
From: Engineering Specialties
Sent: Friday, October 25, 2019 2:22 PM
To: Rate Mitigation Review <rmreview@pub.nl.ca>
Subject: Re: Rate Mitigation

COMMENTS ON RATE MITIGATION:

1. CDM (Consevation Demand Management) is an important aspect to Rate Mitigation, promoted by the Synapse Consultants.

Before Muskrat sanction, I presented on the value of CDM at the PUB in 2012, specifically with data on minisplit heat pump performance for Nfld, being able to reduce space electric heating energy use by 2/3 ,and reduce peak demand by hundreds of MWs: neither Nalcor, Nfld Hydro, Nfld Power nor the Consumer Advocate , Tom Johnson had any questions or comments. Andy Wells show mild interest.

2. Later, I again engaged with the PUB with a presentation , very critical of the cosy relationship between the power companies and the Consumer Advocate as to the poor Take Charge CDM measures and non meaningful results for customers, averaging about 4 dollars per year savings.

Again I was asked no questions by the other parties. Mr Andy Wells showed some mild interest and asked Nfld Power to do a "report" on minisplits.

I must have ruffled some feathers. I was subsequently served with a notice of re-engagement at the Supreme Court on an old unrelated issue,(with another government department), an issue that had been dormant for about 6 years. The summons was drafted in 24 to 48 hrs of my appearance at the PUB, so it seems not a coincidence. I had been called aside and cautioned by PUB staff, immediately before my presentation, that some of my words nearly crossed the line as to acceptable language , but that they would permit it.

This summons was fled by the firm Stewart McKelvey, a firm that represents some parties before the PUB. It contained false information about me: saying I was insolvent , mixing my name with another of a similar name, but most remarkable was this: they filed a copy of my initial presentation of 2012 at the PUB (about the benefit and cost effectiveness of heatpumps and of the inactive effect for LEDs etc that voids much of their claimed energy savings). Few would even know that existed.

This maneuver was effective to tie me up for months in legal proceeding and was very detrimental to my health, preventing me for a long time to again engage in the MFs, or CDM debate, and never to again present at the PUB.

Later I learned that Nalcor kept a list of those opposed to MFs, and I suspect I was a takeout target. If so, this must be a sobering lesson for others who challenge the powers that be, before the PUB.

3. It took Nfld Power 3 years to file a report that Mr Wells requested. It showed slight energy savings and essentially no peak demand reductions from minisplits.

This time Tom Johnson, at my request, engaged and visited with me, and saw data that we were able to produce from detailed monitoring in a time frame of just 2 weeks in April month of 2015.

Ambient temperatures then at -8C, showing high energy savings and high peak demand reductions. This was rushed to meet the PUB deadline, I paid an engineer to do the presentation.

Johnson was effective in questioning Nfld Power to show they were not competent as to their report. Nfld Power admitted their report was not authoritative, as to energy saving and peak load reduction. Nfld Power actually highly praised our methods and results.

Johnson, in his final submission wrote that the power companies failed in their CDM programs in this province and also recommended that an incentive be given for cold climate HPs to help reduce winter peak load.

However Johnson refused to engage a energy consulting firm, as I suggested he do, to back up his statement. Nfld Power knew this. At a Fortis AGM, I was told by Gary Smith of Nfld Power that Johnson would fail in his submission. He was right. The PUB, still under Andy wells as chairman, did not accept Johnson's recommendation.

By this time HPs were increasing in uptake, without incentives. Nfld Power's study showed that only 5 % of customer customers acted on information from the power company, vs 65 % who relied on performance claims from friends and relatives.

This speaks to how ineffective Take Charge was at promoting and assisting customers at meaningful savings on their winter heating bills. Instead they were mostly promoting products for little savings, obvious doing this from a self interest at keeping revenue high, and a disregard for power costs or emissions at Holyrood in winter. The costs of their program is paid from customers power bills. A high percentage pays for their overhead and administration, and silly advertising, that continues to this day: Turning down thermostats, wearing sweaters, taking short showers, using plastic on windows, electric plug inserts etc is typical of many recommendations of little real value for savings. This is not serious energy efficiency measures, and not worthy considered an engineering approach.

4. A ICF report on the benefit of mini-splits, as to peak demand reduction, was essentially buried by the consultant having a clause saying that "all minisplits would shut down under our adverse winter conditions", (despite a fine print note, for those who might notice, by ICF saying "that was not likely to happen due to our relatively mild winter temperatures). When one looked for the chart showing peak demand reduction, there was no chart. Upon my showing this to Tom Johnson, he asked me if I thought that Nfld Power had directed ICF to state that "all units would shut down in adverse conditions". I could only speculate then. After the Leblanc Inquiry, we now all can see that it is routine that consultants edit and change their reports at the request of those who engage them.

So it happened, that our power companies buried the facts of 300 % electric heating HPs, and high potential grid peak demand reduction, very suitable for Nfld, and seeing a vast uptake in other jurisdictions.

5. Now, in past weeks, we see that Nfld Power's Peter Alteen says heat pumps is "a good thing" for customers to save energy, and to help with peak demand. But this was evident well before Muskrat Falls was sanctioned. I had published at the Telegram in 2012, the particulars of the potential savings and power reductions and peak demand reductions etc., and they were being incentiveized in Nova Scotia as part of their CDM starting in 2008, and with 20,000 per year being installed by 2011.

My analysis published in the Telegram in 2012 as to MFs, concluded: " even without an efficiency rebate program, customer conversions to these efficient systems has compelling economics and presents a serious

risk to the future load growth forecast, and may lead to a serious financial burden for our province. For heat pump conversions of 151,000 residential units represents 120 million dollars a year annual savings plus 100 million in oil expense to Nfld Hydro"

6. Nova Scotia has been achieving about 40MW reduction of peak load per year from a CDM package that costs about 40 million a year. Our 5 million a year CDM package, of poor measures, has put us second worst in Canada for CDM performance.

Now, at this Rate Mitigation hearing, Nfld Power's Krista went unchallenged when she praised Nfld's 10 year CDM program, known by many to be a failure, and even cited by Synapse as to the poor results.

Our program under Take Charge has shameful performance, and no one admits being accountable for it. Now the government and the PUB seems content to have Krista and Nfld Power again be our so called "experts" on what CDM measures gets the green light going forward. The PUB should consider and recommend an independent Efficiency Corporation as in Nova Scotia.

Our Consumer Advocate seems incompetent as to what is good or bad measures, showing no technical understanding of technical issues at these hearings.. Indeed in public statements he has advocated that heat pumps he would recommend only for those not more than 35 years of age! Who is his technical/financial adviser on this subject?

Dennis Browne did not reply to my emails, (see below), so I include that correspondence as part of my comments to the PUB, as to the how our Consumer Advocate is not responding or engaging with consumers of electricity, especially residential customers. What qualifications landed him his job as our CA, and who does he really represent at the PUB hearings?

Indeed, Nfld Power spends millions of dollars of ratepayer money doing reports and pilot studies that never produce results for saving for customers. Such charges should have been dismissed as imprudent spending.

7. The representatives at the PUB for Small business has raised the issue of demand charges, which I think, is generally applied for power demand over 10Kw, this on top of the energy charge.

Also, Andy Wells complains about a rural subsidy of 10% for off grid diesel customers, paid by customers on the grid. In fact diesel power customers have 2 tier rate, where above a small amount, they are charged about 17 cents a kw hr. This high rate in itself prevents most all from using electricity as a space heat source, and a deterrent for business operations for affordable, competitive power.

As a counter argument to that type of reasoning, consider the demand on the grid of large residential houses. An easy way to assess this is to look at the number of houses connected to a single 50 kw pole transformer on your street, by following the wiring connections. This is what I have found, and which is to be seen by anyone;

- a) the most typical transformer has the number 50 in large figures displayed on it, meaning it has a capacity if 50 kw rated load.
- b) for older and smaller houses, the average is 5 or 6 house connected to one transformer. 5 houses allows 10 kws each.
- c) a maximum number I have seen is 9 connected to one, allowing on average about 5.5 kw each.
- d) newer average size houses have about 3 connected to each transformer, so on average 17 kw each.
- e) large houses, only ONE house per transformer, allowing for a 50 kw load.

Yet these large houses are NOT subject to a demand charge.

In effect, this is a very high subsidy to these large house owners, which are relatively wealthy people to own such properties. For new construction, if fed entirely by the new power source such as Muskrat Falls, it is an enormous subsidy.

by the 500 MW average power output of MFs power, can be all absorbed by just 10,000 such large houses on cold winter days, most for space heat. At a capital cost of 12.7 billion, that is 1.27 million dollars to serve each such large new house, a hidden subsidy to the wealthy who can ignore good conservation or efficient heating

systems, because they pay NO DEMAND CHARGE. Why is our Consumer Advocate not screaming about this injustice which is downloaded to the poor and middle income, and even small business owners? Even if this project came in at half the cost, it would represent over 600,000 dollars for each large house electrically permitted a 50 kw load. A typical example is the large houses on Ivy Way on Red Cliff Road in the town of Logy Bay. There you will find 2 house on one transformer. But the transformer shows 100 in large letter, indicating 100kws, This is 50 kws per house, where the space heat load alone is typical 40 kws.

The average electric heat load for Nfld residential is only about 5 kw. The large houses are fitted to take 8 times the average load, and 5 times more than many small business operations, which are charged a demand fee.

And too: central Nfld, not needing Holyrood or the Labrador infeed, would incur a power rate of only 10 cents when the Avalon needed 12 cents due to Holyrood. The Avalon now needing 23 cents due to MFs. Is not central Nfld customers subsidizing the Avalon, to use Andy Wells reasoning?

8. Proper system management requires reducing the winter peak load. This is fundamental but long ignored by the power companies, and leading to the sham MFs project as a solution to address our winter electric heat problem.

Now we find, from Synapse that to permit further electricification, we must at the same time reduce the peak load by means of other more efficient heating systems, like heat pumps, and other cost effective measures. This is inexcusable to be ignored by Nfld Power and Nfld Hydro for the past decades, permitting Nalcor, incompetent as to efficient operation of power systems, to propose MFs as a solution.

Only now have Nfld Power sees the Light, they claim, that heat pumps are good! What a farce, the deceit of these officials and their evidence.

They have proven to be unfit for the past decades on Efficiency and Conservation, and should be replaced by an independent Efficiency Coproration.

In Nova Scotia, on Oct 23, thy held their annual Efficiency Awards where they boast about measures that disrupt business as usual as to wasteful energy . This is endorsed by the government there and power companies. Here we now worry about a "death spiral" if too many opt for energy efficient heating systems. Why did they not show concern about a death spiral before Muskrat Falls was sanctioned.?

9. Electric vehicles is an important source of new revenue, and offers an opportunity for some rate mitigation if MFs operates successfully. It's uptake needs to have reasonable incentives to get to a critical take off point. Special low rates for charging would be another incentive, and could be increased later when the demand has increased. Reduce GHGs would be another large benefit from EVs, and increased tourism. Home province use of any surplus energy should be a priority, not for export at very low money losing rates.

10. I had engaged with Nfld Power on my monitoring results on minisplits, both Krista and Peter Upshall, and provided them my data without charge. I also offered to pay for the cost of units that could be installed in about 5 different style houses to further our knowledge and results. They refused this offer to gain knowledge for best practices.

Under Take Charge, they provide no online information comparable as Novas Scotia does to assist their customers for best practices and best models for our climate, especially cold climate criteria as to performance under cold conditions. They could have copied such information with permission form NS.

11. I engaged with 3 different MUN engineers, intending to have them assess and peer review my performance monitoring results. One said he was dong work or Nfld Power , and showed no interest. Another was doing work for Nalcor and showed no interest. Another also did work for Nfld power and stated that

energy saving by minisplits was largely "myth". He made many silly and unprofessional statements on a technical level.

12. I emailed a Synapse engineer to offer him my performance monitoring results as to our climate here. They had stated in phase 1 that monitoring would be desirable for phase 2, and they apparently not knowing of my work . They did not acknowledge my email. Or perhaps their contract with the PUB prevented them from engaging with me? Or to do so would diminish their work if this was already done? I can only speculate why they did not reply.

It reminded me of Locke, who I emailed for comment in 2012, the economic impact of HPs, and he would not even commit to reading it. Yet at the Inquiry he said he was always open to views of others.

Synapse guessed that for our cold temperature COP of 2.7 was to be expected. This was what I had found from monitoring at -17C.

13. Nfld space heating loads was 650 MW for domestic. If full coverage with HPs for all houses, this would imply a maximum peak load reduction on the grid of 409 MW estimate compared to baseboard resistance heaters. Our total space electric heating is about 1100 MW. If all were using HPs for full heating loads , this would give a peak reduction of 693 MW estimate.

As maximum potential is all but impossible to achieve, if one assumes half of this is achievable over time, then this is 205 MW reduction for domestic, and 346 reduction for the total.

This presenting good opportunities for EV load uptake. HPs is but one Efficiency improvement , as basement insulation offers much savings on energy and peak load, and triple glaze windows and air sealing, as well as HP domestic hot water units, all adding to peak load reductions.

Again, all this was well known as options before Muskrat Falls was sanctioned. 400 Mw of wind energy was also feasible and island hydro additions as supply options, thought not as cost effective as energy efficiency.

14. Appropriate measures for CDM, going forward, should see an end to the silly "scallywag" TV ad approach, depicted as 4 legged masked bandit cartoon creatures stealing residents heat energy. Customers need be made aware that the real power stealing scallywags are the power company officials, the 2 legged variety.

Past time they atone for their misrepresentation to the public, and going forward, show integrity , honestly and accountability with the ratepayers hard earned money to be prudently spent on effective and meaningful CDM measures, and any new sources to meet our loads with reliability.

Up to now they have shown little real concern for their customers, allowing this scandalous waste of about 13 billion dollars, little of which can be addressed with mitigation, yet a necessary step.

My neighbour, a widow, recently commented " I'm getting paranoid since the recent power rate increase. I turn down all the thermostats at night, and then I have to get up to a cold kitchen in the morning" .

And to think, no rates have yet been added on account of Muskrat.

What a mess they have created by lies and deceit, and now put the burden to the PUB to help solve their mess.

The PUB should not be a party to deceit, or lack of transparency, and consider the ratepayers as priority, and shareholders as secondary.

Winston Adams

From: Engineering Specialties
Sent: October 8, 2019 9:37 PM
To: Dennis Browne <dbrowne@bfma-law.com>
Subject: Re: Rate Mitigation Hearing

Mr. Brown

Did you receive my email?

I heard that Synapse stated that in adverse conditions, (whether they meant low temperatures), that heatpumps may be off for a few hours , so a back up is an advantage. Using best practices , this would be a very rare event , for most of Nfld. Shameful that the power companies, nor Synapse has done any monitoring to to those limits, as I have done., and I willingly offer it without charge.

The PUB is not informed of these issues, a game being played by the power companies. I trust you and your office will not be a part of that game, and appropriately expose the game they have played with this for over a decade, that helped enable sanction of Muskrat Falls. Is tomorrow your chance for this to question and expose Nfld Power's part ?

Please acknowledge receipt of my email.

Winston Adams

From: Engineering Specialties _
Sent: October 6, 2019 11:38 PM
To: Dennis Browne <dbrowne@bfma-law.com>
Subject: Re: Rate Mitigation Hearing

Typo errors corrected.

From: Engineering Specialties
Sent: October 6, 2019 11:26 PM
To: Dennis Browne <dbrowne@bfma-law.com>
Subject: Rate Mitigation Hearing

Hi Dennis,

We chatted a few minutes last year, you called my number by mistake, as you were looking for the guy promoting wind and solar.

I have presented to the PUB in the past on minisplit heat pumps (2012 and after) and did detailed monitoring of performance for Nfld Avalon area.

Tom Johnson dropped by to my office and he was surprised as to energy savings and demand savings, and had a change of heart, filing that both Nfld Hydro and Nfld Power had failed in their CDM programs. He also recommended incentives for minisplits, cold climate models, for peak load reduction and to avoid customers installing inferior low grade models .

Nfld Power opposed that and it did not happen.

Johnson asked my assistance in posing short pertinent questions, during the Nfld Power application which I did.

Nfld Power engineer Lorne Henderson admitted their own study on minisplits was not "authoritative" Also no engineer had signed off on their report. He stated our monitoring comparing minisplits and baseboard heat would "cost a million dollars if they had to do it " I paid 2000 dollars for outside technical assistance. As that was done in April with the low temperature, I think -8C, after I did it for -17 C, and got a COP of 2.7. A lower COP of about 2 occurs at +2 to -2C, and this due to high humidity. But then the grid load is also lower.

Have you seen and reviewed my submissions and work and results? Krista and Wayne Upshall is familiar with my work.

I assume you are aware that Nova Scotia publishes a list of manufacturers that meet acceptable cold climate conditions, and are suitable for Nfld, yet Nfld Power does not provide such basic data.

ICF report had stated that minisplits may all shut down in adverse weather, and used that to exclude any benefit of demand reduction. This was a farce, as they even added a note saying this was unlikely to happen.

If all residential units were converted to minisplits, heating the whole house (many now do partial coverage), the potential is to reduce peak demand about 390 MW.

Larger houses offer very large demand reductions. Here is what happened for a R2000, 3700 sq ft, for -17C With setback thermostats using baseboard heaters, all heaters, 17.5 kw came on for morning warm up. Without setback, the baseboard heaters had a load of 12 kw With mini splits it was 3.7 kw.

The practice now is promoting setback thermostats, and this makes for the worst peak load. Large house should have demand meters as do small commercial buildings.

Also , are you familiar with the "interactive effect'? This is where reducing loads via LED lights, efficient TV, fridges etc, makes to increase the space heating load, so it is false savings throughout the heating season. The power companies have been misleading customers on this for many years. They use a figure of 0.6 , meaning that 60 % of the expected saving does not happen. As it is tied to the length of the heating season, 0.6 means about 7 months. Since our heating season is about 10 months, the loss of savings is much more than 60% ,and maybe about 85 %

I emailed Synapse to offer them my research results, they did not acknowledge my email.

I read that Nfld Power will do another study. Why , given their prior one was not "authoritative"?

Nfld Power also spent about half a million dollars to study demand reduction via hot water tank load time shifting. They concluded it would reduce loads about 0.6kw per house , but was uneconomic due to the control costs. Such a result was done about 20 year prior. Many such studies elsewhere arrived at the 600 w reduction, so that was all a waste of ratepayer's money, to pretend to be looking at good measures of CDM.

It seems that to incorporate Synapse policy to allow electrification and export potential, substantial peak load reductions is necessary via mini splits and insulation upgrades etc. However minisplits also reduce energy sales, so a two edge sword But peak demand reduction seems essential, and needed to reduce thermal generations assets and fuel costs.

My background: electrical engineer , 5 years with Nfld Hydro in HV design, and 44 year in HVAC heating systems. I do not sell minisplits, but have much experience with their performance. As far as I know, the only

one to monitor them as to outdoor humidity impact, and also for optimum performance and reliability in attic mounting the compressor unit, fully protected from the environmental elements : not a single shut down in 10 years. The performance for the R2000 noted above was for standard outdoor mounting, also never failed as to weather conditions, but has more defrost cycles.

Advise if this of value in your involvement at the PUB this week?

Nova Scotia installed 20,000 in 2011 alone, and gave incentives starting in 2008, @ 1500.00 , but since reduced some.

Many jurisdictions have efficiency corporations, since power companies are in conflict of interest, as to CDM measures. Why never any move here in that direction?

Email a reply if this of interest or assists you.

Winston Adams