



February 21, 2014

The Public Utilities Board of Manitoba
Attention: Mr. Hollis Singh, Executive Director and Board Secretary
400 – 330 Portage Avenue
Winnipeg, MB R3C 0C4

Dear Mr. Singh:

Re: **Public Utilities Board's Needs For and Alternative to (NFAT)
Review of Manitoba Hydro's Preferred Development Plan**

I am grateful for the opportunity to present the attached submission for consideration in the Board's deliberations on this matter.

I look forward to the opportunity to present in person next week, and to answering any questions Board members may have regarding my submission.

Sincerely,

A handwritten signature in black ink, appearing to read "BD", with a long horizontal flourish extending to the right.

Bruce Duggan
Director
Buller Centre for Business
Providence University College & Seminary

**PRE-FILED PRESENTATION OF
B. DUGGAN
IN REGARD TO THE MANITOBA HYDRO NEEDS FOR AND
ALTERNATIVES TO (“NFAT”) BUSINESS CASE SUBMISSION**

Submitted to:

The Manitoba Public Utilities Board

By:

**Bruce Duggan
Director
Buller Centre for Business**

Providence University College & Seminary
10 College Crescent
Otterburne, MB R0A 1G0

February 21, 2014

Thank you the opportunity to present. There is, perhaps, no other issue currently before the public which will have a greater long-term impact on the financial health of our province.

I'm the Director of the Buller Centre for Business at Providence University College & Seminary in Otterburne, and a member of the Steering Committee of 50by30¹. Although I bring what I know from those roles to this presentation, I don't claim to be an expert witness. My intention is to bring the perspective of a citizen to bear on the questions before you in these NFAT deliberations.

Mandates

In this matter, we could say that the Public Utilities Board serves as a proxy for the citizens of our province, gathering the knowledge which we don't have time to acquire, and making recommendations to the provincial government which best serve our interests.

This isn't an easy task.

As I see it, you face fundamental questions regarding:

- the appropriate roles of governments and crown corporations in providing essential resources to citizens and to businesses,
- the degree to which a publicly-held corporation should behave like a private corporation when considering risks and rewards, and
- the role of citizens as consumers of the product supplied, as shareholders of the corporation, and as guarantors of its debts.

To make your task more difficult, you must make recommendations despite the realities that:

- Future energy prices and demand cannot be known with certainty—either within Manitoba or within current and potential export markets.
- The effects of climate change on both supply and demand add to this uncertainty.

There are truly only three things we can know with certainty:

- Manitobans will continue to need energy for the foreseeable future.
- Having insufficient supply to meet this demand—especially in winter—is not an option.
- Manitobans will be responsible for the debts of Manitoba Hydro.

¹ 50by30 is a community organization searching for ways to move the percentage of energy Manitoba gets from renewables to 50% by 2030

This third certainty—that Manitoba citizens are the ultimate guarantors of Manitoba Hydro’s debt—isn’t something that can be found in the legislation governing Manitoba Hydro, nor in Hydro’s submissions to the Public Utilities Board. It is, however, an inescapable fiscal reality.

If the scenario laid out by Manitoba Hydro in its NFAT submission turns out to be accurate, and revenues more than cover the cost of construction, this is a debt we will not be liable for. To use a loose analogy, we will have co-signed a loan for someone, but that person will have made all their payments.

If, however, the costs are significantly higher than projected, or the revenues significantly lower, the buck will stop with us.

If there is a shortfall, and Hydro rates cannot be raised enough to cover it, the provincial government will, sooner or later, become liable for it. And as we know, there are only four ways to cover such a shortfall:

- Raise taxes
- Cut other services
- Increase provincial government debt
- Sell off assets

Every one of these outcomes harms our interests.

As citizens, it seems to me that we should want Manitoba Hydro to be run in a business-like manner, but we should not want it to necessarily behave like a for-profit business. Its product is not a discretionary purchase. It is not a private corporation, with a separation between customers, shareholders and debt-holders. It isn’t subject to competition.

We should want Manitoba Hydro to fulfill its core mandate, at the least cost and risk, and no more.

That means that, even though there may be some plausible profit-making opportunities available, if they are outside its core mandate, or if the cost and risks are judged to be too high, we should not want Manitoba Hydro to pursue those opportunities.

Manitoba Hydro's Core Mandate

In its submission, Manitoba Hydro says it is committed to

“maintaining reliable, affordable and environmentally sustainable energy for its customers, while ensuring long-term financial sustainability.”²

² Manitoba Hydro. August 2013. *Needs For and Alternatives To*. “Executive Summary” page 1. Accessed February 18, 2014 from

(From the context, I think it's clear that this commitment from Hydro is to its *Manitoba* customers in particular, and I'll be assuming that in my remarks.)

This statement, in my view, is an admirably clear summary of Manitoba Hydro's mandate. It's appropriate that we should judge its Preferred Development Plan on how well it achieves this mandate.

Discounting Export Demand

Based on some of the statements reported in the media,³ some observers may believe that Manitoba Hydro is actually providing two justifications for its Preferred Development Plan—that it meets the mandate above *and* takes advantage of a perceived market opportunity to export power to the US.

This belief may be reinforced, in part, by the attention paid in Manitoba Hydro's submission to export opportunities, particularly in chapter 6, called "The Window of Opportunity".

I'm hopeful that the Public Utilities Board will focus on the mandate and essentially set aside the justification of export market opportunities.

Pursuing export opportunities is outside Manitoba Hydro's core mandate. As well, export market opportunities, at this point in time, are simply too unpredictable.

Roughly one-third of Manitoba Hydro's revenues over the past decade have come from exports. However, market circumstances have changed.

For forty years, US natural gas production was relatively stable, averaging 22 trillion cubic feet per year. Then, starting in 2007, natural gas began to be extracted from shale

http://www.pub.gov.mb.ca/pdf/nfat/nfat_application/nfat_business_case_complete.pdf.

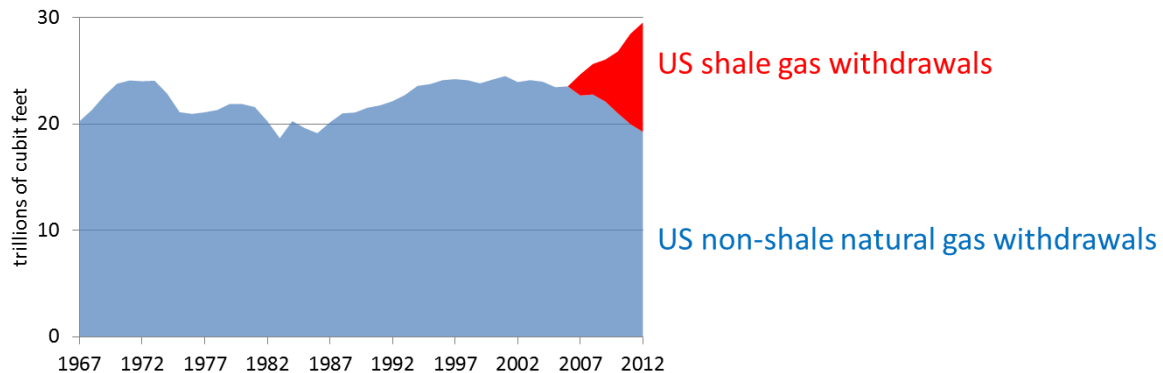
This mission statement is not, of course, identical to the mission and mandate as outlined in *The Manitoba Hydro Act*, nor in Manitoba Hydro's Annual Reports.

In my view, this is not cause for concern.

The NFAT Terms Of Reference rightly require an assessment of Manitoba Hydro's Preferred Development Plan's "alignment with *The Manitoba Hydro Act*, *The Sustainable Development Act* and the *Manitoba Clean Energy Strategy*" (Manitoba Hydro submission, chapter 1, page 2), not with *The Manitoba Hydro Act* alone.

³ See, for example, *Winnipeg Sun*, May 11, 2013, "Manitoba Hydro bets big on northern dams," <http://www.winnipegsun.com/2013/05/11/manitoba-hydro-bets-big-on-northern-dams>, *Winnipeg Free Press*, August 22, 2013, "Let dam building begin, Hydro says" <http://www.winnipegfreepress.com/local/let-dam-building-begin-hydro-says-220624311.html?device=mobile>, or *Winnipeg Free Press*, February 21, 2014, "Hydro, Minnesota's Great River Energy agree to work on power deal" <http://www.winnipegfreepress.com/breakingnews/Hydro-Minnesotas-Great-River-Energy-agree-to-work-on-power-deal--246583761.html>

through fracking:⁴



In less than five years, fracking revolutionized the supply of natural gas, enabled a rapid shift away from coal for US power generation, and helped drive down the spot price of electricity in our export market. It's a nearly perfect example of a disruptive technology.

If, as some predict, shale gas is a bubble, we could see all this reverse, and both the demand for and price of our exported electricity will rise back to past levels.

If, as others predict, the US will continue to expand its extraction of shale gas, natural gas prices will remain low for decades to come, and the export market for our electricity may never recover.⁵

My goal today is not to enter into the debate about the long-term viability of shale gas production, nor to predict future electricity prices on our export markets. Instead, I ask that we recognize that we are in a time of heightened—and I believe, temporary—uncertainty.

Experts currently differ on how many more productive natural gas wells can be drilled, and on the length of time the average shale gas well will remain productive. Within the next few years—perhaps five years from now—we will have a much better understanding of likely shale gas productivity. Once we understand that, the disruptive phase of this new technology will come to an end.

But at *this* point, we need to recognize that we do not know.

Chapter 6 of the Manitoba Hydro submission argues that we are currently in a window of opportunity for action. I would argue the opposite: We have the opportunity to wait.

⁴ Source for data: *United States Energy Information Administration*. January 31, 2014. "Natural Gas Gross Withdrawals and Production" Database accessed February 18, 2014 from http://www.eia.gov/dnav/ng/ng_prod_sum_dcunus_a.htm

⁵ More likely, in my view, a new market equilibrium will emerge, total North American natural gas withdrawals will stabilize at a new, higher level, and the export market for our electricity will recover somewhat, stabilizing at a new, lower level than before.

Our best course of action is to let the supply and market price for natural gas stabilize, and then to act.

Projecting Domestic Demand

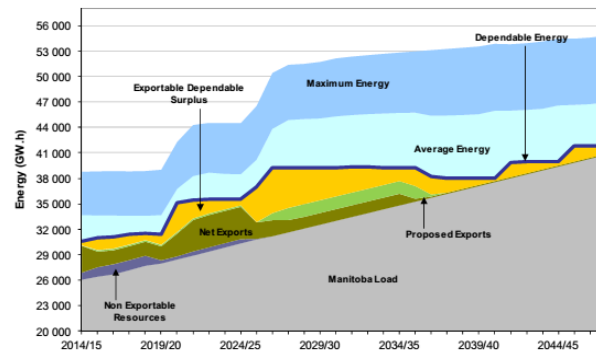
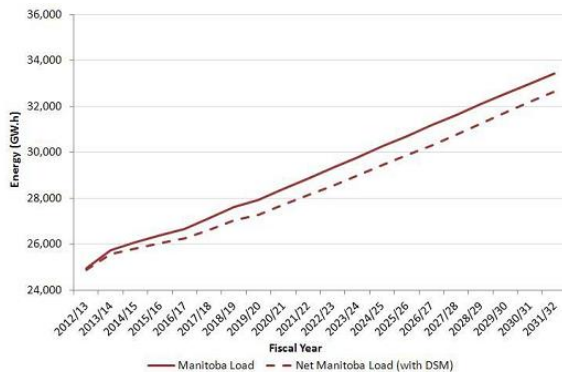
If we focus then, only on domestic demand, should we be convinced by the rationale for Hydro's Preferred Development Plan? As I understand their submission, the need for new capacity rests on two arguments:

1. Demand will inexorably rise at approximately 1.5% to 1.6%.
2. All other feasible alternatives are being aggressively pursued.

The first argues that there is a "Need For". The second says there are no "Alternatives To".

There are good reasons to question both points.

1: An Inexorable Rise in Demand?

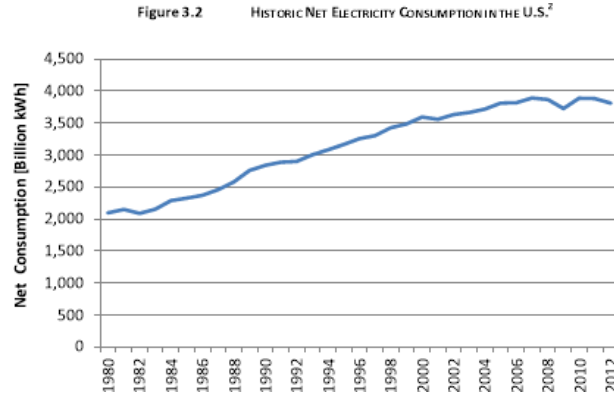
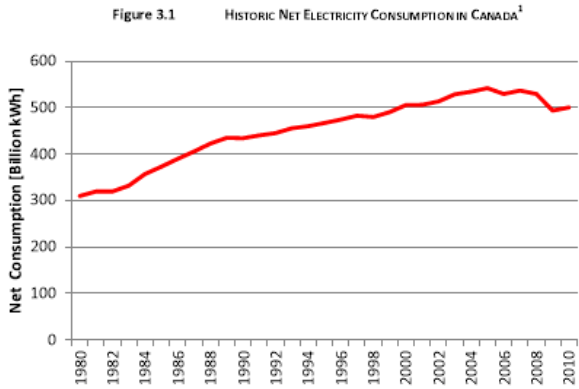


These two charts⁶—and much else in the submission—present a picture of inevitable growth for decades to come. However, the data submitted by Manitoba Hydro does not really support this conclusion.

⁶ Left figure: “Figure 4.17” from Manitoba Hydro, August 2013. *Needs For and Alternatives To*. “The Need for New Resources” chapter 4, page 33.

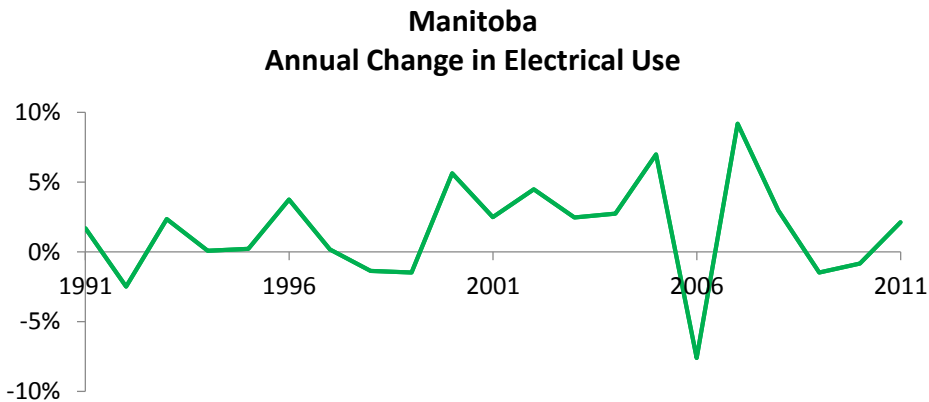
Right figure: “Figure 3” from *Manitoba Hydro*, September 30, 2012, *Manitoba Hydro 2012/13 Power Resource Plan*, page 23. Accessed February 19, 2014 from https://www.hydro.mb.ca/regulatory_affairs/electric/gra_2012_2013/2012-13_Power_Resource_Plan.pdf.

For example, two charts⁷ near the start of chapter 3 show exactly the opposite:



In the last five years, demand growth has stopped in both Canada and the US. In Canada, demand has actually declined.

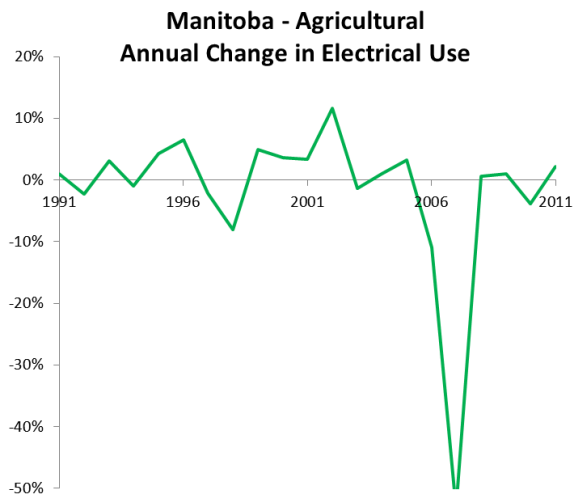
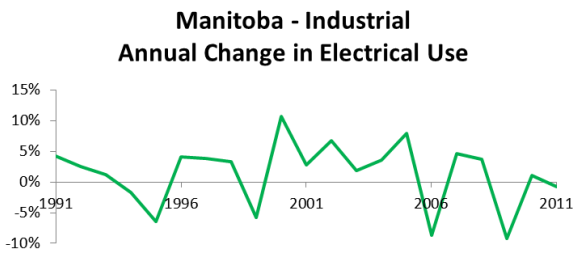
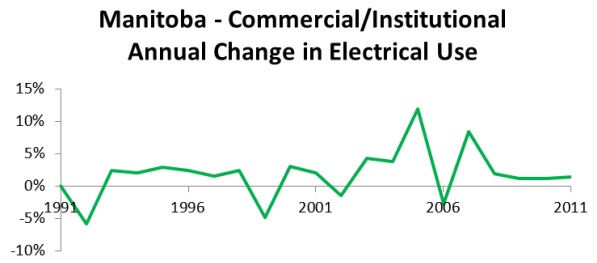
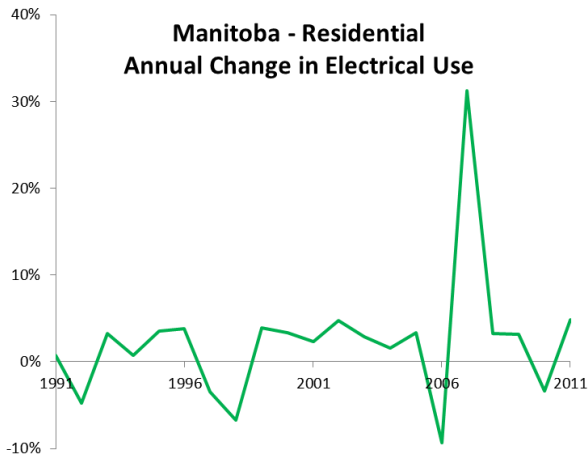
If we look at electrical demand in Manitoba,⁸ what we see, most of all, is variability:



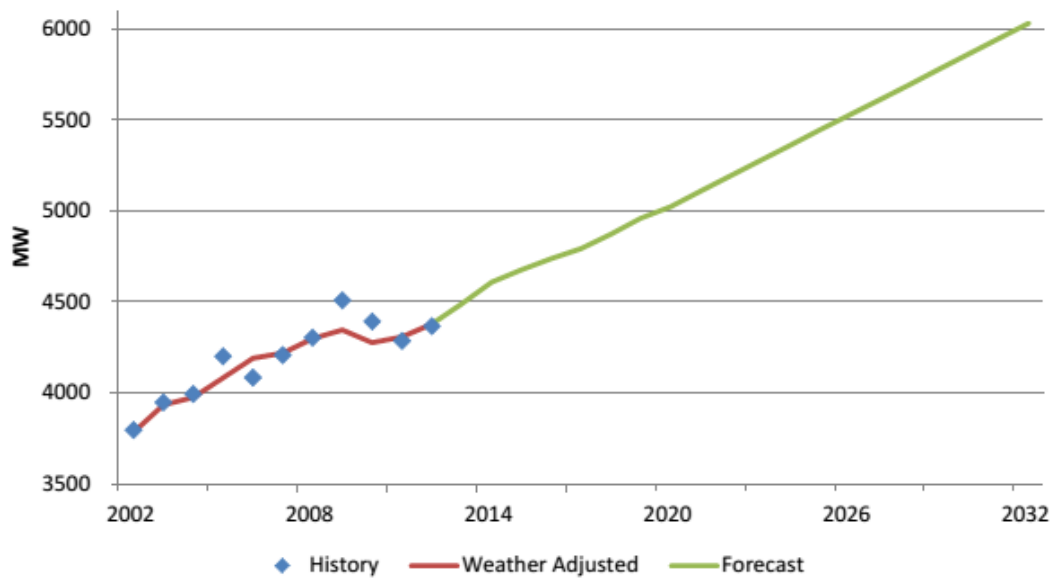
⁷ Manitoba Hydro. August 2013. *Needs For and Alternatives To*. “The Need for New Resources” chapter 3, page 4.

⁸ Data for these charts on the changes in Manitoba’s electrical energy use are drawn from *Natural Resources Canada* “Comprehensive Energy Use Database”, Accessed February 1, 2014 from http://oee.nrcan.gc.ca/corporate/statistics/neud/dpa/comprehensive_tables/list.cfm?attr=0

Variation is even more pronounced if, instead of looking at overall Manitoba demand, we look at demand in our four main sectors:



Peak load demand growth isn't inexorable either. The blue dots on the left are the actuals from the last 10 years:⁹



In three of these last 10 years, peak demand actually fell.

In addition to weather, it's likely, at least three other factors drive the variations we see in all this data—incentives to conserve, changes in the price of alternatives (primarily natural gas), and changes in the price of electricity itself.

There isn't time in my short presentation to analyze of how these factors act—and interact—in each of these sectors. However, we can draw at least two conclusions from this quick look.

1. Projections of inexorably-rising demand obscure at least as much as they reveal.
2. It appears that each sector (residential, commercial/institutional, industrial, agricultural) is affected by each driver (weather, incentives to conserve, price changes of alternatives, price changes of electricity) differently.

To be useful, Manitoba Hydro's demand projections need to first, be disaggregated by sector and, second, explicitly factor in at least the four drivers we know about.¹⁰

⁹ Manitoba Hydro. August 2013. *Needs For and Alternatives To*. "The Need for New Resources" chapter 4, page 8.

¹⁰ There is some disaggregation of sectors in the Electric Load Forecasts in Manitoba Hydro's submission, although further work—especially in distinguishing commercial/institutional from industrial—could be useful. More importantly, I was unable to find any comprehensive model of how changes in the drivers (weather, conservation incentives, pricing of alternatives, and electricity pricing) are understood by Manitoba Hydro to drive changes in demand within each sector.

2. No Alternatives?

The second part of Manitoba Hydro's argument, as I understand it, is that there are no good alternatives to building hydroelectric dams.

I agree with Manitoba Hydro's conclusions on gas turbines. They make a convincing case that shifting to gas turbines (particularly for base load) would not meet Manitoba Hydro's mandate. I'm glad to see them considered, and rejected, in Pathway One of their submission. The uncertainty of future natural gas prices makes them too high a financial risk. Equally important, their GHG emissions would drive both Manitoba Hydro and our province further away from environmental sustainability.¹¹

And, while I disagree with some of the analysis of renewables in chapter 7,¹² I'm not focusing on that analysis today.

My core disagreement is with their conclusion that Demand Side Management (DSM) can represent only a minimal alternative to new dams. As you know, I'm not alone in this disagreement. Philippe Dunskey makes the point quite strongly.¹³

Given the apparent disagreement between Manitoba Hydro and at least some of the expert testimony you've received, the citizens of our province face a dilemma. We're in somewhat the same position as a jury in court, witnessing a "battle of the experts". Each expert is knowledgeable and sincere, and yet they reach differing conclusions. What's a jury to do?

Given the PUB's access to expertise, you may be able to make this judgment for us. If you can reach a definitive conclusion, you'll have our thanks.

But my guess is that you won't be able to get to that level of certainty. If that's the case, my suggestion is: Benchmarking.

When a business is unsure of how well it's doing in some critical area, it can be very useful to benchmark their performance against their peers.¹⁴

There are scores of electricity DSM programs all over North America. Unless I missed it,

¹¹ I also agree with the implicit decision not to constrain demand simply by raising prices. If we followed the Ontario path and increased rates in the order of 10% per year, we would almost certainly see a levelling off of demand. However, this is, in my view, exactly the wrong way for us to constrain demand. It would cause both social and economic harm in our province.

¹² "Screening of Manitoba Resource Options".

¹³ Philippe Dunskey, February 4, 2014, *The Role And Value Of Demand-Side Management In Manitoba Hydro's Resource Planning Process*. Accessed February 20, 2014 from http://greenactioncentre.ca/wp-content/uploads/2014/02/Dunskey_MH-NFAT-Testimony-2014-02-03.pdf.

¹⁴ There are a number of mechanisms for benchmarking in business. The Benchmarking Portal developed and managed by the American Productivity & Quality Centre (<http://www.apqc.org/benchmarking-portal>) is a good example.

Manitoba Hydro's submission doesn't contain a comprehensive benchmarking of its DSM programs against those of its peers.

As well, there is not, so far as I'm aware, a generally-accepted benchmarking system for these programs.

We need one.

Having one could be the difference between spending \$10 billion on Conawapa or not.

I would suggest that the Public Utility Board direct Manitoba Hydro and one or two outside experts, including someone with expertise in benchmarking, to develop criteria for judging the effectiveness of DSM programs.

These—or other—experts could then benchmark Manitoba Hydro's DSM programs against similar programs in other jurisdictions.

Given the availability of data, and the way the benchmarking process works, these two steps should not take more than a year.

Given the importance of these decisions, both the criteria for ranking, and the rankings themselves, need to be public.

As citizens, it is in our interest to have Manitoba Hydro's DSM programs to be amongst the best in North America, to constrain demand as much as is possible without damaging economic growth. Manitoba Hydro could set a corporate goal of having excellent DSM programs—say being within the top 10% of these programs, as measured by the benchmarking system, within three years.¹⁵

If, once the benchmarking is done, it turns out that Manitoba Hydro's DSM programs are *already* within that top echelon, then we can know with reasonable certainty that we truly have no alternatives to building Conawapa.

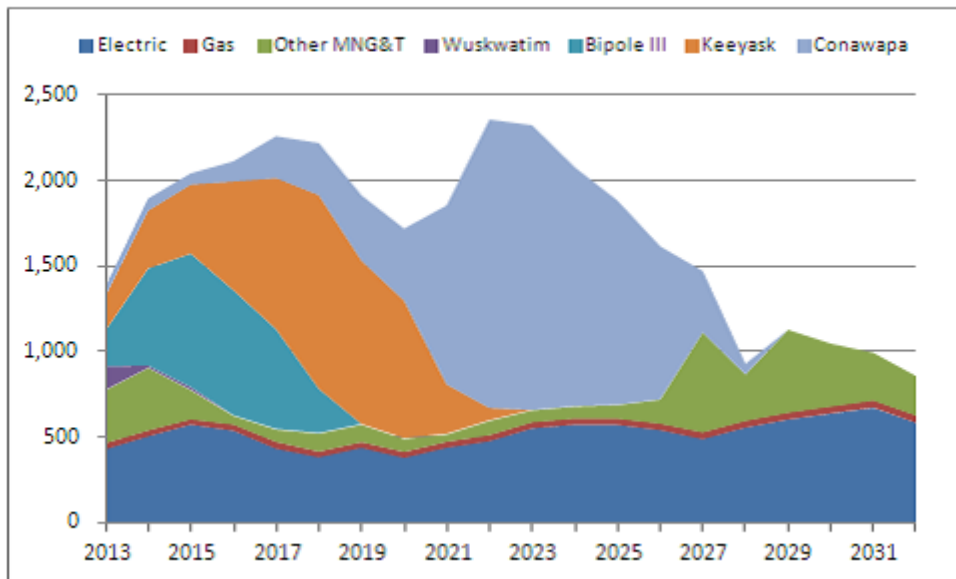
If it turns out that Manitoba Hydro's DSM program is not currently in that top group, if Manitoba Hydro makes achieving that benchmark their first corporate priority, I'm confident that they will be able to achieve it.

Once they take the measures necessary to achieve that benchmark, we'll know which experts were right. And, more importantly, we'll know if demand can be mitigated enough to defer the building of Conawapa, or if we truly do have no alternatives to this \$10 billion expenditure.

¹⁵ Some might be tempted to say that Manitoba Hydro needs to operate the very best DSM program in North America. They could argue that it shouldn't be permitted to build any more dams until it has done absolutely everything to manage demand. In my view, that is not the wisest course. I hope that Manitoba Hydro aspires to be the North American leader in DSM, but to set that as the hurdle is, I think, not realistic.

Implications for Capital Expenditure Forecast

Figure 3-1: Capital Expenditure Forecast CEF12



I cannot help but be deeply concerned about a capital expenditure forecast¹⁶ to spend in excess of \$1.5 billion per, each year, for the next 13 years.

I find myself even more concerned when that expenditure is funded almost entirely by debt. A corporation with a 10/1 debt-to-equity ratio is much less resilient than one with a 4/1 ratio.

Not only is the total amount of debt required worrying, the timing of it risks Manitoba Hydro's fiscal stability.

If we accept, for the sake of argument, that the planned spending on Bipole3 is inevitable, I believe it's in our interest as citizens to see a delay in spending on Keeyask until after Bipole 3 expenditures have peaked. A delay of only two years could significantly reduce the pressure on Manitoba Hydro to raise debt.

I also believe it's in our interest for capital expenditures on Conawapa not to be authorized until Manitoba Hydro has achieved a clear benchmark of excellence in Demand Side Management. It is only then that we will know we truly have no alternatives.

I thank you for your time.

¹⁶ Manitoba Hydro. *Consolidated Integrated Financial Forecast (IFF12)*, page 10.