From: Maurice E. Adams
Sent: May-03-14 12:44 PM
To: Cheryl Blundon
Subject: The Board's Investigation and Hearing into Supply Issues and Power Outages on the Island Interconnected System - Request for Comments (2nd CORRECTED COPY)

My apologies again, Ms. Blundon.

I appears that my earlier (and corrected) Written Comments on the above-noted subject contained a significant error with respect

to the total Island Interconnected System peak demand (CORRECTED VERSION BELOW).

Accordingly, I have made a final correction to issue #2 and included a 4th info-graphic to help clarify the issue.

Thank you, once again, for your consideration of this important matter.

Best regards,

Maurice E. Adams

Good day Ms. Blundon.

With respect to the above-noted matter.

Summary Comments

Key Issues

1. Liberty Consulting appears to be well qualified in the areas of power generation, transmission/distribution/
2. maintenance management systems, load forecasting, etc.

I would, however, submit that

- there is no clear evidence that Liberty Consulting has the requisite expertise in the areas of conservation and efficiency
- conservation and efficiency are key issues identified by the Board, and I would suggest that when integrated with other options, conservation and efficiency may be the most reliable and lowest possible cost option for addressing short, medium and long term requirements
- conservation and efficiency programs in other jurisdictions appear not only to be able to reduce energy use, but may help even keep rates stable or reduce them
- other than a brief commentary in Liberty's interim report concerning NL Hydro and NL Power 'communicating' their requests for consumers to conserve energy, the absence on any substantial information and/or recommendations in Liberty's report related to the issue of conservation and efficiency is (I would suggest) evidence to suggest that Liberty Consulting may not have the requisite expertise to properly consider, assess, and where appropriate, integrate these issues into the island's future electricity load, reliability and cost configurations
- the Board should obtain independent consulting expertise in the area of conservation and efficiency (the level of such expertise should be similar to that demonstrated by Liberty Consulting in the areas of power generation, transmission/distribution/maintenance management systems, load forecasting, industry best practices, etc.)

2. It seems clear (from Liberty's interim report) that the root causes of the electricity supply and outage issues of 2013 and early 2014 **were grounded**, first and foremost, not in the failure of the island's generation capacity as such, but **in NL Hydro's maintenance, upgrading, and parts supply failure of its transmission/distribution systems** (such as breakers and transformers), and it is these that in turn caused the generators at Holyrood to shut down.

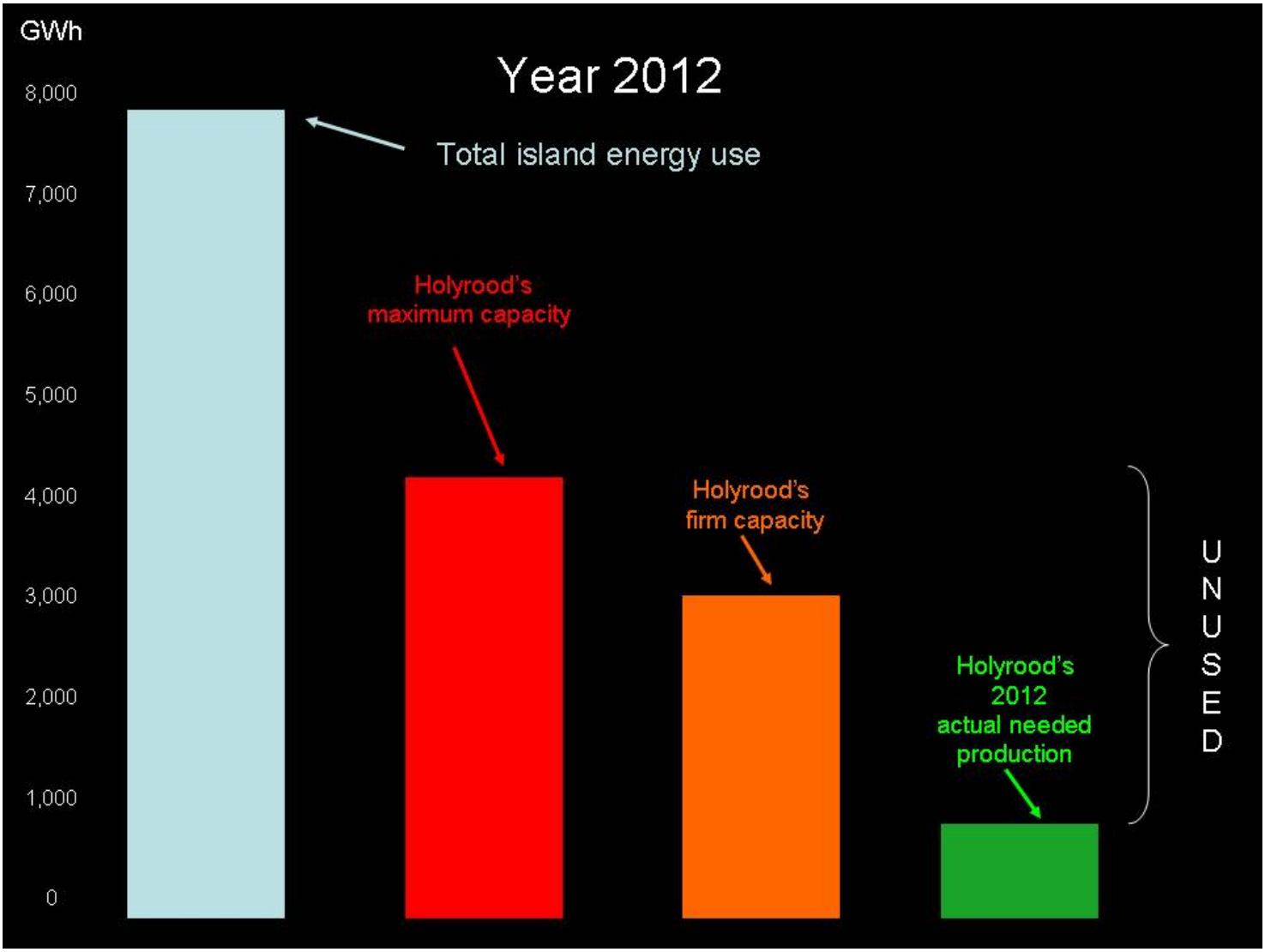
I would submit therefore that

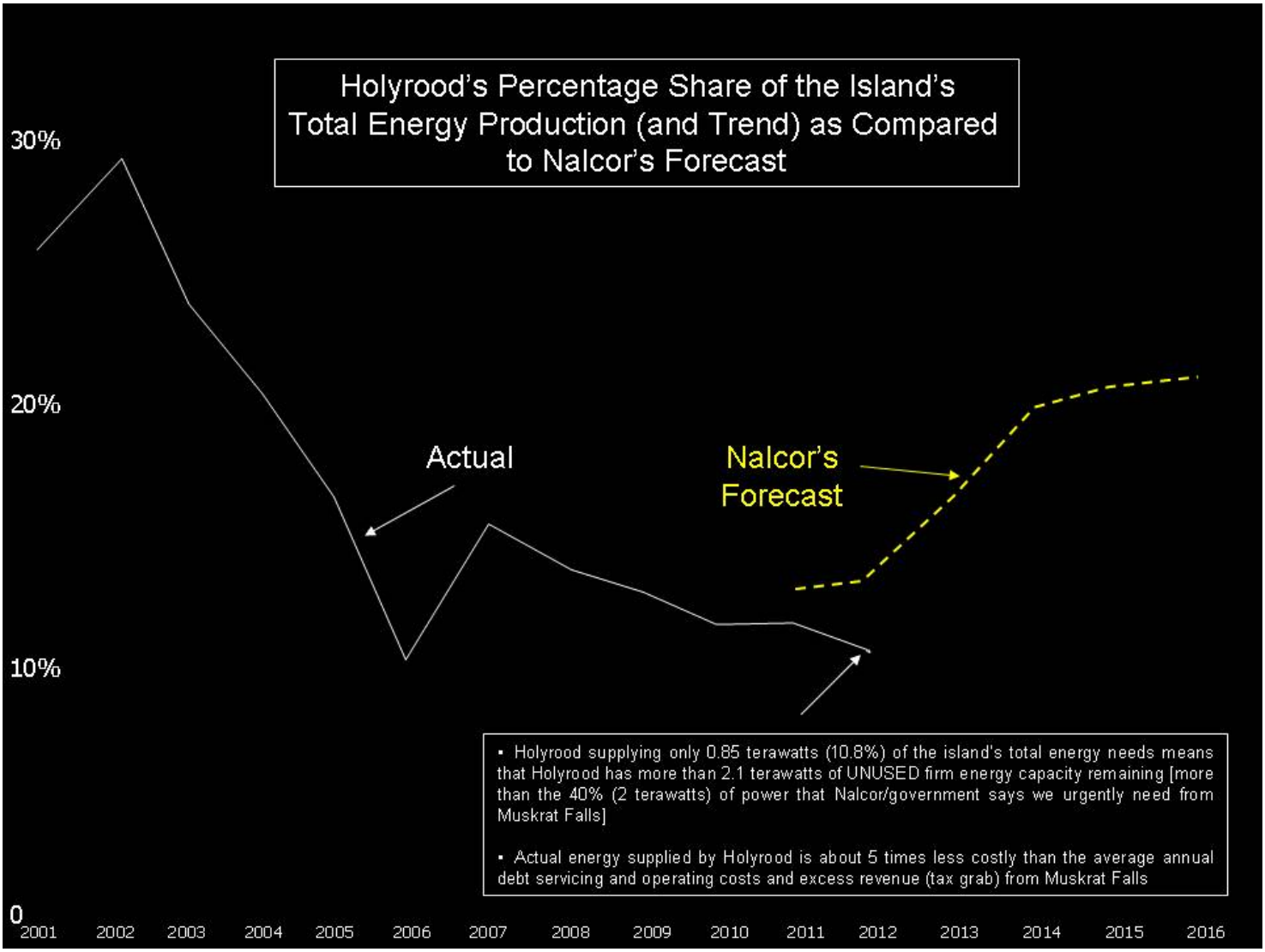
- NL Hydro's emphasis on adding "new generation" is misplaced, and not supported by the facts or even by the evidence in Liberty's report
- the facts show that while NL Hydro reports the existing total Island Interconnected System capacity at 1,946 MW and firm capacity at 1,813 MW, NL Hydro's data shows that the total Island

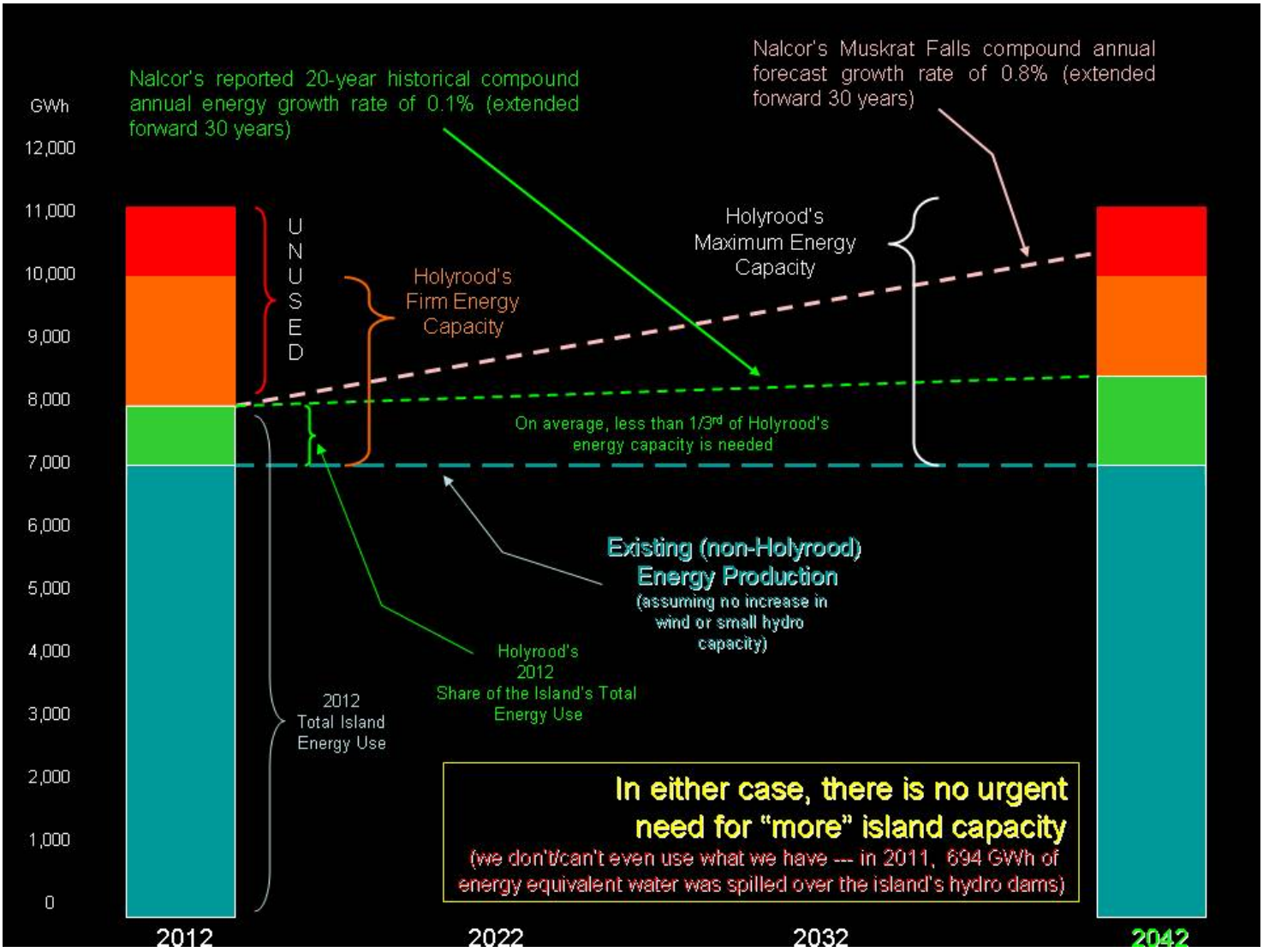
Interconnected System peak demand for 2013 was in the vicinity of only 1,630 MW. Accordingly, the existing Island Interconnected System's total "available" capacity for 2013 should therefore have been more than 300 MW above peak demand and the existing Island Interconnected System's "available" firm capacity should have been almost **200 MW ABOVE** the total Island Interconnected System peak demand (see 4th info-graphic below, copied from http://www.vision2041.com/demand.html) --- and Liberty Consulting Interim Report confirms that it is the Island Interconnected System capacity and requirements (not just the NL Hyrdo System capacity and requirements) that is most significant (Liberty's Recommendation No. 7 refers)

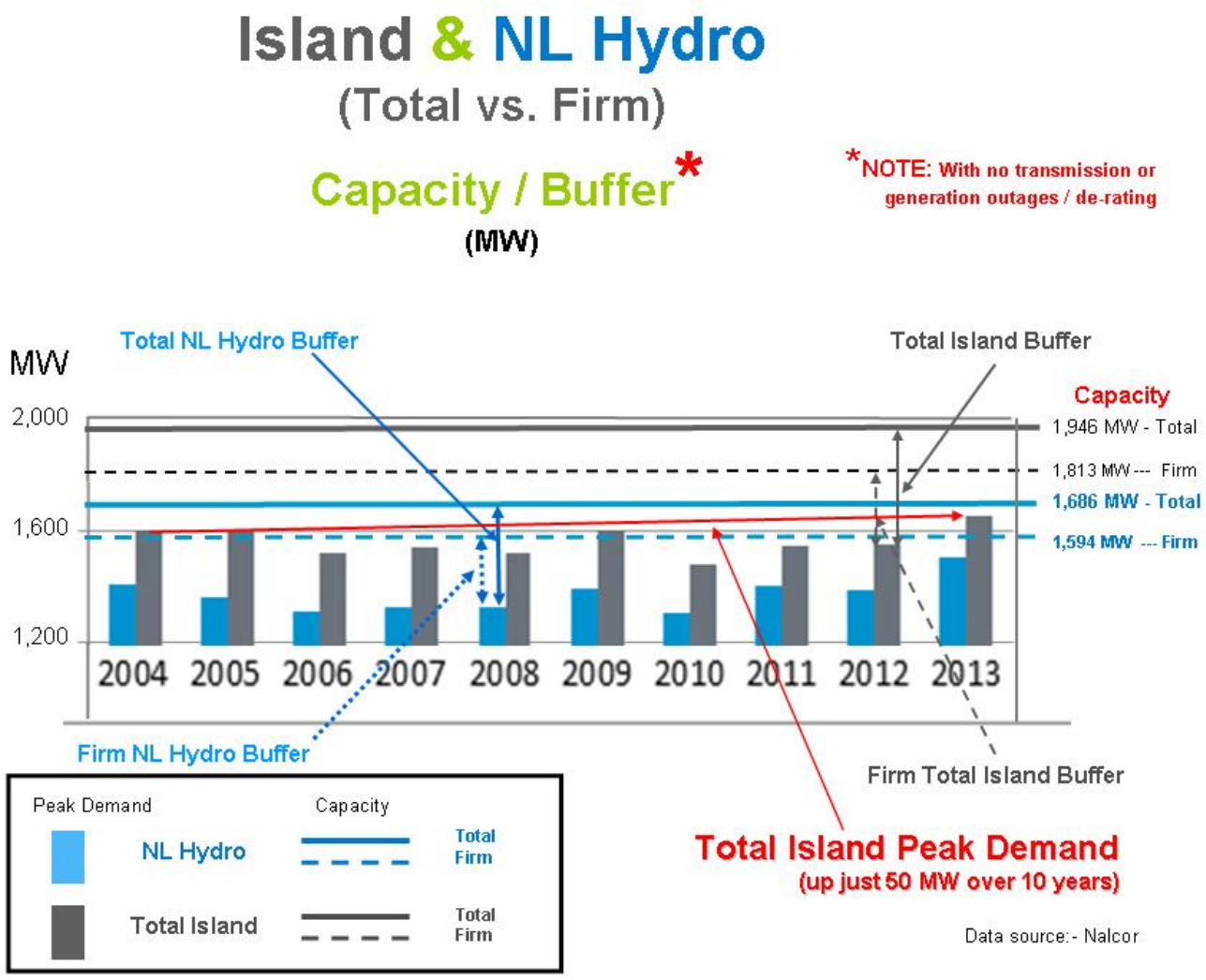
- accordingly, the existing total and firm generation capacity should both have been more than adequate --- **if** NL Hydro had done the proper upgrades, parts supply and maintenance on its transmission/distribution and generation systems
- Liberty's interim report (page ES-2) states, in part, that *"Addressing the continuing risks of supply/demand **imbalances** requires **either or** both of adding resources and making sure that **existing** resources are available at peak times (during winters in the case of Newfoundland and Labrador)*" -- emphasis added
- clearly, Liberty's interim report identifies the problem --- not as being "inadequate" existing resources, but clearly a supply/demand **"imbalance"** --- an imbalance that can be addressed by EITHER adding new generation OR by *"making sure that existing resources are available at peak times"* -- emphasis added
- the Board should consider NL Hydro's planned, improved maintenance management system (which I understand was recommended by Liberty and is to be submitted by June 15, 2014) before it makes a decision on the most reliable (and lowest possible cost) immediate and short term option.
- the evidence (and past events) confirm and demonstrate clearly that even when NL Hydro has had a firm capacity that is already in excess of peak demand, excess capacity has not been sufficient to ensure that NL Hydro has been able to provide island ratepayers with reliable service. Increasing that already existing "excess" capacity is clearly not addressing the fundamental problem --- NL Hydro's failure with respect to the maintenance management of its existing resources
- accordingly, I would suggest that adding new generation to address what is fundamentally a maintenance problem is not in the best interest of ratepayers, not the lowest cost, provides no confidence that such new generation will indeed be 'available', is not necessary and does not address the root problem

3. It is clear from the info-graphics (below) that the island's already existing generation capacity is already underutilized (copied from http://www.vision2041.com/holyrood.html)


GWh
Year 2012
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
Total island energy use
Holyrood's maximum capacity
Holyrood's firm capacity
Holyrood's 2012 actual needed production
UNUSED


Holyrood's Percentage Share of the Island's Total Energy Production (and Trend) as Compared to Nalcor's Forecast
30%
20%
10%
0
Actual
Nalcor's Forecast
• Holyrood supplying only 0.85 terawatts (10.8%) of the island's total energy needs means that Holyrood has more than 2.1 terawatts of UNUSED firm energy capacity remaining [more than the 40% (2 terawatts) of power that Nalcor/government says we urgently need from Muskrat Falls]
• Actual energy supplied by Holyrood is about 5 times less costly than the average annual debt servicing and operating costs and excess revenue (tax grab) from Muskrat Falls
2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016


Nalcor's reported 20-year historical compound annual energy growth rate of 0.1% (extended forward 30 years)
Nalcor's Muskrat Falls compound annual forecast growth rate of 0.8% (extended forward 30 years)
GWh
12,000
11,000
10,000
9,000
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
UNUSED
Holyrood's Firm Energy Capacity
Holyrood's Maximum Energy Capacity
On average, less than 1/3rd of Holyrood's energy capacity is needed
Existing (non-Holyrood) Energy Production
(assuming no increase in wind or small hydro capacity)
Holyrood's 2012 Share of the Island's Total Energy Use
2012 Total Island Energy Use
In either case, there is no urgent need for "more" island capacity
(we don't/can't even use what we have --- in 2011, 694 GWh of energy equivalent water was spilled over the island's hydro dams)
2012
2022
2032
2042



Notwithstanding the above-noted information, it should be noted that Holyrood rarely operates at capacity (1.6 percent of the time), or less than 6 days per year (and not at all in year 2011).

Surely, ratepayers should not have to pay even more because NL Hydro has not properly maintained its transmission and distribution systems and is under-utilizing its already existing excess generation capacity.

Respectfully,

Maurice E. Adams