to what forecasts were used to estimate the fuel costs and whether the numbers should be updated to reflect more current information. These two issues are addressed separately.

**Forecasting**

In the October 10, 2006 Application, the fuel budget was developed using hedges extant as of [redacted] combined with forecasts of pricing for the open fuel positions[6]. For that application NSPI revised its methodology for developing the forecast prices for the open solid fuel position and used its previously approved methodology for forecasting HFO, LFO, and natural gas costs.

Briefly, the new forecasting methodology for solid fuel, which is described in detail in the 2007 Application[7], is a consensus forecast which considers available information on pricing from actual bids, the forward price curves and forecasts to determine appropriate pricing.

The previously approved methodology for forecasting HFO and natural gas costs is to use the forward price curve (also referred to as the strips) as of a date certain that was reasonably contemporaneous with the cut-off date of data for the respective applications. In the 2007 Application, the date was [redacted].

[6] NSPI made one adjustment to this methodology for solid fuel in the Application. After the models were run, NSPI decided to reflect the financial benefits of a subsequently renegotiated [redacted] Therefore, NSPI did a bottom line adjustment to its fuel budget to reflect the continuation of this contract.
[7] Direct Evidence NSPI, pages 56-57.

A number of the Intervenors had objections to various aspects of the methodology. On the solid fuel side, Mr. Gubbins seemed somewhat surprised that the Company did not rely on the Hill & Associates forecast. Dr. Raschke dismisses the consensus forecast for solid fuel as it "assumes that future prices are somehow predictive of actual spot price at some future point in time" (sic).[8] Dr. Raschke simply relies on the EVA prompt forecast published in February 2006 with either no adjustments or incorrect adjustments for timing, current market conditions and destination.

NSPI provided two reasons for a change to the consensus forecast. First, a complete forecast from Hill was not ready at the time of the Application. Second, and more important, was the apparent discomfort of many parties in the 2006 proceeding to the use of the Hill forecast alone. Some of this discomfort is worth describing to demonstrate that NSPI's methodology is appropriate. The following is an excerpt from the Avon Closing Submission with emphasis added:

> **28. We respectfully submit that the use of the Hill & Associates long-term annual forecasts for 2006 uncommitted tonnages is inappropriate** and overstates the fuel requirements for 2006.
>
> **29. Dr. Raschke in his pre-filed evidence, criticized NSPI's use of Hill's long-term fuel forecasts which have been demonstrably wrong in the past** and which missed market indicators of declining coal prices.
>
> ***Avon Closing Submission Page10***

The Avon Closing Submission did not simply criticize the use of the Hill forecast. As shown below (emphasis added), the Avon Closing Submission criticized the use of *any* long-term forecasts and even cited EVA testimony that a forward price curve may be a better indicator of future prices.

> **31. NSPI and this Board should be wary about using long-term forecasts for near term coal commitments.** Certainly, even NSPI's consultants Ms. Medine

[8] Manfred Raschke Direct Evidence, page 45, date.

and Mr. Walton agreed that shorter term forecasts are more accurate than long as a general rule:

> *510Q.* *But forecasts, by their nature, most people usually forecast that are closer in time have somewhat of a likelihood just in the nature of forecasts to be more correct than those further out because the variables further out are more variable.*
>
> *A.(**Medine**)* *You know, I hate to make a general statement, and I – as long as you've opened the opportunity with respect to forecasting, **I think in terms of utility forecasting or marking a position it becomes much more customary on a short term basis to use a price forward, possibly, than actually a forecast.***
>
> *511Q.* *But do you disagree with my general proposition?*
>
> *A. (Medine)* *No, but I do think the most accurate number would be the one after the fact.*
>
> *512Q.* *Yes. I can't disagree with you there. Mr. Walton, do you generally agree with that proposition?*
>
> *A. (Walton)* *Well, I do. It depends on the purpose of the forecast, I mean, the use of the forecast and if you're looking to buy assets its something a longer term forecast might be more beneficial to determine longer term trends. If you're buying coal in the next quarter, then a shorter term forecast is probably the best. I would agree with that.*[9]
>
> ***Avon Closing Submission, Page 10***

SEB in its closing argument had a similar opinion. SEB states "(t)he record simply does not support the use of the Hill & Associate's forecast as an appropriate forecast for the uncommitted 2006 tonnages set out in NSPI's Application."[10] SEB's position in its rebuttal evidence in the 2006 Application is clear that "(f)or significant uncommitted tonnages of NSPI's single largest fuel expense, **NSPI should be critically evaluating the forecast information available to it, and using the most current information in those**

[9] Transcript, November 24, 2005, p.1753.
[10] SEB Closing Submission, page 44.

**circumstances where the forecast has been shown to be likely to be incorrect**." (emphasis added)[11]

Even though the Board did not adopt the Avon and/or SEB position with respect to the use of the Hill forecast in the 2006 Application, neither did the Board order its use for future Applications. NSPI appropriately revised its methodology for forecasting fuel prices for the uncommitted positions.

As noted above, the consensus forecast considers a number of factors including the forward price curve. The forward price curve reflects the price at which buyers and sellers are willing to transact at the current moment. While Mr. Gubbins opines that this is an inappropriate tool for forecasting purposes in his testimony[12], his response and that of Dr. Raschke to IR-4 (Gubbins) and IR-2 (Raschke) in the 2006 proceedings, respectively confirm the industry standard for traders marking their position is a forward price curve as opposed to a price forecast. Of note, NSPI did not use the forward price curve alone but the forward price curve in conjunction with contemporaneous bids and forecasts.

Mr. Gubbins proposes that the balance of the solid fuel position be recalculated based upon three different price forecasts. For low sulphur import coal, he proposes an average of three forecast prices, including the McCloskey price forecast, the Hill forecast which he has previously disparaged, and the EVA forecast. Mr. Gubbins continues to refuse to provide the McCloskey forecast to NSPI or the Board for review and vetting.[13] It is EVA's experience in similar circumstances that it is the responsibility of the intervenor to ensure adequate documentation of its expert's opinion if such opinion is to receive

[11] SEB Rebuttal, page 11.

[12] "Forward coal price curves are therefore an unreliable forecasting tool since they do not represent the fundamentals that drive price …", Page 7.

[13] "We have carried out a large number of price forecasts over the period in question all of which are covered by confidentiality agreements. We therefore are unable to provide this information". Mr. Gubbins response to IR-6.

consideration.[14] Both the Hill and EVA forecast would need to be considered in the context of the current volatile market. Mr. Gubbins uses the Hill forecast to project pricing for medium and high sulphur coals despite there being ample documentation in the Confidential Data Room to which he had access that these prices were unachievable.[15] Mr. Gubbins also chose to ignore EVA's price forecast for medium and high sulphur coals apparently because he did not know how or want to put this forecast on a comparable basis.[16] Finally, Mr. Gubbins recommends the use of the Jacobs petroleum coke price forecast despite the evidence that the current market for petroleum coke makes this price unachievable.[17]

In conclusion, Mr. Gubbins' recommendation for re-pricing the open solid fuel positions should be rejected. His position with regard to the use of the Hill and EVA forecasts has been demonstrated to be driven only by whether the numbers help or hurt his client. His rejection of contemporaneous bids ignores the market realities which NSPI must face and is in direct conflict with the position taken by his client in the 2006 Application which as noted above states; "**NSPI should be critically evaluating the forecast information available to it, and using the most current information in those circumstances where the forecast has been shown to be likely to be incorrect.**" (emphasis added)[18]

[14] If SEB wants the McCloskey forecast considered, SEB should sponsor a report which contains the forecast, the methodology and assumptions that could be shared with the Board, NSPI, and the other parties to this proceeding on a confidential basis.

[15] Mr. Walton has acknowledged to NSPI and EVA that the ICT prices for medium and high sulphur coals were incorrect for 2006.

[16] Mr. Gubbins notes in the footnote on page 6 of his direct evidence, that the "EVA forecast would need to be put on a comparable basis". Apparently Mr. Gubbins capabilities to use the EVA forecasts are selective. The EVA forecast in the data room is for a USD per ton FOB rail car. Also in the data room was information on rail rates to Baltimore, terminal fees, and ocean freight from Baltimore to Sydney and/or PTMT.

[17] This fact is acknowledged by Liberty on page 16 of its evidence. "However, that forecast (Jacobs) is far from current price levels, and one should consider the ability of NSPI to make purchases at those prices to be speculative."

[18] SEB Rebuttal, page 11.

Similarly, Dr. Raschke's proposal to re-price the open low sulphur coal position should be rejected. His reliance on a February 2006 forecast for Colombian coal to re-price the 2007 open position in December 2006 is contrary to the position of his client in the prior proceeding which stated that "the Board should be wary about using long-term forecasts for near-term coal commitments." Had Avon requested EVA's current prompt price forecast for Q1 2007, it would have found pricing in line with NSPI's assumed 2007 pricing. Also confirming this price forecast were the bids received in October 2006 for 2007 delivery.

With respect to the methodology for forecasting HFO and natural gas, the use of the forward price curves is consistent with the methodology employed by NSPI in the 2002, 2005, and 2006 Rate Proceedings. As in these cases, a forward price curve is used to price uncommitted purchase and sale volumes (i.e., volumes not hedged) as of a specific date. The forward price curve only affects un-priced quantities. Therefore, the greater the hedges, the less significant are the forward price curves or changes thereto.

Several intervenors, although most notably Dr. Raschke, were concerned about the selection [redacted] as the date for the forward price curves. Dr. Raschke states that this date was inappropriate because [redacted] Dr. Raschke also for the first time objects to the use of forward price curves of any date of future HFO and natural gas prices.[20]

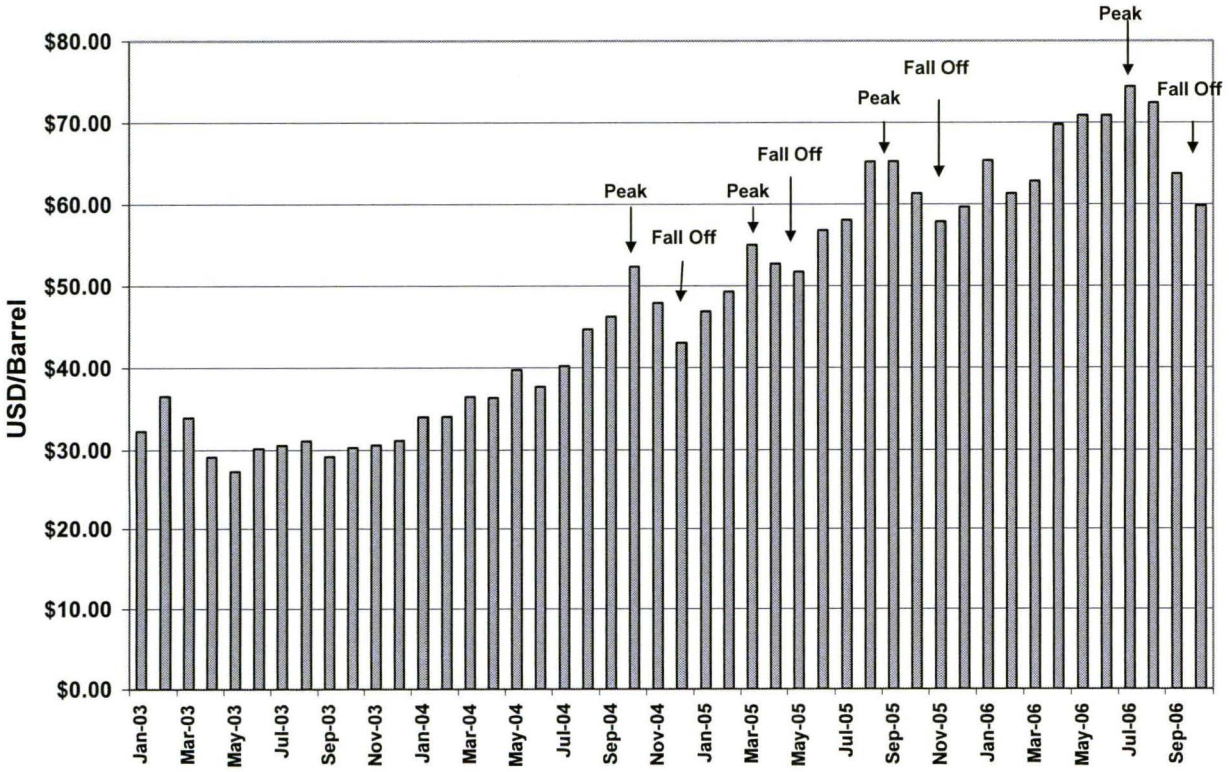
As shown below in the graph of the West Texas Intermediate (WTI) pricing, it certainly cannot be denied that oil prices peaked in July 2006. However, the run up in oil prices had been almost steady since mid 2003 and it was not at all clear (until after the fact) that July 2006 would turn out to be the peak. In fact, new peaks had been established in each of the three months prior to July 2006 as well. Further, the establishment of previous peaks in October 2004, March

[19] [redacted]

[20] Isis Review of NSPI's Fuel Forecasting, Page 3.

2005, and August/September 2005 were followed by short-lived downturns and then the establishment of new peaks. While NSPI is certainly hopeful that the July 2006 peak is not surpassed, there is simply no guarantee that will be the case. The suggestion that NSPI chose July 2006 because it was the peak is ridiculous on its face as NSPI certainly had no knowledge that oil prices had peaked or that an August cease-fire in Lebanon would hold. In fact, contemporaneous predictions that oil prices would climb even higher were being made by investment houses, industry analysts, and the media. The correct explanation is that NSPI had been working to avoid a rate case and had deferred filing for as long as possible. The higher oil prices in July 2006 combined with other factors made the Application unavoidable.

**WEST TEXAS INTERMEDIATE**




Dr. Raschke also overstates the impact of the choice of this date in NSPI's test year fuel expenses. Dr. Raschke implies that **all** forward price curves were

[redacted] There is no evidence that this was the case for natural gas, imported coal or even petroleum coke.

More important, Dr. Raschke does not even acknowledge in his initial evidence that a significant portion of NSPI's HFO is hedged.[22] Consistent with the policies and procedures in NSPI's Fuel Procurement Policy and Procedure Manual ("Manual") which call for [redacted] the forward price curve is applied to only the open requirement.[23]

This hedging strategy is not new. NSPI followed the same procedure in the 2006 Application. In that case, Liberty, the Board's consultant, acknowledged both the appropriateness and result of this strategy.

> The Company's policy is to have [redacted] of its requirements [redacted]. Use of this strategy would make the price given in Exhibit LCG-8 [redacted] reasonably close to the price that the Company expects to and should pay. Such hedging approach is appropriate for HFO. (Liberty Testimony, 2005, page 61)

The results for the 2007 Application are the same. NSPI recently demonstrated that a change in the use of the [redacted]

[redacted]

[22] This is odd since Avon asked and received information in response to Avon IR-5 and IR-29 on the HFO hedges.
[23] Dr. Raschke in his response to IR-4 REFERENCE accedes to the hedging and specific hedges but does not attempt to adjust his findings with regard to HFO costs.
[24] NSPI response to UARB IR-104.
[25] ISIS Review of NSPI's Fuel Forecasting, page 4.

[redacted]

Regardless of whether HFO costs [redacted] of its HFO requirements, consistent with its policies and procedures. [redacted] Dr. Raschke's curious omission on this subject can only be explained by an attempt to provide the Board with an exaggerated consequence from the change in the HFO markets.

With respect to Dr. Raschke's comments as to the use of the forward price curve for setting HFO and natural gas prices, three comments should be made. First, this is the third time Dr. Raschke has provided testimony to the Board. In all three cases, NSPI's methodology was the same. This is the first time, however, Dr. Raschke has objected to the use of forward price curves for establishing HFO and natural gas prices. Second, Dr. Raschke provided no recommendations in his initial evidence as to alternatives to the forward price curves. In his response to IR-3, Dr. Raschke provides his forecast for HFO for 2007 (with no specific methodology that NSPI could independently apply) and provides no methodology for estimating natural gas prices in 2007 and beyond or HFO prices for 2008 and beyond. Third, as noted above, Dr. Raschke fails to take into account NSPI's hedging strategy which significantly reduces the impact of the forward price curve on NSPI's fuel budgets.

**Updating**

The Intervenors to varying degrees have requested the fuel forecast be updated to reflect new commitments, more contemporaneous forward price curves and alternative forecasts. Ultimately, this becomes a policy decision for the Board. To the extent prior practice is determinative of the

Board's position, there has not been a practice of updating fuel numbers. To the extent an adjustment is made prior to the commencement of the test year, the Board should consider all factors affecting rates, not simply fuel.

With respect to fuel costs, the Board should consider the factors that could cause fuel costs to exceed current estimates including the following:

- Load – Ultimately fuel consumption depends on load, both overall demand and distribution. Load is a function of weather, industrial activity, and the overall economy and can be estimated but ultimately is not known until after the fact.

- Supplier Performance – Despite contract commitments, suppliers do not always perform up to specifications. Sometimes the non-performance is the result of a legitimate event of force majeure; Under a legitimate force majeure event, NSPI is required to replace the lost volumes, often at a higher price. As well unforeseen political events may dramatically alter fuel markets.

- Natural Gas Volumes – Delivery under the [redacted] of contract volumes. NSPI estimated 90 percent for the 2007 test year. As of the date of this evidence, NSPI has received [redacted] of volumes in 2007.

- Relative Prices for Natural Gas and HFO – The amount of natural gas available for resale depends upon the relative pricing of natural gas and HFO. Natural gas is burned in the steam units at Tufts Cove when it is lower in cost (on a quality adjusted basis) than the HFO.

The Board has recognized in particular the sensitivity of NSPI's fuel budget to natural gas assumptions. Paragraph 200 of the 2006 Decision which is referring to natural gas assumptions states "(h)aving regard to the highly volatile nature of the natural gas market, and the potentially significant impact that this amount can have on NSPI's fuel budget, the Board recognizes that caution is required."

The updated fuel forecast prepared by the Company in January 2007 and filed in response to UARB IR-104 reflects the [redacted] for all fuels, reasonable assumptions regarding deliveries under the [redacted] forward price curves. This forecast was based upon a redispatch of units per the Strategist model and reflects a more accurate recalculation of fuel cost than can be achieved by any intervenor through off-line calculations.[26]

Several important points should be made about NSPI's updated forecast.

- The January 2007 fuel forecast demonstrates the accuracy of the October 2006 budgeting process. [redacted] fuel budget is relatively small.

- The January 2007 forecast confirms the benefits of NSPI's hedging strategies. The relatively small difference in total costs during a volatile pricing period demonstrates NSPI's successful hedging program.

- The average HFO price in the January 2007 fuel forecast is about [redacted] per barrel. This equates to the [redacted] price of

[26] An example of this problem is Dr. Raschke's calculation of the benefit of the [redacted] contract. Dr. Raschke's obvious error is that his analysis is not done on a Btu basis, but a tonnage basis when the coals have different Btu contents. Less obvious are the impacts on overall sulphur loadings (i.e., some displacement of pet coke), heat rate, and PTMT operations.

about [redacted] per barrel.[27] More importantly, the [redacted] HFO strip for 2008 is [redacted] per barrel.

- There has been no evidence as to natural gas prices in 2008, coal prices in 2008, or petroleum coke prices in 2008 that support any "normalizing" adjustment to 2007 test year numbers.

Should the Board decide to opt for a lower forecast of fuel costs then that contained in the application despite the problems in doing so identified above, there is no better estimate than that developed by the Company in response to UARB IR-104. EVA does not support the statistical approach proposed by Dr. Stutz as he himself confirms he is not a fuel expert. None of the fuel experts to this proceeding propose a statistical solution. Further, to EVA's knowledge, there is not a utility in North America that utilizes such an approach.

[redacted]

[redacted]. Both Dr. Raschke and Mr. Gubbins had problems with this procurement, albeit for different reasons.

Dr. Raschke states that [redacted] and the price was compared only to the inaccurate forward pricing curve while EVA's views on lower coal prices in 2007 and beyond were disregarded" (page 5). Dr. Raschke asks that the [redacted] cost above the EVA forecast be disallowed.

[27] In any hedging program, success such as experienced by NSPI cannot always be guaranteed. Air Canada, for example, recently acknowledged that because its oil hedges performed poorly, it would continue to impose a fuel surcharge despite the drop in oil prices. January 10, 2006, Globe and Mail.

Dr. Raschke's findings are flawed in multiple respects.

- NSPI's decision to renegotiate its agreement [redacted] came about because NSPI had received a competitive 2007 bid [redacted] response to its January 2006 solicitation. NSPI with EVA's support went back [redacted] NSPI also considered other suppliers.

- Dr. Raschke implies EVA was not supportive of this transaction. A review of EVA's Comments on the January 2006 LS Bids and Comments on the [redacted] demonstrates that EVA was enthusiastic about this opportunity. Further, EVA's support for this specific transaction was communicated verbally to Dr. Raschke in NSPI's offices in November 2006.

- NSPI did not simply compare [redacted] with the forward pricing curves, rather NSPI contacted the other producers regarding pricing for future years. This step was explained in the "record of procurement" which was provided to Dr. Raschke for review. NSPI also considered the EVA price forecast.

- A contract price, such as provided [redacted], cannot be compared to a prompt price from a forecast on simply an adjusted Btu basis as Dr. Raschke does in his analysis. A proper comparison between the two prices must consider term (contract versus spot), optionality [redacted] destination (North America versus Europe) and evaluated delivered cost benefits (i.e., the differential at the busbar).

- Dr. Raschke's assertion that [redacted] than the EVA forecast is wrong. EVA's [redacted] memo to which Dr. Rashcke refers concludes that that [redacted] price was consistent with EVA's forecast adjusted for term, quality, optionality, and market. Of note, EVA's calculations do not include the busbar benefit which would have further increased the value of this coal to NSPI given its high heating value.

- Dr. Rashke in his response to IR-6 which addresses optionality acknowledges (1) the text book approach to valuing optionality is the Black-Scholes model and (2) optionality probably increases the fixed price of the contract. EVA valued the options for NSPI through the Black-Scholes model and evaluated [redacted] price taking this value into account.

- Even if Dr. Raschke were correct that there [redacted] difference between a forecast and contract price, which he is not, there is simply no protocol for disallowing an amount based upon the difference between a forecast price and a transaction price.[28] In order for the Board to "disallow" a specific fuel expense, it must make a finding of imprudence. For example, if NSPI purchased [redacted] when coal from another producer was lower in cost on a fully evaluated basis and there were no extenuating circumstances supporting its procurement. Dr. Raschke does not allege these facts or any other that would support imprudence. Rather, he states NSPI should not pay more for coal than a forecast number.

- If anything, Dr. Raschke's testimony supports why NSPI should not rely solely on price forecasts in making fuel purchase decisions or developing its fuel budgets. Price forecasts are often wrong. What Dr. Raschke does

[28] Outside of NSPI, Dr. Raschke has no relevant North America regulatory experience as confirmed in IR-2 in the current proceeding and prior proceedings. This recommendation is indicative of that.

not disclose is what would have happened had NSPI decided to defer any purchases from the January 2006 low sulphur solicitation as Dr. Raschke suggests it should have based upon his interpretation of the forecast prices. As shown below, global coal prices spiked after this procurement. [redacted]

**WORLD STEAM COAL PRICES**




Mr. Gubbins objects to the contract for different reasons. He states that this contract is in violation of NSPI's policies and procedures. Mr. Gubbins alleges that "(a) [redacted] tonnes of coal is committed at the time of the Application to [redacted], and all of that coal coals comes from [redacted] far exceeds this limit. It

[redacted]

represents [redacted] of all solid fuel requirements." (Page 10)

Mr Gubbins appears to have misinterpreted NSPI's policies and procedures. The manual is clear that the determination of the [redacted] Finally, NSPI's manual is clear that these are "general" rules, which means that for good reasons a deviation from them may be appropriate. While not needed in this situation, a deviation in the future may be appropriate and in the best interest of NSPI's customers.

Mr. Gubbins also proposes an adjustment to NSPI's fuel budget for [redacted] agreement but his logic and methodology differ from Dr. Raschke's. Mr. Gubbins recognizes, unlike Dr. Raschke, that the 2007 price for [redacted] product is "close to the market at the time of the agreement" and does not propose any adjustments to the 2007 number. Rather, Mr. Gubbins proposes that the 2008 pricing is too high and proposes that the fuel budget associated with this contract be reduced. Mr. Gubbins' adjustment is based upon the difference between the combined forecasts of Hill and Associates and the McCloskey Group when adjusted for inflation.

[redacted]

Mr. Gubbins methodology and calculations are flawed in the following respects:

- Mr. Gubbins asks the Board to accept the McCloskey Group forecast which he refuses to disclose or support. Absent disclosure of the specific forecast and its assumptions, NSPI and the Board have no ability to determine whether it is appropriate for the stated purpose.

- Mr. Gubbins makes no adjustments to [redacted] on which the McCloskey forecast is based.

- Mr. Gubbins acknowledges he "has never carried out an analysis of the value of options since this will be customer dependent and specific to their own circumstances" but that he has "**never contested the value of having options in a contract".**[32] Yet, Mr. Gubbins does not see fit to consider this value in [redacted] when comparing it to a market price.

- Mr. Gubbins fails to place this transaction in the context of the stated objective of NSPI to implement a contract portfolio such that it minimizes the volumes exposed to market pricing in any one year.

- Mr. Gubbins does not propose this disallowance based upon imprudence of NSPI, simply his belief that a one year contract would have been more appropriate. Of note, his recommendations to defer development of the contract portfolio have previously been rejected by the Board.[33]

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[32] Gubbins IR-7.

[33] Apparently, Mr. Gubbins does not understand the Board's finding stated in paragraphs 114 and 115 of the Rate Decision in which the Board made clear its position that the development of a contract portfolio was appropriate and that the commitment to a term agreement in [redacted] was prudent. As a result, EVA will not respond to Mr. Gubbins' position regarding a disallowance associated with the [redacted] contract beyond this footnote.

By contrast, Liberty found [redacted] not only appropriate but emblematic of the improvements in NSPI's solid fuel procurement activities. Specifically, "Liberty found that NSPI properly handled the solicitation for this RFP, including a sufficient number of qualified potential suppliers, conducting bid evaluations, and made a decision that appears sound from the bids and the evaluations that (Liberty) reviewed." Liberty specifically found NSPI's decision to extend [redacted] (Pages 13 and 14).

In conclusion, Dr. Raschke and Mr. Gubbins are unreasonable in their attempts to find areas in which a downward adjustment to the solid fuel budget would be appropriate such that they turn to [redacted] which should be applauded on multiple grounds, not criticized. Neither consultant asserts imprudence associated with this contract, which is the regulatory standard for a disallowance, yet seek to disallow the difference between the contract price and a forecast of market prices not adjusted for term, optionality, and quality, albeit for different years. In one case, a disallowance is proposed for 2007 based upon an interpretation of forecasts where the actual record demonstrates NSPI saved money by making this procurement rather than deferring it to later in 2006 as has been recommended.[34] In the other case the disallowance is for 2008 presumably based upon a belief that NSPI should not enter into multi-year contracts in the current market despite a stated and approved policy to do so.

**Fuel Adjustment Mechanism**

With the exception of Dr. Rosenberg, no evidence has been filed in support of a Fuel Adjustment Mechanism in the current proceeding

[34] Given the spirit of these reviews, one can only assume that if NSPI had waited until May 2006 to buy low sulphur coal and was forced to pay [redacted] per tonne more, this same consultant would consider NSPI's failure to purchase coal in January 2006 imprudent.

although some of the evidence speaks to other policy options and "normalization".[35]

Several points should be made:

- Fuel prices have been extremely volatile. All parties to this proceeding acknowledge that volatility is likely to continue. In fact, Liberty states in its evidence "(t)he unpredictability of fuel costs continues to be a major challenge for NSPI and for the Board. Caution dictates recognition that unpredictable and volatile fuel prices makes it as hard today as it has been in the past to determine fuel cost directions. (Liberty, page 42)

- The most efficient means to recover prudently incurred fuel expenses in a volatile environment is through a fuel adjustment mechanism. Fuel adjustment mechanisms are used widely throughout North America including in jurisdictions Dr. Rosenberg identified as not having any. EVA itself has worked on fuel cost recovery cases for Appalachian Power and Monongahela Power in 2006, two utilities Dr. Rosenberg represents in Exhibit AR-1 to his testimony as not having fuel adjustment clauses.[36]

- A fuel adjustment mechanism would provide rate reductions to NSPI's customers whenever fuel costs could be obtained at lower prices and/or natural gas resales exceed forecast levels.

- Liberty acknowledges in its response to IR-3 that a fuel adjustment mechanism could eliminate the risk of over- or under-recovery of prudently incurred fuel costs assuming it was structured properly.

- The current process in Nova Scotia is disruptive and expensive. While a fuel adjustment clause does not eliminate the need for

[35] Dr. Rosenberg claims his proposal is not for a fuel adjustment mechanism per se, but does not dispute there are similarities.
[36] The accuracy of the remainder of Exhibit AR-1 should be questioned as a result.

regulatory proceedings, it narrows the scope considerably. Further, the Board retains the right to disallow any imprudently incurred costs.

- The current process has become skewed. Intervenors are requesting disallowance for items that no responsible auditor could in any way construe to be imprudent. This may be because of Board practice to consider all commentary indiscriminately.[37] EVA encourages the Board to adopt and impose a higher standard for intervenor testimony. Further any requests for a disallowance should be tied to a documented act of imprudence as previously defined by the Board or a legitimate regulatory principle.

- The reasons behind the Board's previous denial of NSPI's request for a Fuel Adjustment Mechanism have substantially been addressed and resolved.

EVA recommends that the Board consider issuing a directive for the parties to begin immediately designing a fuel adjustment mechanism for future application. As part of this effort, a deferral account could be instituted at the same time the rates are put into effect that would provide for future recovery or future refunds of the difference between actual and forecast fuel costs.[38]

[37] In addition to the proposed adjustments regarding [redacted] that have already been discussed, Mr. Gubbins proposes an adjustment for NSPI's election to purchase [redacted] on a spot basis which he believes NSPI should have "held back from purchasing" even though he acknowledges that the purchase "was compliant with (NSPI's) Fuel Manual". He justifies his opinion based upon an EVA forecast totally ignoring EVA's memo supporting this purchase. This is not an acceptable regulatory standard .

[38] EVA is not supporting the one-sided deferral mechanism proposed by Dr. Rosenberg.

# REBUTTAL TESTIMONY OF ICF INTERNATIONAL

## 2.3 Rebuttal Testimony of ICF International

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## 2.4 Rebuttal Evidence of NSPI

Some Intervenors are recommending reductions to NSPI's 2007 fuel cost forecast. This is not unexpected. It is in the self interest of the Intervenors that the increase sought by NSPI be reduced. However, NSPI is entitled under the Public Utilities Act to recover its prudently incurred costs, including fuel.

When prices are rising and projected to stay high or increase further, NSPI is likely to face criticism and calls for disallowances based on the argument that it should have locked in more fuel at the earlier lower prices. When prices start to fall, or are forecast to fall from recent and current levels, NSPI is likely to face criticism and calls for disallowances based on the argument that it should not have locked in so much fuel at the earlier or current high prices.

It is self evident that this is a no-win situation for NSPI. Utilities with generation based on commodity fuels face an added risk of recovery of their fuel costs in rates. This issue can be addressed as follows:

- By establishing a fuel procurement methodology for the utility which is approved by the regulator. In this way, the regulator can be confident that the utility is managing its fuel expense appropriately and the utility and its customers can be protected; and

- By implementing a fuel adjustment mechanism (FAM). This mechanism ensures that customers pay no more or no less than the actual fuel costs incurred by the utility in procuring fuel using the approved methodology.

NSPI's status with respect to these approaches are expanded on in the following sections.

**Fuel Procurement Methodology**

NSPI followed the Board's directives with respect to purchasing fuel using a portfolio approach. The portfolio approach was one put forward by, and supported by the Intervenors themselves. NSPI has moved away from a "close-to-market" or predominantly open state. Fuel contracts have been layered in, incorporating fuel prices from various points in time at various contract terms. Based on that approach, [redacted] of NSPI's fuel costs are either contracted or hedged for 2007.

The portfolio approach is working; it ensures that certain volumes of fuel are purchased regularly, providing a measure of stability to fuel costs. As a result, increases or decreases in commodity prices that may occur in 2007 will have a smaller effect on NSPI's actual fuel costs that will be incurred by the Company to serve its customers.

**Fuel Adjustment Mechanism (FAM)**

It is clear some parties have expectations of lower prices for fuel in the future. A FAM can address this issue in a way that is fair to all parties.

In this Application, NSPI has not proposed a Fuel Adjustment Mechanism (FAM). NSPI understood the Board wanted the Company to work with Liberty Consulting Group on its fuel procurement recommendations prior to the implementation of a FAM.

NSPI has been working collaboratively with Liberty and Board staff. NSPI has demonstrated, in this Application, that the Company has a professional, transparent and appropriate approach to fuel procurement. The Liberty evidence supports this conclusion:

> Overall, NSPI has made good progress in implementation of Liberty's recommendations. Marginal progress has been made on a few recommendations. Perhaps the most important progress has been made by

NSPI in completion of its solid fuel portfolio, ahead of the [redacted] …[39]

The evidence of Intervenors reflects concerns about the potential for 2007 to be a peak year for fuel prices, and about the accuracy of fuel cost forecasts in a volatile world. NSPI sources fuel in the market place. Therefore the Company is subject to the volatility in the international fuel market, mitigated to a material extent through the fuel portfolio strategy. NSPI customers are protected to a material degree from this by the fuel portfolio; it dampens volatility. Given the implementation of the fuel portfolio strategy, the risk of over-recovery or under-recovery can be mitigated by a properly designed FAM.

In 2007 there is an opportunity, subject to the Board's agreement, to develop a FAM for NSPI and its customers. The Company recognizes stakeholders must be part of this process and the Board will ultimately approve any proposal. Previously, the Board has indicated actions that must occur in this regard. The Company is ready to move forward.

### 2.4.1 Rebuttal of Liberty Evidence

In its evidence, Liberty is supportive of the progress NSPI has made with respect to its fuel procurement practices in recent years and notes "strong performance"[40] in the completion of its portfolio ahead of the directed deadline[41].

> There are a number of examples that demonstrate to Liberty that NSPI has taken fuel management seriously, and has pursued constructive steps to manage its solid fuel supply in ways that benefit the operations of the utility as well as reduce the costs of these operations.[42]

However, there are a number of areas on which Liberty and NSPI do not agree as outlined in the following sections.

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[39] Evidence of Antonuk, Spangenberg and Adger, dated December 20, 2006, p-7.
[40] Evidence of Antonuk, Spangenberg and Adger, dated December 20, 2006, p-15.
[41] Evidence of Antonuk, Spangenberg and Adger, dated December 20, 2006, p-7.
[42] Evidence of Antonuk, Spangenberg and Adger, dated December 20, 2006, p-49.

***Timing of Forecast***

Liberty suggests NSPI has forecasted at the time of high prices and has been reluctant to provide information that could support adjustments. On the contrary, NSPI has provided all critical information related to the 2007 test year that was requested and has done so in a timely manner. Adjustments for fuel should be related to the fuel information provided and not the use of arbitrary or unsupported adjustments that seek to generally disallow or defer costs that are fundamental to fuelling NSPI's generation needs.

Liberty seems to believe that NSPI has the ability to predict the peak of the market when, in fact, the peak can only be identified in hindsight. The figure titled West Texas Intermediate, presented by EVA in its Rebuttal evidence shows that NSPI and other market observers witnessed three events in the months prior to July where oil prices rose to a new level and then receded for a short period before turning and reaching yet a new peak.

NSPI could not have had insight about where the market would settle. Three or more reasons converged to allow the recent market prices to fall; the uneventful end of the hurricane season, the weakened physical demand largely associated with warmer weather and the lack of meaningful Middle East actions.

Since filing the January 8, 2006 updated fuel forecast, an additional gas margin provided through the gas resale program has been identified. This results in an increase in the gas resale margin of $270,000. the January 8, 2006 updated fuel forecast is thereby adjusted to $490.3 million.

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

***Optimization of Hedges***

Liberty's basis for its premise that optimization can occur is that natural gas has moved up in price relative to heavy fuel oil (HFO) between [redacted] In fact, the opposite occurred; the price of natural gas dropped by [redacted] than HFO between [redacted]

Liberty leaves an impression that optimizations of hedges have created additional savings opportunities from the [redacted] This is incorrect: In order for optimization to occur, a number of conditions need to take place simultaneously:

- There needs to be a hedged fuel position in place for the forecasted fuel to be consumed.
- There needs to be a change in economic fuel choice between HFO and natural gas, such that a hedged position can be taken on the newly economic fuel and the hedges on the previously economic fuel choice released.

[redacted]

*Gas Competition*

In response to the Board's directive to have an arms-length process for management of NSPI gas sales, NSPI undertook the gas competition. ICFI has thoroughly reviewed this process and concluded that it was fundamentally sound.

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

Mr. Rashcke also claims that NSPI disregarded the views of EVA in acting upon [redacted]. This is contrary to EVA documentation which was available for review in the Confidential Data Room. In fact, in addition to being the low cost alternative, Ms. Medine's recommendation[45] on the multi-year agreement [redacted] cites three additional reasons for her support of NSPI entering into [redacted].

NSPI developed a consensus forecast that consisted of indicative offers and forward curves, both of which represented the price levels at which business could be transacted.

In his criticism of the pricing of the uncommitted tonnages, Dr. Raschke fails to give weight to the indicative offers that were provided by suppliers for 2007 tonnage. Instead Mr. Rashcke focuses his criticism of both the evaluation [redacted] and the consensus pricing of the uncommitted tonnage on the "fallacy of using future prices as a guide to spot market coal prices in the future"[46] in writing that "it is with coal as well as for oil and natural gas, futures prices are not very reliable in predicting future prices in the physical market" .[47]

[45] The January 2006 L.S. Bids and Comments of EVA in the NSPI Confidential Data Room.
[46] Evidence of Raschke, dated December 20, 2006, p-44.
[47] Evidence of Raschke, dated December 20, 2006, p-45.

Mr. Rashcke's current opinion is entirely contrary to his evidence in the 2005 rate case where he criticized NSPI decision not to enter into a multi year agreement with [redacted]

> NSPI indicated that no award was made because the offer was [redacted] above the then-current market, and the price escalated [redacted] over the term…While it is indeed correct that the spot prices in the first and second quarter in 2002 were still declining and c.i.f. ARA prices did not hit the bottom of the cycle until August 2002, there were other indicators of the market that NSPI could have taken cognizance of in April 2002…Forward looking steam coal price indicators were already pointing upwards suggesting a renewed further period of strengthening prices. The most liquid of these, TFS API #2 (6,000 kc NAR c.i.f. ARA), had a midpoint price for April of $32.30. The forward price for calendar year 2004 was $34.30 and for calendar 2005 $34.40.[48]

While Dr. Raschke now testifies that the API2 index is an unreliable measure of future market pricing, he did not hesitate to criticize NSPI in a previous rate case[49] for not considering the API 2 index in NSPI's evaluation of offers which extended into outer years.

### 2.4.3 Rebuttal of Colin Gubbins

In addition to and in support of the Rebuttal Evidence of EVA, NSPI offers the following.

***Uncommitted Tonnage & the Use of Forward Curve Information***

Mr. Gubbins' evidence with respect to the pricing of the uncommitted tonnage and the use of forward curves in developing the consensus forecast is defective in several respects.

[48] NSPI 2005 Rate Case, Raschke Evidence, NSUARB-NSPI, P-881, October 2004, p.31.
[49] When presumably he thought it was to the advantage of his client to do so.

NSPI developed the solid fuel budget by pricing purchased fuel at contract levels and using a consensus forecast for the uncommitted volumes. The optional volumes of the contractual tonnage were priced at the lower of the contract or market levels. The consensus forecast was developed using contemporaneous bids and forward price curves.

In regard to NSPI's pricing methodology used for open positions in the 2007 Rate Case, Mr. Gubbins indicates that:

> (i)t's important to note that (employing forward curves) is a departure from the methodology that was stated to have been employed for the 2006 test year where much greater emphasis was placed on the use of a long term forecast produced by Hill and Associates. [50]

As stated in the filing, NSPI adopted a consensus forecast for the open positions in response to testimony provided by the Board's consultants in the last rate case.[51]

A consensus forecast is preferable to a single source and NSPI has endeavoured to take this approach in developing a fuel price forecast that is representative of the various perspectives, rather than relying on one individual industry forecast.

In his 2006 Rate Case evidence dated October 17, 2005, Mr. Gubbins states that:

> While agreeing on many of Hill and Associates views on the drivers in the International coal market we find that their translation of this into a forward price forecast greatly overstates price levels in 2006 and beyond.[52]

Mr. Gubbins then goes on to calculate a disallowance by replacing the Hill and Associates price forecast with the McCloskey lower price forecast for 2006.

It is clear that Mr. Gubbins has selected with hindsight, a price forecast that simply serves to reduce the fuel cost estimate. For the 2006 Rate Case, when the Hill and Associates

[50] Evidence of Gubbins, dated December 20, 2006, p.3.
[51] NSPI 2006 Rate Case, Direct Evidence, NSUARB-NSPI, P-886, October 2006, p.57.
[52] NSPI 2006 Rate Case, Gubbin Evidence, NSUARB-NSPI, P-882, October 17, 2005, page 4.

forecast was higher than the McCloskey's forecast, Mr. Gubbins chose the McCloskey's forecast. Now, when NSPI's consensus forecast is higher than the Hill and Associates forecast, Mr. Gubbins chooses the Hill and Associates forecast prices.

Mr. Gubbins supports his use of these forecasts rather than NSPI's consensus in quoting Hill and Associates when they write that the "Market is slowly coming back to fundamentals. As supply catches up with demand going forward, coal markets will ease and there will be downward price pressure".[53] However, the same paragraph continues "Over the next two years Hill & Associates expects that world thermal coal markets will be characterized by high price volatility as the supply and demand balance teeters between too much and too little, often in rapid succession".[54]

In addition to picking one forecast over another to suit the results he seeks, Mr. Gubbins is also quoting Hill and Associates out of context and thereby ignoring their recognition of market volatility.

While focusing his criticism on the use of the forward curves to develop the consensus pricing, Mr. Gubbins fails to recognize the indicative offers from suppliers which were also incorporated in the consensus forecast. These indicative offers represent the price levels at which suppliers were willing to sell coal at a given point in time for 2007.

Similar to the indicative offers, the API 2 index reflects the level at which business has been done or could have been done, for whichever origin of standard bituminous material that is delivered into ARA (Amsterdam, Rotterdam, Antwerp).

In his 2005 Rate Case evidence, Mr. Gubbins, in discussing the API 2 index, states that "Employing a mix of coal indices and freight indices, an FOB South America index can be derived. TFS API 2 represents the delivered price of coal into the North West European market. BFI7 represents the freight from Puerto Bolivar (Colombia) to North West Europe. Subtracting the BFI7 from TFS API 2 allows the derivation of an FOB

[53] NSPI 2006 Rate Case, Gubbin Evidence, NSUARB-NSPI, P-882, October 17, 2005, page 4.
[54] Executive Summary International Coal Trade Supply Demand and Prices to 2015, par.E1.

index out of Colombia".[55] This is, indeed, the methodology that NSPI used in determining the forward curve piece of the overall consensus forecast.

Again in his 2005 Rate Case evidence, Mr. Gubbins discusses how NSPI can use the API2-BCI7 mechanism to protect against price moves in the curves and acknowledges NSPI's use of forward price curves in analyzing coal prices under their tendering procedures. Mr. Gubbins indicates that:

> There are a large number of transactions backing this forward curve up to two years ahead. Beyond this period, fewer participants are prepared to commit that far ahead. Effectively, therefore, the coal buyer is able to lock in prices up to two and three years ahead"[56].

Contradicting his own previous testimony, Mr. Gubbins now states that "forward coal price curves are...an unreliable forecasting tool since they do not represent the fundamentals that drive price and that is the supply and demand of the commodity itself".[57]

The coal pricing methodology section of the McCloskey's Coal Report website indicate that every week the McCloskey Group publishes the North West European Marker (NWE) which is a component of the API2 price index. The NWE marker reflects the level at which physical business has been done, for whichever origin of standard bituminous material that is delivered into Amsterdam, Rotterdam, Antwerp (ARA). These prices are compiled by a combination of physical deals done and company evaluation of the market in the week through an exercise of rigorous price discovery of detailed discussions with market players.

Given this rigorous development of the index, Mr. Gubbins' claim that the forward curve bears no relation to market drivers is incorrect. In fact, the forward curve represents a fundamental driver of the market which is the price at which buyers and sellers are willing to transact at any time.

[55] NSPI 2005 Rate Case, Gubbins Evidence, NSUARB-NSPI, p-881, Revised October 19, 2004.
[56] NSPI 2005 Rate Case, Gubbins Evidence, NSUARB-NSPI, p-881, Revised October 19, 2004.
[57] NSPI 2005 Rate Case, Gubbins Evidence, NSUARB-NSPI, p-881, Revised October 19, 2004.

***Compliance with NSPI Fuel Manual***

Mr. Gubbins also takes issue with NSPI compliance with the policies outlined in the Fuel Procurement Policies and Procedures Manual ("Manual").

The Manual, as approved by the UARB, indicates that one of NSPI's objectives:

> is to maintain a portfolio of long, medium and short term agreements that provide for supply and supplier diversification with credit worthy counterparties (p.1).

The Manual further indicates that the long term component of the portfolio will be made up of contracts that are [redacted]

In order to be compliant for 2007, NSPI needs at [redacted] requirement to be purchased under long term contract. This equates to [redacted] NSPI currently has long term contracts as follows (including optionality):

[redacted]

This provides for a range of [redacted] metric tons under long term contract in 2007.

Mr. Gubbins takes specific issue with the [redacted] purchases for 2007 and NSPI's policy surrounding the amount of coal that it will commit [redacted]. Mr. Gubbins writes:

> Far more serious in our view is the make up of the contracts. [redacted]

[redacted]

The Manual states that:

[redacted]

[redacted]

[redacted]

***Consensus Forecast***

In his evidence, the SEB consultant takes issue with "NSPI's claim to use a 'consensus' forecast (instead of a single forecast) of solid fuels" (p.8). This consultant points to the fact [redacted] for uncommitted high sulphur coal is exactly the same as the [redacted] for the same in NSPI's response to SEB-IR 29.[59]

NSPI issued an RFP on August 18, 2006 for the supply of mid or high sulphur coal in 2006, 2007 and 2008. Responses were due by September 1, 2006 and to be held valid until September 15, 2006. NSPI requested an extension of validity to September 21, 2006.

In response to this RFP, [redacted] an offer which included high sulphur coal supply for 2007 at a [redacted] This offer was used as the pricing point for the uncommitted high sulphur tonnage rather than a consensus forecast as it was the most economic offer NSPI had in hand at the time. It was not represented as committed tonnage as NSPI was in the process of negotiating the final price and did not finalize the negotiation until [redacted]

***Maintenance Schedule***

The SEB consultant proposes a reduced maintenance schedule for NSPI's power plants. NSPI has been recognized by the Canadian Electricity Association (CEA) in its last two published annual reports for its top rankings of its units capacity factors. This requires well planned maintenance schedules and investment programs within the context of managing total costs.

This consultant uses historic levels of maintenance in his discussion, but does not provide recognition of the additional work required on NSPI's fleet. NSPI implements environmental controls [redacted] inspects and refits turbine

[59] Evidence of Rosenberg, dated December 20, 2006, p.8.

components [redacted] and performs additional work to replace or upgrade aging components.

Since 2000, NSPI has worked to reduce the five year rolling scheduled maintenance weeks on its coal plants from [redacted]. In 2006, NSPI performed [redacted] of actual coal plant outages. The same is forecast for 2007, although there are plans to complete [redacted] compared to [redacted] in 2006. The maintenance forecast for 2007 is soundly based.

## 3.0 FINANCE AND OM&G

In this section, NSPI presents the Rebuttal Evidence of Dr. Roger Morin in respect of return on equity (ROE). NSPI also responds to issues raised by consultants in regard to pension, depreciation, rate base and OM&G. The importance of maintaining the financial health of the utility, by allowing an appropriate ROE and allowing the Company to recover its costs on a timely basis in order to have an opportunity to earn its allowed ROE is the key theme of this section of the Rebuttal Evidence.

NSPI adopts the Evidence and opinion of Dr. Roger Morin in respect of the Company's allowed ROE. The Company's further evidence follows the Rebuttal evidence of Dr. Morin.

# REBUTTAL EVIDENCE

# OF

# ROGER A. MORIN

## FAIR RETURN ON COMMON EQUITY

## FOR

## NOVA SCOTIA POWER INC.

**JANUARY 2007**

## 3.1 Reply Comments of Dr. Roger A. Morin

### Personal Introduction

My name is Dr. Roger A. Morin. My permanent residence is in Atlanta, Georgia. I am Emeritus Professor of Finance at the Robinson College of Business, Georgia State University and Professor of Finance for Regulated Industry at the Center for the Study of Regulated Industry at Georgia State University. I am also a principal in Utility Research International, an enterprise engaged in regulatory finance and economics consulting to business and government. I did file a memorandum in this proceeding concerning a fair and reasonable return on Nova Scotia Power Inc.'s ("NSPI") common equity capital.

### Purpose

I have been asked by NSPI to provide a response to the rate of return recommendation filed by Mr. Gorman on behalf of Bowater Mersey Paper Company Limited and Stora Enso Port Hawkesbury Limited.

### Analysis

In determining NSPI's return on common equity capital ("ROE"), Mr. Gorman recommends that NSPI's currently allowed ROE of 9.55 percent be reduced to 9.00 percent because of a decline in interest rates since the last order issued by the Board in March 2005.

I have four concerns with Mr. Gorman's recommendation. First, no independent ROE analysis was conducted by Mr. Gorman, other than comparing the current level of interest rates with the interest rates prevailing in 2004-2005 and examining cursorily the allowed returns of other Canadian utilities. Second, Mr. Gorman's approach implies some kind of formulaic approach whereby NSPI's allowed ROE is a direct linear function of the general level of interest rates. Third, automatic ROE adjustment formulas of the kind implied in Mr. Gorman's approach have never been approved by the Board and do have

drawbacks. Fourth, when examining allowed ROEs of other Canadian utilities, Mr. Gorman did not recognize NSPI's higher degree of investment risk relative to those utilities. I shall now discuss each of these four points in turn.

**Lack of Independent Analysis**

The required return on common equity is usually estimated with several methodologies: (1) the Capital Asset Pricing Model, or CAPM, (2) the Risk Premium, (3) the Discounted Cash Flow, or DCF, and 4) Comparable Earnings. These formal methodologies are designed to estimate the return required by investors on common equity capital. These methodologies are then normally applied to sample(s) of comparable companies, and a thorough risk analysis of the company relative to the comparable company group(s) normally accompanies such analyses. In arriving at his ROE recommendation, Mr. Gorman did not perform any formal analyses, other than base his recommendation on the ROE authorized by the Board in the Company's last case and the decrease in interest rates since that determination. In short, no independent ROE analysis was conducted.

**Relationship Between Interest Rates and ROE**

Mr. Gorman argues that since interest rates have declined since the Company's last rate order, the Company's authorized ROE should be reduce proportionally. Mr. Gorman's simplistic approach to determining ROE implies some kind of formulaic approach whereby NSPI's allowed ROE is a direct linear function of the general level of interest rates. Changes in stock returns do not bear a one-to-one relationship to changes in interest rates and, therefore, the risk premium does not vary proportionately to interest rates. Academic studies and empirical research indicate that risk premiums vary inversely with the level of interest rates - rising when rates fall and declining when interest rates rise.

The reason for this inverse relationship is that when interest rates rise, bondholders suffer a capital loss. This is known as "interest rate risk". Stockholders, on the other hand, are more concerned with the company's lost earning power as interest rates rise. So, if

bondholders' fear of interest rate risk exceeds shareholders' fear of loss of earning power, the risk differential will narrow and hence the risk premium will shrink. This effect is particularly pronounced in high inflation environments when bondholders require a "purchasing power" premium to offset capital losses. Interest rates rise as a result of accelerating inflation, and the interest rate risk of bonds intensifies more than the earnings risk of common stocks who are partially hedged from the ravages of inflation. This phenomenon has been termed "purchasing power" or "lock-in" premium. Conversely, in low interest rate environments, when bondholders' interest rate fears subside and shareholders' loss of earning power dominate, the risk differential will widen and hence the risk premium will increase.

To corroborate this phenomenon further, Canadian regulators that, unlike this Board, have adopted automatic ROE adjustment formulas have in fact systematically and correctly increased the authorized risk premium when interest rates declined, and conversely decreased the authorized risk premium when interest rates increased.

**Automatic ROE Adjustment Formulas**

Automatic ROE adjustment formulas of the kind implied in Mr. Gorman's approach whereby ROEs are a direct function of interest rates do have drawbacks. Notwithstanding the fact that the Board has never adopted or approved any kind of formulaic approach to determining a fair and reasonable ROE for NSPI, changes in risk are typically not reflected in the interest-rate driven formulas found in some jurisdictions, in spite of the influence of risk on investor return. The formula approach eliminates the exercise of judgment and runs the risk of being insensitive to changes in risk perceptions. A single-factor formula, whereby only interest rates influence the cost of common equity, essentially transforms a utility company's common stock into a variable-rate bond.

Second, while the formula approach reduces the direct costs of regulation, it provides no incentive for efficiency unless it is accompanied by an incentive plan. A automatic ROE formula, by placing the utility company in "auto pilot" mode, does not provide incentives for productivity gains and cost minimization and constitutes a step backward in terms of

economic efficiency. A ROE range of reasonableness as currently practiced by the Board is far superior in terms of providing efficiency incentives.

Third, the automatic ROE formula plans currently in vogue in some regulatory jurisdictions are not necessarily transferable to a particular utility company. A subject utility may be more or less risky than the utilities that are under ROE formulas, and it would be unfair to apply a generic ROE formula to all regulated utilities. In fact, NSPI is riskier than a regulated pipeline utility (e.g. TransCanada pipeline) if for no other reason than for the manner in which rates are set. Natural gas pipelines face 100 percent demand charge recovery of fixed costs while NSPI does not.

Finally, mathematical ROE formulas, developed under one set of particular capital market circumstances when long-term government bond yields were much different than they are currently, are not directly transferable to any given utility, for they imply a vastly different risk premium.

Therefore, I do not endorse Mr. Gorman's implied formulaic ROE-setting mechanism whereby only changes in interest rates determine a fair and reasonable ROE. At a minimum, Mr. Gorman should have recognized NSPI's much higher degree of investment risk relative to other Canadian utilities. As I discussed fully in my original memorandum, NSPI's investment risk relative to other Canadian utilities is above average relative to that of the energy utility industry in Canada. The inevitable consequence is that a higher allowed ROE and/or a stronger balance sheet are required to offset the Company's high relative investment risk.

**NSPI's Relative Investment Risk**

Mr. Gorman also refers to the lower allowed returns for Canadian pipelines and Alberta utilities as an argument to lower NSPI's currently allowed return. This circular approach does not recognize the fact that NSPI's investment risk is higher than those of Canadian pipelines and Alberta gas/electric distributors. As one of only two publicly-traded investor-owned vertically integrated electric utilities in Canada entrusted with the power

generation function, NSPI necessarily faces higher business risks relative to its peers because the business risks faced by the power generation business exceed those of the transmission and distribution ("T&D") business and gas pipeline business.. Because a vertically integrated electric utility such as NSPI is riskier than a T&D utility as discussed in my original memorandum, it stands to reason that a higher ROE is applicable to NSPI. Therefore, the allowed pipeline and T&D returns examined by Mr. Gorman as a guide for NSPI's ROE are downward-biased.

**Updated Recommendation**

I agree with Mr. Gorman that interest rates are lower since I last prepared my own ROE recommendation. I am able to update my ROE recommendation in light of favourable changes that have occurred in capital markets since I prepared my original recommendation.

The current level of the 30-year Canada long-term bond yield is approximately 4.3 percent, and the 2007 projected forecast lies in the 4.2 percent - 5.0 percent range versus 5.0 percent when I prepared my original recommendation. I also note that when the Board issued its decision in March 2005, 30-year LTC bonds were yielding about 4.7 percent versus 4.3 percent currently. It is fair to conclude that 4.5 percent is a reasonable estimate of the risk-free rate for 2007 rather than 5.0 percent when I prepared my original memorandum.

Using 4.5 percent as an estimate of the risk-free rate, combined with a risk premium of 4.5 percent - 5.5 percent from my original memorandum, a ROE of 9.55 percent is reasonable and would be my recommendation for the average risk utility under normal rate proceeding circumstances in the absence of an automatic ROE adjustment formula.

Based on current capital market conditions and the application of my professional judgment, I conclude that a fair and reasonable ROE for an average risk Canadian energy utility is in the range of 9.0 percent - 10.0 percent. This compares to my original

recommendation of 9.5 percent - 10.5 percent, representing a decrease of 50 basis points from my original recommendation. I note that NSPI's currently allowed ROE of 9.55 percent lies within that range. Relative to Canadian electric utilities, NSPI is viewed as riskier principally because of: 1) its unique status as one of only two vertically integrated electric utility in Canada, 2) the lack of cost recovery or timely cost recovery, and 3) a weaker capital structure relative to its peers. Therefore, the upper portion of the range of **10 percent** would be far more appropriate and reflective of the Company's investment risk. I conclude that the Company's request to retain the authorized ROE of 9.55 percent remains **conservative and reasonable.**

## 3.2 Pension Expense

Mr. Gorman proposes a "normalization" of pension expense based on speculative future forecasts (pg. 15 of Gorman Evidence). By this he appears to mean an arbitrary reduction of this cost below the amount to be recorded in the test year, without any deferral of the unrecovered cost for recovery in a later period. This concept of normalization is inappropriate and is simply a proposal that prevents NSPI from recovering its actual costs.

Forecasting future pension expense is difficult as significant changes can occur as a result of plan performance and changing discount rates. For example; every month the discount rate changes. While the Application used the July discount rate to estimate pension expense, the NSPI actual 2007 pension expense is set using the discount rate in effect on December 31, 2006. A change of 25 basis point in discount rate equates to approximately $3.5 to $4.5 million change in pension expense. The following table indicates the discount rate changes since the summer of 2006.

| | Discount Rate |
|---|---|
| June | 5.75 % |
| July | 5.50 % |
| September | 5.25 % |
| November | 5.00 % |
| December | 5.25 % |

The 2007 pension expense is now known with certainty, as the December 31 discount rate is now known. Normalizing or arbitrarily reducing 2007 pension expense based on future years estimated at today's assumptions is inaccurate and speculative. These future pension estimates should not be used to set rates in 2007. NSPI cannot adjust its actual pension expense on this basis, nor can it recover the amount in future years. NSPI has a legal obligation to make pension contributions on an actuarial basis. The Company's expense will be as it actually occurs in those future years, and this proposal is simply intended to deny recovery of a properly incurred expense.

NSPI's pension expense is determined by its actuary Morneau Sobeco, and changes are generally driven by current actuarial assumptions. The 2007 estimated pension expense has increased by $3.2 million due to changes in the discount rate assumption and return on asset assumption as detailed in the direct evidence. No interveners have challenged the 2007 pension expense or the underlying assumptions for 2007.

The October 10, 2006 Application requests approval of NSPI's 2007 revenue requirement, including a pension expense of $33 million based on the discount rate of 5.5 percent which was in effect on July 31, 2007. However, the discount rate in effect December 31, the date for which pension expenses for NSPI are set by the actuary, is 5.25 percent. This results in a forecasted 2007 pension expense of $36 million (please refer to Appendix B). Therefore, if the Board makes downward adjustments to NSPI's 2007 revenue requirement due to fuel forecasts, NSPI requests pension expense be increased to $36 million, which results in an appropriate increase in revenue requirement of $5 million. An update of fuel cost estimates from the time of Application can not

fairly be done in isolation of other known updated increases, such as the pension expense. Indeed, the pension increase is now a known and certain cost for 2007.

### 3.3 Depreciation

Dr. Stutz proposes to defer year three of the previously UARB approved 4 year phase in of depreciation rates (page 7 of his evidence). NSPI disagrees with this deferral and requests the Board reject this arbitrary suggestion.

In 2002, the UARB directed NSPI to carry out a depreciation study intended to establish appropriate depreciation rates to be used for establishing electric rates. The results of the study suggested that NSPI's annual depreciation expense was understated by $40 million. A settlement was approved by the UARB, which phased in 50 percent of the amount over four years. Only two years of the settlement have been phased in and as a result annual depreciation expense continues to be understated.

The phase in of appropriate depreciation rates is already delayed by agreement and further deferrals would simply prevent NSPI from recovering its legitimate costs. Deferring the phase in of depreciation arbitrarily would be inappropriate as the gap between the end of the useful life of an asset and the amount of depreciation remaining to be recovered in rates is widening and any further deferrals will widen this gap even more. Moreover, a deferral that conflicts with the agreed and approved settlement provisions could only be seen as arbitrary by financial markets.

In this Application, NSPI has requested recovery of previously approved UARB deferrals for Section 21 Taxes and 2005 Q1 Taxes. There has been no evidence filed in this proceeding that would suggest any error by the Board in approving the recovery of these deferrals beginning in 2007. The depreciation deferral should be treated no differently. To arbitrarily recommend depreciation be deferred is inappropriate. NSPI requests that the Board reject Dr. Stutz's proposed further deferral of the phase in of depreciation rates previously determined to be appropriate.

## 3.4 Rate Base

The SEB consultant (Rosenberg) on page 25 of his evidence proposed an adjustment for the long term receivable included in rate base. This proposal is based on a misunderstanding of the amount in question. NSPI has filed its rate base calculation based on methodologies previously approved by the UARB. This consultant suggests that since the long term receivable balance is declining NSPI should use the lower balance at December 31, rather than the annual average value, as the balance for the rate base calculation. This is incorrect because the long term receivable balance will continue to build into 2008 as the receivable continues to grow for the next term of the contract.

The SEB consultant on page 26 of his evidence suggests that the amount of the long term receivable included in the rate base calculation is $38.2 million higher than the actual amount. This is inaccurate as the long term receivable balance at December 31, 2006 forecast is $85.7 million and the balance at December 31, 2007 is $9.3 million. The actual average throughout the test year is $47.5 million which is what NSPI requested in this Application. This consultant also suggested that since rates would be effective April 2007 NSPI should use a more representative level at the time rates will be in effect. In this scenario, the April 2007 balance is estimated at $86.0 million and April 2008 is estimated at $17 million for an average of $51 million. Therefore in this scenario NSPI long term average balance in rate base would be increased by $3.5 million. NSPI does not support this suggestion in any event – this consultant's proposal is inappropriate and should be rejected by the Board.

NSPI has used the same calculations and assumptions that it did in previous rate cases, which are Board approved. There are more than ten other items which are included in the rate base calculation that use the average balances for rate base purposes and to select one of these items and use a different methodology is not appropriate. No other Intervenors have filed evidence disputing NSPI's calculation of rate base. NSPI requests that the UARB accept the rate base calculations as filed.

## 3.5 Amortization of Assets



## 3.6 OM&G

NSPI has not requested an increase in OM&G in this Application, except for increased pension expense. NSPI notes that no Intervenor has filed evidence about 2007 OM&G, other than regarding pension expense. Few questions were posed about OM&G in the second round of Information Requests.

There has been extensive review of NSPI's OM&G expenditure over the past several years. By way of example:

- NSPI has completed and filed with the Board two internal OM&G studies
- Canadian Electrical Association benchmarking
- In each rate case filing, NSPI provides a trend analysis – including actual costs, per GWh, per customer, in current & constant dollars
- Line by line detail on OM&G costs (Appendix B of NSPI's Direct Evidence) including explanation of all variances greater than $50K in each rate case
- Reponses to more than 1000 OM&G related Information Requests during the past several rate applications
- Review by Board consultant John Sherrod in respect of storm costs
- Review by Board consultant John Sherrod in respect of PLT staffing
- Morneau Sobeco reports on pension expense
- Review by Board consultant Liberty Consulting Group in respect of vegetation management

- Review by Board consultant Liberty Consulting Group in respect of executive compensation
- Affiliate Audit by Board Consultant Liberty Consulting Group, reviewing all affiliate transactions
- UARB reviewed and approved CGI contract
- Board approved regulatory fees (Board fees and Board consultant fees)
- Union contracted provided to confidential intervenors

In the context of this regulatory oversight and accountability, NSPI regularly has several of the top rated plants in Canada and the Company consistently ranks among the best utilities in Canada in terms of safety performance.

The Board and Intervenors have had access to detailed information from NSPI about OM&G costs. Intervenors have demonstrated they have access to considerable information from other utilities and offer that evidence when it supports their positions. However, other than specific arguments in limited areas such as Demand Side Management and vegetation management, Intervenors have not submitted evidence suggesting NSPI's OM&G costs are not reasonable or that the Company's expenditures are poorly managed. NSPI's cost control efforts, resulting performance and transparency are demonstrably apparent.

There is no Intervenor evidence in this proceeding that supports any change to NSPI's 2007 OM&G expense estimate for 2007, and the Company request it be approved as filed.

### 3.7 Financial Health of Utility

The UARB has recognized the importance of maintaining a financially healthy utility:

> The Board recognizes the importance of ensuring that NSPI remain on a sound financial foundation as it heads into the future. The Company's

ability to attract capital, access fuel markets and control costs must not be compromised.[60]

Following the Rate Decision in March 2006, Standard & Poor's (S&P) downgraded NSPI. The rating agencies continue to express concern over NSPI's ability to recover its fuel costs and the associated regulatory risk. This concern was again stressed by S&P in its December 19, 2006 credit update on Emera (see Appendix C). The current situation is not in the interests of NSPI or its customers and cannot continue. In summary:

- S&P has downgraded NSPI twice since late 2001
- NSPI's S&P rating is only two levels above non-investment grade
- Moody's continues to have NSPI on negative outlook and may take action if the financial metrics are not improved and regulatory risk reduced
- NSPI's preferred shares are now rated as non-investment grade
- A downgrade by DBRS would severely restrict NSPI's ability to issue commercial paper, the lowest cost form of borrowing

Continued deferral of the recovery of costs (including depreciation, S21 and Q1 2005 taxes) and the inability to recover actual cash fuel expenses will also significantly affect how bond rating agencies view NSPI.

Credit ratings are an important part of NSPI's financial health. The return on equity (ROE) and an opportunity to earn that return on equity are also important. NSPI's ROE reflects its' risk – regulatory lag, weak cash flows, underrecovery of costs, and weak capital structure. This is supported by the evidence of Dr. Roger Morin.

Mr. Gorman suggests that ROE should be reduced because interest rates have declined. He does not assess NSPI's risk or provide any comparative analysis to support his recommendations. He does not comment on equity thickness. In summary he is asking the Board to apply some sort of automatic adjustment mechanism to ROE based on

[60] 2006 Rate Case Decision, March 10, 2006, at page 292, paragraph 657

interest rates even though the Board never accepted such a methodology in the past. This would be improper.

Ms. Brockway also recommends a reduction, although she does not provide an amount. In Ms. Brockway response to NSPI's IR-3, she acknowledges that she is not a cost of capital expert. As a result, Ms. Brockway's evidence on cost of capital should be given no weight by the Board.

The facts are clear. NSPI has not earned within its allowed ROE band in 3 of the last 8 years (1998-2005) – 1998, 2002, 2005. NSPI has not earned its allowed ROE almost 40 percent of the time. S&P assigns NSPI a business risk profile rating higher than any other Canadian utility. These are signs that NSPI must continue to maintain a fair ROE, and an improved ability to recover that ROE by recovering its costs on a timely basis.

A fair ROE with a reasonable opportunity to earn within the allowed range, as well as strong bond ratings, is essential to NSPI's future. The Company will seek to raise capital to fund future capital investments and remain a financially healthy utility, benefiting all customers. A financially strong utility is better able to undertake these investments.

## 3.8 Foreign Exchange

NSPI hedges foreign exchange (FX) like other commodities, on a portfolio basis. This approach has remained unchanged from previous rate applications. Additionally this approach is consistent, standard industry practice and provides stability to FX rates for setting revenue requirements. Foreign exchange rates can vary greatly from period to period and a portfolio strategy is an optimal way of reducing volatility.

NSPI forecasted its total FX at $1.18 and its open positions at $1.1325 (CA IR-11). At the time of filing NSPI had 80 percent of its 2007 US dollar requirements hedged.

Two intervenors raised questions about NSPI's foreign exchange rate. Dr. Raschke discusses foreign exchange in a number of areas in his direct evidence. He acknowledges

that a strengthening Canadian dollar has reduced fuel costs in 2007. He does not recommend any reduction in the revenue requirement for FX and confirms this in his response to UARB IR-1.

The SEB consultant (Rosenberg) on the other hand suggests the revenue requirement should be reduced by $14 million for foreign exchange. This consultant acknowledges that the adjustment would only be $4 million if 70 percent of the requirement were hedged. There are three fundamental problems with this proposal.

First, at the time of filing NSPI had 80 percent of its foreign exchange requirements hedged as indicated in CA IR-11. Second, this consultant offers no evidence to suggest that the FX hedging is not prudent. Third, the consultant uses stale foreign exchange rate information.

The foreign exchange rate at the close of business on January 12, 2007 was $1.1702. Applying the current rate to open positions would actually increase the revenue requirement by $1.7 million.

NSPI's foreign exchange hedging program is appropriate and the rate used to develop the revenue requirement is fully supported and reasonable. No intervenor has filed any legitimate evidence to justify a reduction, indeed an increase in NSPI's cost projection is indicated.

## 4.0 REVENUE AND RATES

### 4.1 Comparison of NSPI's Rates with Other Jurisdictions

Electric utility rates must be viewed in the full context of the cost and regulatory environments in which they exist. The Board has stated:

> "Inter-utility comparisons are of value only if all relevant circumstances are similar among the utilities being compared."[61]

Despite this regulatory statement, the SEB consultant once again puts forward a selective and skewed comparison of rates for selected lower-cost utilities.

Under regulation, electric rates are set based on the cost of providing electric service for the entity being regulated. They are not set based on how they may compare with other jurisdictions, particularly those with significantly different cost structures and regulatory environments. Prices and costs in other jurisdictions are legally and logically irrelevant. It is simply incorrect to suggest, that because costs of service may be higher in a jurisdiction that relies on fossil fuels than they are in a jurisdiction that is almost completely supplied by hydro resources, that a problem exists or that somehow electric rates should be skewed toward those available in some other jurisdiction.

Rates reflect many cost of service factors that vary from jurisdiction to jurisdiction. One major factor is the cost of fuels required to generate the electricity. Utilities may operate in jurisdictions which are endowed with abundant supply of resources such as hydro or locally mined coal of acceptable quality and price.

Using the sample of rate information presented in Exhibit AR-1 of his evidence, the SEB consultant suggests that average electricity costs to Large Industrial customers at NSPI are very high relative to other North American utilities. Indeed, he says that they are so

[61] Excerpt from NSUARB Decision regarding P-861, March 3, 1993, page 28. Also filed as Exhibit N-125 in P-875 (2002 Rate Application).

high that they fall into the first (most expensive) decile of his sampled utilities, under both the 90 percent and 75 percent load factor scenarios. This assertion is misleading and incorrect.

There are over 100 utilities in Canada and this consultant has selected just five of these utilities for rate comparisons with NSPI using selective tariffs. Three of these utilities, Manitoba Hydro, BC Hydro and Hydro Quebec, are among the lowest cost producers not only in Canada and the U.S. but in the entire Western World. It should not be surprising that the cost of producing power from these hydro giants is less than that from a predominantly fossil-fuel fired utility. This would be true for most utilities in North America. The other Canadian utilities he uses are NB Power and Sask Power. Both of these utilities also have the advantage of much greater hydro resources than does NSPI, and both are Crown corporations operating in very different regulatory environments.

The listing of Canadian utilities provided by the consultant conspicuously excludes utilities from higher cost provinces which burn fossil-fuels such as Ontario and Alberta. Although these jurisdictions have partially unbundled their electric service, various benchmarking agencies in Canada include them in rate surveys[62].

There are over 2,200 electric utilities providing electricity to industrial customers in the U.S. From that population of American utilities, the consultant selected just 36 utilities to compare NSPI's Large Industrial rate. Comparing electric rates, particularly complex industrial rates, is not a trivial task. Customers in various jurisdictions may buy power under special arrangements (contracts) or comparisons of their rates may need to consider factors such as a FAM, unbundled rate structures, load factors, time-differentiated patterns of consumption, service exchange and network delivery points. Entities such as Edison Electric Institute (EEI), which recognize such considerations, typically report average unit cost created by dividing revenues by energy consumption for groups of like customers. NSPI has provided evidence from EEI in previous proceedings before this Board that EEI has found NSPI to be among the lower cost utilities in North America on

[62] For example the 2006 Hydro Quebec Survey

that basis. In fact, recent EEI data[63] shows that in mid 2006, NSPI's industrial rates placed at number 86 out of the 180 utilities surveyed.

There are other agencies in North America that collect consumption and revenue data from utilities to study and compare the cost of power to various customer groups. One such agency is the U.S. Energy Information Administration (EIA). Approximately 60 percent of industrial energy consumed in the U.S. was purchased at prices higher than NSPI's industrial rates.

Based on EIA survey data, (see Table 1 of Appendix D) the average unit cost to industrial customers at NSPI falls in the mid range of the prices in 51 states. This information also illustrates that the SEB consultant selected his sample utilities from the 18 states whose average cost of power to industrial customers is 11 percent below the US national average. The average cost of power to industrial customers from the remaining 33 states not included in Dr. Rosenberg's sample, shows their average unit costs to be 11 percent above the national average. Dr. Rosenberg excluded from his sample all those utilities that are located in higher cost areas, particularly New England, California and New York. These regions also rely on fossil fuel for much of their generation.

EIA data for 2005 shows that the group of 36 utilities selected for use in this consultant's list were 20 percent below the US national average in that year. In addition, the average industrial cost of the 36 utilities selected was in fact 14 percent below the average cost of the neighbouring utilities within the particular states, in all 18 states selected by the consultant. There is a sample bias in this comparison, not only in the states from which the consultant selected his sample utilities, but also in the utilities selected within the state as well. More than two-thirds of the utilities included in the SEB consultant's sample come from the Southeastern United States, yet industrial sales for this region account for about 44 percent of the US total. The direct comparison of NSPI to this region is not relevant from the perspective of cost drivers and overall operating

[63] EEI Survey of Electric Rates, July 2006. This copyrighted information is available for viewing at NSPI offices.

efficiency. The South Eastern USA includes nuclear plants and utilizes economic local coal.

Rates at some of the utilities Dr. Rosenberg chooses to compare to NSPI (such as those in Texas, for example) are lower than would be the case if concern for the environment held greater interest at this time. In contrast, Nova Scotian environmental concern and NSPI's compliance with emission standards makes Dr. Rosenberg's simple comparison of rates invalid.

The SEB consultant's comparison is biased and not a meaningful representation of electric rates in North America. Even if it were relevant, which it is not, it should be rejected.

## 4.2 Q1 Fuel Deferral

Intervenors and Board Consultants have recommended the Board reject the Company's request for deferred recovery of increased fuel costs during the first quarter of 2007. These criticisms fail to recognize the legal and regulatory environment in which NSPI has operated in 2006. In particular, this request for deferred recovery of increased costs of service is reasonable and appropriate in light of the uncertainty that existed until October of 2006, relating to the timing of resumption of operation of a large industrial customer and the rate for that customer class, and because of new legislation that restricts the Board's ability to grant timely rate increases.

Given the legislation, and absent recovery of these costs, NSPI will be prevented from recovering legitimate and prudent costs. The issue is no different from the Q1 2005 tax deferral, or indeed from any other deferral the Board may choose to adopt.

Dr. Stutz, for example, provides an incomplete explanation when he suggests the Company "enjoys the flexibility to decide if and when to file for a rate increase"[64]. The

[64] Dr. John Stutz, Direct Evidence, at page 21, lines 1-2

introduction and subsequent legislative approval of Bill 20 limits the ability of the Board to approve rate increases more than once in any twelve month period. Therefore, while NSPI has the ability to file a general rate increase application at any time, the Company is prevented from seeking a rate increase effective any earlier than April 1, 2007 (strictly speaking, March 11, 2007). Were fuel costs to increase again in 2008, NSPI would again be unable to recover costs for the early part of that year. This violates the regulatory compact.

The only means by which the Company can recover these increased fuel costs (and while some Intervenors challenge the amount of the increase, it is undeniable that a significant increase will be incurred) is through a deferral mechanism. Failure to provide such a mechanism will systematically deny the company the right to earn a reasonable rate of return in the year in which these increased costs are incurred – a result which would violate the *Public Utilities Act*.

Dr. Stutz is also incorrect to suggest that at the time of filing, "there remained a reasonable likelihood that Stora would shut down in 2007"[65]. There is no evidence to support such an assertion. It was well known to NSPI, to SEB's consultants[66]and to all Nova Scotians through media reports, that immediately upon receiving the Board decision in the ELIIR-2 proceeding, this large customer announced it would re-open. However, the uncertainty prior to that time about the continued operation of this customer, and the uncertainty about the revenue level that would be provided by the new rate, made it reasonable and appropriate for NSPI to delay its application for new rates in 2007.

Had this large customer announced a permanent closure, either NSPI's 2007 costs might have been lowered enough that it would not have been necessary to seek a rate increase for 2007, or the company would have sought a lower increase. As long as this customer is operating, NSPI has an obligation to serve the customer. Denying NSPI the ability to

[65] Dr. John Stutz, Direct Evidence, at page 21, lines 5-6
[66] SEB Consultant IR Response – NSPI IR-11, filed January 12, 2007

recover the costs needed to provide that service is a material violation of the regulatory compact.

If Dr. Stutz is sincerely concerned about potential over-recovery by NSPI, this concern could be legitimately addressed through a fuel adjustment mechanism.

The ELI 2P-RTP rate directed by the Board and adopted by the customers has contributed to the increased fuel costs in the first quarter of 2007 and is reflected in NSPI's fuel update. The on-peak load that NSPI is required to serve has increased as a result of the new rate's assumption of a 100 percent load factor, flat line Customer Baseline Loadshape (CBL). This is a material change for the first quarter of 2007 that was not anticipated by the Board when NSPI's rates were last approved, or by NSPI when its evidence in support of its October 10 Application was prepared. As such it is reasonable and appropriate that NSPI be entitled to recover, on a deferred basis, these increased costs of fuel.

The request for a deferral of first quarter increased fuel costs recognizes that NSPI is entitled to recover its costs of providing service, even when that recovery is delayed due to legislative restrictions or the uncertainty of regulatory processes that affect NSPI's load or load shape. These factors have no bearing on the recovery of prudently incurred costs. In summary, it was reasonable and appropriate for NSPI to delay its general rate increase application and to seek new rates effective April 1, 2007. NSPI should not be financially punished for doing so.

### 4.3 Outstanding Approvals and Deferrals

In Section 11 of its Application, NSPI has identified several regulatory items that were outstanding as of the time of filing of the Application. This evidence highlights for the Board and all parties that increased quantifiable costs attributable to these matters must be incorporated into NSPI's revenue requirement. Each of the items arise from processes that incorporate their own regulatory scrutiny, either by Board consultants (e.g. vegetation management) or in comprehensive stakeholder processes (e.g. demand side

management). It would be unfair and contrary to regulatory principles to ask NSPI to undertake these activities without cost recovery.

Several consultants have criticized NSPI for identifying these items and requesting the Board to incorporate into the revenue requirement any amounts it expects NSPI to invest as a result of the initiatives. For example, Ms. Brockway suggests that NSPI has, by these requests, attempted to "evade the regulatory constraint of a test year"[67]. She suggests that matters must be known and measurable to be incorporated into the test year revenue requirement. NSPI agrees that regular expenditures that are known and measurable should be incorporated into the revenue requirement. That is all that NSPI has identified by including placeholders in its Application for these ongoing matters that are expected to have regular, known and measurable financial outcomes, once finalized by the Board.

NSPI has never requested a "surcharge…every time it responds to a Board directive"[68]. NSPI reasonably and appropriately identified all ongoing matters that could have a financial effect on the test year if those items were completed prior to the rate case hearing or compliance process. Intervenors were able, in that manner, to investigate by normal pre-hearing procedures those items that could affect the 2007 test year. NSPI did not presume how the Board would rule or attempt to predict the outcome of these regulatory proceedings or consultant reviews, and seek recovery of costs that may not be needed in the 2007 revenue requirement. This demonstrates appropriate respect and deference for the regulatory process.

The first of these items refers to potential changes to rates as a result of adjustments that are made after the revenue requirement is determined[69]. This item reminds the Board and all parties of the outstanding appeal of the 2006 Rate Decision, and of the importance to NSPI that rate rebalancing (through the application of Revenue/Cost ratios) must result in the full recovery of NSPI's revenue requirement.

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[67] Nancy Brockway, Direct Evidence, at page 18, lines 12-13
[68] Nancy Brockway, Direct Evidence, at page 19, lines 25-26
[69] NSPI Application and Direct Evidence, at page 182, lines 14-19

The second of these items relates to the review of NSPI's Demand Side Management (DSM) plan. At the time of filing of the Application, the Board had recently directed that the DSM review be incorporated into the Integrated Resource Planning (IRP) process. Whether a 2007 DSM investment would be ordered was uncertain at the time of filing the Application, and it is not NSPI's desire to circumvent the DSM review by again explicitly seeking Board approval of its DSM plan in this Application. It is now clear that the IRP will not be complete in time for NSPI to make a DSM investment in 2007. As such, NSPI is not requesting that any funding be incorporated in the 2007 revenue requirement to implement the DSM plan.

That being said, it is unfortunate that DSM implementation will be further delayed. NSPI would welcome customer support for a preliminary investment in DSM in 2007 with that amount incorporated into the revenue requirement in this proceeding.

The third of these items relates to the request by NSPI in the 2006 General Rate Application for approval of increased expenditure in vegetation management. The Board directed further study of NSPI's request for an additional $3.6 million investment (P-882). NSPI provided its study to the Board on September 29, 2006. On October 26, 2006 the Board advised NSPI that Liberty Consulting Group had recommended approval of the requested additional spending, subject to certain outstanding requests that have since been addressed by NSPI. On December 15, 2006, the Board indicated it is prepared to approve this important and necessary program. This correspondence is attached to this Rebuttal Evidence as Appendix E.

In respect of increased vegetation management spending and in light of the foregoing it appears there are two reasonable options. First, and it is NSPI's request, the Board may include this expenditure in the 2007 revenue requirement. Second, and alternatively, the Board could order the deferred recovery of this important investment, as it suggests in the December 15, 2006 correspondence.

The fourth of these items reflects potential expenditure for third party call overflow solutions. It is now apparent that this matter will not likely be resolved in time for

consideration in this Application. Therefore, NSPI does not anticipate that any amount need be reflected in the 2007 test year revenue requirement. If an expenditure does arise in 2007, NSPI will at that time seek Board approval to defer recovery of these costs to a future period.

The final of these items is the design and implementation of a relay testing program. It is now apparent that this matter will not be resolved in time for consideration in this Application. Therefore, NSPI does not anticipate that any amount will be needed in the 2007 test year revenue requirement. If an expenditure does arise in 2007, NSPI will at that time seek Board approval to defer recovery of these costs to a future period.

## 4.4 Low Income Program (Brockway)

In accordance with the Board's procedural approach to the issues raised by the Affordable Energy Coalition, NSPI will defer all comment and evidence on these issues to the parallel process now contemplated for this matter. However, NSPI will, at that time, object to the Consumer Advocate's attempt to deliver the evidence of Roger Colton through its witness, Nancy Brockway.

### Considerations for ELI 2P-RTP

***Use of the ELI 2P-RTP CBL in determining fuel costs***

NSPI's October 10, 2006 Application was predicated on fuel costs of $498.7 million. This was calculated using the load forecast presented as Appendix F of the Application and utilized load shapes for each rate class as forecast at that time.

The October 10, 2006 Application was filed in advance of the Board's October 27, 2006 Order with respect to the ELIIR replacement rates. That Order defined the ELI 2P-RTP rate that was subsequently selected for use by both Bowater and Stora. The ELI 2P-RTP rate utilizes a Customer Baseline Loadshape (CBL) for the Extra Large Industrial customers that is intended to represent the loadshape that would result in the absence of

any load shifting by them. This is assumed to be a perfectly flat loadshape, which is different than the historical loadshape that NSPI assumed would apply to 2007 in its October 10, 2006 Application. NSPI is required to bear the level of fuel cost associated with this assumed loadshape as any fuel savings attributed to load reductions from the CBL are allocated to the Extra Large Industrial customers as decremental load rebates.

As a result, in order to recover the fuel costs that would result if SEB choose not to shift, or in order to provide revenue to fund rebates to SEB if they do choose to shift load, the assumed CBL loadshape must be used in the calculation of the fuel costs required to serve the pre-shifted load. This is the procedure that NSPI used in the fuel cost update provided on January 8, 2007.

***ELI 2P-RTP True-Up Mechanism***

In its current form, the current credit and debit mechanism of the ELI 2P-RTP rate cannot meet the Board's intent of providing equivalent value to SEB and NSPI. NSPI believes this is due to a misunderstanding during the ELIIR-2 Hearing. Based on Dr. Stutz's responses to Board questions during the ELIIR-2 Hearing[70], the intent of the credit adjustment mechanism approved by the Board appears to have been to provide an adjustment to 2P-RTP credits such that they were on average, 362337082 percent of marginal cost. NSPI's recent calculations show that the actual mechanism currently in place provides closer to 95 percent. The Company has requested a true-up mechanism be approved to reconcile the expected differences.

Both Dr. Stutz and SEB's consultant oppose NSPI's request for an ELI 2P-RTP true-up mechanism to reconcile differences between the value of the net credits paid to SEB and the actual net value to NSPI of SEB's load variance (as measured from the CBL). The true-up has been proposed by NSPI so that the Board's intentions are indeed met and both SEB and NSPI receive fair value.

[70] ELIIR-2 Proceeding Transcript P-883, page 1122, Q587.

Decremental Rebates

There was considerable discussion during the ELIIR-replacement proceeding (P-883) regarding the difference between the value of credits that would be paid to SEB for a load decrement priced at marginal cost (again, as measured using the CBL) and NSPI's actual avoided cost of not having to serve the load decrement.

SEB's consultant stated that if such an adjustment was to be made, he would recommend the use of a factor developed based on the historical relationship between NSPI's marginal costs, and the avoided cost of some representative load decrement. At that time, he put forward evidence that this factor should be 94 percent[71].

Dr. Stutz expressed the opinion that he agreed that some adjustment to marginal cost was appropriate for load decrements[72]. He reviewed the SEB calculation in this regard and concluded that this figure was based on a 25 MW decrement and was therefore higher than would be the case if NSPI's forecast of marginal costs, rather than a proxy, were used. He stated that the figure based on marginal costs was approximately 77 percent. In the end, Dr. Stutz suggested that a factor of approximately 77 percent might be "in the neighbourhood"[73].

In Undertaking U-7 (P-883) SEB proposed a three-tiered adjustment mechanism that they stated they were prepared to adopt in recognition of NSPI's concern that 2P-RTP credits based on marginal cost would exceed the value of the fuel cost savings provided to NSPI. When questioned about SEB's proposed mechanism under cross examination, Dr Stutz stated that although he found the proposal somewhat complicated, he felt that it "wrapped itself around"[74] the 77 percent he could support.

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[71] Supplemental Testimony of Alan Rosenberg, P-883, August 31, 2006, page 32, line 15.

[72] Hearing Transcript NSUARB-NSPI-P-883, page 980, Stutz Opening Statement.
"Usage eligible for payments for load shifting should be limited to 10 percent of a customer's usage on the replacement rate, or payments based on less than full marginal cost."

[73] ELIIR-2 Proceeding Transcript P-883, page 1122, Q587.

[74] ELIIR-2 Proceeding Transcript P-883, page 1122, Q587.

The Board subsequently directed that the three-tiered adjustment be applied for load decrements, but that no adjustment be made to marginal cost for load increments.

Presumably, Dr. Stutz's statement that the three-tiered approach "wrapped itself around" the 77 percent he could support was based on the fact that the simple average of the proposed three tiers (100 percent, 80 percent, and 60 percent of marginal cost) is 80 percent, which is close to 77 percent.

Although Dr. Stutz's math was correct to that extent, when the amount of load eligible for credit within each tier is considered along with the simple percent adjustment factor, which is in fact the way in which the tiered system is applied, the actual resultant adjustment factor is approximately 95 percent of marginal cost. The reason for this is because the energy eligible for the first (100 percent marginal cost) tier is sufficiently large to represent a significant difference between marginal and avoided costs, while it also represents the majority of the energy typically eligible for credit.

This means that although Dr. Stutz suggested that an appropriate adjustment might be approximately 77 percent, the mechanism put forward by SEB and subsequently included in the ELI 2P-RTP tariff will provide in excess of 95 percent of marginal cost for load decrements, that is, at essentially the full marginal cost. The proof of this, based on historical data, is provided in Appendix F attached to this evidence.

That is the reason the current mechanism cannot meet the Board's stated intent of providing equivalent value to both NSPI and SEB. There is no need to wait for experience using the rate as SEB suggests[75]. The mechanism itself is not currently designed to provide the 77 percent factor that seems to be the basis for its approval. Left uncorrected, NSPI estimates that SEB would receive in excess of $4 million in overpayment in 2007. NSPI believes that the Board, once they become fully aware of

[75] Direct Evidence of Alan Rosenberg, Dec. 20, 2006, page 31, lines 7-8.

this situation, will not require NSPI to experience a year of losses, as SEB suggests[76], before it corrects the inequity.

NSPI requests that the tiered approach be corrected so that it does indeed approach the 77 percent intended, or that a true-up mechanism be approved to ensure that this inequity is corrected.

Incremental Charges

When questioned by NSDOE (during P-883) for clarification of how an adjustment factor would be applied to the marginal costs when SEB's load is above the CBL[77] (i.e. incremental load), Dr. Stutz appeared not to have considered that scenario but concluded his comments by saying that he found this might be a problematic aspect to adjusting the marginal cost. In the end, presumably based on Dr. Stutz's testimony, the Board did not approve an adjustment to marginal cost for use in calculating incremental cost.

The Board accepted that there are significant differences between marginal cost and the avoided cost of decremental load, yet did not also accept the same logic for the difference between marginal cost and incremental costs. The concept logically and practically applies equally to both increments and decrements. In NSPI's view, an adjustment factor approach (but using a factor greater than 1.0) should also be used in determining the price to be charged for incremental load, otherwise it is virtually certain that the real cost of supplying the load will exceed the price paid by SEB.

This is the second reason that NSPI believes the tariff credit and debit mechanism provides SEB more credit than the value that NSPI and its other customers will receive. If the Board does not wish to modify the credit and debit mechanism, then NSPI's requested true-up would reconcile differences in both decremental credits and incremental charges.

[76] Direct Evidence of Alan Rosenberg, Dec. 20, 2006, page 32, lines 1-10.
[77] Hearing Transcript NSUARB-NSPI-P-883, page 1054, Stutz responses to Q 387-390.

Both Dr. Stutz and SEB's consultant express the opinion that a true-up would cause the ELI 2P-RTP rate to be "unworkable" for customers. Dr. Stutz, in response to NSPI's IR-10 to him, stated that there are two reasons why a rate such as this might be unworkable from the utility's perspective. He states first that the administration of a rate might present technical requirements that cannot be met, and second, that a rate might be designed such that the utility is denied the ability to recover the appropriate costs of serving load under the rate. The fact that the credit mechanism provides 95 percent of marginal cost, when it was clearly thought to provide approximately 77 percent means that the rate is unworkable given Dr. Stutz's reasoning. NSPI is denied from recovering its costs under the current mechanism. NSPI has proposed that the true-up could be conducted monthly so that the value to both the customer and the utility are known as the year unfolds. There is nothing retroactive about this. The bill is issued at the end of each month and trued up for that month.

Dr. Stutz objects to the true-up on the grounds that it is inconsistent with the treatment of costs included in all other rates[78]. SEB's consultant states that the request is discriminatory[79]. These are not accurate suggestions. The Mersey Rate is set each year based on forecast costs, and is reconciled after the year is complete through the use of a 13th bill true-up, and this is not considered retroactive rate-making.

Dr. Stutz cites the residential class as an example, stating that there is no true-up requested when actual residential sales are lower than forecast during a mild winter. There is no comparison between this situation and the ELI 2P-RTP credits and debits. When residential revenue is reduced due to warm weather, so are NSPI's costs because the load that would have been required had the weather been colder were not incurred by NSPI. As explained above, the ELI 2P-RTP credit and debit mechanism, through its present design, is virtually guaranteed to under-recover in any situation. The problem is with the decremental credit and incremental charges calculations themselves.

[78] Evidence Filed by John Stutz, December 20, 2006. Page 18, lines 8-10.
[79] Direct Evidence of Alan Rosenberg, Dec. 20, 2006, page 31, lines 9-10.

The ELI 2P-RTP is a unique rate for a unique customer class. That does not make it discriminatory. It is only reasonable, and appropriate, to effect the adjustments necessary to allow the rate to operate in the manner intended.

The SEB consultant states[80] that NSPI itself said that it would be difficult to accurately determine the true costs of decremental or incremental load, and it is true that the calculation of a true-up could be controversial and difficult to reach agreement on. That does not however negate the mathematical fact and financial need for a correction to the debit and credit mechanism, or the approval of a true-up mechanism that will eliminate the current inequity in the tariff.

NSPI understands the Board's direction that these and other various operational problems with this new rate will be reviewed annually. The Company respectfully suggests it would be unfair and improper to allow NSPI to experience known losses for one year when a true-up mechanism will allow the rate to work as intended.

## 4.5 HRM's Concerns Regarding Unmetered Rates

HRM is concerned that the Unmetered class is being allocated Billing Services costs that are inappropriate. It suggests that bill printing, preparation and postage costs allocated to the Unmetered Class are too high, and that it should not require a 0.5 Full Time Equivalent (FTE) position to administer the conversion of traffic lights to LED technology.

After review of HRM's evidence, NSPI better understands HRM's concerns with respect to the allocation of bill preparation and postage costs, and agrees that allocating these costs based on the number of accounts would be an improvement in the methodology. As a result, NSPI recommends that the Board approve a revision to the allocation in this manner. This reduces the Billing Services costs allocated to the Unmetered class by approximately $120,000, and reduces the calculated C-3 weighting factor to 1.05 as

[80] Direct Evidence of Alan Rosenberg, Dec. 20, 2006, page 31, lines 12-15

shown in Appendix G of this rebuttal evidence (i.e., revised Appendix A of NSPI's 2006 Unmetered Class Cost Study filed in response to Stutz IR-18).

NSPI proposes that the weighting factor actually used in the COSS be set at the nearest whole number, i.e., "1". This is a reduction from the 2.0 factor provided in NSPI's July Unmetered COSS, and is the level that HRM recommended as appropriate in the last rate proceeding[81].

NSPI does not agree with the other cost changes suggested by HRM.

While HRM is critical of NSPI's need for a 0.5 FTE to administer LED conversions, this Billing Services activity not only involves HRM but other municipalities throughout the province. NSPI has provided evidence to support this 0.5 FTE assignment to the Unmetered class for LED conversions in its response to HRM IR-6(i).

HRM believes that NSPI's weighting factor of 1.84[82] should be 1.76[83]. NSPI has recommended in this evidence that this factor be set at 1.0.

While the revision of this factor does reduce the costs allocated to the Unmetered Class, it does not necessarily require a change to the proposed rates, because the cost reduction is not large enough to move the resultant R/C ratio for the Unmetered Class outside of the 95-105 percent R/C ratio bandwidth. This revision increases the R/C ratio from just under 100 percent to just over 101 percent. Ultimately it is up to the Board to decide if this remains an appropriate level for this class.

## 4.6 Cost of Service Revisions

The UARB has recently ruled that it is satisfied with the cost of service methodology, however the SEB consultant proposes changes be made. NSPI accordingly asks that this

[81] Closing Argument of HRM, 2006 Rate Proceeding (P-882), Dec 14, 2005, page 2, bullet 2.
[82] Page 1, Appendix A of NSPI's 2006 Unmetered Class COS Review and Street Lighting Study Report
[83] Evidence of Robert Greneman, Dec. 20, 2006, page 11, A12.

evidence be given no weight by the Board, in light of its decision that the COSS would not be considered at this time. In an effort to be constructive, NSPI will provide comment here however, should the Board decide to consider SEB's concerns in this regard after all.

The SEB consultant expresses the opinion that NSPI's method of accounting for the profit from the resale of natural gas is inaccurate and distorts the monthly fuel costs. As he acknowledges[84], NSPI allocates the profit from its gas sales, *in the month in which it actually makes the sales*. He calls the resultant monthly fuel costs "perverse". This assertion is contrary to accounting principles. NSPI is able to sell natural gas at a profit primarily during colder months when there is in fact a market for the gas, and reporting and allocating that benefit in the months in which it is realized follows Generally Accepted Accounting Principles (GAAP). There is no basis for the change suggested by this consultant.

The SEB consultant recommends that the Board order NSPI to classify all of NSPI's Tufts Cove units as peaking plant rather than baseload plant[85]. NSPI does not support the changes proposed by this consultant. All of the units at Tufts Cove serve as baseload plant. The 2007 capacity factors for this plant will exceed 50 percent as the consultant shows in his Exhibit AR-1, Schedule 7. This is not typical of peaking plant which is described as follows in the NARUC Electric Utility Cost Allocation Manual[86]:

> "At the other extreme, peaking plants are constructed to satisfy the demand that may occur only for a few hours of the year. These plants must be easily loaded and unloaded onto the system and, since the hours of their operation are limited, must have low capital costs."

The SEB consultant suggests that Bowater's Additional Energy portion of its Mersey energy be moved from BTL to ATL and included in the Large Industrial Rate from a COSS perspective[87]. NSPI notes that because Bowater has the right to annually nominate

[84] Direct Evidence of Alan Rosenberg, Dec. 20, 2006, page 35, lines 5-10.
[85] Direct Evidence of Alan Rosenberg, Dec. 20, 2006, page 39, line 9.
[86] Electric Utility Cost Allocation Manual, NARUC, January 1992. Page 7, Generation.
[87] Direct Evidence of Alan Rosenberg, Dec. 20, 2006, page 43, lines 6-12.

either the GRLF rate (a BTL rate) or the Interruptible Rider of the Large Industrial rate (an ATL rate) for their Additional Energy, such a change could result in the determinants being ATL in some years and BTL in others.

## 4.7 Rebuttal of Dr. Stutz

Dr. Stutz comments on NSPI's fuel forecasts in prior rate cases as compared to the actual results available in hindsight. He attempts to draw conclusions from his analysis about the 2007 revenue requirement and beyond. Dr. Stutz is not an expert in fuel procurement or fuel forecasting, and as such his evidence in these areas should not be given weight in comparison to the NSPI fuel procurement staff members and fuel experts. NSPI understands Dr. Stutz to be presenting rate and revenue evidence, not fuel evidence, and presents this Rebuttal Evidence on that basis.

***Normalization of Fuel Costs***

Dr. Stutz's approach to setting fuel prices is based on his view that actual fuel costs for 2007 are likely to be significantly less than NSPI's estimate. This is not supported by the facts, including actual procurements, but rather is based on a simple statistical projection. Dr. Stutz suggests that if the Board approves a fuel cost more than [redacted] NSPI should be required to file again in 2007 for 2008 rates. There is no evidence that this provides a realistic estimate of actual fuel cost.

Dr. Stutz's flawed statistical analysis based on historical fuel costs is inconsistent with the fuel procurement methodology approved by the Board and being followed by NSPI. One purpose of that strategy is to provide more certainty in forward year fuel forecasts through term contracts and hedges. This certainty has been achieved for 2007, for about [redacted] of 2007 fuel requirements. Dr. Stutz's approach fails to acknowledge this factual evidence and uses simple but inappropriate statistics to define a "normal" level of fuel prices, and an acceptable variance from that normal level. Presumably, any costs

which would fall outside this range would be arbitrarily disallowed (without deferred recovery in a later period).

As previously indicated, in complying with the portfolio strategy, NSPI has already [redacted] its 2007 fuel. The fuel forecast provided in the 2007 Rate Application is based upon a well-developed portfolio which is [redacted]. NSPI's latest update of the hedged fuel percentages are as follows:

[redacted]

The current portfolio position means that NSPI's fuel forecast is [redacted], assuming that the forecast assumptions (customer load, weather etc.) are realized. Dr Stutz fails to address this essential fact in his evidence.

Dr. Stutz's statistical analysis is without foundation. He suggests that NSPI's forecast fuel costs are [redacted], based on the use of statistics. His approach to statistics in this regard is inappropriate. Dr. Stutz attempts to use basic statistical theories to forecast fuel costs as if fuel costs were random selections from a set of independent data. This is simply not the case. As a result, the conclusion Dr. Stutz reaches using his statistics is incorrect.

NSPI has retained two leading experts in statistics to assess the approach and analysis of Dr. Stutz. These experts, Dr. Bruce Smith and Dr. Reg Kulperger, reject Dr. Stutz's approach, and their evidence is provided below. Appendix H and I contain the resumes of these experts. NSPI adopts the evidence and opinions of these respected experts in statistics.

Future fuel costs are driven by market factors, not history. Market prices do not depend on historical statistics. Market prices reflect factors including supply, demand, weather, political factors, and emotions.

The remainder of Dr. Stutz's evidence relates to the differences between actual fuel costs experienced by NSPI versus those forecast when rates were set. NSPI acknowledges that there will be variances, the largest sources of which are variances in:

1. Load – due to weather
2. Load – due to large industrial and other customer behaviour
3. Movement in the market prices of HFO and natural gas, and the corresponding effect on NSPI's open positions

The US Department of Energy (Energy Information Administration (EIA) publishes their forecasting accuracy for several commodities on a regular basis. A copy of the most recent analysis, "Annual Energy Outlook Evaluation 2005" is attached as Appendix J. This document demonstrates that even this important government organization is challenged by the volatility of global fuel market prices. The EIA average absolute percent difference between the forecast and actual result for world oil and natural gas prices has exceeded 50 percent in every year since 2000 (and exceeded 60 percent in most years).

The issue for Dr. Stutz seems to be a concern that NSPI will benefit from rates which are higher than necessary to recover his estimated NSPI's costs. For NSPI, the issue is obviously the reverse; adoption of his proposal would ensure it could not recover its fuel cost in a volatile global market.

The only fair answer to Dr. Stutz's concerns lies in a fuel adjustment mechanism, which will address the needs of NSPI and its customers by recognizing all prudently incurred fuel costs.

The object of the 2007 Rate Proceeding is to arrive at the best possible estimate of actual revenue requirement, including fuel costs, in the 2007 test year. Dr. Stutz's approach simply does not do that. NSPI is not aware of any reputable energy industry analysts who use such an approach to set utility rates. No credible precedent is provided from

other jurisdictions whose laws regarding the right of the utility to recover its costs of service are similar to Nova Scotia.

### 4.7.1 Rebuttal Evidence of Dr. R. J. Kulperger

# Report to NSPI on A Question Related to the Statistical Analysis of December 20, 2006

R. J. Kulperger
Professor of Statistics
Department of Statistical and Actuarial Sciences
University of Western Ontario

January 14, 2007

## 1 Introduction

I have read the relevant section of the report [1], in particular Section JS-3, Historical and Forecast Fuel Related Costs. I have been asked to comment on the statistical analysis in this section.

The data used consists of 13 data points, the annual cost per MWH of fuel. The analysis consists of computing two summary statistics, and a statement that the forecast is 3 sample standard deviations from the sample mean. The conclusion made is that the forecast value for the cost per MWH is therefore too large.

The underlying assumption is that the data represents 13 random or statistically independent observations of a random variable that is the cost.

Initially it was indicated by Dr Stutz that the analysis supposed the data can be thought of as a random sample from a Normal (or Gaussian) distribution. Under this assumption it is very unlikely that an observation will be more than 3 standard deviations from the centre of the distribution.

In a subsequent comment Dr Stutz indicated that he did not need to make the Normal distribution assumption, instead using Chebyshev's Inequality to justify his calculation and conclusion.

1. Assumptions for analysis of Stutz, December 12, 2006
2. Some problems with this analysis with illustrations
3. Alternate and better analysis could be done

## 2 Some Problems with Analysis

The cost data is actually a sequence of pairs of points $(t, x_t)$, where $t$ represents the year, $t = 1993, 1994, \ldots, 2005$. Since due to economic growth one has in an average sense prices or costs changing, usually increasing over time, a better analysis would be to take into account the year $t$. An alternate method would be to analyze the data as a time series. In any case it is not a reasonable assumption to treat the data as a random (statistically independent) sample. The assumption of a simple random sample is implicitly made in [1] in either the simple random sample normal method and the Chebyshev's bound method. The use of Chebyshev's inequality addresses the assumption of the normality assumption, but not the independence assumption.

The consequences of ignoring the trend is demonstrated below.

The data sequence is very short. Perhaps a longer time series of cost per MWH could be used, as well as the use of appropriate covariates or information of related macroeconomic predictive indicators.

A simple quantile-quantile (QQ) plot can be used to address the assumption of identically distributed normal data. It will show the data is not consistent with an assumption of independent normal data. That is not further pursued here as the justification is now the use of a random sample and Chebyshev's Inequality.

### 2.1 Forecasting the 2005 Price Using the Data up to 2004

First we consider how well the simple data analysis used by Dr Stutz does in predicting the 2005 cost price using the data from 1993 to 2004. The data below is copied from the report [1].

| year | CostMWH |
|---|---|
| 1993 | 25.81 |
| 1994 | 25.70 |
| 1995 | 25.30 |
| 1996 | 24.30 |
| 1997 | 23.91 |
| 1998 | 24.49 |
| 1999 | 24.15 |
| 2000 | 23.95 |
| 2001 | 25.74 |
| 2002 | 28.22 |
| 2003 | 22.76 |
| 2004 | 24.11 |

From this data we obtain

1. sample mean = 24.897
2. sample standard deviation = 1.399
3. sample mean + 3 (sample standard deviation) = 29.066.

Thus we see that the 2005 cost per MWH of 29.93 is outside of this 3 standard deviation limit.

## 2.2 Data with a Trend

For the purpose of illustration consider a simple regression model

$$cost_t = c_0(1+r)^t + \epsilon_t$$

where $r$ is an inflation factor, $t$ represents year (year - 1993 for numerical stability), and $\epsilon_t$ represents a random non predictable component.

In the simulation study here we suppose that $\epsilon$ has a Normal distribution with mean 0 and standard deviation of 2, and $r = .02$. Four simulations are shown in Figure 1. Qualitatively this looks quite similar to the data used by Dr Stutz. However while the data $cost_t$ are independent in this model, they are not identically distributed, since their means differ at each time point $t$. It makes no use to use the sample mean and sample standard deviation to summarize the data, nor to predict the next value in the series. The next value is the series will be centred about a value much larger than the sample mean, as seen by noting the dashed line in Figure 1, which gives the true expected value.

# 3 Comments

4. A better analysis should take into account available relevant regression predictors. An obvious one is year, but there are macroeconomic data or other energy cost indicator variables that may relevant and important.

In conclusion the simple data analysis used in the reference report [1] is inappropriate. When applied to data with trends, such as many economic time or physical time series, either a time series or a regression model is more appropriate. The last value, the one to be predicted, is very high relative to the sample mean simply because of a trend. The question of whether the NSPI price is high or not cannot be addressed with the simple method as used in the submission [1].

# References

[1] Evidence Filed by John Stutz. December 20, 2006.

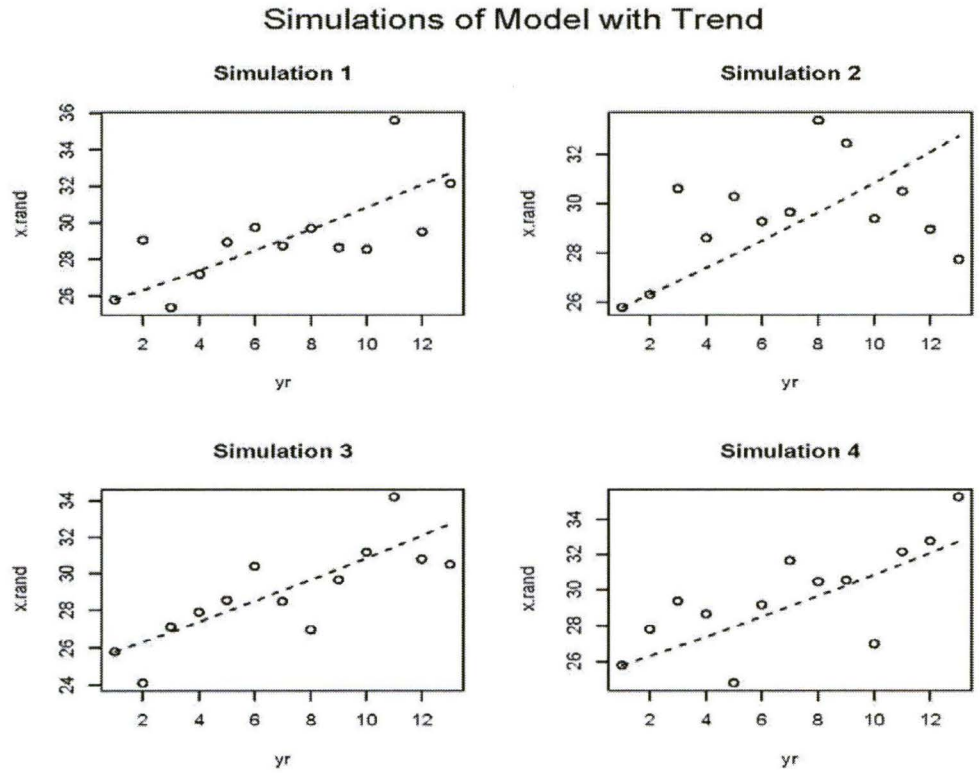



Figure 1: Simulations with Trend

### 4.7.2 Rebuttal Evidence of Dr. Bruce Smith

**Comments regarding the submission of Dr. Stutz to the UARB**

**Name:** Dr. Bruce Smith
**Job Title:** Professor, Department of Mathematics and Statistics
**Employer:** Dalhousie University, Halifax, NS
**Date:** January 16, 2007

**Purpose of this report:** I have been asked by Nova Scotia Power Inc. to review and comment on the statistical approach used by Dr. Stutz in his evidence to the UARB.

I have read the submission of Dr. Stutz to the Nova Scotia Utility and Review board. In reviewing Dr. Stutz' submission, my focus has been on exhibit JS-3, which is the basis for Dr. Stutz' conclusion that the 2007 price projection represents an outlier. I believe that Dr. Stutz' analysis is flawed in several respects. My concerns are as follows.

- Prior to entering a contract to purchase fuel at a fixed price at a future date (an option), the company's future cost of fuel is a random variable, subject to the vagaries of the market. However, once an option to buy has been purchased, then the price of fuel to the company at the time the option will be exercised is a fixed cost.

  **Fuel prices determined by futures contracts should be considered as a fixed cost. In this case it would be more appropriate to do a regression of power cost on (fixed) fuel cost, rather than to try to project the future cost of power based solely on the past and present cost of power.**

- It is not clear in Dr. Stutz' testimony as to why the particular 13 year segment was chosen for calculation. A plot of the data (Figure 1) suggests that some form of nonstationarity is present - the character of the series appears to be changing over time. The nonstationarity could be in the mean, the variability, or some other property of the series. It is not possible to reliably identify the source of nonstationarity with such a short data record.

  However, because of nonstationarity, by suitable choice of data, the strength of evidence for or against a particular position can be altered. For example, the estimated standard deviation for years 1993-1998 is

only .79. For years 1999-2005 it is 2.61, and if we look only at 2002-2005, the estimate is 3.38. Different conclusions could be drawn by using the data selectively to estimate the mean, standard deviation, and so on. (In fact, using the mean and standard deviation for 1993-1998, the 2002 and 2005 fuel-related costs would have been declared to be outliers using Dr. Stutz' methodology.)

- There are a number of complicating factors which would argue against a straightforward analysis. Financial time series typically show positive autocorrelation, and without an accurate estimate of the autocorrelation, precise predictions are difficult to make. This is exacerbated by the presence of long term trends. Predictive ability is further degraded by not including relevant predictors, for example, the fixed price of fuel set in futures contracts. Regardless, even if the data were entirely stochastic, with no deterministic inputs, it would be unwise to attempt any forecasting given the nonstationary nature of the data, and the short length of data record.

- A confidence interval for the mean price of electricity at a future date or related objects such as the probability bounds calculated by Dr. Stutz are not the appropriate quantities of interest from the standpoint of the company, or of the consumer. In this instance, a more relevant object would be a prediction interval (ideally using deterministic predictors such as the contracted price of fuel) for the cost of power at a future point in time. In any case, it would be inappropriate to carry out these types of analyses with such a short series, which is unlikely to be normally distributed, and shows signs of nonstationarity.

  **It would be unwise to draw any conclusions based on a sample as small as 13 years, especially in light of evidence pointing to nonstationarity.**

1
2
3

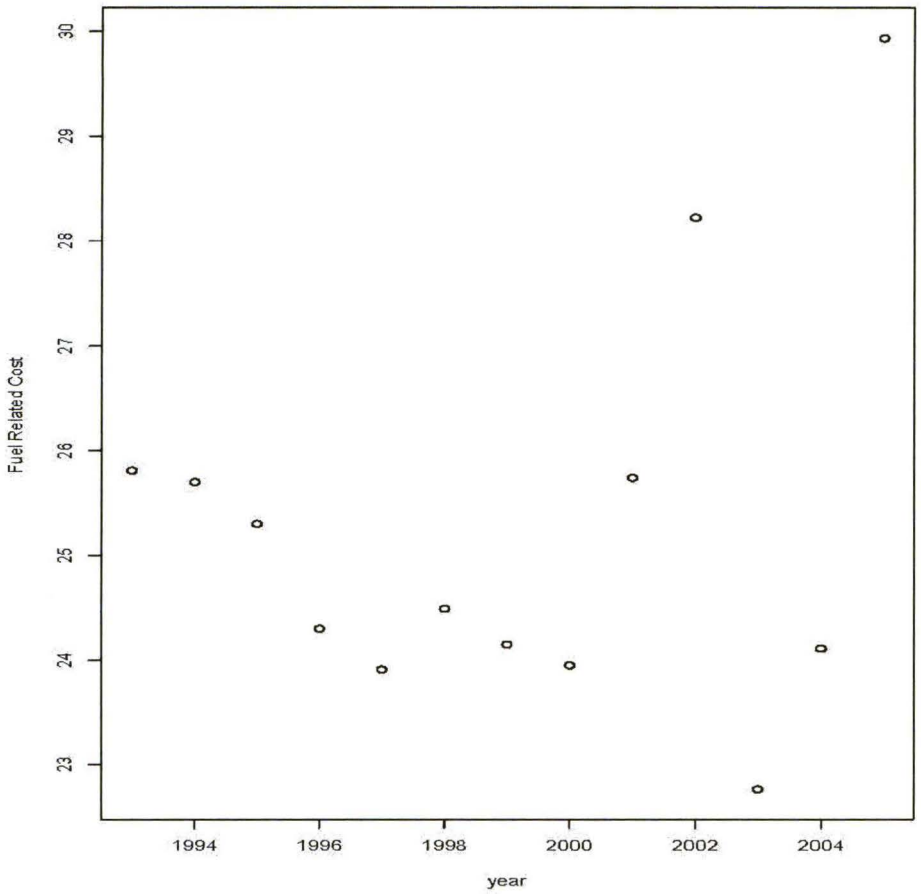



Figure 1. Plot of fuel related cost ($ per MWH) vs year.

***Gas Margins***

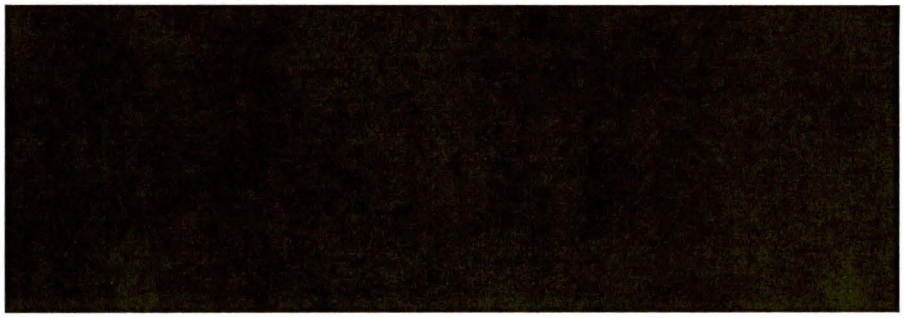
Dr. Stutz presents an exhibit (JS-5) to attempt to demonstrate that NSPI underestimates the natural gas margin.

The selective data in exhibit JS-5 can not be looked at in isolation. The offsetting HFO fuel cost required to generate the fuel switch, which allows higher gas sales is a critical element that Dr. Stutz ignores.

The opportunity for, and margin from, gas resales depends on the relationship between two market prices, each of which is volatile. NSPI's method of valuing gas margins is market based and Dr. Stutz has not provided the Company with procedures that would bring more certainty to the forecasting process.

An important consideration in assessing gas margin is the decision to burn or sell natural gas; the quantity of gas available is finite. The amount of gas available for resale will be reduced when more gas is burned and the amount of HFO burned will increase if more gas is sold. If energy is required from Tufts Cove, a fuel choice between HFO and gas is made on price. There is no situation where "all else [is] equal". The conclusions drawn by Dr Stutz are incorrect, as illustrated in the following example.

[redacted]



[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]. There is no windfall to NSPI because the vast majority of the improved gas margin is used to offset the increase in the cost of HFO consumed.

To singularly focus on the change in gas margin is incomplete and potentially misleading. As demonstrated, there is a very large difference between the change in gas margins and little effect on the overall expense reduction.

NSPI estimates gas resale margin using market prices. NSPI is not alone in being unable to predict the market nor the resulting effect on gas margins. Nor does Dr. Stutz present a different market based approach that could be used. NSPI's method of valuing gas margins is market based and the Company is not aware of procedures that would bring more certainty to the forecasting process.

## 5.0 CONCLUSION

In this Rebuttal Evidence, NSPI and its experts rebut the various recommendations from Intervenor and Board consultants that seek, by various means, to reduce the 2007 test year revenue requirement. A careful review of these recommendations demonstrates these proposals are arbitrary in nature and contradicted by the evidence filed to date and in this Rebuttal.

Many of the recommendations of these consultants appear to arise from an assertion that NSPI overestimates the cost of fuel. One proposal attempts to use statistical analysis, albeit improperly according to experts in statistics, to buttress this claim. These arguments do not reflect, or even acknowledge, the fact that NSPI has implemented a fuel portfolio strategy and followed a fuel manual that was recommended by Intervenors and directed by the Board in prior proceedings. Nor do these consultants acknowledge that as a result of the fuel procurement practices by NSPI, the vast majority of the 2007 fuel requirements are committed or hedged.

These various recommendations are improper, unreasonable or arbitrary as they seek to disallow actual costs. In the 2006 Rate Decision the Board assured NSPI (and financial analysts) that findings of past imprudence would not continue past the 2006 test year[88]. This assurance should also apply to new requests for unsubstantiated disallowances, however characterized by the consultants.

There is no evidence of imprudence by NSPI in this Application. To the contrary, the evidence of NSPI and Liberty demonstrates appropriate and prudent fuel procurement in accordance with the portfolio strategy and Board directives. Accepting the arbitrary reductions proposed by the consultants ultimately results in higher costs to NSPI customers as the Company experiences the financial consequences that would follow, whether that be in credit rating downgrades or increased costs of doing business.

[88] Reference 2006 Rate Case Decision, March 10, 2006, at page 52 paragraph 96

NSPI's 2007 revenue requirement request remains unchanged from the October 10, 2006 Application and Evidence. If the Board is to adopt a new regulatory approach that requires fuel estimates to be updated during a rate case process, NSPI requests the Board also acknowledge that estimated costs can increase during the same time, whether in pension or other OM&G items. Overall, the collective result of these changes demonstrates that the October 10 Application and Evidence, which seeks a 2007 test year revenue requirement of $1,197.6 million, is a proper and reasonable estimate of the cost to NSPI to continue to provide efficient and reliable service to our customers.