

Page 1	Page 3
<p>1 (10:08 a.m.)</p> <p>2 CHAIRMAN:</p> <p>3 Q. Well, good morning everybody. Are there any</p> <p>4 preliminary matters to come before this august</p> <p>5 body?</p> <p>6 GREENE, Q.C.:</p> <p>7 Q. No, Mr. Chairman.</p> <p>8 CHAIRMAN:</p> <p>9 Q. No? So I guess we will then proceed to the</p> <p>10 order of business for the day and Mr.</p> <p>11 Dumaresque is in his proper place and so I</p> <p>12 shall turn it over to you, sir, I guess.</p> <p>13 MR. DUMARESQUE:</p> <p>14 A. Thank you very much, Mr. Chairman,</p> <p>15 Commissioners, legal counsel, ladies and</p> <p>16 gentlemen. Thank you for the opportunity to</p> <p>17 present my views to you this morning. I am a</p> <p>18 former member of the House of Assembly from</p> <p>19 Labrador and I also served as a director of</p> <p>20 Newfoundland and Labrador Hydro. The issue of</p> <p>21 the Upper Churchill power contract has always</p> <p>22 interested me, including my time at university</p> <p>23 in St. John's and Nova Scotia. I will always</p> <p>24 be a student of public policy and an advocate</p> <p>25 for change in the pursuit of good government</p>	<p>1 As I said earlier, I have always been</p> <p>2 interested in the Upper Churchill power</p> <p>3 contract and today, I can stand here and agree</p> <p>4 with former Premier Danny Williams when he</p> <p>5 stated we have developed this energy plan with</p> <p>6 our eyes clearly on 2041 when the Upper</p> <p>7 Churchill contract expires and the province is</p> <p>8 in a position to receive the full benefits</p> <p>9 from this resource. This is not a person --</p> <p>10 there is not a person in Newfoundland and</p> <p>11 Labrador who does not agree that Hydro Quebec</p> <p>12 has taken advantage of us for the past 36</p> <p>13 years and will do so for the next 29 years.</p> <p>14 It is despicable that our neighbour would</p> <p>15 continue to reap 98 percent of the profits</p> <p>16 generated from the turbines of Labrador.</p> <p>17 It is against this backdrop of public</p> <p>18 opinion and the policy as stated in the energy</p> <p>19 plan that Nalcor has taken the following</p> <p>20 position on access: There is inherent</p> <p>21 uncertainty around guaranteeing the</p> <p>22 availability of supply from Churchill Falls in</p> <p>23 2041 because it is difficult to determine the</p> <p>24 environmental and policy frameworks that will</p> <p>25 be in place 30 plus years out. I recognize</p>
Page 2	Page 4
<p>1 in Newfoundland and Labrador. As many who</p> <p>2 have come before you have stated, the Muskrat</p> <p>3 Falls Project is the biggest public policy</p> <p>4 issue ever to have faced this province.</p> <p>5 One of the most important debates we had</p> <p>6 while I served in the House of Assembly was</p> <p>7 over the future energy requirements of the</p> <p>8 province and how we would go about meeting</p> <p>9 them. This debate was included in the passing</p> <p>10 of the Electrical Power Control Act in 1994,</p> <p>11 which amongst other things, states the laws of</p> <p>12 the province as follows: all sources and</p> <p>13 facilities for the production, transmission</p> <p>14 and distribution of power in the province</p> <p>15 should be managed and operated in a manner</p> <p>16 that would result in power being delivered to</p> <p>17 consumers in the province at the lowest</p> <p>18 possible cost, consistent with reliable</p> <p>19 service.</p> <p>20 While it may be debated if Nalcor has the</p> <p>21 right to build the transmission and generation</p> <p>22 of power from Muskrat Falls to the island, I</p> <p>23 submit that the PUB has the obligation to</p> <p>24 insist on lowest cost power options at all</p> <p>25 times.</p>	<p>1 that they have also expressed other reasons</p> <p>2 why they ruled out accessing this power, but</p> <p>3 their economic argument, like the one above,</p> <p>4 has little merit. This is not market cost</p> <p>5 power and the Isolated Island option does not</p> <p>6 have to bear a 600 million dollar upgrade at</p> <p>7 Holyrood, two reasons they are being used to</p> <p>8 bias the CPW in favour of Muskrat Falls.</p> <p>9 On February the 5th, 2012, 17 days ago, I</p> <p>10 asked the current Minister of Natural</p> <p>11 Resources the question: do you agree that we</p> <p>12 have the right to access the Upper Churchill</p> <p>13 power in 2041? I know he received that</p> <p>14 question, but to date, he has chosen not to</p> <p>15 answer. Irrespective of his position, I have</p> <p>16 undertaken to consult with various legal and</p> <p>17 academic experts on the 1969 Upper Churchill</p> <p>18 contract and the answers I have received from</p> <p>19 everyone is an unequivocal, yes. All replies</p> <p>20 can be summed up as Mr. Vardy and Mr. Penney</p> <p>21 did yesterday, the least uncertain event for</p> <p>22 the energy of the province is that the</p> <p>23 Churchill Falls contract expires in 2041.</p> <p>24 They go on to note that the guaranteed winter</p> <p>25 availability contract also expires in 2041, as</p>

Page 5	Page 7
<p>1 does the shareholders agreement between</p> <p>2 CF(L)Co and Hydro Quebec.</p> <p>3 The mighty Churchill Falls is our power</p> <p>4 and in 2041, it will be ours to do as we</p> <p>5 please. Every person in this province will</p> <p>6 agree with the government in reclaiming this</p> <p>7 resource and giving us the ability to deliver</p> <p>8 the 5400 megawatts of power as follows: retain</p> <p>9 what we need to serve the industrial needs of</p> <p>10 Labrador; keep what we need to feed the island</p> <p>11 consumer with cheap green power for ever; sell</p> <p>12 excess power to the marketplace and use the</p> <p>13 money to bring green energy to coastal</p> <p>14 Labrador and take them off dirty diesel</p> <p>15 forever; give all the people the benefit of</p> <p>16 the zero cost power by reducing their</p> <p>17 electricity bills and firmly claim that our</p> <p>18 people will have the cheapest, greenest energy</p> <p>19 in the world. However, while I am passionate</p> <p>20 in advocating the above, I have been in</p> <p>21 business for the past 16 years and I know that</p> <p>22 it has to make financial sense to take this</p> <p>23 direction.</p> <p>24 The MHI report was a good report. It was</p> <p>25 the first time that the project was properly</p>	<p>1 would eliminate 5.7 billion dollars from this</p> <p>2 cost of this option and its cost up to 2041</p> <p>3 would be 3.2 billion dollars.</p> <p>4 (10:15 a.m.)</p> <p>5 The Muskrat Falls system. The total</p> <p>6 project budget for the infeed option, which</p> <p>7 includes Muskrat Falls, is pegged at 6. 6</p> <p>8 billion dollars. It must be pointed out that</p> <p>9 while this option means closing down Holyrood,</p> <p>10 it also means building 520 megawatts of</p> <p>11 thermal generation. It would mean eight</p> <p>12 different units would be built around the</p> <p>13 island, but still using dirty oil. It will</p> <p>14 mean that in 50 years from first power, this</p> <p>15 island will actually have more dirty oil</p> <p>16 generation than we have today. As I pointed</p> <p>17 out above, the ESP and scrubbers are not</p> <p>18 necessary in 2015 under the infeed option,</p> <p>19 even though Holyrood decommissioning will not</p> <p>20 be completed until 2029, 12 years later.</p> <p>21 There are no cost savings from this item. The</p> <p>22 addition of 300 megawatts of dirty oil</p> <p>23 generation after 2041 will mean a cost of one</p> <p>24 billion dollars will be incurred and to keep</p> <p>25 comparing apples to apples, we can deduct this</p>
Page 6	Page 8
<p>1 defined for me and provided an easy read on</p> <p>2 the complexities involved. This report has</p> <p>3 provided me with the ability to see the</p> <p>4 financial implications of getting the access</p> <p>5 to 2041 power. In Sections 10.5 and 10.6, one</p> <p>6 can see the cost involved in implementing the</p> <p>7 Isolated Island and infeed option thermal</p> <p>8 plants respectively.</p> <p>9 The Isolated Island option. The total</p> <p>10 project budget for the island isolated system</p> <p>11 is pegged at 8.8 billion dollars. As you can</p> <p>12 see from this documentation, MHI notes that</p> <p>13 the 582 million dollars is proposed to be</p> <p>14 spent in 2015, installing ESP and scrubbers at</p> <p>15 Holyrood under the Isolated Island plan.</p> <p>16 Nalcor has confirmed that this cost is not</p> <p>17 necessary to meet provincial law. It should</p> <p>18 also be noted that it is not included at all</p> <p>19 in the infeed option. From 2041 to 2067,</p> <p>20 Nalcor is proposing to build 1320 megawatts of</p> <p>21 new thermal generation at a cost of five</p> <p>22 billion dollars. This would be done using 11</p> <p>23 different units all around the island and</p> <p>24 burning dirty oil. By accessing 2041 power,</p> <p>25 none of the above would be necessary, so this</p>	<p>1 from the total project leaving this option</p> <p>2 with a net cost of 5.6 billion dollars.</p> <p>3 The result. The comparison between the</p> <p>4 two options by accessing the 2041 Upper</p> <p>5 Churchill contract results in a 2.4 billion</p> <p>6 dollar advantage in favour of the Isolated</p> <p>7 Island system. This is enough savings to pay</p> <p>8 100 percent of the cost of bringing a new</p> <p>9 transmission line from Churchill Falls to</p> <p>10 Soldier's Pond. It is also necessary to note</p> <p>11 that while the remaining 3.2 billion to the</p> <p>12 Isolated Island system includes the</p> <p>13 expenditure of 800 million in 2033, replacing</p> <p>14 units one and two at Holyrood, and 500 million</p> <p>15 in 2035, replacing unit three of Holyrood.</p> <p>16 These expenditures of 1.3 billion are planned</p> <p>17 to be incurred a few years before the return</p> <p>18 of the Upper Churchill power. The future</p> <p>19 sales of available power at the Upper</p> <p>20 Churchill would be in the discussion stages by</p> <p>21 this time and it would be crazy not to foresee</p> <p>22 a deal to access our required energy to take</p> <p>23 us over the last few years, even with Hydro</p> <p>24 Quebec. There are also legal scholars who</p> <p>25 believe we can negotiate more recall power</p>

Page 9	Page 11
<p>1 from the existing contract by using Section</p> <p>2 92A of the Constitution of Canada.</p> <p>3 The benefits. It is hard to imagine, but</p> <p>4 we can certainly realize our day in the green.</p> <p>5 Some day the sun will shine and blackouts will</p> <p>6 be no more. After 2041, we will be able to</p> <p>7 boast from the tallest points in this great</p> <p>8 province, we have the lowest and greenest</p> <p>9 electricity in all of North America, if not</p> <p>10 the world, and it will stay that way forever.</p> <p>11 Furthermore, it will give us the next 20</p> <p>12 years to know the following: the future of</p> <p>13 Corner Brook Pulp and Paper; the viability of</p> <p>14 the natural gas industry; the impact of shale</p> <p>15 oil and gas on oil prices; the ability to</p> <p>16 store wind power; the actual load on the</p> <p>17 island and the load growth; and also the real</p> <p>18 industrial demands for power in Labrador.</p> <p>19 Finally, it will allow us to be wise</p> <p>20 spenders of public money, the hard earned</p> <p>21 taxpayers' dollars. Over the next 20 years,</p> <p>22 there will not be any blackouts and we will</p> <p>23 not saddle our children with at least 5. 6</p> <p>24 billion of new debt. Our infamous economist,</p> <p>25 Dr. Wade Locke, warned us last year that this</p>	<p>1 direction was handed off to a new current</p> <p>2 administration and the past 15 months has been</p> <p>3 filled with political fraud of the highest</p> <p>4 order. Muskrat Falls is a spiteful political</p> <p>5 project and not a well planned energy</p> <p>6 development aimed at delivering the lowest</p> <p>7 cost power to the people of this great</p> <p>8 province as required by law. The sanctioning</p> <p>9 of this project will be a happy day for the</p> <p>10 millionaires and shareholders of EMERA, but a</p> <p>11 sad day for the ordinary ratepayers and</p> <p>12 taxpayers of this province.</p> <p>13 Nalcor is embarking on a dangerous road,</p> <p>14 consciously avoiding the PUB and taking the</p> <p>15 damn the torpedoes approach, building a</p> <p>16 project without acknowledging that we have the</p> <p>17 greatest resource of clean, renewable energy</p> <p>18 waiting to serve this province forever, the</p> <p>19 mighty Churchill Falls.</p> <p>20 Mr. Chairman, I thank you and your</p> <p>21 colleagues once again for granting me this</p> <p>22 time today and I would welcome any questions.</p> <p>23 CHAIRMAN:</p> <p>24 Q. I guess, Mr. O'Reilly, we'll start with you.</p> <p>25 O'REILLY, Q.C.:</p>
Page 10	Page 12
<p>1 province, without Muskrat Falls, was on a way</p> <p>2 to financial disaster. Our spending,</p> <p>3 according to the former Auditor General</p> <p>4 Noseworthy, is out of control and we cannot</p> <p>5 keep up the pace. In her first speech to the</p> <p>6 people of this year, Premier Dunderdale told</p> <p>7 the unions to prepare for lean times ahead.</p> <p>8 Just last week, Finance Minister Marshall told</p> <p>9 us that our province will be one billion</p> <p>10 dollars short in this coming year. These are</p> <p>11 not times to ignore what has happened to</p> <p>12 Iceland, indeed to the greatest economy on</p> <p>13 earth, the USA, and we cannot escape the</p> <p>14 looming crisis in Greece, Spain and Portugal.</p> <p>15 Mr. Chairman, over the past 15 months, I</p> <p>16 have read the term sheet on Muskrat Falls and</p> <p>17 thousands of pages of commentary, review and</p> <p>18 analysis. I have attended as much of the PUB</p> <p>19 hearings as possible and listened intently to</p> <p>20 the questions and answers. Today, I am</p> <p>21 concluding that I have heard enough. The</p> <p>22 Muskrat Falls Project was conceived as a</p> <p>23 political project in 2010. It was created to</p> <p>24 serve the political agenda of a premier who</p> <p>25 was driven to spite Quebec. This political</p>	<p>1 Q. I don't -</p> <p>2 CHAIRMAN:</p> <p>3 Q. I do you want a time to reconsider or -</p> <p>4 O'REILLY, Q.C.:</p> <p>5 Q. No. We've read the -- we've heard the</p> <p>6 presentation. Nalcor will be responding to</p> <p>7 the relevant portions in their final</p> <p>8 presentations to the Board, so we don't have</p> <p>9 any questions for Mr. Dumaresque. Thank you.</p> <p>10 CHAIRMAN:</p> <p>11 Q. Okay.</p> <p>12 MR. JOHNSON:</p> <p>13 Q. I don't have any questions for this presenter.</p> <p>14 GREENE, Q.C.:</p> <p>15 Q. And I have no questions, Mr. Chair.</p> <p>16 CHAIRMAN:</p> <p>17 Q. Any Board members?</p> <p>18 VICE-CHAIR:</p> <p>19 Q. Thank you very much, Mr. Dumaresque.</p> <p>20 CHAIRMAN:</p> <p>21 Q. No questions, although I don't accept one of</p> <p>22 your premises about oil being dirty, but</p> <p>23 that's a subject for another debate.</p> <p>24 MR. DUMARESQUE:</p> <p>25 A. Okay.</p>

Page 13

1 CHAIRMAN:

2 Q. Thank you very much, sir.

3 MR. DUMARESQUE:

4 A. Thank you, Mr. Chair.

5 CHAIRMAN:

6 Q. And next it's the Newfoundland Ocean
7 Industries Association, Mr. Robert Cadigan.

8 MR. CADIGAN:

9 A. Good morning, Mr. Chairman,
10 Commissioners, ladies and gentlemen. I want
11 to thank you for the opportunity to speak to
12 you today about the development of Muskrat
13 Falls and the importance of this development
14 to the members of Newfoundland and Labrador
15 Oil and Gas Association, and that's NOIA, and
16 I'm representing them here today.17 Just for background, we have about 560
18 members in Canada and around the world, and
19 NOIA is Canada's largest offshore industry
20 association. While some of our members are
21 focused exclusively in oil and gas activities,
22 most NOIA members, particularly our
23 Newfoundland and Labrador members are focused
24 on industrial activity resulting from oil and
25 gas energy and other industrial projects in

Page 14

1 the construction and development phases, and
2 the ongoing activities to support these
3 projects once construction is completed.4 Many of NOIA's members in the
5 construction fabrication and industrial
6 services supply side will directly benefit
7 from these developments. Bringing Muskrat
8 Falls power to market has the potential to
9 provide significant benefits to the people of
10 Newfoundland and Labrador and the people of
11 Canada, and NOIA supports is a key action of
12 the Energy Plan, the reinvestment of
13 provincial revenues from non-renewal resources
14 into the construction of renewable
15 infrastructure.16 We believe that we must reinvest the
17 value we receive from our oil and gas
18 resources to secure prosperity today and for
19 future generations. The main driver for the
20 development of Muskrat Falls is the forecast
21 of capacity deficit in 2015 with energy
22 deficits potentially beginning in 2017. As a
23 result, there is a need to take action to
24 ensure adequate supply to the island. In our
25 view, inaction is not an option. In terms of

Page 15

1 the business case of Muskrat Falls, our
2 members are consumers of electricity and will
3 be impacted by changes in cost and by the
4 reliability of the electrical system. In our
5 view, Newfoundland and Labrador is in the
6 enviable position to enjoy the benefits and
7 abundance of energy with oil resources for
8 export and hydro electricity for domestic use
9 and potential export to North American
10 markets.11 Oil is in demand and demand is increasing
12 as BRIC countries' developing economies
13 continue to move forward and their citizens
14 demand a higher standard of living. They see
15 what we have is what they want, and certainly
16 we're going to see the impact of that in the
17 demand for oil and gas. Oil is an economic
18 driver for the province because of this demand
19 and the relative scarcity of supply. This
20 isolated island alternative will keep us tied
21 to oil and require major upgrades and
22 replacement of the aging Holyrood generating
23 infrastructure, and leave us exposed to the
24 continued volatility of world oil prices.
25 Hydro power represents a stable and

Page 16

1 economically sensible solution for rate payers
2 in our view. Muskrat Falls project will
3 generate long term sustainable revenues for
4 the people of Newfoundland and Labrador, while
5 providing access to clean and stable source of
6 energy for domestic consumption.7 The NOIA Board of Directors was briefly
8 probably about a year or more ago now on the
9 project, and we did review the three options
10 originally represented in detail; the isolated
11 island, Gull Island, or the Muskrat Falls
12 option. In terms of our review, we concur
13 that the Muskrat Falls is the best alternative
14 and provides, in our view, the least cost and
15 most environmentally friendly solution to meet
16 the energy needs of the province.17 In addition, our confidence in Nalcor's
18 decision, DG 2 decision, is bolstered by the
19 Navigant Consulting Limited Report which is
20 titled "Independent Supply Decision Review",
21 and the report done for the PUB by Manitoba
22 Hydro International. The project will provide
23 opportunities in Newfoundland and Labrador for
24 future industrial activities that require
25 large quantities of reliable and predictably

Page 17	Page 19
<p>1 priced electricity such as industrial 2 fabrication, which is certainly core to our 3 membership to support oil and gas activity. 4 Infrastructure and capacity building as a 5 result of the Muskrat Falls Project will 6 further strengthen Newfoundland and Labrador's 7 industrial appeal. With available 8 electricity, infrastructure, and an 9 experienced skilled workforce, we will be 10 ready to capitalize in new opportunities and 11 industries. Newfoundland and Labrador will be 12 in the enviable position of having electricity 13 system that will be greater than 98 percent 14 carbon free. The Muskrat Falls development 15 will displace greenhouse gas emitting 16 generation sources and replace aging 17 infrastructure, and reduce GHG emissions for 18 Newfoundland and Labrador and for Nova Scotia 19 by displacing oil and coal respectively. 20 The project will further contribute to 21 the Province's economic and social 22 transformation already under way due to 23 offshore petroleum, mining, and minerals 24 processing activity. Certainly these 25 activities diversify Newfoundland and</p>	<p>1 greater and sustainable long term 2 opportunities for employment. The addition of 3 Muskrat Falls to Newfoundland and Labrador's 4 synergy warehouse helps improve security for 5 the local labour force, and possible 6 repatriation of labour deployed elsewhere in 7 Canada. Many working out of the province are 8 more likely to return for a continuum of 9 projects than return for a single project. 10 (10:30 a.m.) 11 In terms of the project management 12 process, the Decision Gate process Nalcor is 13 using is a proven process, familiar to us, and 14 industry standard for large domestic and 15 international projects. The front end loading 16 improves cost schedule and project cost and 17 schedule predictability. A project such as 18 this one of this size and magnitude, it's 19 prudent to get independent reviews, and Nalcor 20 has had independent reviews and peer reviews 21 completed, along with the report commissioned 22 by the PUB. 23 A similar process is employed by 24 international oil and gas companies that have 25 developed in Newfoundland and Labrador's</p>
Page 18	Page 20
<p>1 Labrador's economic base with the addition of 2 new industrial sectors, increased expenditures 3 and education training, research and 4 development, as well as opening national and 5 international export markets and increase in 6 our overall business confidence. 7 The project will provide significant 8 opportunities for employment, with peak 9 employment of 2700 on the island and 1300 in 10 Labrador during the construction and 11 contracting phases, and certainly it will 12 create contract and opportunities for 13 businesses that want to support the project. 14 One of the most important benefits, I think, 15 from NOIA's point of view is that the 16 engineering for Muskrat Falls will be done in 17 province contributing to the on-the-ground 18 expertise available for future projects. This 19 is the only major project that has committed 20 to substantially engineer all of the 21 development in Newfoundland and Labrador, and 22 we believe that's an extremely important 23 contribution. With major projects such as 24 Vale Inco smelter in Long Harbour, the Hebron 25 Project, now Muskrat Falls, there will be</p>	<p>1 offshore. Front end loading reduces execution 2 risk and increases execution certainty in the 3 construction phase. In addition to Nalcor's 4 experienced project team, the EPCM, the 5 Engineering Procurement and Construction 6 Management firm, SNC Lavalin, have 7 significant experience in hydro developments 8 in Canada and around the world, which will be 9 brought to the Muskrat Falls and the island 10 link project. 11 In terms of the energy forecasts, PIRA 12 Energy Group is a reputable leading 13 international energy consulting firm. They 14 specialize in global energy market analysis 15 and intelligence on products such as crude 16 oil, petroleum products, natural gas, 17 electricity, coal, bio-fuels, and so on. 18 PIRA's forecasts are widely used and forecast 19 energy commodity prices in short, medium, and 20 long term on a monthly basis and we look at 21 those ourselves regularly, and annually out to 22 the future as far as 2025. There are also 23 several credible sources that forecast fuel 24 costs, including PIRA, Canada's National 25 Energy Board, the NEB, and the US Energy</p>

Page 21	Page 23
<p>1 Information Administration, or the EIA. 2 IEA/CIA, sounds ominous. Nalcor uses PIRA and 3 has made comparisons of PIRA's forecast to 4 EIA's annual energy outlook, and the NEB's 5 annual energy outlook. We take further 6 comfort from the Manitoba Hydro International 7 Report, and I'll just quote briefly, "Fuel 8 prices dropped by 44 percent from those used 9 by Nalcor. There is no difference between the 10 cumulative present net worth between the two 11 options". In our view, that 44 percent is a 12 significant range and certainly with the 13 ability to precisely predict oil prices, we 14 take great comfort in that number.</p> <p>15 In our view, relying on burning imported 16 oil at Holyrood will mean we will remain 17 dependent on fluctuating world oil prices long 18 into the future. By using imported Bunker C 19 at Holyrood, we'll continue to see money leave 20 our province with no tangible financial 21 benefits and will continue to incur 22 environmental costs as well. Rising oil 23 prices and rising demand for power means 24 electricity rates are going to increase on the 25 island. They're increasing between now and</p>	<p>1 factored into Nalcor's calculations. Certainly 2 that's another factor, I think, that we do 3 need to consider. As soon as power is 4 available from Muskrat Falls, the production 5 at Holyrood will be displaced and the plant 6 will no longer generate electricity or 7 emissions after 2020.</p> <p>8 When we look at major projects, and I 9 guess, from NOIA's perspective, we've been 10 involved in most of the major projects in the 11 energy sector in Newfoundland and Labrador 12 going back about 30 years, and, you know, 13 certainly in terms of looking at a project, 14 whether it's Hebron, White Rose, or this 15 Muskrat Falls Project, we'll tend to look for 16 certain things. I mean, one of the things you 17 look for is a project description/definition 18 that's really solid that builds the business 19 case. We see that here. The flexibility and 20 sensitivity analysis in terms of the 21 assumptions used, and again based on our 22 review of the material, we see that 23 sensitivity analysis and, you know, that's 24 very, very important. The last piece, I 25 guess, is project management because at the</p>
Page 22	Page 24
<p>1 2017, and those increases are not related to 2 Muskrat Falls. They're tied to oil prices and 3 the increased usage of the Holyrood plant as 4 demand rises. Our understanding of Nalcor's 5 proposal is that in 2017, with Muskrat Falls 6 power, rates will stabilize with minimal 7 increases of less than 1 percent per year. If 8 the Holyrood plant continues to rely on 9 thermal generation, consumers could pay much 10 more for electricity in the long term, and 11 with Muskrat Falls the province will benefit 12 from a stable source of reliable hydro power 13 long after the project is paid off.</p> <p>14 Continued reliance on Holyrood thermal 15 generating means unstable and rise in 16 electricity prices into the future, as well as 17 the costs that need to be incurred to 18 refurbish the plant. To continue, the 19 facility will also require significant 20 upgrades and new pollution control equipment. 21 In addition, federal regulations concerning 22 greenhouse gas emissions look increasingly 23 likely. There's a lot of international 24 pressure. The result will be some form of 25 carbon pricing, and we see that has not been</p>	<p>1 end of the day the project has to be executed 2 and has to meet the schedule, minimize risk of 3 overages and so on, and if you're looking at a 4 project from that perspective, you know, the 5 first thing you look for is, is the activity 6 core to the business of the firm undertaking 7 the work and certainly, you know, hydro 8 generation is Nalcor's core strength. We see 9 a very credible team that's been augmented by 10 specialists, and we see a very credible EPMC 11 in SNC Lavalin. So if you want to take a 12 project and try to put it in the best position 13 to succeed and achieve the original goals and 14 estimates, I think a lot of the things that 15 have been done here are right, and with the 16 addition of the two major reports that have 17 reviewed the proposal, and both of those 18 reports substantially support the proposal, 19 you know, we have a great deal of confidence 20 in this being the right decision for 21 Newfoundland and Labrador.</p> <p>22 So in conclusion, we see the development 23 of Muskrat Falls as financially attractive, 24 generates positive rate of return, and ensures 25 long term price stability. The analysis as I</p>

1 mentioned, supported by credible consultant
 2 specializing in energy generation and
 3 decision-making, and on the basis of our
 4 analysis and these factors, we support the
 5 Muskrat Falls option. Thank you.

6 CHAIRMAN:
 7 Q. Mr. O'Reilly.
 8 O'REILLY, Q.C.:
 9 Q. No questions, Mr. Chairman.

10 MR. JOHNSON:
 11 Q. No questions.

12 GREENE, Q.C.:
 13 Q. No questions, Mr. Chair.

14 VICE-CHAIR WHALEN:
 15 Q. No, thank you.

16 COMMISSIONER NEWMAN:
 17 Q. No questions.

18 CHAIRMAN:
 19 Q. I just got two questions. I don't need you to
 20 answer them now, I'd just like you to give me
 21 what reports of evidence that NOIA is using
 22 with respect to the concern regarding GHG
 23 emissions, you know, what scientific evidence
 24 have you guys looked at, and also with respect
 25 to carbon pricing or carbon levy, what

1 CHAIRMAN:
 2 Q. Okay, so we could be breaking until 12 noon.

3 GREENE, Q.C.:
 4 Q. Until 12 noon, sir.
 5 (11:39 a.m.)

6 CHAIRMAN:
 7 Q. Oh! Well, we're breaking until 12 noon.
 8 Thank you.
 9 (RECESS)

10 CHAIRMAN:
 11 Q. Alright, I guess we're ready to recommence.
 12 And if there's no preliminary objections, I
 13 think you are, sir, Mr. Vince Carey.

14 MR. CAREY:
 15 A. Yes.

16 CHAIRMAN:
 17 Q. So you are on, as they say.

18 MR. CAREY:
 19 A. Okay?

20 CHAIRMAN:
 21 Q. Go ahead, sir, sure.

22 MR. CAREY:
 23 Q. I'd like to introduce myself. I'm Vince
 24 Carey. My job is in the operations and
 25 maintenance sections for gas turbines,

1 information, what sources are you using to
 2 make those two assertions. I don't - you
 3 don't need to respond now because nobody - I'd
 4 just like you to take them under advisement
 5 and give me what information you've used to
 6 reach those conclusions in your report.

7 MR. CADIGAN:
 8 A. We can do that, sir.

9 CHAIRMAN:
 10 Q. If there's nothing else, I guess, thank you
 11 very much for your participation.

12 MR. CADIGAN:
 13 A. Okay, thank you.

14 CHAIRMAN:
 15 Q. Now we're ahead of schedule.

16 GREENE, Q.C.:
 17 Q. We're ahead of schedule, so -

18 CHAIRMAN:
 19 Q. So tell me what I'm supposed to do.

20 GREENE, Q.C.:
 21 Q. Mr. Chair, it will be an appropriate time to
 22 have a break. The other presenters are not
 23 here and are not available to start early, so
 24 we really have no alternative but to have a
 25 break at this point in time.

1 diesels, and hydro plants across the province
 2 for Newfoundland Power.

3 I've been following the Muskrat Falls
 4 discussions with much interest since it's been
 5 announced, and I want to thank you for the
 6 opportunity to express my views on the
 7 project. These are my views only as an
 8 interested individual and citizen. Is Muskrat
 9 Falls the best option financially, is it a
 10 sound investment for the people of the
 11 province, or should we stay with an isolated
 12 scenario or become part of a bigger system
 13 connected to the North American grid? Let me
 14 start with the last question first. We've
 15 been an isolated system since the first
 16 turbines arrived in the early 1900s. We are
 17 very fortunate to have so much water potential
 18 on the island. We have built generating
 19 facilities as the need demanded. Forecast of
 20 load growth is a very difficult thing to
 21 predict. You can only trend it on past growth
 22 and anticipated new load coming on line. Many
 23 times it can only be an assumption at
 24 best, there are no magic ball only indicators.
 25 We have not seen in the past 20 years a

Page 29	Page 31
<p>1 load growth like we did since 1965 to 1985. A 2 load growth survey was done for Hydro's 3 request in the late 80s, that in 1991 we would 4 need 1440 megawatts of power, ramping up to 5 1740 by the year 2010. Christmas Day, 2011, 6 20 years, we reached a peak of 1382 megawatts. 7 These peaks are for short duration only, but 8 they could be problematic if you had generator 9 or transmission trouble. Peak load demands 10 generally during the winter months and tend to 11 be of short duration. Even last week, 12 February 16th and this week with temperatures 13 varying from 0 degrees to -12, the system is 14 running generally around 1000 to 1100 15 megawatts on the island. Total generation on 16 the island with all existing units available 17 is around 1800 megawatts; Nalcor, 16; 18 Newfoundland Power, 141; NeWind at St. 19 Lawrence, 27; Sky Power at Fermeuse, 27. Deer 20 Lake Power and Watson Brook, not being a true 21 part of the system, could in the future bring 22 another 138 megawatts of power on line. 23 Changes in the fishery, the closing of two 24 major plants, and possible more to come will 25 lighten the load on the island system.</p>	<p>1 magnitude, but it could be a major cost in 2 addition to all the other debt that we will 3 have to carry over the life of this project. 4 The Holyrood generating facility will see its 5 end, but it's a vital source of energy that 6 could see us through until we enter 7 negotiations for a new deal on the Upper 8 Churchill. Will we need a new transmission 9 line from Labrador in the future; without a 10 doubt we will, but that will be our only cost 11 if we link to the Upper Churchill and not 12 Muskrat Falls. The usually expensive 13 contracts for civil work, dams, spillways, 14 control gates, transmission lines, purchasing 15 and assembling of generators, transformers, 16 turbines and the staffing of the life of the 17 plant, does make this venture questionable at 18 this point in time when we have all this 19 existing on the Upper Churchill, if we have 20 the patience to wait and use our generating 21 facilities wisely. 22 Do we have the load on the island for the 23 Muskrat Falls when EMERA takes 20 percent for 24 35 years, and we're left with about 600 to 625 25 megawatts. Does this plant have to be</p>
Page 30	Page 32
<p>1 Without Kruger's generation, we have 2 approximately 1784; with it 1922. All of this 3 power will never be available at one time due 4 to transmission troubles and scheduled 5 maintenance on generators and turbines, but it 6 does not seem that we are in any danger zone 7 or will be in the foreseeable future. The 8 Holyrood generating station, it's a 450 9 megawatt generating station on the fringe of 10 St. John's, with the entire infrastructure in 11 place. 70 percent of the load and 70 percent 12 of the population is on the Avalon. It is 13 perfectly located in regard to being a 14 reliable and available source of energy. 15 Reliability and availability are two 16 components that are vital to any power system. 17 We are not depending on a high voltage 18 transmission line about 1100 kilometres in 19 length on the island and a generating source 20 1300 kilometres away. 21 When Quebec's ice storm hit in 1998, over 22 3000 kilometres of lines came down, 300 23 towers, and over 1100 pole structures. 24 Repairs cost over 800 million dollars. We 25 would not be faced with something of that</p>	<p>1 generating at a high output to make it viable 2 and cost effective. Many months of the year 3 600 and 700 megawatts is the load that we 4 have, so what do we do with all the generation 5 that we have on the island existing. Even as 6 we speak today, most all reservoirs on the 7 Avalon are spilling. Will we shut down and 8 spill water around then to make Muskrat 9 viable? That doesn't seem like - that seems a 10 poor solution. If Muskrat generation is not 11 needed on the island because our in-flows are 12 high during the run off season, it would seem 13 that power would be routed through Churchill 14 Falls in May and June at times of low load on 15 the island. Churchill can control storage. 16 Muskrat does not have the capacity to store 17 water outside of what the reservoir can hold. 18 It's forebay is its only means of control; you 19 have to generate or spill. What price do we 20 receive for the reroute of power through the 21 Upper Churchill from Muskrat? Will it be 22 subsidizing the storage of water at the Upper 23 Churchill that we receive little value for, 24 just to say that Muskrat is running at full 25 capacity? It makes one think if any or all of</p>

Page 33	Page 35
<p>1 these possibilities come true, then the only 2 ones that will benefit here could be the 3 contract companies that build the facility and 4 its infrastructure.</p> <p>5 In Quebec, at this time, there is an 6 aggressive movement to increase generation by 7 2015-2020. The Sarcelle Rupert Project is 768 8 megawatts. The Opinaca Reservoir Project is 9 150 megawatts and the largest one is the 10 Romaine Project with 1550 megawatts. The 11 proposed cost is five million for the Romaine 12 Project, which is twice the output of Muskrat 13 Falls for the same price, with no outside 14 deals with another utility. It is much closer 15 to the major load centres on the eastern 16 seaboard, which makes it an attractive 17 supplier. That is a total of 2468 megawatts 18 of new generation that Hydro Quebec will bring 19 online. They will be aggressively looking for 20 customers for that power and they have been in 21 the game a long time.</p> <p>22 If I was an industrial customer and had a 23 choice of either being supplied from Hydro 24 Quebec with its many interconnected 25 transmission systems and a long history of</p>	<p>1 river, run when water is available and spill 2 what you cannot use. It made sense at the 3 time with oil being so cheap, but not today 4 with oil running around 80 to 100 dollars a 5 barrel.</p> <p>6 Can we get longer running times out of 7 our existing systems by better managing our 8 own resources? Could a few small ventures or 9 some wise choices see us through until the 10 Upper Churchill negotiations start in the 11 middle 2030s? Yes, I believe we can, and if 12 there is some short term pain, we know it is 13 only a temporary thing and there is light at 14 the end of the tunnel. It would be minor, I 15 suppose, to the debt we would incur.</p> <p>16 Politicians sometimes think of borrowing, 17 make it sound as though they're dealing in 18 smaller numbers by removing a few digits. But 19 make no mistake about it, six thousand five 20 hundred million dollars is quite a lot of 21 money and it could accelerate to seven 22 thousand or eight hundred million for 23 something that may not be needed at this time. 24 (12:15 p.m.) 25 In closing, ladies and gentlemen of the</p>
Page 34	Page 36
<p>1 supplying power at a much cheaper rate or from 2 another utility that would have two subsea 3 cables, more expensive per kilowatt hour, with 4 no backup system if something major happens to 5 the transmission line, it would not take a 6 customer long to make up their mind which is 7 the best option.</p> <p>8 Are we managing our existing water 9 systems adequately? At times of high inflows, 10 millions of cubic feet of water is spilled 11 around generating stations because of dam 12 safety issues. Weeks of generations are lost 13 because water cannot be stored for future use.</p> <p>14 A review of our water storage could be a 15 useful venture.</p> <p>16 Also, gas turbines that generally run 17 about one million dollar per megawatt is 18 another option that could get us through peaks 19 and high load intervals if the need should 20 arise. These can be brought online quickly 21 and are extremely good source of backup power.</p> <p>22 When Bay D'Espoir and the Holyrood 23 generating station were built, oil was about a 24 dollar a barrel. Many control gates were 25 removed and plants became more run of the</p>	<p>1 Board, bureaucrats come and go and are mostly 2 never held responsible for the legacy they 3 leave behind. The people of this province are 4 placing their trust in you that you will 5 listen to all the evidence and make the best 6 decision. It's a daunting task and you are to 7 be commended for your efforts. I only wish 8 you had more time to study it in detail and 9 get all the answers.</p> <p>10 I feel that when a government initiates a 11 project like Muskrat Falls, their allegiance 12 to it become all encompassing. Their effort, 13 time, job and political party are on the line. 14 They find it very difficult -- they find it 15 very hard to talk about what it does not 16 accomplish. I feel that cost could get out of 17 hand on this project and the province will 18 have no choice but to keep borrowing to 19 complete the development that is not needed at 20 this time. Keep in mind that the Upper 21 Churchill did not cost this province anything 22 to develop. It's a very different scenario 23 with Muskrat Falls. At no time have we seen 24 the private sector lining up to be a part of 25 this deal. That alone I feel is a telltale</p>

Page 37

1 that the Muskrat Falls may not be a wise
2 choice at this point in time.

3 I think that reality and illusion are
4 intermingled here. There are too many
5 unknowns and questions unanswered and until
6 these things are brought to light, this
7 project may not be worth the risk.

8 Thank you very much.,

9 CHAIRMAN:

10 Q. Okay, sir. Mr. O'Reilly, any questions?

11 O'REILLY, Q.C.:

12 Q. No, Mr. Chairman. We don't -- Nalcor will be
13 dealing with the relevant portions of Mr.
14 Carey's presentation in its final submissions
15 to the Board.

16 CHAIRMAN:

17 Q. Sir?

18 MR. JOHNSON:

19 Q. No questions, Mr. Carey. Thank you.

20 GREENE, Q.C.:

21 Q. No questions, Mr. Carey. Thank you.

22 CHAIRMAN:

23 Q. Any members -

24 MR. CAREY:

25 A. Whoever speaks to me, you have to speak up

Page 38

1 fairly loud because I've been working around
2 noisy machines for a long time.

3 CHAIRMAN:

4 Q. No, I don't think we have any -- there's
5 nobody has any questions, sir, so we certainly
6 thank you for your participation as an
7 interested citizen and we've got a copy and
8 thank you very much.

9 MR. CAREY:

10 A. Yes, thank you.

11 CHAIRMAN:

12 Q. Okay.

13 GREENE, Q.C.:

14 Q. Mr. Chair, at this time, I would request a
15 five-minute break as we get set up for the
16 next presentation. We do need to do something
17 to get ready for the presentation, so we'll
18 need about five minutes.

19 CHAIRMAN:

20 Q. Okay. Want us to leave or what? We got to
21 leave, have we?

22 (BREAK - 12:17 p.m.)

23 (RESUME - 12:36 p.m.)

24 CHAIRMAN:

25 Q. Alright. So I understand now we have Mr.

Page 39

1 Winston Adams and you're assisted by?

2 MR. ADAMS:

3 A. Troy Templeman.

4 CHAIRMAN:

5 Q. Okay. I guess then, sir, we will turn it over
6 to you.

7 MR. ADAMS:

8 A. Thank you. Just to give you a little
9 information on me, I studied engineering at
10 Memorial University, graduated from Nova
11 Scotia Technical in electrical engineering in
12 1971. I worked for five years as a design
13 engineer with Newfoundland Hydro in high
14 voltage substation design and since then, I've
15 worked mostly with mechanical systems, largely
16 heating systems. So that's my background.

17 What I want to address today is the issue
18 of efficiency. Efficiency is the ratio of
19 useful work performed to the total energy
20 expended. Aiming for high efficiency is a
21 wise use of resources. It reduces waste,
22 allows higher productivity and businesses to
23 be more competitive and more profitable, but
24 there is a cost to high efficiency. In the
25 marketplace, it is desirable that it be cost

Page 40

1 effective. Perhaps no group of professionals
2 use the efficiency word more than engineers.
3 It is indispensable for their analysis for
4 projects and product design and application.
5 The word shows up in the Manitoba Hydro
6 International report in the section on
7 forecasts. It is the intent of this
8 presentation to challenge the low weight and
9 low value placed by our power companies on the
10 efficiency component.

11 Efficiency is a part of a factor called
12 technology change. This is one of the
13 components and input into the formulas being
14 used by our power companies to predict future
15 electrical energy needs which are the
16 forecasts. Its effect would be good in that
17 it would help drive down the energy and peak
18 demand needs and it is beneficial to offset
19 the contributions by other factors that tend
20 to increase energy needs, like more houses,
21 more conversions from oil to electric heat, et
22 cetera.

23 The MHI report gives some comparison to
24 the methods used for forecasting by our power
25 companies as compared to the provinces of

Page 41	Page 43
<p>1 Ontario, Manitoba and British Columbia. It 2 says the key finding here is that Manitoba, 3 Ontario and British Columbia all use what they 4 call end-use models to predict the domestic, 5 that is the residential forecast. Our power 6 companies here, both Newfoundland Power and 7 Newfoundland and Labrador Hydro, do not.</p> <p>8 The MHI report makes recommendations in 9 this regard. They say that Nalcor should 10 develop an end-use forecasting model for the 11 domestic sector and that the best utility 12 practice for preparing a domestic energy 13 forecast is to use a combination of regression 14 and end-use modelling techniques. That 15 Newfoundland and Labrador Hydro should partner 16 with Newfoundland Power to develop and 17 implement an end-use methodology to predict 18 future domestic energy consumption. They say 19 that additional details of end-use forecasting 20 methods may likely improve but not guarantee 21 an improvement as it depends on the accuracy 22 of the assumptions on which it is based.</p> <p>23 The current process produces reasonable 24 results, but does not possess the explanatory 25 powers of an end-use methodology and that end-</p>	<p>1 Newfoundland and Labrador Hydro which has the 2 responsibility for developing the long-term 3 forecast to assess future generation 4 requirements on the island.</p> <p>5 Again, the Manitoba report says the 6 current models do not have the explanatory 7 powers of end-use analysis and that end-use 8 models are based on detailed customer billings 9 and survey analysis, that end-use models are 10 calculated showing a bottom-up approach, 11 meaning that the forecast is calculated by 12 summing up the energy associated with each of 13 the major domestic end uses, such as electric 14 space heat, electric water heating, fridges, 15 washers, dryers, dishwashers, televisions, 16 personal computers and lighting and a 17 miscellaneous component to represent all other 18 electrical uses.</p> <p>19 The report goes on to say the domestic 20 sector represents about 50 percent of all 21 electrical sales on the island and electric 22 heat growth is the dominant domestic end use 23 and a significant factor in the overall island 24 load growth.</p> <p>25 The domestic load for electric heat is</p>
Page 42	Page 44
<p>1 use methods improve the capability to: a. 2 quantify the load growth by end use; b. 3 quantify energy efficiency by end use; 4 incorporate new end uses, like electric cars; 5 improve the design of the CDM system, which is 6 for demand management programs; e. improves 7 the defensibility of the load forecasting 8 methods. It also goes on to say that 9 Newfoundland and Labrador Hydro should partner 10 with Newfoundland Power to develop a 11 coordinated load research program using 12 information by sector and end use to 13 incorporate all sectors, domestic, general 14 service and industrial, and this would also 15 include the end use example for space heating, 16 load research information, so as to integrate 17 the energy and the peak forecasting processes.</p> <p>18 The Manitoba report says Newfoundland and 19 Labrador Hydro's ability to conduct detailed 20 end-use analysis is limited since they do not 21 have access to the majority of the customers 22 billing information. Newfoundland Power, a 23 privately owned utility, distributes power to 24 90 percent of the island's domestic and 25 general service customers. Yet, it is</p>	<p>1 783 megawatts of peak demand and consumes 1506 2 gigawatt hours of energy. Newfoundland and 3 Labrador Hydro is 637 megawatts of installed 4 capacity. So, our peak heating load comprises 5 52 percent of the capacity and about 21 6 percent of energy sales. This contributes to 7 a low load factor overall because heating is 8 mostly for the winter months of December to 9 March.</p> <p>10 For the Newfoundland Power domestic 11 sector, the reduction in energy due to the 12 technological change variable in the forecast 13 formula is 178 gigawatts total over 20 years. 14 This is 8.9 gigawatts per year and comes out 15 to be 9.6 gigawatts per year when allowing for 16 reduced line losses. Since our average 17 domestic sales is 3600 gigawatt hours per 18 year, our forecast gives just a .002 19 reduction, which is just two-tenths of one 20 percent, which is almost zero savings. It 21 comes to a value of \$3.37 per year to the 22 average customer and yet, energy efficiency 23 improvements are a key factor that should be 24 driving savings. So why are our power 25 companies forecasting no significant savings?</p>

The MHA (sic) report also says that the present future -- that the present forecast uses an assumption that peak efficiency improvements will be 30 percent more difficult to achieve in the future because most cost effective improvements have already been done. This presentation challenges that assumption.

We submit that peak efficiency improvements in the future will be easier to achieve because highly efficient, reliable, cost effective technology is available for electric space heating systems to achieve this. Two, that these heating systems currently have a very low penetration rate in the Newfoundland market, so there is significant potential for use. Three, that it can provide a large reduction in what is the largest driver of our peak, the domestic space heating. Four, that the heating efficiency is so high that on an individual house, it might reasonably be described as a quantum leap in energy savings and demand reduction, 60 percent average reduction for space heat and at least 50 percent reduction in peak demand. Five, than an enhanced installation method

and what was it? 783 megawatts, as you see from the point on the left-hand side, and you see the reduction in demand over a ten-year period, assuming there was a program of conversions to convert all the homes in Newfoundland to these type of systems over a ten-year period, then at the end of ten years, you would see a 50 -- you would see up to a 54 percent reduction if people were using full coverage of these units. A more likely scenario would be that some people would use partial coverage and it shows up in the B curve then as a 38 percent reduction in peak demand.

Now on an island basis, from the domestic sector, there's the potential to reduce energy consumption by 1138 gigawatt hours with 622 gigawatt hour achievable if houses used, again the 70 percent coverage factor.

20 (12:45 p.m.)

This chart compares the projected savings over 20 years. It shows the forecast by Nalcor, what they're expecting in savings, and it shows the potential savings from these heating systems. The bottom line shows the

provides advantages in our severe winter climate, such as improved operation reliability in extreme cold and high wind and snow conditions and this is done without backup resistance heaters, and that ten percent additional improvement in energy reduction, which would be an added value of 6.2 million dollars for the electric heat users, and also provides protection against salt corrosion.

On the island system, from the domestic sector alone, it has the potential to reduce peak demand by 423 megawatts with 296 megawatts achievable if houses use 70 percent coverage. What is meant by 70 percent coverage is that a person might install a unit, but not have it operating in some bedroom or some basement room where regular electric heat is being used. So, some people -- a good installation, you would try to use full coverage with these systems.

Now the chart there shows the -- it shows the peak demand reductions using high efficiency heat pumps with invertors. Currently the heating demand is 707 -- 700,

Nalcor forecast at line number D and that's projected out over 20 years. The lines A, B and C is the effect of using the high efficiency heating systems. The most effective is using full coverage with enhanced installation, which is the green line, line A. Line B is using regular installation. It's not the enhanced one, so you lose some savings. And line C is using the regular installation, but only having 70 percent coverage. And as you see, the domestic energy sales coming down, the top lines, is showing - it's kind of a mirror reflection of the bottom lines. The energy savings in gigawatt hours are just subtracted from the total sales. The last point on that, I guess, is that additional substantial savings is possible in the domestic sector with efficient water heating, and also with space heating in the small commercial sector. I haven't done detailed calculation for those sectors, but I would think that there's at least another 100 megawatts that could be shaved off of total winter time demand by using the application to these sectors.

Page 49	Page 51
<p>1 An aggressive plan to convert to</p> <p>2 efficient systems would free up substantial</p> <p>3 existing hydro electrical generating capacity</p> <p>4 to facilitate more conversions from oil to</p> <p>5 electric and to substantially reduce, if not</p> <p>6 eliminate the burning of fossil fuels at the</p> <p>7 Holyrood plant.</p> <p>8 Now whether we are wasting energy depends</p> <p>9 on how cost effective conversions are. A Type</p> <p>10 3 system can be contractor installed for about</p> <p>11 \$1800.00 per kilowatt of heat produced at 0</p> <p>12 degree Fahrenheit, that is -18 Celsius. This</p> <p>13 figure would include installation for enhanced</p> <p>14 performance and reliability. So reduction in</p> <p>15 cost for energy efficiency appears to be much</p> <p>16 less at about 1/5th the cost of new generation</p> <p>17 via the in-feed system, and it would appear to</p> <p>18 offer even more savings from the cost of new</p> <p>19 generation for the island isolated option.</p> <p>20 To determine the actual energy and demand</p> <p>21 reductions and to assure reliability in our</p> <p>22 severe climate, we undertook research to</p> <p>23 obtain end-use data, as Manitoba Hydro Report</p> <p>24 says, that permits more accurate forecasting</p> <p>25 as a residential installation. Our</p>	<p>1 degrees Celsius for about 0.65 watts per</p> <p>2 square foot, and would appear not to exceed 1</p> <p>3 watt per square foot at about a -12 Celsius.</p> <p>4 This compares with about 1.4 watts per square</p> <p>5 foot required for a R2000 construction.</p> <p>6 The chart here illustrates in this</p> <p>7 installation what the data indicated. The red</p> <p>8 line shows - that was the starting point of</p> <p>9 operation, and it was only three weeks of that</p> <p>10 building period that the unit was operating.</p> <p>11 So our first building from Light and Power</p> <p>12 commenced there at the top of the red line,</p> <p>13 and so for the spring months, you can see</p> <p>14 February, March, April, and so on, and you can</p> <p>15 see the decline in energy consumption up to</p> <p>16 June month, and then we pick up on the left</p> <p>17 hand side on the green line and go through the</p> <p>18 summer and up until the fall, and you'll</p> <p>19 notice that there's a fair drop off in energy</p> <p>20 consumption from October to, I guess, early</p> <p>21 January, and there's a note there that it was</p> <p>22 reduced occupancy. So we show a dotted green</p> <p>23 line showing where we expected if was occupied</p> <p>24 where that power consumption would be, but I</p> <p>25 should point out that even though it was</p>
Page 50	Page 52
<p>1 installation, the building was 23 years old,</p> <p>2 and before they upgraded, they need about 5</p> <p>3 watts per square foot of electrical baseboard</p> <p>4 heaters. The conversion was put in operation</p> <p>5 in January, 2010. It is currently in its</p> <p>6 third winter of operation. We selected a Type</p> <p>7 3 electromechanical heating system, which is</p> <p>8 generally referred to as a heat pump, but it's</p> <p>9 a particular type of heat pump. Its</p> <p>10 installation was such to expect enhanced</p> <p>11 performance from its already highly certified</p> <p>12 factory ratings. Modest shell improvements</p> <p>13 were also made to the building.</p> <p>14 The research data showed the following.</p> <p>15 The reduced overall energy consumption was 42</p> <p>16 percent. Reduced peak demand from the space</p> <p>17 heating equipment is 73 percent. There were</p> <p>18 no malfunctions up to present midway through</p> <p>19 the third heating season. There is additional</p> <p>20 benefits from air conditioning and humidity</p> <p>21 control in the summer season. It gives a</p> <p>22 positive contribution to increase the summer</p> <p>23 system load, and as it's decreasing the winter</p> <p>24 load, it so improves the system load factor.</p> <p>25 The new heating system maintains heat at 0</p>	<p>1 reduced occupancy, the heat was on at normal</p> <p>2 heating temperature of about 72 degrees</p> <p>3 Fahrenheit during that period. So even with</p> <p>4 that depressed line at that point, the heat</p> <p>5 was fully on during that time frame. So the</p> <p>6 reduced occupancy brought further reductions</p> <p>7 because there was no water usage and TV and so</p> <p>8 on. So then it picks up, the peak of the</p> <p>9 green line in January and comes on. We're</p> <p>10 then into the 2011 spring season. So you</p> <p>11 would obviously get a repeat pattern from</p> <p>12 that.</p> <p>13 Now the blue line is the year before this</p> <p>14 unit was installed, which is 2009 Light and</p> <p>15 Power billings, and you can see particularly</p> <p>16 in the winter season the big drop off in</p> <p>17 demand. So what this would do if all the</p> <p>18 homes were using heat pump systems, it</p> <p>19 wouldn't employ such a large drop off in the</p> <p>20 utility demand in total because the domestic</p> <p>21 heating is a proportion of the total, but you</p> <p>22 would get a large piece of the total peak</p> <p>23 reduced from the existing operating mode. Now</p> <p>24 I'm going to say that it would appear that</p> <p>25 there are very serious errors in the power</p>

company's methods or formulas. There should be very positive contributions from energy efficiency upgrades, and forecasts should show significant gains. It is likely the error is due to not having actual end-use data.

So I think, you know, this what I show here is a prime example what end-use data, the type of information, the feedback from that can show how tremendous these heating systems can cut demand. I'd just like to make a comment there because I watched a bit of the proceedings a few days ago, and someone discussed heat pumps and the savings potential, and the comment was made whether or not, you know, people save some energy, but then they use up the equivalent energy by having an extra TV or that sort of thing. Now the information shows that on average the Newfoundland average household is using 25 kilowatts of energy for heat, for the domestic heat. If you cut that in half, you save 2.6 kilowatts. If you buy a new TV from the little checking I've done, I think I saw some Sony 36 inch models that were showing about 200 or 225 watts of power consumption. So you

would have to buy and install, say, 13 televisions to chew up the energy you're saving with your heat pump, and you would have to have all of those 13 televisions on continuous 24 hours a day to since - at peak time your heat pump is running pretty well 24 hours a day, and to chew up the same amount of energy. Again end-use data would give you that information and that kind of information is not readily available to the public, so they can't make some good decisions on these things.

Now the electric space heating systems used in Newfoundland are of a variety of styles, but most are of the resistance type heater. The method being that if you apply a sufficient voltage to a conductor of high resistance, it will heat up. This was used with Edison's light, whereby it gave mostly heat, but also light. For heating purposes, we have the baseboard heater, the electric furnace, the duct heater, the electric boiler, the in-floor electric heater, all of these are resistance heaters. Sir William Coaker used electric resistance heaters in his house in

Port Union in 1917, being state of the art at that time. They are reliable, they are cheap, but they're very inefficient by today's standards.

Modern electromechanical space heating systems is an hybrid type of electrical, mechanical, and electronic components. They offer energy reduction due to their exceptionally high efficiency. This is generally measured in COP, which means coefficient of performance. Their performance is climate dependent. Our climate in Newfoundland is very good to obtain high performance. The COP of 2 or better can be expected for a Type 3 System in worst winter conditions. The COP of 2 means that for \$1.00 worth of energy in, you get 2 out. COP of 3 or better is what you would expect for your yearly average. The COP of 4 or better is what you would expect in the spring and fall when operating at part load, and part load is accomplished by inverter technology. This also is very beneficial to the power company to eliminate high current inrush that commonly would dim the lights momentarily. When these

products are used extensively, it lowers - it allows lower utility cost for smaller capacity distribution lines and power transformers. (1:00 p.m.)

Now we look at compact fluorescent light energy saving, and I asked the question is it fact or fiction. MHI, Manitoba Hydro points out the importance of end-use research to confirm claimed energy efficiencies. Many products are climate dependent. That is it may work fine for one application, but not for another. These style lights produce much less heat, but equivalent light, so they are much more energy efficient. The old style 60 watt bulb can be replaced by a newer one of 13 watts, which is about 78 percent reduction. Most of this is due to less heat generation. For southern climates where little heat is needed and where excessive heat requires air conditioning, these lights save substantial energy year around. In our climate, the old style light contributes to the heat needed for about 11 months out of 12. So when the light is on, the electric baseboard heater and other resistance type space heaters uses less

Page 57	Page 59
<p>1 energy. When replaced with the new style, 2 because it puts out less heat, the regular 3 electric heaters must stay on longer to 4 compensate. The result is that there are 5 essentially no energy savings except in the 6 warm period of summer, about one month.</p> <p>7 CHAIRMAN: 8 Q. Hopefully. 9 MR. ADAMS: 10 A. Hopefully. So the suggested saving is about 11 ten times more than actual. End use data 12 would show that. The same principle applies 13 to the more efficient appliances, like fridges 14 or TVs and also applies to insulating hot 15 water pipes that are within the building 16 occupied envelope. However when the new 17 lights are used outdoors, these will save the 18 energy suggested, again, end-use research 19 would show that. Also when the energy 20 efficient lights are used indoors, in 21 conjunction with the highly efficient heating 22 system, the lights save on energy year round, 23 that's because their loss heat output is then 24 supplied by the highly efficient heating 25 system at about one-third the cost, so they</p>	<p>1 and benefits from the efficiency factor. A 10 2 percent efficiency surcharge on electricity 3 sales with a 60 percent rebate on customers' 4 costs would allow an aggressive conversion 5 rate. This would allow no net increases for 6 electricity to the domestic customer, since 7 the energy reduction savings offsets the 8 surcharge. It can be seen that the issue of 9 efficiency for our power systems, in general 10 and use, is substantial. Areas like Vermont, 11 Nova Scotia and New Brunswick realize that it 12 is often less costly to advance efficiency 13 improvements as compared to new generation. 14 They have set up corporations with sole 15 responsibility for efficiency issues called 16 Efficiency Nova Scotia, Efficiency Vermont, et 17 cetera. Perhaps such a corporation - 18 Efficiency Newfoundland and Labrador would be 19 useful. That concludes it.</p> <p>20 CHAIRMAN: 21 Q. Thank you. Mr. O'Reilly, sir. 22 O'REILLY, Q.C.: 23 Q. Thank you, Mr. Chairman. No, I don't think we 24 have any questions, we'll be addressing the 25 relevant portions of the presentation in our</p>
Page 58	Page 60
<p>1 work together effectively.</p> <p>2 The Manitoba Hydro report says 3 Newfoundland Power and Newfoundland and 4 Labrador Hydro designed the energy efficient 5 guidelines, which is promoted as the Take 6 Charge Program. It appears that since no end 7 use data research was done, that many of their 8 recommendations for energy savings are 9 ineffective, that many highly efficient 10 products are not promoted. This likely 11 contributes to a forecast that shows no 12 significant savings from energy reduction in 13 technology change from efficiency.</p> <p>14 Conclusion: That energy efficiency can 15 have tremendous savings to the power companies 16 that can pass on to the customers, in 17 particular the domestic sector. As well, 18 there are other environmental benefits, that 19 this approach can offer alternative options to 20 meet efficiency gains. Forecasting methods 21 that use end-use data and research to obtain 22 the data is essential. And programs that 23 partner with domestic customers on costs to 24 convert to the modern highly efficient heating 25 systems would result in substantial savings</p>	<p>1 final submission to the Board, thank you.</p> <p>2 MR. JOHNSON: 3 Q. No questions for Mr. Adams. I appreciate his 4 presence here today on that. I would say, 5 though, I've found the example of the 13 6 televisions, if we had 13 computers, maybe our 7 viewership would be up, on the webcast, but 8 alas that won't be, I guess, but I enjoyed 9 your presentation very much, thank you.</p> <p>10 GREENE, Q.C.: 11 Q. No questions, Mr. Chair. 12 CHAIRMAN: 13 Q. I just got one. In the case study that you 14 did with the 23 year old house, how much--what 15 was the capital investment?</p> <p>16 MR. ADAMS: 17 A. Well, it's less than what most people would 18 spend because I did my own installation, so I 19 had no labour costs, I put in a single unit 20 and I bought it wholesale because I'm in the 21 business where I can do that. Equipment and 22 materials, I would say about \$1,500.</p> <p>23 CHAIRMAN: 24 Q. \$1,500? What about the heat pump, how much 25 did that cost?</p>

Page 61

Page 63

1 MR. ADAMS:
 2 A. That includes the heat pump and materials
 3 would be the wiring, the refrigerant line, the
 4 heat pump--I wouldn't have HST included in
 5 that. Wholesale cost on the heat pump could
 6 be \$1,200 or \$1,300, but that's a single
 7 system, what--to give you some idea of a
 8 typical home who would want to put in enough
 9 to cover some heat in the basement and cover
 10 all his upstairs, situate maybe 1200 square
 11 feet up and down, you may be looking at about
 12 \$9,500 installed.
 13 CHAIRMAN:
 14 Q. \$9,500 for say 2400 square feet?
 15 MR. ADAMS:
 16 A. Yes.
 17 CHAIRMAN:
 18 Q. Is that right?
 19 MR. ADAMS:
 20 A. Yeah -
 21 CHAIRMAN:
 22 Q. It's only a ballpark now, I mean, I'm not
 23 going to be crucified if you're out, don't
 24 worry about that.
 25 MR. ADAMS:

1 as a big danger to projecting increased loads
 2 to our system 'cause certainly if there's
 3 aggressive programs to make it happen, we can
 4 bring our loads down a lot. If there's no
 5 programs, it will happen but at a slower pace,
 6 but it will get there, you know, sure as the
 7 car replaced the horse and buggy, heat pumps
 8 will replace the, what I call the resistance
 9 heater, which is the common thing that's being
 10 used now.
 11 CHAIRMAN:
 12 Q. So you could buy a unit for 2400 square feet,
 13 you could buy a unit for \$9,500, ballpark.
 14 MR. ADAMS:
 15 A. Yeah, installed.
 16 CHAIRMAN:
 17 Q. Oh that's all your--everything, give her the
 18 flick.
 19 MR. ADAMS:
 20 A. Yeah, I think that would be installed, yeah.
 21 CHAIRMAN:
 22 Q. So obviously there's been a major reduction in
 23 unit costs over the last five or six, seven
 24 years then.
 25 MR. ADAMS:

Page 62

Page 64

1 A. Ballpark, yeah, no. I did a comparison the
 2 other day and it kind of comes out to be
 3 somewhat similar to putting down a hardwood
 4 floor on a square foot basis.
 5 CHAIRMAN:
 6 Q. Okay, that's a good -
 7 MR. ADAMS:
 8 A. I know when people are faced with decisions to
 9 put in a heat pump and save energy or put in a
 10 marble or granite countertop, some similar
 11 price and quite a few people would go for the
 12 granite countertop. (laughter). I think if
 13 they realized where power costs are going to
 14 be four or five years down the road, they
 15 might reconsider that.
 16 CHAIRMAN:
 17 Q. They might come to their senses.
 18 MR. ADAMS:
 19 A. Yeah, and I think it's quite likely that with
 20 more of these systems getting into the
 21 marketplace, if there's no program put in
 22 place to encourage them, because they're so
 23 tremendous at reducing energy and so cost
 24 effective, you're going to get more and more
 25 people convert to them anyway. So I see this

1 A. There's--yes, I've just been tracing this for
 2 the last couple of years and I've
 3 manufacturer's reduced cost and also
 4 manufacturers, surprising how they're still
 5 increasing the performance of those units. I
 6 just got one piece of information off line a
 7 day or so ago and the prior model that was on
 8 the go for maybe four or five years, when it's
 9 operating at low load, just part load
 10 operation, you'd have a COP of 3.5. Now that
 11 model, as of last week, I guess, it's obsolete
 12 and they got a newer model there, and similar
 13 capacity and the performance jumps from 3.5 up
 14 to 6. So that's almost a hundred percent
 15 improvement operating at--and when it's going
 16 to operate at low load is in spring and fall
 17 when your temperatures are at maybe 4550
 18 degrees, you don't need a lot of heat, your
 19 system--the compressors are variable speed, so
 20 the compressor is going very slowly to do the
 21 job and it brings down energy consumption.
 22 And it's just amazing at low load there, they
 23 give--on that particular one, the input to the
 24 system is 200 watts and the output is 1. 2
 25 kilowatts, and you divide 1.2 by .2 and you

Page 65	Page 67
<p>1 get a coefficient of performance of 6.</p> <p>2 CHAIRMAN:</p> <p>3 Q. And so therefore your payback on your</p> <p>4 investment is substantially reduced.</p> <p>5 MR. ADAMS:</p> <p>6 A. Yeah. It appears the cadillac of heat pump</p> <p>7 systems in some respects, or ground systems</p> <p>8 which are very expensive, but I think most</p> <p>9 ground systems, the COP generally wouldn't go</p> <p>10 over 4 or 5 and at certain operating times of</p> <p>11 the year, these air systems were exceeding the</p> <p>12 ground systems performance. So their</p> <p>13 comparative low cost and their ease of use for</p> <p>14 most all buildings, the ground systems, as</p> <p>15 soon as you got a big water supply where you</p> <p>16 got the space to put a lot of ditching in or</p> <p>17 dig wells, they're doing it now at some</p> <p>18 schools in the province, but particularly for</p> <p>19 residential, water systems are very, very</p> <p>20 expensive in comparison to these.</p> <p>21 CHAIRMAN:</p> <p>22 Q. Well thank you very much, it was very</p> <p>23 interesting.</p> <p>24 MR. ADAMS:</p> <p>25 A. Thank you.</p>	<p>1 I was very disappointed to know that the Board</p> <p>2 would be restricted in holding hearings across</p> <p>3 Labrador, especially since it is the home of</p> <p>4 Muskrat Falls, and the people there will</p> <p>5 probably be most implicated by any new</p> <p>6 developments that occur in their land. So I</p> <p>7 appreciate the opportunity to present and you</p> <p>8 accommodating me today.</p> <p>9 Before diving into the details of the</p> <p>10 Muskrat Falls Project, it's worthwhile, I</p> <p>11 think, reviewing why we are here.</p> <p>12 The most important reason why we are here</p> <p>13 today is the Upper Churchill Project</p> <p>14 constructed almost 50 years ago. In</p> <p>15 particular, we are here because of the failure</p> <p>16 of a power purchase agreement signed between</p> <p>17 Hydro Quebec and agents of the Government of</p> <p>18 Newfoundland and Labrador. The sad history of</p> <p>19 this deal has seen billions of dollars in</p> <p>20 power profits leave our province.</p> <p>21 The deal was not an inevitable deal. It</p> <p>22 was a deal that could have been avoided.</p> <p>23 Perhaps if we had had a Premier and a</p> <p>24 government at the time that was more open to</p> <p>25 having their policies and projects questioned</p>
Page 66	Page 68
<p>1 CHAIRMAN:</p> <p>2 Q. I guess we're adjourning for lunch now, are</p> <p>3 we?</p> <p>4 GREENE, Q.C.:</p> <p>5 Q. Yes, until 2:00, Mr. Chairman.</p> <p>6 CHAIRMAN:</p> <p>7 Q. 2:00? We are adjourned until 2.</p> <p>8 (1:13 p.m.) (ADJOURNED FOR LUNCH)</p> <p>9 (2:10 a.m.) (RESUME)</p> <p>10 CHAIRMAN:</p> <p>11 Q. All right, are there any preliminary matters</p> <p>12 before I turn the proceedings over to Yvonne</p> <p>13 Jones.</p> <p>14 GREENE, Q.C.:</p> <p>15 Q. No, Mr. Chair, I believe there are no</p> <p>16 preliminary issues today.</p> <p>17 CHAIRMAN:</p> <p>18 Q. So, madam, you are on.</p> <p>19 MS. JONES:</p> <p>20 A. Thank you, Mr. Chairman, and thank you all for</p> <p>21 the opportunity to present here today, and I</p> <p>22 certainly appreciate you accommodating me.</p> <p>23 I'm probably the only permanent resident of</p> <p>24 Labrador that will have the opportunity to</p> <p>25 present before the Public Utilities Board, and</p>	<p>1 and scrutinized, the outcome would have been</p> <p>2 different. Imagine how different our history</p> <p>3 would be if we had taken the time and effort</p> <p>4 to place something as simple as an escalator</p> <p>5 clause on the price of power. What additional</p> <p>6 infrastructure and services would we have</p> <p>7 today? Where would our debt be?</p> <p>8 If we have learned an lesson from the</p> <p>9 history of the Upper Churchill, we should have</p> <p>10 learned that there is no such thing as too</p> <p>11 much oversight or too much scrutiny.</p> <p>12 Today we stand at a fork in the road</p> <p>13 looking at yet another major power deal, the</p> <p>14 Muskrat Falls project. One thing that has</p> <p>15 been largely left out of the discussion is the</p> <p>16 return of the Upper Churchill power in 2041.</p> <p>17 Although it plays a prominent role in</p> <p>18 Government's Energy Plan released in the fall</p> <p>19 of 2007, Muskrat Falls seems to ignore it.</p> <p>20 Nalcor's financial projections stretch</p> <p>21 out to 2067 because that's the time frame that</p> <p>22 will take to amortize the capital cost of</p> <p>23 Muskrat Falls, but that is 26 years after we</p> <p>24 regain control of the 5,428 megawatts from the</p> <p>25 Upper Churchill. At that point we will have</p>

Page 69	Page 71
<p>1 all the power we will ever need for centuries.</p> <p>2 That is only 29 years away. So what we</p> <p>3 need to do is bridge the power needs between</p> <p>4 now and 2041, and our goal should be to</p> <p>5 achieve that as cheaply as possible in order</p> <p>6 to ensure that we always have access to the</p> <p>7 lowest possible cost power.</p> <p>8 Therefore, we should require that the</p> <p>9 financials be planned with amortization over</p> <p>10 30 years, not 50 years. Then we can see if</p> <p>11 Muskrat Falls is worth the money to the</p> <p>12 Newfoundland and Labrador taxpayer.</p> <p>13 Muskrat Falls is a complicated deal with</p> <p>14 many aspects to it. It has been made more</p> <p>15 complicated by the way government and Nalcor</p> <p>16 has decided to proceed. It has become very</p> <p>17 difficult to see the true deal because of how</p> <p>18 information changes and shifts in official</p> <p>19 positioning depending on which criticisms are</p> <p>20 being addressed.</p> <p>21 Today I'm going to address the major</p> <p>22 concerns which we have as the Official</p> <p>23 Opposition, and I, as a leader in Labrador. I</p> <p>24 will divide my concerns into the following</p> <p>25 groups; process for examination and review,</p>	<p>1 Panel.</p> <p>2 That review as conducted by a panel of</p> <p>3 truly independent persons who heard from</p> <p>4 multiple points of view and gathered and</p> <p>5 evaluated a large amount of information from</p> <p>6 interested persons and groups. Most</p> <p>7 important, the panel did not rely exclusively</p> <p>8 on data that was supplied by Nalcor, and what</p> <p>9 did they conclude? It's worth hearing the</p> <p>10 quotation in full, "The panel concluded that</p> <p>11 Nalcor had not demonstrated the justification</p> <p>12 of the project as a whole in energy and</p> <p>13 economic terms, and that there are outstanding</p> <p>14 questions related to both Muskrat Falls and</p> <p>15 Gull Island regarding their ability to deliver</p> <p>16 the projected long term financial benefits to</p> <p>17 the Province, even if other sanctioning</p> <p>18 requirements were met".</p> <p>19 This is very important. If Nalcor could</p> <p>20 not convince the independent panel that this</p> <p>21 project was justified in energy and economic</p> <p>22 terms, then it was up to Government and Nalcor</p> <p>23 to go back to the drawing board and reconsider</p> <p>24 their plan. They have not, and instead they</p> <p>25 have just pushed the project forward without</p>
Page 70	Page 72
<p>1 questions on the demand side and Labrador,</p> <p>2 questions on energy pricing projections,</p> <p>3 questions on the supply side, questions on</p> <p>4 cost overruns/financials/export markets, and</p> <p>5 impact of future land claims.</p> <p>6 Too many issues are deeply intertwined</p> <p>7 between those within your scope and those just</p> <p>8 outside your scope, and I can't help that and</p> <p>9 I hope that you will provide me with the</p> <p>10 latitude and the time that I need to cover the</p> <p>11 information that I want to share with the</p> <p>12 Commission today.</p> <p>13 The process for examination and review,</p> <p>14 in an ideal world, this project would have</p> <p>15 been reviewed without arbitrary constraints,</p> <p>16 by outside experts with no vested interests in</p> <p>17 the outcome. That includes this Public</p> <p>18 Utilities Board. Nalcor refers to these</p> <p>19 reviews as "cold-eye" or "independent".</p> <p>20 Since the project was announced on</p> <p>21 November 18, 2010, there has been exactly one</p> <p>22 official independent unrestrained review of</p> <p>23 Muskrat Falls. That review was the Lower</p> <p>24 Churchill Generation Project Environmental</p> <p>25 Impact Statement produced by the Joint Review</p>	<p>1 change. Since then there have been two other</p> <p>2 publicly released reports, and the first was</p> <p>3 from Navigant. We believe this was a</p> <p>4 seriously flawed report which was in no way</p> <p>5 "independent" or "cold-eyed". First, Navigant</p> <p>6 has had a longstanding prior relationship with</p> <p>7 Nalcor with many contracts awarded to them</p> <p>8 over the last decade, but more importantly,</p> <p>9 the report is based on a narrow scope of</p> <p>10 review and a mandate which avoids looking at</p> <p>11 the areas of great public policy importance.</p> <p>12 For example, the report did not look at</p> <p>13 conservation, demand management, use of</p> <p>14 alternatives such as offshore gas or cash flow</p> <p>15 projections and out of province power sales.</p> <p>16 Similar criticisms can be made for the</p> <p>17 work commissioned by the Public Utilities</p> <p>18 Board from Manitoba Hydro International. This</p> <p>19 report is also circumscribed in scope by the</p> <p>20 mandate provided to the Public Utilities</p> <p>21 Board. The Public Utilities Board is one of</p> <p>22 the most important regulatory bodies in this</p> <p>23 province. Its decisions affect everybody in</p> <p>24 the province who turn on electric lights or</p> <p>25 dial up their electric heat. The first and</p>

Page 73	Page 75
<p>1 primary mandate is to regulate the prices of 2 utilities such as electricity according to the 3 Electrical Power Control Act, and that Act 4 states that, "A production, transmission and 5 distribution of power in the province should 6 be managed and operated in a manner that would 7 result in power being delivered to consumers 8 in the province at the lowest possible cost 9 consistent with reliable service". Yet the 10 Public Utilities Board has been asked by 11 Government to conduct hearings which 12 specifically exclude the issue of impact on 13 ratepayers.</p> <p>14 The people of Newfoundland and Labrador 15 have to rely on the Public Utilities Board to 16 carry out an independent review of the effect 17 of Muskrat Falls on electricity rates and to 18 look at the impacts of alternative sources of 19 power. Otherwise, we will never know if we are 20 getting the lowest possible rates for the 21 people and the businesses of the province. We 22 cannot afford to rely exclusively on the non- 23 objective and biased perspective of Nalcor and 24 their allies.</p> <p>25 This is the fatal flaw in the review</p>	<p>1 Kennedy has even been quoted that the Island 2 will start experiencing brownouts by 2015 3 unless we build Muskrat Falls. Well, let's 4 keep in mind that 2015 is only three years 5 away, and if Kennedy's statements are true, 6 then we are destined to experience brownouts 7 because there is not - there is no reasonable 8 way that Muskrat Falls will come on line in 9 that time. But let's leave that aside. His 10 statements, as we know, have been unfounded 11 and unverified and they make no reasonable 12 sense.</p> <p>13 Overall, Nalcor claims a steady increase 14 in demand of .8 percent year over year. 15 Here's the problem with that statement. There 16 is no independent authority that confirms this 17 fact. On the contrary, there are several 18 independent authorities who contradict that 19 scenario by Nalcor. The Joint Review Panel, 20 for example, didn't believe it and recommended 21 further study to confirm the information. 22 It's important to know that we have lost two 23 major industrial customers in the last five 24 years; Stephenville and Grand Falls pulp and 25 paper mills, and although Long Harbour will</p>
Page 74	Page 76
<p>1 process of this project. Once the decision 2 was made to build a smaller dam at Muskrat 3 Falls combined with thousands of kilometres of 4 transmission to Nova Scotia, all other 5 alternatives were eliminated from the 6 discussion.</p> <p>7 It's also worth noting that in a project 8 as complex as this, the devil is in the 9 details. Currently, Emera and Nalcor have 10 announced an indefinite delay in producing the 11 legal text to guide the execution of this 12 project. We have to question how is it 13 possible to truly examine the impact and 14 reality of this project without access to 15 those legal texts.</p> <p>16 Section B, Demand side discussions. 17 Government has made every effort to simplify 18 this complex discussion to a series of simple 19 questions; do we need the power, and if so, 20 what do we do about it? I'd like to address 21 the first part of this now, and I'll address 22 the second part later in my presentation.</p> <p>23 Since it was first announced, Government 24 and Nalcor have increased the urgency in 25 moving forward with Muskrat Falls. Minister</p>	<p>1 bring a new demand on the provincial grid, 2 that power has already been accounted for.</p> <p>3 Second, the overall population has 4 remained relatively stable and is projected to 5 stay that way. This is important because 6 demographics drives power demand. In the 7 medium level population scenarios out to 2025, 8 we are looking at a population which 9 stabilizes around 528,000. This compared to 10 the 514,536 according to the most recent 2011 11 census that we've had access to, and that 12 population will be much older than the 13 population we have today, so more people will 14 be living in smaller spaces, in higher density 15 housing than we see today. That means a 16 reduced energy demand.</p> <p>17 Third, Nalcor has completely ignored the 18 impact of conservation and demand management. 19 The only statement from Nalcor on this issue 20 is that they have tried to bring in power 21 conservation, but people have not been 22 interested. In fact, Nalcor has not tried 23 very hard, in my estimation. Newfoundland and 24 Labrador Hydro commissioned Marbek Resource 25 Consultants to assess conservation and demand</p>

Page 77	Page 79
<p>1 management potential for the province. They 2 found that current conservation and demand 3 management budgets account for just 0.75 4 percent of utility revenues, compared to a 5 recommended level of 1.5 percent. 6 Newfoundland and Labrador lags behind the rest 7 of Canada in spending \$2.22 per capita on 8 conservation and demand management, compared 9 to Quebec who spends \$29.02, and British 10 Columbia who spends \$40.63.</p> <p>11 Dr. Jim Feehan, a respected economist at 12 Memorial University, argues that a program to 13 half the growth in power consumption would 14 eliminate Nalcor's claimed cost advantage for 15 Muskrat Falls. He advocates a program of 16 smart meters, time-of-day pricing, and 17 electricity pricing that better reflects the 18 cost of electricity production. He concludes 19 that sanctioning Muskrat Falls now would be 20 "premature and imprudent".</p> <p>21 It's worth contrasting government's 22 claims of a hypothetical ever-increasing 23 island demand to the very real increasing 24 power demands that exist in Labrador. 25 The major customers for electricity in</p>	<p>1 cheaper and more stable. You note that that 2 reasoning applies to the island portion of the 3 province, but not to Labrador. A double 4 standard of Nalcor and Government, as they 5 desperately look for a rationale for Muskrat 6 Falls, because as we know, the power needs to 7 the isolated communities on the north and 8 south coast are currently being met by diesel 9 power generation. The people in southern 10 Labrador are going to see transmission lines 11 carrying clean hydro power passing over them 12 in their communities. People across Labrador 13 are going to see clean energy hydro power 14 developed and exported to other regions of the 15 province, the country, and North America. It 16 is increasing the level of frustration for 17 Labradorians who have been shut out of the 18 project and forced to access high priced 19 diesel power.</p> <p>20 It is unreasonable to extract hydro power 21 from Labrador without providing the benefits 22 of directly availing of that power to its 23 people and to the industry. Nalcor says as 24 well that they base their projections on PIRA 25 numbers. The PIRA Energy Group is an</p>
Page 78	Page 80
<p>1 Labrador are new and expanding mining 2 projects. IOC, for example, is proposing to 3 double their output through the Genesis 4 expansion. This is estimated to require a 5 minimum additional 200 megawatts of energy. 6 On top of that, there are several other new 7 mining operations in various stages of 8 development. New Millennium, in both their 9 mines will require nearly 300 megawatts of 10 power. Alderon's projections are expected to 11 exceed well over 50 megawatts of power. Small 12 mines like Labrador Iron Mines, Iron Sands, 13 and Aurora Energy, will all require anywhere 14 from 50 to 100 megawatts of power, and Vale 15 Inco is looking to go underground again 16 requiring a huge block of power exceeding the 17 50 megawatt range. If there is any part of 18 the Nalcor proposal that is based on 19 speculation, it is surely their projections on 20 future energy prices.</p> <p>21 Nalcor and Government justify Muskrat 22 Falls by stating that the price of oil will be 23 ever increasing, up to levels around \$200.00 a 24 barrel. Therefore, we need to get off Bunker 25 C and onto hydro because then prices will be</p>	<p>1 international energy consulting firm 2 specializing in global energy market analysis 3 and intelligence. They are a respected 4 international publisher of future energy 5 prices, and Nalcor uses PIRA projections as a 6 primary justification for moving forward with 7 Muskrat Falls. However, if you open the page 8 of the provincial Energy Plan, you will see 9 that the price for West Texas Intermediate was 10 projected to be US \$60.00 per barrel in 2012, 11 yet this morning the actual price of West 12 Texas Intermediate is listed at around \$105.00 13 US per barrel. The same energy plan document 14 also provides price projections for natural 15 gas, and according to the plan, the price of 16 natural gas this morning should be around 17 \$8.00 US million BTU. Yet according to the US 18 Energy Information Administration, the price 19 is currently today hovering around \$2.5 20 million BTU, US. So both of these energy plan 21 projection are numbers derived from PIRA 22 projections. Remember that this energy plan 23 released in the fall of 2007 is the basis for 24 all energy policy in the province, including 25 the prime justification for Muskrat Falls.</p>

Page 81	Page 83
<p>1 So when you look at what PIRA said just 2 four and a half years ago what prices would be 3 today, you see a great discrepancy. It's 4 clear that their projections simply don't hold 5 up. So what Nalcor does not explain is how 6 PIRA is constantly revising their future 7 prices to take into account the most current 8 information. As current information changes, 9 so do their projections.</p> <p>10 So energy projections that are now 11 published in 2012 for oil prices in 2025 will 12 not be the same as energy projections 13 published in 2007, and those energy 14 projections will be different from the 15 projected prices they publish in 2017. These 16 projections are the best guess based on 17 circumstances today and as circumstances 18 change, so do the projections. Nalcor would 19 have you believe that oil price projections 20 are oil price predictions, and they are not. 21 The fact that the projected prices for oil and 22 gas for today as stated in the Energy Plan 23 from four and a half years ago are so far off, 24 it shows how dangerous it is to rely on them 25 and them alone. It is reckless to build a 6.2</p>	<p>1 2067 the province's energy generation will be 2 37 percent thermal, thanks to seven new 3 thermal generation facilities. If that's the 4 case, then it flies in the face of 5 Government's desire for the province to go 6 green. So we'll leave this issue aside at 7 this time, as I want to discuss some other 8 options.</p> <p>9 Minister Kennedy states that Muskrat 10 Falls is the least cost option to supply the 11 new power we will need. What he really means 12 it that it will be the lower cost option 13 between his favoured Muskrat Falls project and 14 an artificial isolated island option, and the 15 reason I say the isolated island option is 16 artificial is because that option was designed 17 to compare badly with Muskrat Falls. There 18 are other more reasonable isolated island 19 options which are more economical and more 20 realistic than the one put forward by 21 government.</p> <p>22 First, the option of natural gas has been 23 dismissed out of hand, and we have the option 24 of bringing it to the island and burning it at 25 Holyrood. It is much cleaner and cheaper than</p>
Page 82	Page 84
<p>1 billion dollar project on such a flimsy basis.</p> <p>2 Nalcor's plan is to build an infeed from 3 Muskrat Falls in Labrador to supplement the 4 island's current power supply which is derived 5 from several hydro facilities and Holyrood. 6 Holyrood, we should note, is used only part of 7 the year. Let me say something about the 8 Holyrood facility because we agree that we 9 would be better off without it, and if we can 10 - that's if we can close it out. However, we 11 are not convinced that the 6.2 billion dollar 12 hydro project at Muskrat Falls is the right 13 option to replace it. Further, there are 14 conflicting reports on exactly what will 15 happen to Holyrood in the long run. We have 16 been advised by experts in the transmission 17 that Holyrood will have to stay operating even 18 under the in-feed scenario. One reason we are 19 told is an emergency backup for the Avalon 20 Peninsula, and another reason would be to 21 balance the load across the system. So we are 22 not exactly sure what is going to happen to 23 Holyrood or what other similar thermal options 24 might replace it in the future. We note that 25 the Manitoba Hydro Report indicated that in</p>	<p>1 Bunker C. We have literally trillions of 2 cubic feet of natural gas, roughly 60 TCF by 3 some estimates, sitting off our shores, and 4 not just offshore. Nalcor's 20 million worth 5 of dry holes at Parsons Pond may not have 6 found oil, but they did find natural gas, and 7 our oil projects, notably White Rose, uses 8 natural gas to re-inject pressure in their 9 wells, but they only do that because they 10 chose to do it, but we could bring that 11 onshore instead. Nalcor claims that we can't 12 look at natural gas because we don't have the 13 infrastructure to bring it onshore. But using 14 that logic, we may as well stop talking about 15 Muskrat Falls because we certainly don't have 16 that infrastructure in place either.</p> <p>17 (2:30 p.m.)</p> <p>18 Dr. Stephen Bruno of Memorial University 19 has done reports and presentations on bringing 20 natural gas onshore. In 2005, he estimated 21 that in his expert opinion if we recovered 22 only 60 percent of the natural gas available 23 at Hibernia, Terra Nova and White Rose, we 24 could run a Holyrood size plant at full 25 capacity 365 days a year for over 100 years.</p>

Page 85	Page 87
<p>1 That gas could be fed to the island through a</p> <p>2 12-inch diameter pipe at 3,000 psi for</p> <p>3 approximately 300 million US. Remember that we</p> <p>4 now own equity stakes in this energy resource</p> <p>5 as well.</p> <p>6 Yet today, this option is completely</p> <p>7 dismissed out of hand by Nalcor and</p> <p>8 Government. Yet, they have commissioned no</p> <p>9 studies to justify that position. While the</p> <p>10 shale gas revolution tears through North</p> <p>11 America, we are keeping our eyes closed to</p> <p>12 those possibilities. It is irresponsible for</p> <p>13 a vertically integrated energy utility like</p> <p>14 Nalcor to ignore these possibilities and in</p> <p>15 doing so, they are not upholding their</p> <p>16 obligations to the people of Newfoundland and</p> <p>17 Labrador.</p> <p>18 I will address all the financial issues</p> <p>19 in one section because I believe that they are</p> <p>20 all closely related.</p> <p>21 There have been many different</p> <p>22 descriptions of how this project will affect</p> <p>23 ratepayers and I would like to address three</p> <p>24 primary factors which may determine how</p> <p>25 Muskrat Falls will affect the way ratepayers</p>	<p>1 don't know how much of that might be the</p> <p>2 projected results of higher cost of materials,</p> <p>3 labour, design or some other factors.</p> <p>4 However, one thing is for sure, because</p> <p>5 Muskrat Falls capital costs are based on</p> <p>6 recovery from ratepayers, it is the people of</p> <p>7 Newfoundland and Labrador who will be stuck</p> <p>8 with the big bill.</p> <p>9 The other aspect which will determine how</p> <p>10 hard Muskrat Falls will hit ratepayers is the</p> <p>11 potential export markets. Again, this is an</p> <p>12 area which lies outside the mandate of the</p> <p>13 Public Utilities Board, but I ask for your</p> <p>14 indulgence for just a minute.</p> <p>15 Because capital recovery will be based on</p> <p>16 ratepayers, then the more we sell to other</p> <p>17 markets, the lower our potential rates. This</p> <p>18 project is different from just about every</p> <p>19 other Lower Churchill power project that has</p> <p>20 been looked at in the history of our province</p> <p>21 because other proposals were based on income</p> <p>22 from outside export, bringing returns to the</p> <p>23 province and ensuring that the ratepayers and</p> <p>24 the people of Newfoundland and Labrador get</p> <p>25 the fairer deal.</p>
Page 86	Page 88
<p>1 bills change.</p> <p>2 First are cost overruns on the project.</p> <p>3 According to the Nalcor/EMERA term sheet, we</p> <p>4 are responsible for 100 percent of the</p> <p>5 overruns on all parts, except the Maritime</p> <p>6 link. On the Maritime link, we are</p> <p>7 responsible for 50 percent of the overruns,</p> <p>8 despite the fact that we have no management</p> <p>9 control over that construction. Nalcor's</p> <p>10 numbers are based on their certainty that</p> <p>11 their 15 percent built in cushion for cost</p> <p>12 overruns will cover any eventuality that they</p> <p>13 could face. They are gambling with the</p> <p>14 pocketbooks of ratepayers in this province.</p> <p>15 The World Commission on Dams looked at</p> <p>16 125 large dam projects around the world. They</p> <p>17 found that cost overruns averaged 56 percent</p> <p>18 more than initially budgeted. On Muskrat</p> <p>19 Falls that brings the project to a potential</p> <p>20 cost of almost ten billion and how will we</p> <p>21 cover that overrun? Where will the cash come</p> <p>22 from? Right now, it's hard to tell because of</p> <p>23 the minimal financial information that's being</p> <p>24 provided by Nalcor. For example, in their</p> <p>25 current potential overrun of 15 percent, we</p>	<p>1 Nalcor and Government have been all over</p> <p>2 the map on this issue. They first tried to</p> <p>3 sell the project by talking about export</p> <p>4 markets. Then they changed their tune and</p> <p>5 talked about how this project was to address</p> <p>6 local energy needs. The reality is that this</p> <p>7 might be the very worst time in 40 years to</p> <p>8 try and export energy into the United States.</p> <p>9 Between their structural weak energy demands</p> <p>10 due to economic slowdown, the easy,</p> <p>11 availability of shale gas for heating and</p> <p>12 power generation, and the glut of hydro energy</p> <p>13 provided by Hydro Quebec, wholesale</p> <p>14 electricity prices throughout the northeastern</p> <p>15 US are at very low levels. There will be no</p> <p>16 recovering of Muskrat Falls capital costs from</p> <p>17 that market.</p> <p>18 As for EMERA, we are providing EMERA with</p> <p>19 power for 35 years at no cost in return for</p> <p>20 constructing the Maritime link. There has</p> <p>21 been much public discussion about whether this</p> <p>22 means EMERA will receive free power. We have</p> <p>23 claimed that EMERA will receive free power</p> <p>24 while Nalcor has claimed that EMERA will be</p> <p>25 paying 1.2 billion for it. Either way, the</p>

Page 89	Page 91
<p>1 power will be transferred from this province 2 to Nova Scotia with no revenue associated and 3 no revenue returning back to the people of the 4 province. If power rates drop to nothing, 5 EMERA will pay no less money to Nalcor. If 6 power rates skyrocket, EMERA will pay no more 7 money to Nalcor. It is all fixed. This is a 8 problem. We are providing EMERA with power 9 where the cost is not dependent upon 10 prevailing energy rates. If we have learned 11 nothing else from the Upper Churchill, it's 12 that escalator clauses are essential to 13 fundamental fairness. Not addressing this 14 issue now is a receipt for financial disaster 15 in the future.</p> <p>16 Finally, there is the issue of the impact 17 of future land claims. A key initiative which 18 has allowed the Muskrat Falls Project to move 19 this far has been the resolution of conflicts 20 with some of the Labrador aboriginal 21 communities through the New Dawn Agreement. 22 Among other things, this agreement with the 23 Innu communities resolved land conflict issues 24 related to Muskrat Falls and provided benefits 25 in terms of construction job guarantees and an</p>	<p>1 The Official Opposition and I are in 2 favour of developing the Upper Churchill, both 3 Muskrat Falls and Gull Island, after a proper 4 and complete process of due diligence. We do 5 not see due diligence being performed in this 6 case.</p> <p>7 We are not concerned that the process to 8 examine Muskrat Falls has been limited -- We 9 are concerned that the process to examine 10 Muskrat Falls has been limited to an 11 artificial choice between the Nalcor preferred 12 option and the isolated island option 13 alternative, which is clearly designed to be 14 problematic and unacceptable. Further, it is 15 unreasonable to expect this review to be 16 completed in the short time that has been 17 allowed by Government.</p> <p>18 Any review of Muskrat Falls should be 19 done in the context of all possible 20 alternatives welcoming input from credible and 21 respected points of view without artificial 22 deadlines. I just hope that the Public 23 Utilities Board, in the short period of time 24 that you have, will at least have the 25 opportunity to examine, to the best of your</p>
Page 90	Page 92
<p>1 equity stake in the project. Nalcor and 2 Government have praised this deal as being a 3 final resolution to aboriginal claims which 4 might impact Lower Churchill development.</p> <p>5 However, there are still unresolved 6 issues with the Nunatukavut government, 7 formerly known as the Metis Nation. They too 8 have land claims outstanding and they too will 9 be adversely impacted by the Muskrat Falls 10 development as things currently stand. So 11 far, they have not been recognized in their 12 claims by Nalcor, despite the fact that those 13 claims may have a serious impact on the 14 financials and the progress of this 15 development. Ignoring this community is to 16 disregard potential serious disruptions to 17 Muskrat Falls planning and execution and the 18 financials at the end of the day. And there 19 is no doubt that such disruptions will lead to 20 cost overruns, delays and more costs to 21 ratepayers.</p> <p>22 Overall, we feel comfortable in stating 23 that there is every possibility that 24 electricity rates in this province will 25 double.</p>	<p>1 ability, what the real impacts of this deal 2 will be for the long term on Newfoundlanders 3 and Labradorians and I hope that you will see 4 that there is a better way and there are other 5 alternatives. Thank you.</p> <p>6 CHAIRMAN: 7 Q. Mr. O'Reilly, sir? 8 O'REILLY, Q.C.: 9 Q. Yes, Mr. Chairman. Nalcor will deal with any 10 factual issues and issues relating to the 11 relevancy to this process in its final 12 submission to the Board. We have no questions 13 for Ms. Jones at this time.</p> <p>14 MR. JOHNSON: 15 Q. I have no questions for Ms. Jones. Thank you 16 very much.</p> <p>17 GREENE, Q.C.: 18 Q. And I have no questions for Ms. Jones.</p> <p>19 CHAIRMAN: 20 Q. Thank you very much for your presentation, Ms. 21 Jones.</p> <p>22 MS. JONES: 23 A. Thank you.</p> <p>24 CHAIRMAN: 25 Q. Next we have Mr. Gordon Ralph. When you're</p>

Page 93	Page 95
<p>1 ready, sir.</p> <p>2 MR. RALPH:</p> <p>3 A. Okay, thank you very much. I'm not really</p> <p>4 representing anyone. First of all, I should</p> <p>5 read from this, I suppose.</p> <p>6 Ladies and gentlemen of the Public</p> <p>7 Utilities Board, thank you for giving me the</p> <p>8 opportunity to address you today. I promise I</p> <p>9 will be brief and avoid redundancies in terms</p> <p>10 of what has already been presented. Let me</p> <p>11 state, I am not an engineer, economist or</p> <p>12 politician, just an ordinary citizen, if there</p> <p>13 is such a thing. But listening to Ms. Jones'</p> <p>14 response, I think there will be a degree of</p> <p>15 overlap. However, I think I can say that this</p> <p>16 is not the first time you've heard an</p> <p>17 ideological echo in this room, right. It's</p> <p>18 probably happened a number of times because</p> <p>19 the issues are so crucial that I think a lot</p> <p>20 of people will touch upon the same types of</p> <p>21 issues and that's inevitable.</p> <p>22 One of the things, as she was speaking,</p> <p>23 that is not in my report, that my imagination</p> <p>24 thought about and that is will we have the</p> <p>25 workers? Right now, there's a tremendous</p>	<p>1 to support and attract industrial development</p> <p>2 in Labrador.</p> <p>3 Later in the article, it states that the</p> <p>4 project business case is not dependent on</p> <p>5 export sales. This is confusing. Export</p> <p>6 sales are either a part of the business plan</p> <p>7 or not a part of the business plan. If this</p> <p>8 project of 824 megawatts generation, costing</p> <p>9 6.2 billion dollars, is to proceed, while the</p> <p>10 province only needs 40 percent of this power</p> <p>11 or 329.6 megawatts, then alternatives look</p> <p>12 slightly more enticing. So, figures need to</p> <p>13 be juggled in relation to the crucial aspect</p> <p>14 or non-crucial aspect of export. That's a</p> <p>15 very important idea.</p> <p>16 A memorandum dated October 18th, 2010</p> <p>17 stated that sale of additional power to export</p> <p>18 market further enhances the viability of the</p> <p>19 development and makes this approach the most</p> <p>20 economical solution over time. This again is</p> <p>21 confusing. When is over time? Will it be my</p> <p>22 children, my grandchildren? Who will reap the</p> <p>23 benefits? It's very kind of non-descript.</p> <p>24 PEI has heavily invested in wind</p> <p>25 generated energy. The United States has</p>
Page 94	Page 96
<p>1 deficit in the number of workers for the Long</p> <p>2 Harbour plant and you can jot down workers, I</p> <p>3 think that's going to be a really big issue</p> <p>4 because if we try to entice the boys and girls</p> <p>5 back from Alberta, we're going to have to pay</p> <p>6 Alberta prices and that could work to</p> <p>7 accelerate the cost of the actual project.</p> <p>8 It appears to me that a couple of issues</p> <p>9 have changed or have been modified since the</p> <p>10 public had been first aware of the</p> <p>11 development, and again, my information is the</p> <p>12 public news. I have read everything in the</p> <p>13 public media. If you see my bag there, I got</p> <p>14 about 40 or 50 essays that everybody has</p> <p>15 written. So what I did, I tried to go through</p> <p>16 them and look at the other reports and say is</p> <p>17 there a niche here which we haven't looked at.</p> <p>18 At first it appeared that the resale of</p> <p>19 power was an integral part of this project. A</p> <p>20 government website in 2011 stated that 40</p> <p>21 percent will service the needs of Newfoundland</p> <p>22 and Labrador. 20 percent will be transmitted</p> <p>23 to Nova Scotia under a 35-year contract and 40</p> <p>24 percent will be sold into the market through</p> <p>25 Atlantic Canada and New England or available</p>	<p>1 discovered shale natural gas. New Brunswick</p> <p>2 has the Romaine River complex next door in</p> <p>3 Quebec able to offer electricity for near 50</p> <p>4 percent of our purchase price, 1550 megawatts</p> <p>5 for 6.5 billion dollars. The only buyer which</p> <p>6 I can envisage is Nova Scotia who is prepared</p> <p>7 to purchase electricity for 50 percent of what</p> <p>8 the people of this province will pay. Good</p> <p>9 deal. Excellent deal. If I was a Nova</p> <p>10 Scotian, I'd go for it.</p> <p>11 My second point is the need to clarify</p> <p>12 exactly what we will pay. Does the cost of</p> <p>13 development translate into consumer cost of</p> <p>14 28.4 cents per kilowatt hour? That's been</p> <p>15 bantered around. I don't know, but that's</p> <p>16 been bantered around. And if the cost of this</p> <p>17 development has overruns, which are likely, as</p> <p>18 Ms. Jones has said, does this translate into</p> <p>19 an even greater cost in electricity for the</p> <p>20 consumer? This needs to be clarified,</p> <p>21 especially considering Manitoba Hydro</p> <p>22 experienced forecast overruns in billions when</p> <p>23 they started their development.</p> <p>24 If we look at the demography of this</p> <p>25 province, the number of retired persons is</p>

Page 97

1 increasing year by year. These individuals
2 will experience extreme financial hardships on
3 fixed incomes, potentially paying triple,
4 maybe more, the electricity rates they now pay
5 and I think that really that is a big serious
6 issue.

7 I realize that if we wait until 2041, we
8 will still need a transmission line to the
9 island, as well as pay heavily to refurbish
10 the Holyrood plant. However, in 2041, if we
11 add the Upper Churchill to present plans, we
12 could end up producing 3,629 megawatts of
13 power and no guaranteed purchaser, except Nova
14 Scotia, and our demand will be somewhat above
15 400 megawatts. So we will be producing 3, 629
16 megawatts. We will need somewhere over 400
17 megawatts. There's something not very logical
18 in this for me.

19 Mr. Kennedy stated in The Telegram that
20 he would not be a party to any deal like the
21 Upper Churchill. However, in 1968, nobody
22 could predict that energy rates would rise so
23 drastically. Now today, with cars burning
24 less fuel, the advent of electric cars,
25 consumers purchasing solar panels, health

Page 98

1 conscious people bicycling and walking,
2 alternative energy sources threaten to drive
3 down the cost of energy. We could end up with
4 the flip side of Churchill Falls if energy
5 process drop -- prices that should be. That's
6 a misprint -- if energy prices drop.

7 Between 2008 and 2009, Manitoba Hydro
8 experienced a decline of 1,500 gigawatt hours
9 while expert markets shrunk. I hope that
10 doesn't happen here. I hope that doesn't
11 happen here.

12 There were many other issues which I had
13 previously intended to address, but I feel
14 that these issues have been addressed by other
15 presenters. I merely wanted to stand back,
16 did the readings and says what does an
17 ordinary person say when looking at this. I
18 talked to my friends and we talk about it, we
19 talk about it a lot. The most common comment
20 from people is "I don't know anything about
21 this" and that's bad. That's bad. "I don't
22 know anything about this." And it needs to be
23 consistent, it needs to be clear and we need
24 to know what we're getting into.

25 Now I know it's not the same as buying a

Page 99

1 steak at Sobeys, but you should be able to say
2 no more than this, no less than this. No more
3 than this, no less than this, with accuracy,
4 because there's been too much number crunching
5 on the go. I mean, when Newfoundland and
6 Labrador Hydro submitted to you people the
7 cost of the new changes they wanted to make,
8 you know, the new expenditures and stuff, Mr.
9 Martin said "well, that's a little bit high.
10 I'll go back and look at that, I guess." When
11 he projected the cost of running from Muskrat
12 Falls the power down to Soldier's Pond, he
13 said "oh, that's a little bit high. I'll have
14 a look at that again." I think before the
15 public sees any number, we sit down and say
16 this is what it's going to be; no more than
17 this, no less than this, and we can't confuse
18 the public because it's the public who are
19 going to be paying for this and that makes me
20 wonder -- I don't know, you might know, I
21 don't know -- why isn't there private people
22 banging at the door saying "we want to give
23 you a couple million dollars" if this is a
24 good deal. It's all public money. You know,
25 why aren't there investors saying we'll give

Page 100

1 you all kinds of money because this is a good
2 deal. We had to fight like dogs to get an
3 equity share in Hibernia. And all of a
4 sudden, nobody is going mad over this one.

5 It is for the issues here presented and
6 those presented by others, ladies and
7 gentlemen of the Public Utilities Board, and I
8 know it's not your call, but we must have a
9 referendum, definitively. The only way we're
10 going to democratize this is with a
11 referendum, or otherwise we're in an
12 autocracy. Is this a democracy or an
13 autocracy? The referendum is the only way out
14 of it, in my opinion.

15 Any questions?

16 CHAIRMAN:

17 Q. Mr. O'Reilly?

18 O'REILLY, Q.C.:

19 Q. No, Mr. Chairman.

20 MR. JOHNSON:

21 Q. No questions, thank you.

22 GREENE, Q.C.:

23 Q. No questions, Mr. Chair.

24 MR. RALPH:

25 A. Okay. Thank you for your time. I said I

Page 101	Page 103
<p>1 would be brief, and I was brief and I hope the</p> <p>2 ideological echo in this room is not too</p> <p>3 tormenting for you.</p> <p>4 CHAIRMAN:</p> <p>5 Q. No, it's not.</p> <p>6 MR. RALPH:</p> <p>7 A. Thank you.</p> <p>8 CHAIRMAN:</p> <p>9 Q. Thank you very much. I think that exhausts</p> <p>10 our agenda.</p> <p>11 GREENE, Q.C.:</p> <p>12 Q. Yes, Mr. Chair, but I wanted to provide an</p> <p>13 update on the schedule.</p> <p>14 CHAIRMAN:</p> <p>15 Q. Okay.</p> <p>16 GREENE, Q.C.:</p> <p>17 Q. We have scheduled two presentations for</p> <p>18 Thursday morning. The final schedule will be</p> <p>19 posted on the Board's website, but as of now,</p> <p>20 we believe that we will have a presentation at</p> <p>21 10:30 on Thursday morning from Mr. Swinimer</p> <p>22 who was unable to make it on Monday due to a</p> <p>23 death in the family. And the second</p> <p>24 presentation will take place at 11 a.m. and it</p> <p>25 will be by videoconferencing. It will be a</p>	<p>1 GREENE, Q.C.:</p> <p>2 Q. 10:30, Mr. Chair.</p> <p>3 CHAIRMAN:</p> <p>4 Q. Oh, 10:30. I'm sorry. 10:30 on Thursday</p> <p>5 morning. Thank you.</p> <p>6 Upon conclusion at 2:56 p.m.</p>
Page 102	Page 104
<p>1 presentation on behalf of the Grand River</p> <p>2 Keepers from Labrador and so that will be by</p> <p>3 videoconference at 11 a.m. Again, the final</p> <p>4 schedule will be posted and available on the</p> <p>5 Board's website.</p> <p>6 I did want to remind people and those</p> <p>7 listening that the final date for the Board to</p> <p>8 receive comments from the public with respect</p> <p>9 to the review is February 29th. We will be</p> <p>10 accepting written comments up until the end of</p> <p>11 business on February 29th. Written</p> <p>12 submissions are to be filed by both Nalcor and</p> <p>13 the Consumer Advocate by March 2nd, on March</p> <p>14 2nd. Those written submissions will also be</p> <p>15 posted on the Board's website and available</p> <p>16 for viewing by the public. So thank you, Mr.</p> <p>17 Chair. I just wanted to provide that update</p> <p>18 on the schedule, and of course -</p> <p>19 CHAIRMAN:</p> <p>20 Q. So we'll adjourn until?</p> <p>21 GREENE, Q.C.:</p> <p>22 Q. Thursday morning at 10:30.</p> <p>23 CHAIRMAN:</p> <p>24 Q. Thursday morning at 10:00. Thank you all very</p> <p>25 much for your -</p>	<p>1 CERTIFICATE</p> <p>2 I, Judy Moss, do hereby certify that the foregoing</p> <p>3 is a true and correct transcript of a hearing of the</p> <p>4 Muskrat Falls Review, heard before the Board of</p> <p>5 Commissioners of Public Utilities on the 21st day of</p> <p>6 February, A.D., 2012, in St. John's, Newfoundland and</p> <p>7 Labrador and was transcribed by me to the best of my</p> <p>8 ability by means of a sound apparatus.</p> <p>9 Dated at St. John's, NL this</p> <p>10 21st day of February, 2012</p> <p>11 Judy Moss</p> <p>12 Discoveries Unlimited Inc.</p>

-\$-	12-inch [1] 85:2	94:20	4 [2] 55:19 65:10	80 [1] 35:4
\$1,200 [1] 61:6	1200 [1] 61:10	2012 [5] 4:9 80:10 81:11	40 [5] 88:7 94:14,20,23	800 [2] 8:13 30:24
\$1,300 [1] 61:6	125 [1] 86:16	104:6,10	95:10	80s [1] 29:3
\$1,500 [2] 60:22,24	12:15 [1] 35:24	2015 [5] 6:14 7:18 14:21	400 [2] 97:15,16	824 [1] 95:8
\$1.00 [1] 55:16	12:17 [1] 38:22	75:2,4	42 [1] 50:15	
\$105.00 [1] 80:12	12:36 [1] 38:23	2015-2020 [1] 33:7	423 [1] 46:13	-9-
\$1800.00 [1] 49:11	12:45 [1] 47:20	2017 [4] 14:22 22:1,5	44 [2] 21:8,11	9.6 [1] 44:15
\$2.22 [1] 77:7	13 [5] 54:1,4 56:15 60:5	81:15	45 [1] 64:17	90 [1] 42:24
\$2.5 [1] 80:19	60:6	2020 [1] 23:7	450 [1] 30:8	92A [1] 9:2
\$200.00 [1] 78:23	1300 [2] 18:9 30:20	2025 [3] 20:22 76:7 81:11		98 [2] 3:15 17:13
\$29.02 [1] 77:9	1320 [1] 6:20	2029 [1] 7:20	-5-	-A-
\$3.37 [1] 44:21	138 [1] 29:22	2030s [1] 35:11	5 [2] 50:2 65:10	A.D [1] 104:6
\$40.63 [1] 77:10	1382 [1] 29:6	2033 [1] 8:13	5,428 [1] 68:24	a.m [7] 1:1 7:4 19:10
\$60.00 [1] 80:10	141 [1] 29:18	2035 [1] 8:15	5.2 [1] 53:19	27:5 66:9 101:24 102:3
\$8.00 [1] 80:17	1440 [1] 29:4	2041 [17] 3:6,23 4:13,23	5.6 [2] 8:2 9:23	ability [8] 5:7 6:3 9:15
\$9,500 [3] 61:12,14	15 [4] 10:15 11:2 86:11	4:25 5:4 6:5,19,24 7:2	5.7 [1] 7:1	21:13 42:19 71:15 92:1
63:13	86:25	7:23 8:4 9:6 68:16 69:4	50 [14] 7:14 43:20 45:24	104:8
	150 [1] 33:9	97:7,10	47:8 64:17 67:14 69:10	able [3] 9:6 96:3 99:1
	1506 [1] 44:1	2067 [3] 6:19 68:21 83:1	78:11,14,17 86:7 94:14	aboriginal [2] 89:20
	1550 [2] 33:10 96:4	21 [1] 44:5	96:3,7	90:3
---	16 [2] 5:21 29:17	21st [2] 104:5,10	500 [1] 8:14	above [5] 4:3 5:20 6:25
-12 [2] 29:13 51:3	16th [1] 29:12	225 [1] 53:25	514,536 [1] 76:10	7:17 97:14
-18 [1] 49:12	17 [1] 4:9	23 [2] 50:1 60:14	52 [1] 44:5	abundance [1] 15:7
	1740 [1] 29:5	24 [2] 54:5,6	520 [1] 7:10	academic [1] 4:17
-.-	178 [1] 44:13	2400 [2] 61:14 63:12	528,000 [1] 76:9	accelerate [2] 35:21 94:7
.002 [1] 44:18	1784 [1] 30:2	2468 [1] 33:17	54 [1] 47:8	accept [1] 12:21
.2 [1] 64:25	18 [1] 70:21	26 [1] 68:23	5400 [1] 5:8	accepting [1] 102:10
.8 [1] 75:14	1800 [1] 29:17	27 [2] 29:19,19	56 [1] 86:17	access [10] 3:20 4:12 6:4
	18th [1] 95:16	2700 [1] 18:9	560 [1] 13:17	8:22 16:5 42:21 69:6
-0-	1900s [1] 28:16	28.4 [1] 96:14	582 [1] 6:13	74:14 76:11 79:18
0 [3] 29:13 49:11 50:25	1917 [1] 55:1	29 [2] 3:13 69:2	5th [1] 4:9	accessing [3] 4:2 6:24
0.65 [1] 51:1	1922 [1] 30:2	296 [1] 46:13		8:4
0.75 [1] 77:3	1965 [1] 29:1	29th [2] 102:9,11	-6-	accommodating [2]
	1968 [1] 97:21	2:00 [2] 66:5,7	6 [2] 64:14 65:1	66:22 67:8
-1-	1969 [1] 4:17	2:10 [1] 66:9	6.2 [4] 46:8 81:25 82:11	accomplish [1] 36:16
1 [2] 22:7 51:2	1971 [1] 39:12	2:30 [1] 84:17	95:9	accomplished [1] 55:22
1,500 [1] 98:8	1985 [1] 29:1	2:56 [1] 103:6	6.5 [1] 96:5	according [6] 10:3 73:2
1.2 [3] 64:24,25 88:25	1991 [1] 29:3	2nd [2] 102:13,14	6.6 [1] 7:7	76:10 80:15,17 86:3
1.3 [1] 8:16	1994 [1] 2:10		60 [5] 45:22 56:14 59:3	account [2] 77:3 81:7
1.4 [1] 51:4	1998 [1] 30:21	-3-	84:2,22	accounted [1] 76:2
1.5 [1] 77:5	1:00 [1] 56:4	3 [4] 49:10 50:7 55:15,17	600 [3] 4:6 31:24 32:3	accuracy [2] 41:21 99:3
1/5th [1] 49:16	1:13 [1] 66:8	3,000 [1] 85:2	622 [1] 47:17	accurate [1] 49:24
10 [1] 59:1		3,629 [2] 97:12,15	625 [1] 31:24	achievable [2] 46:14
10.5 [1] 6:5	-2-	3.2 [2] 7:3 8:11	637 [1] 44:3	47:18
10.6 [1] 6:5	2 [5] 16:18 55:14,16,17	3.5 [2] 64:10,13		achieve [5] 24:13 45:5
100 [6] 8:8 35:4 48:22	66:7	30 [4] 3:25 23:12 45:4	-7-	45:10,12 69:5
78:14 84:25 86:4	2.4 [1] 8:5	69:10	70 [6] 30:11,11 46:14,15	acknowledging [1]
1000 [1] 29:14	2.6 [1] 53:21	300 [4] 7:22 30:22 78:9	47:19 48:10	11:16
10:00 [1] 102:24	20 [10] 9:11,21 28:25 29:6	85:3	700 [2] 32:3 46:25	Act [3] 2:10 73:3,3
10:08 [1] 1:1	31:23 44:13 47:22 48:2	3000 [1] 30:22	707 [1] 46:25	action [2] 14:11,23
10:15 [1] 7:4	84:4 94:22	329.6 [1] 95:11	72 [1] 52:2	activities [4] 13:21 14:2
10:30 [6] 19:10 101:21	200 [3] 53:25 64:24 78:5	35 [2] 31:24 88:19	73 [1] 50:17	16:24 17:25
102:22 103:2,4,4	2005 [1] 84:20	35-year [1] 94:23	768 [1] 33:7	activity [4] 13:24 17:3
11 [4] 6:22 56:23 101:24	2007 [3] 68:19 80:23	36 [2] 3:12 53:24	78 [1] 56:16	17:24 24:5
102:3	81:13	3600 [1] 44:17	783 [2] 44:1 47:1	actual [6] 9:16 49:20
1100 [3] 29:14 30:18,23	2008 [1] 98:7	365 [1] 84:25		53:5 57:11 80:11 94:7
1138 [1] 47:17	2009 [2] 52:14 98:7	37 [1] 83:2	-8-	Adams [17] 39:1,2,7 57:9
11:39 [1] 27:5	2010 [5] 10:23 29:5 50:5	38 [1] 47:13	8.8 [1] 6:11	60:3,16 61:1,15,19,25
12 [5] 7:20 27:2,4,7 56:23	70:21 95:16		8.9 [1] 44:14	62:7,18 63:14,19,25 65:5
	2011 [4] 29:5 52:10 76:10	-4-		65:24
				add [1] 97:11

added [1] 46:7 addition [8] 7:22 16:17 18:1 19:2 20:3 22:21 24:16 31:2 additional [7] 41:19 46:6 48:17 50:19 68:5 78:5 95:17 address [9] 39:17 69:21 74:20,21 85:18,23 88:5 93:8 98:13 addressed [2] 69:20 98:14 addressing [2] 59:24 89:13 adequate [1] 14:24 adequately [1] 34:9 adjourn [1] 102:20 adjourned [2] 66:7,8 adjourning [1] 66:2 administration [3] 11:2 21:1 80:18 advance [1] 59:12 advantage [3] 3:12 8:6 77:14 advantages [1] 46:1 advent [1] 97:24 adversely [1] 90:9 advised [1] 82:16 advisement [1] 26:4 advocate [2] 1:24 102:13 advocates [1] 77:15 advocating [1] 5:20 affect [3] 72:23 85:22,25 afford [1] 73:22 again [12] 11:21 23:21 43:5 47:18 54:8 57:18 78:15 87:11 94:11 95:20 99:14 102:3 against [2] 3:17 46:9 agenda [2] 10:24 101:10 agents [1] 67:17 aggressive [4] 33:6 49:1 59:4 63:3 aggressively [1] 33:19 aging [2] 15:22 17:16 ago [7] 4:9 16:8 53:12 64:7 67:14 81:2,23 agree [5] 3:3,11 4:11 5:6 82:8 agreement [4] 5:1 67:16 89:21,22 ahead [4] 10:7 26:15,17 27:21 aimed [1] 11:6 Aiming [1] 39:20 air [3] 50:20 56:19 65:11 alas [1] 60:8 Alberta [2] 94:5,6 Alderon's [1] 78:10 allegiance [1] 36:11 allies [1] 73:24 allow [3] 9:19 59:4,5	allowed [2] 89:18 91:17 allowing [1] 44:15 allows [2] 39:22 56:2 almost [4] 44:20 64:14 67:14 86:20 alone [3] 36:25 46:12 81:25 along [1] 19:21 Alright [2] 27:11 38:25 alternative [7] 15:20 16:13 26:24 58:19 73:18 91:13 98:2 alternatives [5] 72:14 74:5 91:20 92:5 95:11 always [4] 1:21,23 3:1 69:6 amazing [1] 64:22 America [3] 9:9 79:15 85:11 American [2] 15:9 28:13 Among [1] 89:22 amongst [1] 2:11 amortization [1] 69:9 amortize [1] 68:22 amount [2] 54:7 71:5 analysis [11] 10:18 20:14 23:20,23 24:25 25:4 40:3 42:20 43:7,9 80:2 announced [4] 28:5 70:20 74:10,23 annual [2] 21:4,5 annually [1] 20:21 answer [2] 4:15 25:20 answers [3] 4:18 10:20 36:9 anticipated [1] 28:22 anyway [1] 62:25 apparatus [1] 104:8 appeal [1] 17:7 appear [3] 49:17 51:2 52:24 appeared [1] 94:18 apples [2] 7:25,25 appliances [1] 57:13 application [3] 40:4 48:24 56:11 applies [3] 57:12,14 79:2 apply [1] 54:16 appreciate [3] 60:3 66:22 67:7 approach [4] 11:15 43:10 58:19 95:19 appropriate [1] 26:21 April [1] 51:14 arbitrary [1] 70:15 area [1] 87:12 areas [2] 59:10 72:11 argues [1] 77:12 argument [1] 4:3 arise [1] 34:20 arrived [1] 28:16	art [1] 55:1 article [1] 95:3 artificial [4] 83:14,16 91:11,21 aside [2] 75:9 83:6 aspect [3] 87:9 95:13,14 aspects [1] 69:14 assembling [1] 31:15 Assembly [2] 1:18 2:6 assertions [1] 26:2 assess [2] 43:3 76:25 assisted [1] 39:1 associated [2] 43:12 89:2 association [3] 13:7,15 13:20 assuming [1] 47:4 assumption [3] 28:23 45:3,7 assumptions [2] 23:21 41:22 assure [1] 49:21 Atlantic [1] 94:25 attended [1] 10:18 attract [1] 95:1 attractive [2] 24:23 33:16 Auditor [1] 10:3 augmented [1] 24:9 august [1] 1:4 Aurora [1] 78:13 authorities [1] 75:18 authority [1] 75:16 autocracy [2] 100:12,13 availability [4] 3:22 4:25 30:15 88:11 available [15] 8:19 17:7 18:18 23:4 26:23 29:16 30:3,14 35:1 45:11 54:10 84:22 94:25 102:4,15 availing [1] 79:22 Avalon [3] 30:12 32:7 82:19 average [6] 44:16,22 45:23 53:18,19 55:19 averaged [1] 86:17 avoid [1] 93:9 avoided [1] 67:22 avoiding [1] 11:14 avoids [1] 72:10 awarded [1] 72:7 aware [1] 94:10 away [3] 30:20 69:2 75:5	82:19 bad [2] 98:21,21 badly [1] 83:17 bag [1] 94:13 balance [1] 82:21 ball [1] 28:24 ballpark [3] 61:22 62:1 63:13 banging [1] 99:22 bantered [2] 96:15,16 barrel [5] 34:24 35:5 78:24 80:10,13 base [2] 18:1 79:24 baseboard [3] 50:3 54:21 56:24 based [10] 23:21 41:22 43:8 72:9 78:18 81:16 86:10 87:5,15,21 basement [2] 46:18 61:9 basis [6] 20:20 25:3 47:15 62:4 80:23 82:1 Bay [1] 34:22 bear [1] 4:6 became [1] 34:25 become [3] 28:12 36:12 69:16 bedroom [1] 46:18 beginning [1] 14:22 behalf [1] 102:1 behind [2] 36:3 77:6 beneficial [2] 40:18 55:23 benefit [4] 5:15 14:6 22:11 33:2 benefits [13] 3:8 9:3 14:9 15:6 18:14 21:21 50:20 58:18 59:1 71:16 79:21 89:24 95:23 best [10] 16:13 24:12 28:9 28:24 34:7 36:5 41:11 81:16 91:25 104:7 better [7] 35:7 55:14,18 55:19 77:17 82:9 92:4 between [12] 5:1 8:3 21:9,10,25 67:16 69:3 70:7 83:13 88:9 91:11 98:7 bias [1] 4:8 biased [1] 73:23 bicycling [1] 98:1 big [6] 52:16 63:1 65:15 87:8 94:3 97:5 bigger [1] 28:12 biggest [1] 2:3 bill [1] 87:8 billing [1] 42:22 billings [2] 43:8 52:15 billion [18] 6:11,22 7:1,3 7:8,24 8:2,5,11,16 9:24 10:9 82:1,11 86:20 88:25 95:9 96:5 billions [2] 67:19 96:22 bills [2] 5:17 86:1	bio-fuels [1] 20:17 bit [3] 53:11 99:9,13 blackouts [2] 9:5,22 block [1] 78:16 blue [1] 52:13 board [23] 12:8,17 16:7 20:25 36:1 37:15 60:1 66:25 67:1 70:18 71:23 72:18,21,21 73:10,15 87:13 91:23 92:12 93:7 100:7 102:7 104:4 Board's [3] 101:19 102:5 102:15 boast [1] 9:7 bodies [1] 72:22 body [1] 1:5 boiler [1] 54:22 bolstered [1] 16:18 borrowing [2] 35:16 36:18 bottom [2] 47:25 48:14 bottom-up [1] 43:10 bought [1] 60:20 boys [1] 94:4 break [4] 26:22,25 38:15 38:22 breaking [2] 27:2,7 BRIC [1] 15:12 bridge [1] 69:3 brief [3] 93:9 101:1,1 briefly [2] 16:7 21:7 bring [8] 5:13 29:21 33:18 63:4 76:1,20 84:10 84:13 bringing [5] 8:8 14:7 83:24 84:19 87:22 brings [2] 64:21 86:19 British [3] 41:1,3 77:9 Brook [2] 9:13 29:20 brought [4] 20:9 34:20 37:6 52:6 brownouts [2] 75:2,6 Bruno [1] 84:18 Brunswick [2] 59:11 96:1 BTU [2] 80:17,20 budget [2] 6:10 7:6 budgeted [1] 86:18 budgets [1] 77:3 buggy [1] 63:7 build [7] 2:21 6:20 33:3 74:2 75:3 81:25 82:2 building [8] 7:10 11:15 17:4 50:1,13 51:10,11 57:15 buildings [1] 65:14 builds [1] 23:18 built [4] 7:12 28:18 34:23 86:11 bulb [1] 56:15 Bunker [3] 21:18 78:24 84:1
--	--	--	---	---

bureaucrats [1] 36:1 burning [5] 6:24 21:15 49:6 83:24 97:23 business [11] 1:10 5:21 15:1 18:6 23:18 24:6 60:21 95:4,6,7 102:11 businesses [3] 18:13 39:22 73:21 buy [4] 53:22 54:1 63:12 63:13 buyer [1] 96:5 buying [1] 98:25 <hr/> -C- <hr/> C [5] 21:18 48:3,9 78:25 84:1 cables [1] 34:3 Cadigan [4] 13:7,8 26:7 26:12 cadillac [1] 65:6 calculated [2] 43:10,11 calculation [1] 48:21 calculations [1] 23:1 Canada [7] 9:2 13:18 14:11 19:7 20:8 77:7 94:25 Canada's [2] 13:19 20:24 cannot [5] 10:4,13 34:13 35:2 73:22 capability [1] 42:1 capacity [10] 14:21 17:4 32:16,25 44:4,5 49:3 56:2 64:13 84:25 capita [1] 77:7 capital [5] 60:15 68:22 87:5,15 88:16 capitalize [1] 17:10 car [1] 63:7 carbon [4] 17:14 22:25 25:25,25 Carey [9] 27:13,14,18 27:22,24 37:19,21,24 38:9 Carey's [1] 37:14 carry [2] 31:3 73:16 carrying [1] 79:11 cars [3] 42:4 97:23,24 case [6] 15:1 23:19 60:13 83:4 91:6 95:4 cash [2] 72:14 86:21 CDM [1] 42:5 Celsius [3] 49:12 51:1,3 census [1] 76:11 centres [1] 33:15 cents [1] 96:14 centuries [1] 69:1 certain [2] 23:16 65:10 certainly [13] 9:4 15:15 17:2,24 18:11 21:12 23:1 23:13 24:7 38:5 63:2 66:22 84:15	certainty [2] 20:2 86:10 CERTIFICATE [1] 104:1 certified [1] 50:11 certify [1] 104:2 cetera [2] 40:22 59:17 CF [1] 5:2 Chair [11] 12:15 13:4 25:13 26:21 38:14 60:11 66:15 100:23 101:12 102:17 103:2 Chairman [67] 1:2,7,8 1:14 10:15 11:20,23 12:2 12:10,16,20 13:1,5,9 25:6,9,18 26:9,14,18 27:1,6,10,16,20 37:9,12 37:16,22 38:3,11,19,24 39:4 57:7 59:20,23 60:12 60:23 61:13,17,21 62:5 62:16 63:11,16,21 65:2 65:21 66:1,5,6,10,17,20 92:6,9,19,24 100:16,19 101:4,8,14 102:19,23 103:3 challenge [1] 40:8 challenges [1] 45:7 change [7] 1:25 40:12 44:12 58:13 72:1 81:18 86:1 changed [2] 88:4 94:9 changes [5] 15:3 29:23 69:18 81:8 99:7 Charge [1] 58:6 chart [3] 46:22 47:21 51:6 cheap [3] 5:11 35:3 55:2 cheaper [3] 34:1 79:1 83:25 cheapest [1] 5:18 cheaply [1] 69:5 checking [1] 53:23 chew [2] 54:2,7 children [2] 9:23 95:22 choice [4] 33:23 36:18 37:2 91:11 choices [1] 35:9 chose [1] 84:10 chosen [1] 4:14 Christmas [1] 29:5 Churchill [34] 1:21 3:2 3:7,22 4:12,17,23 5:3 8:5 8:9,18,20 11:19 31:8,11 31:19 32:13,15,21,23 35:10 36:21 67:13 68:9 68:16,25 70:24 87:19 89:11 90:4 91:2 97:11 97:21 98:4 circumscribed [1] 72:19 circumstances [2] 81:17 81:17 citizen [3] 28:8 38:7 93:12 citizens [1] 15:13 civil [1] 31:13	claim [1] 5:17 claimed [4] 56:9 77:14 88:23,24 claims [9] 70:5 75:13 77:22 84:11 89:17 90:3 90:8,12,13 clarified [1] 96:20 clarify [1] 96:11 clause [1] 68:5 clauses [1] 89:12 clean [4] 11:17 16:5 79:11,13 cleaner [1] 83:25 clear [2] 81:4 98:23 clearly [2] 3:6 91:13 climate [6] 46:2 49:22 55:12,12 56:10,21 climates [1] 56:18 close [1] 82:10 closed [1] 85:11 closely [1] 85:20 closer [1] 33:14 closing [3] 7:9 29:23 35:25 Co [1] 5:2 Coaker [1] 54:24 coal [2] 17:19 20:17 coast [1] 79:8 coastal [1] 5:13 coefficient [2] 55:11 65:1 cold [1] 46:3 cold-eye [1] 70:19 cold-eyed [1] 72:5 colleagues [1] 11:21 Columbia [3] 41:1,3 77:10 combination [1] 41:13 combined [1] 74:3 comfort [2] 21:6,14 comfortable [1] 90:22 coming [3] 10:10 28:22 48:12 commenced [1] 51:12 commended [1] 36:7 comment [3] 53:11,14 98:19 commentary [1] 10:17 comments [2] 102:8,10 commercial [1] 48:20 Commission [2] 70:12 86:15 commissioned [4] 19:21 72:17 76:24 85:8 COMMISSIONER [1] 25:16 Commissioners [3] 1:15 13:10 104:5 committed [1] 18:19 commodity [1] 20:19 common [2] 63:9 98:19	commonly [1] 55:24 communities [4] 79:7 79:12 89:21,23 community [1] 90:15 compact [1] 56:5 companies [8] 19:24 33:3 40:9,14,25 41:6 44:25 58:15 company [1] 55:23 company's [1] 53:1 comparative [1] 65:13 compare [1] 83:17 compared [5] 40:25 59:13 76:9 77:4,8 compares [2] 47:21 51:4 comparing [1] 7:25 comparison [4] 8:3 40:23 62:1 65:20 comparisons [1] 21:3 compensate [1] 57:4 competitive [1] 39:23 complete [2] 36:19 91:4 completed [4] 7:20 14:3 19:21 91:16 completely [2] 76:17 85:6 complex [3] 74:8,18 96:2 complexities [1] 6:2 complicated [2] 69:13 69:15 component [2] 40:10 43:17 components [3] 30:16 40:13 55:7 compressor [1] 64:20 compressors [1] 64:19 comprises [1] 44:4 computers [2] 43:16 60:6 conceived [1] 10:22 concern [1] 25:22 concerned [2] 91:7,9 concerning [1] 22:21 concerns [2] 69:22,24 conclude [1] 71:9 concluded [1] 71:10 concludes [2] 59:19 77:18 concluding [1] 10:21 conclusion [3] 24:22 58:14 103:6 conclusions [1] 26:6 concur [1] 16:12 conditioning [2] 50:20 56:20 conditions [2] 46:4 55:16 conduct [2] 42:19 73:11 conducted [1] 71:2 conductor [1] 54:17 confidence [3] 16:17 18:6 24:19	confirm [2] 56:9 75:21 confirmed [1] 6:16 confirms [1] 75:16 conflict [1] 89:23 conflicting [1] 82:14 conflicts [1] 89:19 confuse [1] 99:17 confusing [2] 95:5,21 conjunction [1] 57:21 connected [1] 28:13 conscious [1] 98:1 consciously [1] 11:14 conservation [6] 72:13 76:18,21,25 77:2,8 consider [1] 23:3 considering [1] 96:21 consistent [3] 2:18 73:9 98:23 constantly [1] 81:6 Constitution [1] 9:2 constraints [1] 70:15 constructed [1] 67:14 constructing [1] 88:20 construction [10] 14:1 14:3,5,14 18:10 20:3,5 51:5 86:9 89:25 consult [1] 4:16 consultant [1] 25:1 Consultants [1] 76:25 consulting [3] 16:19 20:13 80:1 consumer [4] 5:11 96:13 96:20 102:13 consumers [5] 2:17 15:2 22:9 73:7 97:25 consumes [1] 44:1 consumption [10] 16:6 41:18 47:17 50:15 51:15 51:20,24 53:25 64:21 77:13 context [1] 91:19 continue [5] 3:15 15:13 21:19,21 22:18 continued [2] 15:24 22:14 continues [1] 22:8 continuous [1] 54:5 continuum [1] 19:8 contract [11] 1:21 3:3,7 4:18,23,25 8:5 9:1 18:12 33:3 94:23 contracting [1] 18:11 contractor [1] 49:10 contracts [2] 31:13 72:7 contradict [1] 75:18 contrary [1] 75:17 contrasting [1] 77:21 contribute [1] 17:20 contributes [3] 44:6 56:22 58:11 contributing [1] 18:17
---	--	---	--	---

contribution [2] 18:23 50:22 contributions [2] 40:19 53:2 control [11] 2:10 10:4 22:20 31:14 32:15,18 34:24 50:21 68:24 73:3 86:9 conversion [2] 50:4 59:4 conversions [4] 40:21 47:5 49:4,9 convert [4] 47:5 49:1 58:24 62:25 convince [1] 71:20 convinced [1] 82:11 coordinated [1] 42:11 COP [7] 55:10,14,16,17 55:19 64:10 65:9 copy [1] 38:7 core [3] 17:2 24:6,8 Corner [1] 9:13 corporation [1] 59:17 corporations [1] 59:14 correct [1] 104:3 corrosion [1] 46:10 cost [64] 2:18,24 4:4 5:16 6:6,16,21 7:2,2,21,23 8:2 8:8 11:7 15:3 16:14 19:16,16 30:24 31:1,10 32:2 33:11 36:16,21 39:24,25 45:5,11 49:9 49:15,16,18 56:2 57:25 60:25 61:5 62:23 64:3 65:13 68:22 69:7 70:4 73:8 77:14,18 83:10,12 86:2,11,17,20 87:2 88:19 89:9 90:20 94:7 96:12 96:13,16,19 98:3 99:7 99:11 costing [1] 95:8 costly [1] 59:12 costs [11] 20:24 21:22 22:17 58:23 59:4 60:19 62:13 63:23 87:5 88:16 90:20 counsel [1] 1:15 countertop [2] 62:10,12 countries' [1] 15:12 country [1] 79:15 couple [3] 64:2 94:8 99:23 course [1] 102:18 cover [5] 61:9,9 70:10 86:12,21 coverage [8] 46:15,16 46:21 47:10,12,19 48:5 48:11 CPW [1] 4:8 crazy [1] 8:21 create [1] 18:12 created [1] 10:23 credible [5] 20:23 24:9 24:10 25:1 91:20 crisis [1] 10:14	criticisms [2] 69:19 72:16 crucial [2] 93:19 95:13 crucified [1] 61:23 crude [1] 20:15 crunching [1] 99:4 cubic [2] 34:10 84:2 cumulative [1] 21:10 current [10] 4:10 11:1 41:23 43:6 55:24 77:2 81:7,8 82:4 86:25 curve [1] 47:13 cushion [1] 86:11 customer [5] 33:22 34:6 43:8 44:22 59:6 customers [7] 33:20 42:21,25 58:16,23 75:23 77:25 customers' [1] 59:3 cut [2] 53:10,21 <hr/> -D- <hr/> D [1] 48:1 D'Espoir [1] 34:22 dam [3] 34:11 74:2 86:16 damn [1] 11:15 dams [2] 31:13 86:15 danger [2] 30:6 63:1 dangerous [2] 11:13 81:24 Danny [1] 3:4 data [11] 49:23 50:14 51:7 53:5,7 54:8 57:11 58:7,21,22 71:8 date [2] 4:14 102:7 dated [2] 95:16 104:9 daunting [1] 36:6 Dawn [1] 89:21 days [3] 4:9 53:12 84:25 deadlines [1] 91:22 deal [20] 8:22 24:19 31:7 36:25 67:19,21,21,22 68:13 69:13,17 87:25 90:2 92:1,9 96:9,9 97:20 99:24 100:2 dealing [2] 35:17 37:13 deals [1] 33:14 death [1] 101:23 debate [2] 2:9 12:23 debated [1] 2:20 debates [1] 2:5 debt [4] 9:24 31:2 35:15 68:7 decade [1] 72:8 December [1] 44:8 decided [1] 69:16 decision [7] 16:18,18,20 19:12 24:20 36:6 74:1 decision-making [1] 25:3 decisions [3] 54:11 62:8 72:23	decline [2] 51:15 98:8 decommissioning [1] 7:19 decreasing [1] 50:23 deduct [1] 7:25 deeply [1] 70:6 Deer [1] 29:19 defensibility [1] 42:7 deficit [2] 14:21 94:1 deficits [1] 14:22 defined [1] 6:1 definitively [1] 100:9 degree [2] 49:12 93:14 degrees [4] 29:13 51:1 52:2 64:18 delay [1] 74:10 delays [1] 90:20 deliver [2] 5:7 71:15 delivered [2] 2:16 73:7 delivering [1] 11:6 demand [36] 15:11,11 15:14,17,18 21:23 22:4 40:18 42:6 44:1 45:22 45:24 46:13,23,25 47:3 47:14 48:24 49:20 50:16 52:17,20 53:10 70:1 72:13 74:16 75:14 76:1 76:6,16,18,25 77:2,8,23 97:14 demanded [1] 28:19 demands [4] 9:18 29:9 77:24 88:9 democracy [1] 100:12 democratize [1] 100:10 demographics [1] 76:6 demography [1] 96:24 demonstrated [1] 71:11 density [1] 76:14 dependent [5] 21:17 55:12 56:10 89:9 95:4 depending [2] 30:17 69:19 deployed [1] 19:6 depressed [1] 52:4 derived [2] 80:21 82:4 described [1] 45:21 description/definition [1] 23:17 descriptions [1] 85:22 design [5] 39:12,14 40:4 42:5 87:3 designed [3] 58:4 83:16 91:13 desirable [1] 39:25 desire [1] 83:5 desperately [1] 79:5 despicable [1] 3:14 despite [2] 86:8 90:12 destined [1] 75:6 detail [2] 16:10 36:8 detailed [3] 42:19 43:8 48:21	details [3] 41:19 67:9 74:9 determine [4] 3:23 49:20 85:24 87:9 develop [4] 36:22 41:10 41:16 42:10 developed [3] 3:5 19:25 79:14 developing [3] 15:12 43:2 91:2 development [20] 11:6 13:12,13 14:1,20 17:14 18:4,21 24:22 36:19 78:8 90:4,10,15 94:11 95:1 95:19 96:13,17,23 developments [3] 14:7 20:7 67:6 devil [1] 74:8 DG [1] 16:18 dial [1] 72:25 diameter [1] 85:2 diesel [3] 5:14 79:8,19 diesels [1] 28:1 difference [1] 21:9 different [8] 6:23 7:12 36:22 68:2,2 81:14 85:21 87:18 difficult [5] 3:23 28:20 36:14 45:4 69:17 dig [1] 65:17 digits [1] 35:18 diligence [2] 91:4,5 dim [1] 55:25 direction [2] 5:23 11:1 directly [2] 14:6 79:22 director [1] 1:19 Directors [1] 16:7 dirty [6] 5:14 6:24 7:13 7:15,22 12:22 disappointed [1] 67:1 disaster [2] 10:2 89:14 discovered [1] 96:1 Discoveries [1] 104:12 discrepancy [1] 81:3 discuss [1] 83:7 discussed [1] 53:13 discussion [5] 8:20 68:15 74:6,18 88:21 discussions [2] 28:4 74:16 dishwashers [1] 43:15 dismissed [2] 83:23 85:7 displace [1] 17:15 displaced [1] 23:5 displacing [1] 17:19 disregard [1] 90:16 disruptions [2] 90:16 90:19 distributes [1] 42:23 distribution [3] 2:14 56:3 73:5 ditching [1] 65:16	diversify [1] 17:25 divide [2] 64:25 69:24 diving [1] 67:9 document [1] 80:13 documentation [1] 6:12 doesn't [3] 32:9 98:10 98:10 dogs [1] 100:2 dollar [6] 4:6 8:6 34:17 34:24 82:1,11 dollars [18] 6:11,13,22 7:1,3,8,24 8:2 9:21 10:10 30:24 35:4,20 46:8 67:19 95:9 96:5 99:23 domestic [25] 15:8 16:6 19:14 41:4,11,12,18 42:13,24 43:13,19,22,25 44:10,17 45:18 46:11 47:15 48:11,18 52:20 53:20 58:17,23 59:6 dominant [1] 43:22 done [12] 6:22 16:21 18:16 24:15 29:2 45:6 46:4 48:20 53:23 58:7 84:19 91:19 door [2] 96:2 99:22 dotted [1] 51:22 double [3] 78:3 79:3 90:25 doubt [2] 31:10 90:19 down [14] 7:9 30:22 32:7 40:17 48:12 61:11 62:3 62:14 63:4 64:21 94:2 98:3 99:12,15 Dr [3] 9:25 77:11 84:18 drastically [1] 97:23 drawing [1] 71:23 drive [2] 40:17 98:2 driven [1] 10:25 driver [3] 14:19 15:18 45:18 drives [1] 76:6 driving [1] 44:24 drop [6] 51:19 52:16,19 89:4 98:5,6 dropped [1] 21:8 dry [1] 84:5 dryers [1] 43:15 duct [1] 54:22 due [10] 17:22 30:3 44:11 53:5 55:8 56:17 88:10 91:4,5 101:22 Dumaresque [6] 1:11 1:13 12:9,19,24 13:3 Dunderdale [1] 10:6 duration [2] 29:7,11 during [5] 18:10 29:10 32:12 52:3,5 <hr/> -E- <hr/> e [1] 42:6 early [3] 26:23 28:16 51:20
---	--	--	---	--

earned [1] 9:20 earth [1] 10:13 ease [1] 65:13 easier [1] 45:9 eastern [1] 33:15 easy [2] 6:1 88:10 echo [2] 93:17 101:2 economic [7] 4:3 15:17 17:21 18:1 71:13,21 88:10 economical [2] 83:19 95:20 economically [1] 16:1 economies [1] 15:12 economist [3] 9:24 77:11 93:11 economy [1] 10:12 Edison's [1] 54:19 education [1] 18:3 effect [3] 40:16 48:3 73:16 effective [7] 32:2 40:1 45:6,11 48:5 49:9 62:24 effectively [1] 58:1 efficiencies [1] 56:9 efficiency [28] 39:18,18 39:20,24 40:2,10,11 42:3 44:22 45:3,8,19 46:24 48:4 49:15 53:3 55:9 58:13,14,20 59:1,2,9,12 59:15,16,16,18 efficient [11] 45:10 48:18 49:2 56:14 57:13,20,21 57:24 58:4,9,24 effort [3] 36:12 68:3 74:17 efforts [1] 36:7 EIA [1] 21:1 EIA's [1] 21:4 eight [2] 7:11 35:22 either [4] 33:23 84:16 88:25 95:6 electric [20] 40:21 42:4 43:13,14,21,25 45:12 46:8,19 49:5 54:13,21 54:22,23,25 56:24 57:3 72:24,25 97:24 electrical [10] 2:10 15:4 39:11 40:15 43:18,21 49:3 50:3 55:6 73:3 electricity [25] 5:17 9:9 15:2,8 17:1,8,12 20:17 21:24 22:10,16 23:6 59:2 59:6 73:2,17 77:17,18 77:25 88:14 90:24 96:3 96:7,19 97:4 electromechanical [2] 50:7 55:5 electronic [1] 55:7 eliminate [4] 7:1 49:6 55:24 77:14 eliminated [1] 74:5 elsewhere [1] 19:6 embarking [1] 11:13	Emera [11] 11:10 31:23 74:9 88:18,18,22,23,24 89:5,6,8 emergency [1] 82:19 emissions [4] 17:17 22:22 23:7 25:23 emitting [1] 17:15 employ [1] 52:19 employed [1] 19:23 employment [3] 18:8,9 19:2 encompassing [1] 36:12 encourage [1] 62:22 end [20] 19:15 20:1 24:1 31:5 35:14 41:25 42:2,3 42:4,12,15 43:13,22 47:7 57:11 58:6 90:18 97:12 98:3 102:10 end-use [17] 41:4,10,14 41:17,19,25 42:20 43:7 43:7,9 49:23 53:5,7 54:8 56:8 57:18 58:21 energy [114] 2:7 3:5,18 4:22 5:13,18 8:22 11:5 11:17 13:25 14:12,21 15:7 16:6,16 20:11,12 20:13,14,19,25,25 21:4 21:5 23:11 25:2 30:14 31:5 39:19 40:15,17,20 41:12,18 42:3,17 43:12 44:2,6,11,22 45:22 46:6 47:16 48:11,14 49:8,15 49:20 50:15 51:15,19 53:2,15,16,20 54:2,8 55:8,17 56:6,9,14,21 57:1,5,18,19,22 58:4,8 58:12,14 59:7 62:9,23 64:21 68:18 70:2 71:12 71:21 76:16 78:5,13,20 79:13,25 80:1,2,4,8,13 80:18,20,22,24 81:10,12 81:13,22 83:1 85:4,13 88:6,8,9,12 89:10 95:25 97:22 98:2,3,4,6 engineer [3] 18:20 39:13 93:11 engineering [4] 18:16 20:5 39:9,11 engineers [1] 40:2 England [1] 94:25 enhanced [5] 45:25 48:5 48:8 49:13 50:10 enhances [1] 95:18 enjoy [1] 15:6 enjoyed [1] 60:8 ensure [2] 14:24 69:6 ensures [1] 24:24 ensuring [1] 87:23 enter [1] 31:6 entice [1] 94:4 enticing [1] 95:12 entire [1] 30:10 envelope [1] 57:16 enviable [2] 15:6 17:12 environmental [4] 3:24 21:22 58:18 70:24	environmentally [1] 16:15 envisage [1] 96:6 EPCM [1] 20:4 EPMC [1] 24:10 equipment [3] 22:20 50:17 60:21 equity [3] 85:4 90:1 100:3 equivalent [2] 53:16 56:13 error [1] 53:4 errors [1] 52:25 escalator [2] 68:4 89:12 escape [1] 10:13 ESP [2] 6:14 7:17 especially [2] 67:3 96:21 essays [1] 94:14 essential [2] 58:22 89:12 essentially [1] 57:5 estimated [2] 78:4 84:20 estimates [2] 24:14 84:3 estimation [1] 76:23 et [2] 40:21 59:16 evaluated [1] 71:5 event [1] 4:21 eventuality [1] 86:12 ever-increasing [1] 77:22 everybody [3] 1:3 72:23 94:14 evidence [3] 25:21,23 36:5 exactly [4] 70:21 82:14 82:22 96:12 examination [2] 69:25 70:13 examine [4] 74:13 91:8 91:9,25 example [7] 42:15 53:7 60:5 72:12 75:20 78:2 86:24 exceed [2] 51:2 78:11 exceeding [2] 65:11 78:16 Excellent [1] 96:9 except [3] 57:5 86:5 97:13 exceptionally [1] 55:9 excess [1] 5:12 excessive [1] 56:19 exclude [1] 73:12 exclusively [3] 13:21 71:7 73:22 executed [1] 24:1 execution [4] 20:1,2 74:11 90:17 exhausts [1] 101:9 exist [1] 77:24 existing [8] 9:1 29:16 31:19 32:5 34:8 35:7 49:3 52:23	expanding [1] 78:1 expansion [1] 78:4 expect [4] 50:10 55:18 55:20 91:15 expected [3] 51:23 55:15 78:10 expecting [1] 47:23 expended [1] 39:20 expenditure [1] 8:13 expenditures [3] 8:16 18:2 99:8 expensive [4] 31:12 34:3 65:8,20 experience [3] 20:7 75:6 97:2 experienced [4] 17:9 20:4 96:22 98:8 experiencing [1] 75:2 expert [2] 84:21 98:9 expertise [1] 18:18 experts [3] 4:17 70:16 82:16 expires [3] 3:7 4:23,25 explain [1] 81:5 explanatory [2] 41:24 43:6 export [11] 15:8,9 18:5 87:11,22 88:3,8 95:5,5 95:14,17 exported [1] 79:14 exposed [1] 15:23 express [1] 28:6 expressed [1] 4:1 extensively [1] 56:1 extra [1] 53:17 extract [1] 79:20 extreme [2] 46:3 97:2 extremely [2] 18:22 34:21 eyes [2] 3:6 85:11 -F- fabrication [2] 14:5 17:2 face [2] 83:4 86:13 faced [3] 2:4 30:25 62:8 facilitate [1] 49:4 facilities [5] 2:13 28:19 31:21 82:5 83:3 facility [4] 22:19 31:4 33:3 82:8 fact [6] 56:7 75:17 76:22 81:21 86:8 90:12 factor [8] 23:2 40:11 43:23 44:7,23 47:19 50:24 59:1 factored [1] 23:1 factors [4] 25:4 40:19 85:24 87:3 factory [1] 50:12 factual [1] 92:10 Fahrenheit [2] 49:12	52:3 failure [1] 67:15 fair [1] 51:19 fairer [1] 87:25 fairly [1] 38:1 fairness [1] 89:13 fall [5] 51:18 55:20 64:16 68:18 80:23 Falls [86] 2:3,22 3:22 4:8 4:23 5:3 7:5,7 8:9 10:1 10:16,22 11:4,19 13:13 14:8,20 15:1 16:2,11,13 17:5,14 18:16,25 19:3 20:9 22:2,5,11 23:4,15 24:23 25:5 28:3,9 31:12 31:23 32:14 33:13 36:11 36:23 37:1 67:4,10 68:14 68:19,23 69:11,13 70:23 71:14 73:17 74:3,25 75:3 75:8,24 77:15,19 78:22 79:6 80:7,25 82:3,12 83:10,13,17 84:15 85:25 86:19 87:5,10 88:16 89:18,24 90:9,17 91:3,8 91:10,18 98:4 99:12 104:4 familiar [1] 19:13 family [1] 101:23 far [4] 20:22 81:23 89:19 90:11 fatal [1] 73:25 favour [3] 4:8 8:6 91:2 favoured [1] 83:13 February [7] 4:9 29:12 51:14 102:9,11 104:6,10 fed [1] 85:1 federal [1] 22:21 feed [1] 5:10 feedback [1] 53:8 Feehan [1] 77:11 feet [5] 34:10 61:11,14 63:12 84:2 Fermeuse [1] 29:19 few [6] 8:17,23 35:8,18 53:12 62:11 fiction [1] 56:7 fight [1] 100:2 figure [1] 49:13 figures [1] 95:12 filed [1] 102:12 filled [1] 11:3 final [8] 12:7 37:14 60:1 90:3 92:11 101:18 102:3 102:7 Finally [2] 9:19 89:16 Finance [1] 10:8 financial [10] 5:22 6:4 10:2 21:20 68:20 71:16 85:18 86:23 89:14 97:2 financially [2] 24:23 28:9 financials [3] 69:9 90:14 90:18 finding [1] 41:2
--	--	---	---	---

fine [1] 56:11 firm [4] 20:6,13 24:6 80:1 firmly [1] 5:17 first [19] 5:25 7:14 10:5 24:5 28:14,15 51:11 72:2 72:5,25 74:21,23 83:22 86:2 88:2 93:4,16 94:10 94:18 fishery [1] 29:23 five [10] 6:21 33:11 35:19 38:18 39:12 45:25 62:14 63:23 64:8 75:23 five-minute [1] 38:15 fixed [2] 89:7 97:3 flaw [1] 73:25 flawed [1] 72:4 flexibility [1] 23:19 flick [1] 63:18 flies [1] 83:4 flimsy [1] 82:1 flip [1] 98:4 floor [1] 62:4 flow [1] 72:14 fluctuating [1] 21:17 fluorescent [1] 56:5 focused [2] 13:21,23 following [5] 3:19 9:12 28:3 50:14 69:24 follows [2] 2:12 5:8 foot [5] 50:3 51:2,3,5 62:4 force [1] 19:5 forced [1] 79:18 forebay [1] 32:18 forecast [16] 14:20 20:18 20:23 21:3 28:19 41:5 41:13 43:3,11 44:12,18 45:2 47:22 48:1 58:11 96:22 forecasting [8] 40:24 41:10,19 42:7,17 44:25 49:24 58:20 forecasts [5] 20:11,18 40:7,16 53:3 foregoing [1] 104:2 foresee [1] 8:21 foreseeable [1] 30:7 forever [3] 5:15 9:10 11:18 fork [1] 68:12 form [1] 22:24 former [3] 1:18 3:4 10:3 formerly [1] 90:7 formula [1] 44:13 formulas [2] 40:13 53:1 fortunate [1] 28:17 forward [5] 15:13 71:25 74:25 80:6 83:20 fossil [1] 49:6 found [4] 60:5 77:2 84:6 86:17	four [5] 45:19 62:14 64:8 81:2,23 frame [2] 52:5 68:21 frameworks [1] 3:24 fraud [1] 11:3 free [4] 17:14 49:2 88:22 88:23 fridges [2] 43:14 57:13 friendly [1] 16:15 friends [1] 98:18 fringe [1] 30:9 front [2] 19:15 20:1 frustration [1] 79:16 fuel [3] 20:23 21:7 97:24 fuels [1] 49:6 full [7] 3:8 32:24 46:21 47:9 48:5 71:10 84:24 fully [1] 52:5 fundamental [1] 89:13 furnace [1] 54:22 Furthermore [1] 9:11 future [26] 2:7 8:18 9:12 14:19 16:24 18:18 20:22 21:18 22:16 29:21 30:7 31:9 34:13 40:14 41:18 43:3 45:2,5,9 70:5 78:20 80:4 81:6 82:24 89:15 89:17 <hr/> -G- <hr/> gains [2] 53:4 58:20 gambling [1] 86:13 game [1] 33:21 gas [29] 9:14,15 13:15,21 13:25 14:17 15:17 17:3 17:15 19:24 20:16 22:22 27:25 34:16 72:14 80:15 80:16 81:22 83:22 84:2 84:6,8,12,20,22 85:1,10 88:11 96:1 Gate [1] 19:12 gates [2] 31:14 34:24 gathered [1] 71:4 general [4] 10:3 42:13 42:25 59:9 generally [6] 29:10,14 34:16 50:8 55:10 65:9 generate [3] 16:3 23:6 32:19 generated [2] 3:16 95:25 generates [1] 24:24 generating [12] 15:22 22:15 28:18 30:8,9,19 31:4,20 32:1 34:11,23 49:3 generation [26] 2:21 6:21 7:11,16,23 17:16 22:9 24:8 25:2 29:15 30:1 32:4,10 33:6,18 43:3 49:16,19 56:17 59:13 70:24 79:9 83:1,3 88:12 95:8 generations [2] 14:19 34:12	generator [1] 29:8 generators [2] 30:5 31:15 Genesis [1] 78:3 gentlemen [5] 1:16 13:10 35:25 93:6 100:7 GHG [2] 17:17 25:22 gigawatt [6] 44:2,17 47:17,18 48:14 98:8 gigawatts [3] 44:13,14 44:15 girls [1] 94:4 giving [2] 5:7 93:7 global [2] 20:14 80:2 glut [1] 88:12 goal [1] 69:4 goals [1] 24:13 goes [2] 42:8 43:19 good [13] 1:3,25 5:24 13:9 34:21 40:16 46:20 54:11 55:13 62:6 96:8 99:24 100:1 Gordon [1] 92:25 government [19] 1:25 5:6 36:10 67:17,24 69:15 71:22 73:11 74:17,23 78:21 79:4 83:21 85:8 88:1 90:2,6 91:17 94:20 government's [3] 68:18 77:21 83:5 graduated [1] 39:10 Grand [2] 75:24 102:1 grandchildren [1] 95:22 granite [2] 62:10,12 granting [1] 11:21 great [6] 9:7 11:7 21:14 24:19 72:11 81:3 greater [3] 17:13 19:1 96:19 greatest [2] 10:12 11:17 Greece [1] 10:14 green [8] 5:11,13 9:4 48:6 51:17,22 52:9 83:6 GREENE [17] 1:6 12:14 25:12 26:16,20 27:3 37:20 38:13 60:10 66:4 66:14 92:17 100:22 101:11,16 102:21 103:1 greenest [2] 5:18 9:8 greenhouse [2] 17:15 22:22 grid [2] 28:13 76:1 ground [4] 65:7,9,12,14 group [3] 20:12 40:1 79:25 groups [2] 69:25 71:6 growth [9] 9:17 28:20 28:21 29:1,2 42:2 43:22 43:24 77:13 guarantee [1] 41:20 guaranteed [2] 4:24 97:13	guaranteeing [1] 3:21 guarantees [1] 89:25 guess [15] 1:9,12 11:24 23:9,25 26:10 27:11 39:5 48:16 51:20 60:8 64:11 66:2 81:16 99:10 guide [1] 74:11 guidelines [1] 58:5 Gull [3] 16:11 71:15 91:3 guys [1] 25:24 <hr/> -H- <hr/> half [4] 53:21 77:13 81:2 81:23 hand [4] 36:17 51:17 83:23 85:7 handed [1] 11:1 happy [1] 11:9 Harbour [3] 18:24 75:25 94:2 hard [6] 9:3,20 36:15 76:23 86:22 87:10 hardships [1] 97:2 hardwood [1] 62:3 health [1] 97:25 heard [5] 10:21 12:5 71:3 93:16 104:4 hearing [2] 71:9 104:3 hearings [3] 10:19 67:2 73:11 heat [39] 40:21 43:14,22 43:25 45:23 46:8,19,24 49:11 50:8,9,25 52:1,4 52:18 53:13,20,21 54:3 54:6,18,20 56:13,17,18 56:19,22 57:2,23 60:24 61:2,4,5,9 62:9 63:7 64:18 65:6 72:25 heater [6] 54:16,21,22 54:23 56:24 63:9 heaters [6] 46:5 50:4 54:24,25 56:25 57:3 heating [28] 39:16 42:15 43:14 44:4,7 45:12,13 45:19,19 46:25 47:25 48:4,19,19 50:7,17,19 50:25 52:2,21 53:9 54:13 54:20 55:5 57:21,24 58:24 88:11 heavily [2] 95:24 97:9 Hebron [2] 18:24 23:14 held [1] 36:2 help [2] 40:17 70:8 helps [1] 19:4 hereby [1] 104:2 Hibernia [2] 84:23 100:3 high [19] 30:17 32:1,12 34:9,19 39:13,20,24 45:20 46:3,23 48:3 54:17 55:9,13,24 79:18 99:9 99:13 higher [4] 15:14 39:22 76:14 87:2 highest [1] 11:3	highly [6] 45:10 50:11 57:21,24 58:9,24 history [5] 33:25 67:18 68:2,9 87:20 hit [2] 30:21 87:10 hold [2] 32:17 81:4 holding [1] 67:2 holes [1] 84:5 Holyrood [26] 4:7 6:15 7:9,19 8:14,15 15:22 21:16,19 22:3,8,14 23:5 30:8 31:4 34:22 49:7 82:5,6,8,15,17,23 83:25 84:24 97:10 home [2] 61:8 67:3 homes [2] 47:5 52:18 hope [6] 70:9 91:22 92:3 98:9,10 101:1 Hopefully [2] 57:8,10 horse [1] 63:7 hot [1] 57:14 hour [3] 34:3 47:18 96:14 hours [7] 44:2,17 47:17 48:15 54:5,7 98:8 house [5] 1:18 2:6 45:20 54:25 60:14 household [1] 53:19 houses [3] 40:20 46:14 47:18 housing [1] 76:15 hovering [1] 80:19 HST [1] 61:4 huge [1] 78:16 humidity [1] 50:20 hundred [3] 35:20,22 64:14 hybrid [1] 55:6 hydro [41] 1:20 3:11 5:2 8:23 15:8,25 16:22 20:7 21:6 22:12 24:7 28:1 33:18,23 39:13 40:5 41:7 41:15 42:9 43:1 44:3 49:3,23 56:7 58:2,4 67:17 72:18 76:24 78:25 79:11,13,20 82:5,12,25 88:12,13 96:21 98:7 99:6 Hydro's [2] 29:2 42:19 hypothetical [1] 77:22 <hr/> -I- <hr/> ice [1] 30:21 Iceland [1] 10:12 idea [2] 61:7 95:15 ideal [1] 70:14 ideological [2] 93:17 101:2 IEA/CIA [1] 21:2 ignore [3] 10:11 68:19 85:14 ignored [1] 76:17 Ignoring [1] 90:15 illusion [1] 37:3 illustrates [1] 51:6
---	---	---	---	--

imagination [1] 93:23 imagine [2] 9:3 68:2 impact [10] 9:14 15:16 70:5,25 73:12 74:13 76:18 89:16 90:4,13 impacted [2] 15:3 90:9 impacts [2] 73:18 92:1 implement [1] 41:17 implementing [1] 6:6 implicated [1] 67:5 implications [1] 6:4 importance [3] 13:13 56:8 72:11 important [11] 2:5 18:14 18:22 23:24 67:12 71:7 71:19 72:22 75:22 76:5 95:15 importantly [1] 72:8 imported [2] 21:15,18 improve [4] 19:4 41:20 42:1,5 improved [1] 46:2 improvement [3] 41:21 46:6 64:15 improvements [6] 44:23 45:4,6,9 50:12 59:13 improves [3] 19:16 42:6 50:24 imprudent [1] 77:20 in-feed [2] 49:17 82:18 in-floor [1] 54:23 in-flows [1] 32:11 inaction [1] 14:25 Inc [1] 104:12 inch [1] 53:24 include [2] 42:15 49:13 included [3] 2:9 6:18 61:4 includes [4] 7:7 8:12 61:2 70:17 including [3] 1:22 20:24 80:24 Inco [2] 18:24 78:15 income [1] 87:21 incomes [1] 97:3 incorporate [2] 42:4,13 increase [6] 18:5 21:24 33:6 40:20 50:22 75:13 increased [4] 18:2 22:3 63:1 74:24 increases [4] 20:2 22:1 22:7 59:5 increasing [7] 15:11 21:25 64:5 77:23 78:23 79:16 97:1 increasingly [1] 22:22 incur [2] 21:21 35:15 incurred [3] 7:24 8:17 22:17 indeed [1] 10:12 indefinite [1] 74:10	independent [11] 16:20 19:19,20 70:19,22 71:3 71:20 72:5 73:16 75:16 75:18 indicated [2] 51:7 82:25 indicators [1] 28:24 indispensable [1] 40:3 individual [2] 28:8 45:20 individuals [1] 97:1 indoors [1] 57:20 indulgence [1] 87:14 industrial [13] 5:9 9:18 13:24,25 14:5 16:24 17:1 17:7 18:2 33:22 42:14 75:23 95:1 industries [2] 13:7 17:11 industry [4] 9:14 13:19 19:14 79:23 ineffective [1] 58:9 inefficient [1] 55:3 inevitable [2] 67:21 93:21 infamous [1] 9:24 infeed [5] 6:7,19 7:6,18 82:2 inflows [1] 34:9 information [21] 21:1 26:1,5 39:9 42:12,16,22 53:8,18 54:9,9 64:6 69:18 70:11 71:5 75:21 80:18 81:8,8 86:23 94:11 infrastructure [10] 14:15 15:23 17:4,8,17 30:10 33:4 68:6 84:13 84:16 inherent [1] 3:20 initiates [1] 36:10 initiative [1] 89:17 Innu [1] 89:23 input [3] 40:13 64:23 91:20 inrush [1] 55:24 insist [1] 2:24 install [2] 46:16 54:1 installation [11] 45:25 46:20 48:6,7,10 49:13 49:25 50:1,10 51:7 60:18 installed [6] 44:3 49:10 52:14 61:12 63:15,20 installing [1] 6:14 instead [2] 71:24 84:11 insulating [1] 57:14 integral [1] 94:19 integrate [1] 42:16 integrated [1] 85:13 intelligence [2] 20:15 80:3 intended [1] 98:13 intent [1] 40:7 intently [1] 10:19 interconnected [1] 33:24	interest [1] 28:4 interested [6] 1:22 3:2 28:8 38:7 71:6 76:22 interesting [1] 65:23 interests [1] 70:16 Intermediate [2] 80:9 80:12 intermingled [1] 37:4 international [11] 16:22 18:5 19:15,24 20:13 21:6 22:23 40:6 72:18 80:1,4 intertwined [1] 70:6 intervals [1] 34:19 introduce [1] 27:23 inverter [1] 55:22 invertors [1] 46:24 invested [1] 95:24 investment [3] 28:10 60:15 65:4 investors [1] 99:25 involved [3] 6:2,6 23:10 IOC [1] 78:2 Iron [2] 78:12,12 Irrespective [1] 4:15 irresponsible [1] 85:12 island [47] 2:22 4:5 5:10 6:7,9,10,15,23 7:13,15 8:7,12 9:17 14:24 15:20 16:11,11 18:9 20:9 21:25 28:18 29:15,16,25 30:19 31:22 32:5,11,15 43:4 43:21,23 46:11 47:15 49:19 71:15 75:1 77:23 79:2 83:14,15,18,24 85:1 91:3,12 97:9 island's [2] 42:24 82:4 isolated [17] 4:5 6:7,9 6:10,15 8:6,12 15:20 16:10 28:11,15 49:19 79:7 83:14,15,18 91:12 issue [12] 1:20 2:4 39:17 59:8 73:12 76:19 83:6 88:2 89:14,16 94:3 97:6 issues [15] 34:12 59:15 66:16 70:6 85:18 89:23 90:6 92:10,10 93:19,21 94:8 98:12,14 100:5 item [1] 7:21	Jones' [1] 93:13 jot [1] 94:2 Judy [2] 104:2,11 jumps [1] 64:13 June [2] 32:14 51:16 justification [3] 71:11 80:6,25 justified [1] 71:21 justify [2] 78:21 85:9	<p style="text-align: center;">-K-</p> keep [7] 5:10 7:24 10:5 15:20 36:18,20 75:4 Keepers [1] 102:2 keeping [1] 85:11 Kennedy [3] 75:1 83:9 97:19 Kennedy's [1] 75:5 key [4] 14:11 41:2 44:23 89:17 kilometres [4] 30:18,20 30:22 74:3 kilowatt [3] 34:3 49:11 96:14 kilowatts [3] 53:20,22 64:25 kind [4] 48:13 54:9 62:2 95:23 kinds [1] 100:1 known [1] 90:7 Kruger's [1] 30:1	<p style="text-align: center;">-L-</p> L [1] 5:2 labour [4] 19:5,6 60:19 87:3 Labrador [55] 1:19,20 2:1 3:11,16 5:10,14 9:18 13:14,23 14:10 15:5 16:4 16:23 17:11,18 18:10,21 23:11 24:21 31:9 41:7 41:15 42:9,19 43:1 44:3 58:4 59:18 66:24 67:3 67:18 69:12,23 70:1 73:14 76:24 77:6,24 78:1 78:12 79:3,10,12,21 82:3 85:17 87:7,24 89:20 94:22 95:2 99:6 102:2 104:7 Labrador's [4] 17:6 18:1 19:3,25 Labradorians [2] 79:17 92:3 ladies [5] 1:15 13:10 35:25 93:6 100:6 lags [1] 77:6 Lake [1] 29:20 land [5] 67:6 70:5 89:17 89:23 90:8 large [7] 16:25 19:14 45:17 52:19,22 71:5 86:16 largely [2] 39:15 68:15	largest [3] 13:19 33:9 45:18 last [12] 8:23 9:25 10:8 23:24 28:14 29:11 48:16 63:23 64:2,11 72:8 75:23 late [1] 29:3 latitude [1] 70:10 laughter [1] 62:12 Lavalin [2] 20:6 24:11 law [2] 6:17 11:8 Lawrence [1] 29:19 laws [1] 2:11 lead [1] 90:19 leader [1] 69:23 leading [1] 20:12 lean [1] 10:7 leap [1] 45:21 learned [3] 68:8,10 89:10 least [7] 4:21 9:23 16:14 45:24 48:22 83:10 91:24 leave [8] 15:23 21:19 36:3 38:20,21 67:20 75:9 83:6 leaving [1] 8:1 left [3] 31:24 51:16 68:15 left-hand [1] 47:2 legacy [1] 36:2 legal [5] 1:15 4:16 8:24 74:11,15 length [1] 30:19 less [13] 22:7 49:16 56:12 56:17,25 57:2 59:12 60:17 89:5 97:24 99:2,3 99:17 lesson [1] 68:8 level [3] 76:7 77:5 79:16 levels [2] 78:23 88:15 levy [1] 25:25 lies [1] 87:12 life [2] 31:3,16 light [10] 35:13 37:6 51:11 52:14 54:19,20 56:5,13,22,23 lighten [1] 29:25 lighting [1] 43:16 lights [7] 55:25 56:12,20 57:17,20,22 72:24 likely [8] 19:8 22:23 41:20 47:10 53:4 58:10 62:19 96:17 limited [4] 16:19 42:20 91:8,10 line [25] 8:9 28:22 29:22 30:18 31:9 34:5 36:13 44:16 47:25 48:1,6,6,7,9 51:8,12,17,23 52:4,9,13 61:3 64:6 75:8 97:8 lines [7] 30:22 31:14 48:2 48:12,14 56:3 79:10 lining [1] 36:24 link [5] 20:10 31:11 86:6 86:6 88:20
---	---	---	---	---	---	--

listed [1] 80:12 listen [1] 36:5 listened [1] 10:19 listening [2] 93:13 102:7 literally [1] 84:1 living [2] 15:14 76:14 load [32] 9:16,17 28:20 28:22 29:1,2,9,25 30:11 31:22 32:3,14 33:15 34:19 42:2,7,11,16 43:24 43:25 44:4,7 50:23,24 50:24 55:21,21 64:9,9 64:16,22 82:21 loading [2] 19:15 20:1 loads [2] 63:1,4 local [2] 19:5 88:6 located [1] 30:13 Locke [1] 9:25 logic [1] 84:14 logical [1] 97:17 long-term [1] 43:2 longer [3] 23:6 35:6 57:3 longstanding [1] 72:6 look [17] 20:20 22:22 23:8,15,17 24:5 56:5 72:12 73:18 79:5 81:1 84:12 94:16 95:11 96:24 99:10,14 looked [4] 25:24 86:15 87:20 94:17 looking [9] 23:13 24:3 33:19 61:11 68:13 72:10 76:8 78:15 98:17 looming [1] 10:14 lose [1] 48:8 loss [1] 57:23 losses [1] 44:16 lost [2] 34:12 75:22 loud [1] 38:1 low [10] 32:14 40:8,9 44:7 45:14 64:9,16,22 65:13 88:15 lower [6] 56:2 70:23 83:12 87:17,19 90:4 lowers [1] 56:1 lowest [7] 2:17,24 9:8 11:6 69:7 73:8,20 lunch [2] 66:2,8 <hr/> -M- <hr/> machines [1] 38:2 mad [1] 100:4 madam [1] 66:18 magic [1] 28:24 magnitude [2] 19:18 31:1 main [1] 14:19 maintains [1] 50:25 maintenance [2] 27:25 30:5 major [16] 15:21 18:19 18:23 23:8,10 24:16	29:24 31:1 33:15 34:4 43:13 63:22 68:13 69:21 75:23 77:25 majority [1] 42:21 makes [5] 32:25 33:16 41:8 95:19 99:19 malfunctions [1] 50:18 managed [2] 2:15 73:6 management [10] 19:11 20:6 23:25 42:6 72:13 76:18 77:1,3,8 86:8 managing [2] 34:8 35:7 mandate [4] 72:10,20 73:1 87:12 Manitoba [14] 16:21 21:6 40:5 41:1,2 42:18 43:5 49:23 56:7 58:2 72:18 82:25 96:21 98:7 manner [2] 2:15 73:6 manufacturer's [1] 64:3 manufacturers [1] 64:4 map [1] 88:2 Marbek [1] 76:24 marble [1] 62:10 March [4] 44:9 51:14 102:13,13 Maritime [3] 86:5,6 88:20 market [8] 4:4 14:8 20:14 45:15 80:2 88:17 94:24 95:18 marketplace [3] 5:12 39:25 62:21 markets [7] 15:10 18:5 70:4 87:11,17 88:4 98:9 Marshall [1] 10:8 Martin [1] 99:9 material [1] 23:22 materials [3] 60:22 61:2 87:2 matters [2] 1:4 66:11 may [12] 2:20 32:14 35:23 37:1,7 41:20 56:11 61:11 84:5,14 85:24 90:13 mean [7] 7:11,14,23 21:16 23:16 61:22 99:5 meaning [1] 43:11 means [11] 7:9,10 21:23 22:15 32:18 55:10,16 76:15 83:11 88:22 104:8 meant [1] 46:15 measured [1] 55:10 mechanical [2] 39:15 55:7 media [1] 94:13 medium [2] 20:19 76:7 meet [4] 6:17 16:15 24:2 58:20 meeting [1] 2:8 megawatt [3] 30:9 34:17 78:17 megawatts [33] 5:8 6:20	7:10,22 29:4,6,15,17,22 31:25 32:3 33:8,9,10,17 44:1,3 46:13,14 47:1 48:23 68:24 78:5,9,11 78:14 95:8,11 96:4 97:12 97:15,16,17 member [1] 1:18 members [9] 12:17 13:14,18,20,22,23 14:4 15:2 37:23 membership [1] 17:3 memorandum [1] 95:16 Memorial [3] 39:10 77:12 84:18 mentioned [1] 25:1 merely [1] 98:15 merit [1] 4:4 met [2] 71:18 79:8 meters [1] 77:16 method [2] 45:25 54:16 methodology [2] 41:17 41:25 methods [6] 40:24 41:20 42:1,8 53:1 58:20 Metis [1] 90:7 MHA [1] 45:1 MHI [5] 5:24 6:12 40:23 41:8 56:7 middle [1] 35:11 midway [1] 50:18 might [9] 45:20 46:16 62:15,17 82:24 87:1 88:7 90:4 99:20 mighty [2] 5:3 11:19 Millennium [1] 78:8 million [15] 4:6 6:13 8:13 8:14 30:24 33:11 34:17 35:20,22 46:8 80:17,20 84:4 85:3 99:23 millionaires [1] 11:10 millions [1] 34:10 mills [1] 75:25 mind [3] 34:6 36:20 75:4 minerals [1] 17:23 mines [3] 78:9,12,12 minimal [2] 22:6 86:23 minimize [1] 24:2 minimum [1] 78:5 mining [3] 17:23 78:1,7 Minister [4] 4:10 10:8 74:25 83:9 minor [1] 35:14 minute [1] 87:14 minutes [1] 38:18 mirror [1] 48:13 miscellaneous [1] 43:17 misprint [1] 98:6 mistake [1] 35:19 mode [1] 52:23 model [4] 41:10 64:7,11 64:12 modelling [1] 41:14	models [5] 41:4 43:6,8,9 53:24 modern [2] 55:5 58:24 Modest [1] 50:12 modified [1] 94:9 momentarily [1] 55:25 Monday [1] 101:22 money [9] 5:13 9:20 21:19 35:21 69:11 89:5 89:7 99:24 100:1 month [2] 51:16 57:6 monthly [1] 20:20 months [7] 10:15 11:2 29:10 32:2 44:8 51:13 56:23 morning [10] 1:3,17 13:9 80:11,16 101:18,21 102:22,24 103:5 Moss [2] 104:2,11 most [21] 2:5 13:22 16:15 18:14 23:10 32:6 45:5 48:4 54:15 56:17 60:17 65:8,14 67:5,12 71:6 72:22 76:10 81:7 95:19 98:19 mostly [4] 36:1 39:15 44:8 54:19 move [2] 15:13 89:18 movement [1] 33:6 moving [2] 74:25 80:6 Ms [8] 66:19 92:13,15,18 92:20,22 93:13 96:18 multiple [1] 71:4 Muskrat [83] 2:2,22 4:8 7:5,7 10:1,16,22 11:4 13:12 14:7,20 15:1 16:2 16:11,13 17:5,14 18:16 18:25 19:3 20:9 22:2,5 22:11 23:4,15 24:23 25:5 28:3,8 31:12,23 32:8,10 32:16,21,24 33:12 36:11 36:23 37:1 67:4,10 68:14 68:19,23 69:11,13 70:23 71:14 73:17 74:2,25 75:3 75:8 77:15,19 78:21 79:5 80:7,25 82:3,12 83:9,13 83:17 84:15 85:25 86:18 87:5,10 88:16 89:18,24 90:9,17 91:3,8,10,18 99:11 104:4 must [4] 7:8 14:16 57:3 100:8 <hr/> -N- <hr/> Nalcor [50] 2:20 3:19 6:16,20 11:13 12:6 19:12 19:19 21:2,9 29:17 37:12 41:9 47:23 48:1 69:15 70:18 71:8,11,19,22 72:7 73:23 74:9,24 75:13,19 76:17,19,22 78:18,21 79:4,23 80:5 81:5,18 84:11 85:7,14 86:24 88:1 88:24 89:5,7 90:1,12 91:11 92:9 102:12 Nalcor's [10] 16:17 20:3 22:4 23:1 24:8 68:20	77:14 82:2 84:4 86:9 Nalcor/EMERA [1] 86:3 narrow [1] 72:9 Nation [1] 90:7 national [2] 18:4 20:24 natural [13] 4:10 9:14 20:16 80:14,16 83:22 84:2,6,8,12,20,22 96:1 Navigant [3] 16:19 72:3 72:5 near [1] 96:3 nearly [1] 78:9 NEB [1] 20:25 NEB's [1] 21:4 necessary [4] 6:17,25 7:18 8:10 need [26] 5:9,10 14:23 22:17 23:3 25:19 26:3 28:19 29:4 31:8 34:19 38:16,18 50:2 64:18 69:1 69:3 70:10 74:19 78:24 83:11 95:12 96:11 97:8 97:16 98:23 needed [5] 32:11 35:23 36:19 56:19,22 needs [13] 5:9 16:16 40:15,18,20 69:3 79:6 88:6 94:21 95:10 96:20 98:22,23 negotiate [1] 8:25 negotiations [2] 31:7 35:10 neighbour [1] 3:14 net [3] 8:2 21:10 59:5 never [3] 30:3 36:2 73:19 new [32] 6:21 8:8 9:24 11:1 17:10 18:2 22:20 28:22 31:7,8 33:18 42:4 49:16,18 50:25 53:22 57:1,16 59:11,13 67:5 76:1 78:1,6,8 83:2,11 89:21 94:25 96:1 99:7,8 newer [2] 56:15 64:12 Newfoundland [52] 1:20 2:1 3:10 13:6,14,23 14:10 15:5 16:4,23 17:6 17:11,18,25 18:21 19:3 19:25 23:11 24:21 28:2 29:18 39:13 41:6,7,15 41:16 42:9,10,18,22 43:1 44:2,10 45:15 47:6 53:19 54:14 55:13 58:3,3 59:18 67:18 69:12 73:14 76:23 77:6 85:16 87:7,24 94:21 99:5 104:6 Newfoundlanders [1] 92:2 NeWind [1] 29:18 NEWMAN [1] 25:16 news [1] 94:12 next [7] 3:13 9:11,21 13:6 38:16 92:25 96:2 niche [1] 94:17 NL [1] 104:9
---	---	--	--	---

nobody [4] 26:3 38:5 97:21 100:4 NOIA [6] 13:15,19,22 14:11 16:7 25:21 NOIA's [3] 14:4 18:15 23:9 noisy [1] 38:2 non [1] 73:22 non-crucial [1] 95:14 non-descript [1] 95:23 non-renewal [1] 14:13 none [1] 6:25 noon [3] 27:2,4,7 normal [1] 52:1 north [6] 9:9 15:9 28:13 79:7,15 85:10 northeastern [1] 88:14 Noseworthy [1] 10:4 notably [1] 84:7 note [6] 4:24 8:10 51:21 79:1 82:6,24 noted [1] 6:18 notes [1] 6:12 nothing [4] 26:10 74:7 89:4,11 notice [1] 51:19 Nova [12] 1:23 17:18 39:10 59:11,16 74:4 84:23 89:2 94:23 96:6,9 97:13 November [1] 70:21 now [32] 16:8 18:25 21:25 25:20 26:3,15 38:25 46:22 47:15 49:8 52:13 52:23 53:17 54:13 56:5 61:22 63:10 64:10 65:17 66:2 69:4 74:21 77:19 81:10 85:4 86:22 89:14 93:25 97:4,23 98:25 101:19 number [7] 21:14 48:1 93:18 94:1 96:25 99:4 99:15 numbers [4] 35:18 79:25 80:21 86:10 Nunatukavut [1] 90:6 <hr/> -O- <hr/> O'Reilly [13] 11:24,25 12:4 25:7,8 37:10,11 59:21,22 92:7,8 100:17 100:18 objections [1] 27:12 objective [1] 73:23 obligation [1] 2:23 obligations [1] 85:16 obsolete [1] 64:11 obtain [3] 49:23 55:13 58:21 obviously [2] 52:11 63:22 occupancy [3] 51:22 52:1,6	occupied [2] 51:23 57:16 occur [1] 67:6 Ocean [1] 13:6 October [2] 51:20 95:16 off [13] 5:14 11:1 22:13 32:12 48:23 51:19 52:16 52:19 64:6 78:24 81:23 82:9 84:3 offer [4] 49:18 55:8 58:19 96:3 official [4] 69:18,22 70:22 91:1 offset [1] 40:18 offsets [1] 59:7 offshore [5] 13:19 17:23 20:1 72:14 84:4 often [1] 59:12 oil [38] 6:24 7:13,15,22 9:15,15 12:22 13:15,21 13:24 14:17 15:7,11,17 15:17,21,24 17:3,19 19:24 20:16 21:13,16,17 21:22 22:2 34:23 35:3,4 40:21 49:4 78:22 81:11 81:19,20,21 84:6,7 old [4] 50:1 56:14,21 60:14 older [1] 76:12 ominous [1] 21:2 on-the-ground [1] 18:17 once [3] 11:21 14:3 74:1 one [32] 2:5 4:3 6:5 7:23 8:14 10:9 12:21 18:14 19:18 23:16 30:3 32:25 33:9 34:17 40:12 44:19 48:8 56:11,15 57:6 60:13 64:6,23 68:14 70:21 72:21 82:18 83:20 85:19 87:4 93:22 100:4 one-third [1] 57:25 ones [1] 33:2 ongoing [1] 14:2 online [2] 33:19 34:20 onshore [3] 84:11,13,20 Ontario [2] 41:1,3 onto [1] 78:25 open [2] 67:24 80:7 opening [1] 18:4 operate [1] 64:16 operated [2] 2:15 73:6 operating [8] 46:17 51:10 52:23 55:21 64:9 64:15 65:10 82:17 operation [5] 46:2 50:4 50:6 51:9 64:10 operations [2] 27:24 78:7 Opinaca [1] 33:8 opinion [3] 3:18 84:21 100:14 opportunities [5] 16:23 17:10 18:8,12 19:2 opportunity [8] 1:16	13:11 28:6 66:21,24 67:7 91:25 93:8 Opposition [2] 69:23 91:1 option [27] 4:5 6:7,9,19 7:2,6,9,18 8:1 14:25 16:12 25:5 28:9 34:7,18 49:19 82:13 83:10,12,14 83:15,16,22,23 85:6 91:12,12 options [8] 2:24 8:4 16:9 21:11 58:19 82:23 83:8 83:19 order [3] 1:10 11:4 69:5 ordinary [3] 11:11 93:12 98:17 original [1] 24:13 originally [1] 16:10 otherwise [2] 73:19 100:11 ours [1] 5:4 ourselves [1] 20:21 outcome [2] 68:1 70:17 outdoors [1] 57:17 outlook [2] 21:4,5 output [5] 32:1 33:12 57:23 64:24 78:3 outside [6] 32:17 33:13 70:8,16 87:12,22 outstanding [2] 71:13 90:8 overages [1] 24:3 overall [7] 18:6 43:23 44:7 50:15 75:13 76:3 90:22 overlap [1] 93:15 overrun [2] 86:21,25 overruns [8] 86:2,5,7 86:12,17 90:20 96:17,22 overruns/financials/export [1] 70:4 oversight [1] 68:11 own [3] 35:8 60:18 85:4 owned [1] 42:23 <hr/> -P- <hr/> p.m [8] 35:24 38:22,23 47:20 56:4 66:8 84:17 103:6 pace [2] 10:5 63:5 page [1] 80:7 pages [1] 10:17 paid [1] 22:13 pain [1] 35:12 panel [6] 71:1,2,7,10,20 75:19 panels [1] 97:25 paper [2] 9:13 75:25 Parsons [1] 84:5 part [14] 28:12 29:21 36:24 40:11 55:21,21 64:9 74:21,22 78:17 82:6 94:19 95:6,7	partial [1] 47:12 participation [2] 26:11 38:6 particular [4] 50:9 58:17 64:23 67:15 particularly [3] 13:22 52:15 65:18 partner [3] 41:15 42:9 58:23 parts [1] 86:5 party [2] 36:13 97:20 pass [1] 58:16 passing [2] 2:9 79:11 passionate [1] 5:19 past [6] 3:12 5:21 10:15 11:2 28:21,25 patience [1] 31:20 pattern [1] 52:11 pay [9] 8:7 22:9 89:5,6 94:5 96:8,12 97:4,9 payback [1] 65:3 payers [1] 16:1 paying [3] 88:25 97:3 99:19 peak [18] 18:8 29:6,9 40:17 42:17 44:1,4 45:3 45:8,18,24 46:13,23 47:13 50:16 52:8,22 54:5 peaks [2] 29:7 34:18 peer [1] 19:20 pegged [2] 6:11 7:7 PEI [1] 95:24 penetration [1] 45:14 Peninsula [1] 82:20 Penney [1] 4:20 people [36] 5:15,18 10:6 11:7 14:9,10 16:4 28:10 36:3 46:19 47:9,11 53:15 60:17 62:8,11,25 67:4 73:14,21 76:13,21 79:9 79:12,23 85:16 87:6,24 89:3 93:20 96:8 98:1,20 99:6,21 102:6 per [16] 22:7 34:3,17 44:14,15,17,21 49:11 50:3 51:1,3,4 77:7 80:10 80:13 96:14 percent [46] 3:15 8:8 17:13 21:8,11 22:7 30:11 30:11 31:23 42:24 43:20 44:5,6,20 45:4,23,24 46:6,14,15 47:9,13,19 48:10 50:16,17 56:16 59:2,3 64:14 75:14 77:4 77:5 83:2 84:22 86:4,7 86:11,17,25 94:21,22,24 95:10 96:4,7 perfectly [1] 30:13 performance [9] 49:14 50:11 55:11,11,14 64:5 64:13 65:1,12 performed [2] 39:19 91:5 Perhaps [3] 40:1 59:17 67:23	period [6] 47:4,7 51:10 52:3 57:6 91:23 permanent [1] 66:23 permits [1] 49:24 person [5] 3:9,10 5:5 46:16 98:17 personal [1] 43:16 persons [3] 71:3,6 96:25 perspective [3] 23:9 24:4 73:23 petroleum [2] 17:23 20:16 phase [1] 20:3 phases [2] 14:1 18:11 pick [1] 51:16 picks [1] 52:8 piece [3] 23:24 52:22 64:6 pipe [1] 85:2 pipes [1] 57:15 PIRA [9] 20:11,24 21:2 79:24,25 80:5,21 81:1,6 PIRA's [2] 20:18 21:3 place [7] 1:11 3:25 30:11 62:22 68:4 84:16 101:24 placed [1] 40:9 placing [1] 36:4 plan [16] 3:5,19 6:15 14:12 49:1 68:18 71:24 80:8,13,15,20,22 81:22 82:2 95:6,7 planned [3] 8:16 11:5 69:9 planning [1] 90:17 plans [1] 97:11 plant [10] 22:3,8,18 23:5 31:17,25 49:7 84:24 94:2 97:10 plants [4] 6:8 28:1 29:24 34:25 plays [1] 68:17 plus [1] 3:25 pocketbooks [1] 86:14 point [11] 18:15 26:25 31:18 37:2 47:2 48:16 51:8,25 52:4 68:25 96:11 pointed [2] 7:8,16 points [4] 9:7 56:7 71:4 91:21 pole [1] 30:23 policies [1] 67:25 policy [6] 1:24 2:3 3:18 3:24 72:11 80:24 political [6] 10:23,24,25 11:3,4 36:13 politician [1] 93:12 Politicians [1] 35:16 pollution [1] 22:20 Pond [3] 8:10 84:5 99:12 poor [1] 32:10 population [6] 30:12 76:3,7,8,12,13
--	---	--	--	---

Port ^[1] 55:1 portion ^[1] 79:2 portions ^[3] 12:7 37:13 59:25 Portugal ^[1] 10:14 position ^[7] 3:8,20 4:15 15:6 17:12 24:12 85:9 positioning ^[1] 69:19 positive ^[3] 24:24 50:22 53:2 possess ^[1] 41:24 possibilities ^[3] 33:1 85:12,14 possibility ^[1] 90:23 possible ^[11] 2:18 10:19 19:5 29:24 48:18 69:5,7 73:8,20 74:13 91:19 posted ^[3] 101:19 102:4 102:15 potential ^[14] 14:8 15:9 28:17 45:16 46:12 47:16 47:24 53:14 77:1 86:19 86:25 87:11,17 90:16 potentially ^[2] 14:22 97:3 power ^[111] 1:21 2:10,14 2:16,22,24 3:2 4:2,5,13 5:3,8,11,12,16 6:5,24 7:14 8:18,19,25 9:16,18 11:7 14:8 15:25 21:23 22:6,12 23:3 28:2 29:4 29:18,19,20,22 30:3,16 32:13,20 33:20 34:1,21 40:9,14,24 41:5,6,16 42:10,22,23 44:10,24 51:11,24 52:15,25 53:25 55:23 56:3 58:3,15 59:9 62:13 67:16,20 68:5,13 68:16 69:1,3,7 72:15 73:3,5,7,19 74:19 76:2,6 76:20 77:13,24 78:10,11 78:14,16 79:6,9,11,13 79:19,20,22 82:4 83:11 87:19 88:12,19,22,23 89:1,4,6,8 94:19 95:10 95:17 97:13 99:12 powers ^[2] 41:25 43:7 practice ^[1] 41:12 praised ^[1] 90:2 precisely ^[1] 21:13 predict ^[6] 21:13 28:21 40:14 41:4,17 97:22 predictability ^[1] 19:17 predictably ^[1] 16:25 predictions ^[1] 81:20 preferred ^[1] 91:11 preliminary ^[4] 1:4 27:12 66:11,16 premature ^[1] 77:20 premier ^[4] 3:4 10:6,24 67:23 premises ^[1] 12:22 prepare ^[1] 10:7 prepared ^[1] 96:6 preparing ^[1] 41:12	presence ^[1] 60:4 present ^[9] 1:17 21:10 45:2,2 50:18 66:21,25 67:7 97:11 presentation ^[13] 12:6 37:14 38:16,17 40:8 45:7 59:25 60:9 74:22 92:20 101:20,24 102:1 presentations ^[3] 12:8 84:19 101:17 presented ^[3] 93:10 100:5,6 presenter ^[1] 12:13 presenters ^[2] 26:22 98:15 pressure ^[2] 22:24 84:8 pretty ^[1] 54:6 prevailing ^[1] 89:10 previously ^[1] 98:13 price ^[14] 24:25 32:19 33:13 62:11 68:5 78:22 80:9,11,14,15,18 81:19 81:20 96:4 priced ^[2] 17:1 79:18 prices ^[22] 9:15 15:24 20:19 21:8,13,17,23 22:2 22:16 73:1 78:20,25 80:5 81:2,7,11,15,21 88:14 94:6 98:5,6 pricing ^[5] 22:25 25:25 70:2 77:16,17 primary ^[3] 73:1 80:6 85:24 prime ^[2] 53:7 80:25 principle ^[1] 57:12 private ^[2] 36:24 99:21 privately ^[1] 42:23 problem ^[2] 75:15 89:8 problematic ^[2] 29:8 91:14 proceed ^[3] 1:9 69:16 95:9 proceedings ^[2] 53:12 66:12 process ^[13] 19:12,12,13 19:23 41:23 69:25 70:13 74:1 91:4,7,9 92:11 98:5 processes ^[1] 42:17 processing ^[1] 17:24 Procurement ^[1] 20:5 produce ^[1] 56:12 produced ^[2] 49:11 70:25 produces ^[1] 41:23 producing ^[3] 74:10 97:12,15 product ^[1] 40:4 production ^[4] 2:13 23:4 73:4 77:18 productivity ^[1] 39:22 products ^[5] 20:15,16 56:1,10 58:10 professionals ^[1] 40:1 profitable ^[1] 39:23	profits ^[2] 3:15 67:20 program ^[6] 42:11 47:4 58:6 62:21 77:12,15 programs ^[4] 42:6 58:22 63:3,5 progress ^[1] 90:14 project ^[72] 2:3 5:25 6:10 7:6 8:1 10:22,23 11:5,9 11:16 16:2,9,22 17:5,20 18:7,13,19,25 19:9,11 19:16,17 20:4,10 22:13 23:13,15,17,25 24:1,4 24:12 28:7 31:3 33:7,8 33:10,12 36:11,17 37:7 67:10,13 68:14 70:14,20 70:24 71:12,21,25 74:1 74:7,12,14 79:18 82:1 82:12 83:13 85:22 86:2 86:19 87:18,19 88:3,5 89:18 90:1 94:7,19 95:4 95:8 projected ^[9] 47:21 48:2 71:16 76:4 80:10 81:15 81:21 87:2 99:11 projecting ^[1] 63:1 projection ^[1] 80:21 projections ^[17] 68:20 70:2 72:15 78:10,19 79:24 80:5,14,22 81:4,9 81:10,12,14,16,18,19 projects ^[13] 13:25 14:3 18:18,23 19:9,15 23:8 23:10 40:4 67:25 78:2 84:7 86:16 prominent ^[1] 68:17 promise ^[1] 93:8 promoted ^[2] 58:5,10 proper ^[2] 1:11 91:3 properly ^[1] 5:25 proportion ^[1] 52:21 proposal ^[4] 22:5 24:17 24:18 78:18 proposals ^[1] 87:21 proposed ^[2] 6:13 33:11 proposing ^[2] 6:20 78:2 prosperity ^[1] 14:18 protection ^[1] 46:9 proven ^[1] 19:13 provide ^[7] 14:9 16:22 18:7 45:17 70:9 101:12 102:17 provided ^[6] 6:1,3 72:20 86:24 88:13 89:24 provides ^[4] 16:14 46:1 46:9 80:14 providing ^[4] 16:5 79:21 88:18 89:8 province ^[48] 2:4,8,12 2:14,17 3:7 4:22 5:5 9:8 10:1,9 11:8,12,18 15:18 16:16 18:17 19:7 21:20 22:11 28:1,11 36:3,17 36:21 65:18 67:20 71:17 72:15,23,24 73:5,8,21 77:1 79:3,15 80:24 83:5 86:14 87:20,23 89:1,4	90:24 95:10 96:8,25 province's ^[2] 17:21 83:1 provinces ^[1] 40:25 provincial ^[4] 6:17 14:13 76:1 80:8 prudent ^[1] 19:19 psi ^[1] 85:2 PUB ^[5] 2:23 10:18 11:14 16:21 19:22 public ^[28] 1:24 2:3 3:17 9:20 54:10 66:25 70:17 72:11,17,20,21 73:10,15 87:13 88:21 91:22 93:6 94:10,12,13 99:15,18,18 99:24 100:7 102:8,16 104:5 publicly ^[1] 72:2 publish ^[1] 81:15 published ^[2] 81:11,13 publisher ^[1] 80:4 pulp ^[2] 9:13 75:24 pump ^[11] 50:8,9 52:18 54:3,6 60:24 61:2,4,5 62:9 65:6 pumps ^[3] 46:24 53:13 63:7 purchase ^[3] 67:16 96:4 96:7 purchaser ^[1] 97:13 purchasing ^[2] 31:14 97:25 purposes ^[1] 54:20 pursuit ^[1] 1:25 pushed ^[1] 71:25 put ^[9] 24:12 50:4 60:19 61:8 62:9,9,21 65:16 83:20 puts ^[1] 57:2 putting ^[1] 62:3	quickly ^[1] 34:20 quite ^[3] 35:20 62:11,19 quotation ^[1] 71:10 quote ^[1] 21:7 quoted ^[1] 75:1
-R-				
R2000 ^[1] 51:5 Ralph ^[4] 92:25 93:2 100:24 101:6 ramping ^[1] 29:4 range ^[2] 21:12 78:17 rate ^[5] 16:1 24:24 34:1 45:14 59:5 ratepayers ^[10] 11:11 73:13 85:23,25 86:14 87:6,10,16,23 90:21 rates ^[11] 21:24 22:6 73:17,20 87:17 89:4,6 89:10 90:24 97:4,22 ratings ^[1] 50:12 ratio ^[1] 39:18 rationale ^[1] 79:5 re-inject ^[1] 84:8 reach ^[1] 26:6 reached ^[1] 29:6 read ^[5] 6:1 10:16 12:5 93:5 94:12 readily ^[1] 54:10 readings ^[1] 98:16 ready ^[4] 17:10 27:11 38:17 93:1 real ^[3] 9:17 77:23 92:1 realistic ^[1] 83:20 reality ^[3] 37:3 74:14 88:6 realize ^[3] 9:4 59:11 97:7 realized ^[1] 62:13 really ^[6] 23:18 26:24 83:11 93:3 94:3 97:5 reap ^[2] 3:15 95:22 reason ^[4] 67:12 82:18 82:20 83:15 reasonable ^[4] 41:23 75:7,11 83:18 reasonably ^[1] 45:21 reasoning ^[1] 79:2 reasons ^[2] 4:1,7 rebate ^[1] 59:3 receipt ^[1] 89:14 receive ^[7] 3:8 14:17 32:20,23 88:22,23 102:8 received ^[2] 4:13,18 recent ^[1] 76:10 RECESS ^[1] 27:9 reckless ^[1] 81:25 reclaiming ^[1] 5:6 recognize ^[1] 3:25 recognized ^[1] 90:11 recommence ^[1] 27:11 recommendations ^[2]				
-Q-				
Q.C ^[24] 1:6 11:25 12:4 12:14 25:8,12 26:16,20 27:3 37:11,20 38:13 59:22 60:10 66:4,14 92:8 92:17 100:18,22 101:11 101:16 102:21 103:1 quantify ^[2] 42:2,3 quantities ^[1] 16:25 quantum ^[1] 45:21 Quebec ^[11] 3:11 5:2 8:24 10:25 33:5,18,24 67:17 77:9 88:13 96:3 Quebec's ^[1] 30:21 questionable ^[1] 31:17 questioned ^[1] 67:25 questions ^[31] 10:20 11:22 12:9,13,15,21 25:9 25:11,13,17,19 37:5,10 37:19,21 38:5 59:24 60:3 60:11 70:1,2,3,3 71:14 74:19 92:12,15,18 100:15 100:21,23				

41:8 58:8 recommended [2] 75:20 77:5 reconsider [3] 12:3 62:15 71:23 recovered [1] 84:21 recovering [1] 88:16 recovery [2] 87:6,15 red [2] 51:7,12 reduce [4] 17:17 46:12 47:16 49:5 reduced [10] 44:16 50:15 50:16 51:22 52:1,6,23 64:3 65:4 76:16 reduces [2] 20:1 39:21 reducing [2] 5:16 62:23 reduction [16] 44:11,19 45:17,22,23,24 46:7 47:3 47:9,13 49:14 55:8 56:16 58:12 59:7 63:22 reductions [3] 46:23 49:21 52:6 redundancies [1] 93:9 referendum [3] 100:9 100:11,13 referred [1] 50:8 refers [1] 70:18 reflection [1] 48:13 reflects [1] 77:17 refrigerant [1] 61:3 refurbish [2] 22:18 97:9 regain [1] 68:24 regard [2] 30:13 41:9 regarding [2] 25:22 71:15 regions [1] 79:14 regression [1] 41:13 regular [4] 46:18 48:7,9 57:2 regularly [1] 20:21 regulate [1] 73:1 regulations [1] 22:21 regulatory [1] 72:22 reinvest [1] 14:16 reinvestment [1] 14:12 related [4] 22:1 71:14 85:20 89:24 relating [1] 92:10 relation [1] 95:13 relationship [1] 72:6 relative [1] 15:19 relatively [1] 76:4 released [3] 68:18 72:2 80:23 relevancy [1] 92:11 relevant [3] 12:7 37:13 59:25 reliability [5] 15:4 30:15 46:3 49:14,21 reliable [7] 2:18 16:25 22:12 30:14 45:10 55:2 73:9	reliance [1] 22:14 rely [5] 22:8 71:7 73:15 73:22 81:24 relying [1] 21:15 remain [1] 21:16 remained [1] 76:4 remaining [1] 8:11 Remember [2] 80:22 85:3 remind [1] 102:6 removed [1] 34:25 removing [1] 35:18 renewable [2] 11:17 14:14 Repairs [1] 30:24 repatriation [1] 19:6 repeat [1] 52:11 replace [4] 17:16 63:8 82:13,24 replaced [3] 56:15 57:1 63:7 replacement [1] 15:22 replacing [2] 8:13,15 replies [1] 4:19 report [23] 5:24,24 6:2 16:19,21 19:21 21:7 26:6 40:6,23 41:8 42:18 43:5 43:19 45:1 49:23 58:2 72:4,9,12,19 82:25 93:23 reports [7] 24:16,18 25:21 72:2 82:14 84:19 94:16 represent [1] 43:17 represented [1] 16:10 representing [2] 13:16 93:4 represents [2] 15:25 43:20 reputable [1] 20:12 request [2] 29:3 38:14 require [7] 15:21 16:24 22:19 69:8 78:4,9,13 required [3] 8:22 11:8 51:5 requirements [3] 2:7 43:4 71:18 requires [1] 56:19 requiring [1] 78:16 reroute [1] 32:20 resale [1] 94:18 research [9] 18:3 42:11 42:16 49:22 50:14 56:8 57:18 58:7,21 reservoir [2] 32:17 33:8 reservoirs [1] 32:6 resident [1] 66:23 residential [3] 41:5 49:25 65:19 resistance [7] 46:5 54:15 54:18,24,25 56:25 63:8 resolution [2] 89:19 90:3 resolved [1] 89:23	resource [5] 3:9 5:7 11:17 76:24 85:4 resources [6] 4:11 14:13 14:18 15:7 35:8 39:21 respect [3] 25:22,24 102:8 respected [3] 77:11 80:3 91:21 respectively [2] 6:8 17:19 respects [1] 65:7 respond [1] 26:3 responding [1] 12:6 response [1] 93:14 responsibility [2] 43:2 59:15 responsible [3] 36:2 86:4,7 rest [1] 77:6 restricted [1] 67:2 result [8] 2:16 8:3 14:23 17:5 22:24 57:4 58:25 73:7 resulting [1] 13:24 results [3] 8:5 41:24 87:2 RESUME [2] 38:23 66:9 retain [1] 5:8 retired [1] 96:25 return [6] 8:17 19:8,9 24:24 68:16 88:19 returning [1] 89:3 returns [1] 87:22 revenue [2] 89:2,3 revenues [3] 14:13 16:3 77:4 review [20] 10:17 16:9 16:12,20 23:22 34:14 69:25 70:13,22,23,25 71:2 72:10 73:16,25 75:19 91:15,18 102:9 104:4 reviewed [2] 24:17 70:15 reviewing [1] 67:11 reviews [4] 19:19,20,20 70:19 revising [1] 81:6 revolution [1] 85:10 right [10] 2:21 4:12 24:15 24:20 61:18 66:11 82:12 86:22 93:17,25 rise [2] 22:15 97:22 rises [1] 22:4 rising [2] 21:22,23 risk [3] 20:2 24:2 37:7 river [3] 35:1 96:2 102:1 road [3] 11:13 62:14 68:12 Robert [1] 13:7 role [1] 68:17 Romaine [3] 33:10,11 96:2 room [3] 46:18 93:17 101:2	Rose [3] 23:14 84:7,23 roughly [1] 84:2 round [1] 57:22 routed [1] 32:13 ruled [1] 4:2 run [6] 32:12 34:16,25 35:1 82:15 84:24 running [6] 29:14 32:24 35:4,6 54:6 99:11 Rupert [1] 33:7 <hr/> -S- <hr/> sad [2] 11:11 67:18 saddle [1] 9:23 safety [1] 34:12 sale [1] 95:17 sales [10] 8:19 43:21 44:6 44:17 48:12,16 59:3 72:15 95:5,6 salt [1] 46:10 sanctioning [3] 11:8 71:17 77:19 Sands [1] 78:12 Sarcelle [1] 33:7 save [6] 53:15,21 56:20 57:17,22 62:9 saving [3] 54:3 56:6 57:10 savings [20] 7:21 8:7 44:20,24,25 45:22 47:21 47:23,24 48:9,14,17 49:18 53:13 57:5 58:8 58:12,15,25 59:7 saw [1] 53:23 says [8] 41:2 42:18 43:5 45:1 49:24 58:2 79:23 98:16 scarcity [1] 15:19 scenario [5] 28:12 36:22 47:11 75:19 82:18 scenarios [1] 76:7 schedule [9] 19:16,17 24:2 26:15,17 101:13,18 102:4,18 scheduled [2] 30:4 101:17 scholars [1] 8:24 schools [1] 65:18 scientific [1] 25:23 scope [4] 70:7,8 72:9,19 Scotia [10] 1:23 17:18 39:11 59:11,16 74:4 89:2 94:23 96:6 97:14 Scotian [1] 96:10 scrubbers [2] 6:14 7:17 scrutinized [1] 68:1 scrutiny [1] 68:11 seaboard [1] 33:16 season [5] 32:12 50:19 50:21 52:10,16 second [4] 74:22 76:3 96:11 101:23	section [4] 9:1 40:6 74:16 85:19 sections [2] 6:5 27:25 sector [11] 23:11 36:24 41:11 42:12 43:20 44:11 46:12 47:16 48:18,20 58:17 sectors [4] 18:2 42:13 48:21,25 secure [1] 14:18 security [1] 19:4 see [34] 6:3,6,12 15:14 15:16 21:19 22:25 23:19 23:22 24:8,10,22 31:4,6 35:9 47:1,3,8,8 48:11 51:13,15 52:15 62:25 69:10,17 76:15 79:10,13 80:8 81:3 91:5 92:3 94:13 seem [3] 30:6 32:9,12 sees [1] 99:15 selected [1] 50:6 sell [3] 5:11 87:16 88:3 sense [3] 5:22 35:2 75:12 senses [1] 62:17 sensible [1] 16:1 sensitivity [2] 23:20,23 series [1] 74:18 serious [4] 52:25 90:13 90:16 97:5 seriously [1] 72:4 serve [3] 5:9 10:24 11:18 served [2] 1:19 2:6 service [5] 2:19 42:14,25 73:9 94:21 services [2] 14:6 68:6 set [2] 38:15 59:14 seven [3] 35:21 63:23 83:2 several [4] 20:23 75:17 78:6 82:5 severe [2] 46:1 49:22 shale [4] 9:14 85:10 88:11 96:1 shall [1] 1:12 share [2] 70:11 100:3 shareholders [2] 5:1 11:10 shaved [1] 48:23 sheet [2] 10:16 86:3 shell [1] 50:12 shifts [1] 69:18 shine [1] 9:5 shores [1] 84:3 short [7] 10:10 20:19 29:7,11 35:12 91:16,23 show [6] 51:22 53:3,6,9 57:12,19 showed [1] 50:14 showing [4] 43:10 48:12 51:23 53:24 shows [11] 40:5 46:22,22 47:12,22,24,25 51:8
---	--	--	--	--

53:18 58:11 81:24 shrunk [1] 98:9 shut [2] 32:7 79:17 sic [1] 45:1 side [7] 14:6 47:2 51:17 70:1,3 74:16 98:4 signed [1] 67:16 significant [10] 14:9 18:7 20:7 21:12 22:19 43:23 44:25 45:16 53:4 58:12 similar [6] 19:23 62:3 62:10 64:12 72:16 82:23 simple [2] 68:4 74:18 simplify [1] 74:17 simply [1] 81:4 single [3] 19:9 60:19 61:6 sit [1] 99:15 sitting [1] 84:3 situate [1] 61:10 six [2] 35:19 63:23 size [2] 19:18 84:24 skilled [1] 17:9 Sky [1] 29:19 skyrocket [1] 89:6 slightly [1] 95:12 slowdown [1] 88:10 slower [1] 63:5 slowly [1] 64:20 small [3] 35:8 48:20 78:11 smaller [4] 35:18 56:2 74:2 76:14 smart [1] 77:16 smelter [1] 18:24 SNC [2] 20:6 24:11 snow [1] 46:4 Sobeys [1] 99:1 social [1] 17:21 solar [1] 97:25 sold [1] 94:24 Soldier's [2] 8:10 99:12 sole [1] 59:14 solid [1] 23:18 solution [4] 16:1,15 32:10 95:20 someone [1] 53:12 sometimes [1] 35:16 somewhat [2] 62:3 97:14 somewhere [1] 97:16 Sony [1] 53:24 soon [2] 23:3 65:15 sorry [1] 103:4 sort [1] 53:17 sound [3] 28:10 35:17 104:8 sounds [1] 21:2 source [6] 16:5 22:12 30:14,19 31:5 34:21 sources [6] 2:12 17:16 20:23 26:1 73:18 98:2	south [1] 79:8 southern [2] 56:18 79:9 space [11] 42:15 43:14 45:12,18,23 48:19 50:16 54:13 55:5 56:25 65:16 spaces [1] 76:14 Spain [1] 10:14 speak [3] 13:11 32:6 37:25 speaking [1] 93:22 speaks [1] 37:25 specialists [1] 24:10 specialize [1] 20:14 specializing [2] 25:2 80:2 specifically [1] 73:12 speculation [1] 78:19 speech [1] 10:5 speed [1] 64:19 spend [1] 60:18 spenders [1] 9:20 spending [2] 10:2 77:7 spends [2] 77:9,10 spent [1] 6:14 spill [3] 32:8,19 35:1 spilled [1] 34:10 spilling [1] 32:7 spillways [1] 31:13 spite [1] 10:25 spiteful [1] 11:4 spring [4] 51:13 52:10 55:20 64:16 square [8] 50:3 51:2,3,4 61:10,14 62:4 63:12 St [5] 1:23 29:18 30:10 104:6,9 stability [1] 24:25 stabilize [1] 22:6 stabilizes [1] 76:9 stable [5] 15:25 16:5 22:12 76:4 79:1 staffing [1] 31:16 stages [2] 8:20 78:7 stake [1] 90:1 stakes [1] 85:4 stand [4] 3:3 68:12 90:10 98:15 standard [3] 15:14 19:14 79:4 standards [1] 55:4 start [5] 11:24 26:23 28:14 35:10 75:2 started [1] 96:23 starting [1] 51:8 state [2] 55:1 93:11 statement [3] 70:25 75:15 76:19 statements [2] 75:5,10 states [6] 2:11 73:4 83:9 88:8 95:3,25 stating [2] 78:22 90:22	station [3] 30:8,9 34:23 stations [1] 34:11 stay [5] 9:10 28:11 57:3 76:5 82:17 steady [1] 75:13 steak [1] 99:1 Stephen [1] 84:18 Stephenville [1] 75:24 still [4] 7:13 64:4 90:5 97:8 stop [1] 84:14 storage [3] 32:15,22 34:14 store [2] 9:16 32:16 stored [1] 34:13 storm [1] 30:21 strength [1] 24:8 strengthen [1] 17:6 stretch [1] 68:20 structural [1] 88:9 structures [1] 30:23 stuck [1] 87:7 student [1] 1:24 studied [1] 39:9 studies [1] 85:9 study [3] 36:8 60:13 75:21 stuff [1] 99:8 style [4] 56:12,14,22 57:1 styles [1] 54:15 subject [1] 12:23 submission [2] 60:1 92:12 submissions [3] 37:14 102:12,14 submit [2] 2:23 45:8 submitted [1] 99:6 subsea [1] 34:2 subsidizing [1] 32:22 substantial [5] 48:17 49:2 56:20 58:25 59:10 substantially [4] 18:20 24:18 49:5 65:4 substation [1] 39:14 subtracted [1] 48:15 succeed [1] 24:13 such [15] 17:1 18:23 19:17 20:15 43:13 46:2 50:10 52:19 59:17 68:10 72:14 73:2 82:1 90:19 93:13 sudden [1] 100:4 sufficient [1] 54:17 suggested [2] 57:10,18 summed [1] 4:20 summer [4] 50:21,22 51:18 57:6 summing [1] 43:12 sun [1] 9:5 supplement [1] 82:3 supplied [3] 33:23 57:24	71:8 supplier [1] 33:17 supply [9] 3:22 14:6,24 15:19 16:20 65:15 70:3 82:4 83:10 supplying [1] 34:1 support [6] 14:2 17:3 18:13 24:18 25:4 95:1 supported [1] 25:1 supports [1] 14:11 suppose [2] 35:15 93:5 supposed [1] 26:19 surcharge [2] 59:2,8 surely [1] 78:19 surprising [1] 64:4 survey [2] 29:2 43:9 sustainable [2] 16:3 19:1 Swinimer [1] 101:21 synergy [1] 19:4 system [29] 6:10 7:5 8:7 8:12 15:4 17:13 28:12 28:15 29:13,21,25 30:16 34:4 42:5 46:11 49:10 49:17 50:7,23,24,25 55:15 57:22,25 61:7 63:2 64:19,24 82:21 systems [26] 33:25 34:9 35:7 39:15,16 45:12,13 46:21 47:6,25 48:4 49:2 52:18 53:9 54:13 55:6 58:25 59:9 62:20 65:7,7 65:9,11,12,14,19	ten-year [2] 47:3,7 tend [3] 23:15 29:10 40:19 term [10] 10:16 16:3 19:1 20:20 22:10 24:25 35:12 71:16 86:3 92:2 terms [10] 14:25 16:12 19:11 20:11 23:13,20 71:13,22 89:25 93:9 Terra [1] 84:23 Texas [2] 80:9,12 text [1] 74:11 texts [1] 74:15 thank [42] 1:14,16 11:20 12:9,19 13:2,4,11 25:5 25:15 26:10,13 27:8 28:5 37:8,19,21 38:6,8,10 39:8 59:21,23 60:1,9 65:22,25 66:20,20 92:5 92:15,20,23 93:3,7 100:21,25 101:7,9 102:16 102:24 103:5 thanks [1] 83:2 therefore [3] 65:3 69:8 78:24 thermal [8] 6:7,21 7:11 22:9,14 82:23 83:2,3 third [3] 50:6,19 76:17 thought [1] 93:24 thousand [2] 35:19,22 thousands [2] 10:17 74:3 threaten [1] 98:2 three [6] 8:15 16:9 45:16 51:9 75:4 85:23 through [13] 31:6 32:13 32:20 34:18 35:9 50:18 51:17 78:3 85:1,10 89:21 94:15,24 throughout [1] 88:14 Thursday [5] 101:18,21 102:22,24 103:4 tied [2] 15:20 22:2 time-of-day [1] 77:16 times [10] 2:25 10:7,11 28:23 32:14 34:9 35:6 57:11 65:10 93:18 titled [1] 16:20 today [28] 3:3 7:16 10:20 11:22 13:12,16 14:18 32:6 35:3 39:17 60:4 66:16,21 67:8,13 68:7 68:12 69:21 70:12 76:13 76:15 80:19 81:3,17,22 85:6 93:8 97:23 today's [1] 55:3 together [1] 58:1 too [8] 37:4 68:10,11 70:6 90:7,8 99:4 101:2 top [3] 48:12 51:12 78:6 tormenting [1] 101:3 torpedoes [1] 11:15 total [12] 6:9 7:5 8:1 29:15 33:17 39:19 44:13 48:15,23 52:20,21,22
--	--	---	--	--

touch ^[1] 93:20 towers ^[1] 30:23 tracing ^[1] 64:1 training ^[1] 18:3 transcribed ^[1] 104:7 transcript ^[1] 104:3 transferred ^[1] 89:1 transformation ^[1] 17:22 transformers ^[2] 31:15 56:3 translate ^[2] 96:13,18 transmission ^[15] 2:13 2:21 8:9 29:9 30:4,18 31:8,14 33:25 34:5 73:4 74:4 79:10 82:16 97:8 transmitted ^[1] 94:22 tremendous ^[4] 53:9 58:15 62:23 93:25 trend ^[1] 28:21 tried ^[4] 76:20,22 88:2 94:15 trillions ^[1] 84:1 triple ^[1] 97:3 trouble ^[1] 29:9 troubles ^[1] 30:4 Troy ^[1] 39:3 true ^[5] 29:20 33:1 69:17 75:5 104:3 truly ^[2] 71:3 74:13 trust ^[1] 36:4 try ^[4] 24:12 46:20 88:8 94:4 tune ^[1] 88:4 tunnel ^[1] 35:14 turbines ^[6] 3:16 27:25 28:16 30:5 31:16 34:16 turn ^[4] 1:12 39:5 66:12 72:24 TV ^[3] 52:7 53:17,22 TVs ^[1] 57:14 twice ^[1] 33:12 two ^[14] 4:7 8:4,14 21:10 24:16 25:19 26:2 29:23 30:15 34:2 45:13 72:1 75:22 101:17 two-tenths ^[1] 44:19 type ^[9] 47:6 49:9 50:6,9 53:8 54:15 55:6,15 56:25 types ^[1] 93:20 typical ^[1] 61:8	understand ^[1] 38:25 undertaken ^[1] 4:16 undertaking ^[1] 24:6 undertook ^[1] 49:22 unequivocal ^[1] 4:19 unfounded ^[1] 75:10 Union ^[1] 55:1 unions ^[1] 10:7 unit ^[8] 8:15 46:17 51:10 52:14 60:19 63:12,13,23 United ^[2] 88:8 95:25 units ^[6] 6:23 7:12 8:14 29:16 47:10 64:5 university ^[4] 1:22 39:10 77:12 84:18 unknowns ^[1] 37:5 unless ^[1] 75:3 Unlimited ^[1] 104:12 unreasonable ^[2] 79:20 91:15 unresolved ^[1] 90:5 unrestrained ^[1] 70:22 unstable ^[1] 22:15 unverified ^[1] 75:11 up ^[33] 4:20 7:2 10:5 29:4 34:6 36:24 37:25 38:15 40:5 43:12 47:8,12 49:2 50:18 51:15,16,18 52:8 53:16 54:2,7,18 59:14 60:7 61:11 64:13 71:22 72:25 78:23 81:5 97:12 98:3 102:10 update ^[2] 101:13 102:17 upgrade ^[1] 4:6 upgraded ^[1] 50:2 upgrades ^[3] 15:21 22:20 53:3 upholding ^[1] 85:15 Upper ^[23] 1:21 3:2,6 4:12,17 8:4,18,19 31:7 31:11,19 32:21,22 35:10 36:20 67:13 68:9,16,25 89:11 91:2 97:11,21 upstairs ^[1] 61:10 urgency ^[1] 74:24 USA ^[1] 10:13 usage ^[2] 22:3 52:7 used ^[17] 4:7 20:18 21:8 23:21 26:5 40:14,24 46:19 47:18 54:14,18,24 56:1 57:17,20 63:10 82:6 useful ^[3] 34:15 39:19 59:19 users ^[1] 46:9 uses ^[8] 21:2 42:4 43:13 43:18 45:3 56:25 80:5 84:7 using ^[18] 6:22 7:13 9:1 19:13 21:18 25:21 26:1 42:11 46:23 47:9 48:3,5 48:7,9,24 52:18 53:19 84:13 usually ^[1] 31:12 utilities ^[13] 66:25 70:18	72:17,20,21 73:2,10,15 87:13 91:23 93:7 100:7 104:5 utility ^[8] 33:14 34:2 41:11 42:23 52:20 56:2 77:4 85:13	<hr/> -V- <hr/> Vale ^[2] 18:24 78:14 value ^[5] 14:17 32:23 40:9 44:21 46:7 Vardy ^[1] 4:20 variable ^[2] 44:12 64:19 variety ^[1] 54:14 various ^[2] 4:16 78:7 varying ^[1] 29:13 venture ^[2] 31:17 34:15 ventures ^[1] 35:8 Vermont ^[2] 59:10,16 vertically ^[1] 85:13 vested ^[1] 70:16 via ^[1] 49:17 viability ^[2] 9:13 95:18 viable ^[2] 32:1,9 VICE-CHAIR ^[2] 12:18 25:14 videoconference ^[1] 102:3 videoconferencing ^[1] 101:25 view ^[9] 14:25 15:5 16:2 16:14 18:15 21:11,15 71:4 91:21 viewership ^[1] 60:7 viewing ^[1] 102:16 views ^[3] 1:17 28:6,7 Vince ^[2] 27:13,23 vital ^[2] 30:16 31:5 volatility ^[1] 15:24 voltage ^[3] 30:17 39:14 54:17	53:25 56:16 64:24 weak ^[1] 88:9 webcast ^[1] 60:7 website ^[4] 94:20 101:19 102:5,15 week ^[4] 10:8 29:11,12 64:11 weeks ^[2] 34:12 51:9 weight ^[1] 40:8 welcome ^[1] 11:22 welcoming ^[1] 91:20 wells ^[2] 65:17 84:9 West ^[2] 80:9,11 WHALEN ^[1] 25:14 whereby ^[1] 54:19 White ^[3] 23:14 84:7,23 whole ^[1] 71:12 wholesale ^[3] 60:20 61:5 88:13 widely ^[1] 20:18 William ^[1] 54:24 Williams ^[1] 3:4 wind ^[3] 9:16 46:3 95:24 Winston ^[1] 39:1 winter ^[9] 4:24 29:10 44:8 46:1 48:24 50:6,23 52:16 55:15 wiring ^[1] 61:3 wise ^[4] 9:19 35:9 37:1 39:21 wisely ^[1] 31:21 wish ^[1] 36:7 within ^[2] 57:15 70:7 without ^[11] 10:1 11:16 30:1 31:9 46:4 70:15 71:25 74:14 79:21 82:9 91:21 wonder ^[1] 99:20 word ^[2] 40:2,5 worked ^[2] 39:12,15 workers ^[3] 93:25 94:1 94:2 workforce ^[1] 17:9 world ^[9] 5:19 9:10 13:18 15:24 20:8 21:17 70:14 86:15,16 worry ^[1] 61:24 worst ^[2] 55:15 88:7 worth ^[8] 21:10 37:7 55:17 69:11 71:9 74:7 77:21 84:4 worthwhile ^[1] 67:10 written ^[4] 94:15 102:10 102:11,14	yearly ^[1] 55:19 years ^[36] 3:13,13,25 5:21 7:14,20 8:17,23 9:12,21 23:12 28:25 29:6 31:24 39:12 44:13 47:7 47:22 48:2 50:1 62:14 63:24 64:2,8 67:14 68:23 69:2,10,10 75:4,24 81:2 81:23 84:25 88:7,19 yesterday ^[1] 4:21 yet ^[8] 42:25 44:22 68:13 73:9 80:11,17 85:6,8 Yvonne ^[1] 66:12
<hr/> -U- <hr/> unable ^[1] 101:22 unacceptable ^[1] 91:14 unanswered ^[1] 37:5 uncertain ^[1] 4:21 uncertainty ^[1] 3:21 under ^[6] 6:15 7:18 17:22 26:4 82:18 94:23 underground ^[1] 78:15		<hr/> -W- <hr/> Wade ^[1] 9:25 wait ^[2] 31:20 97:7 waiting ^[1] 11:18 walking ^[1] 98:1 warehouse ^[1] 19:4 warm ^[1] 57:6 warned ^[1] 9:25 washers ^[1] 43:15 waste ^[1] 39:21 wasting ^[1] 49:8 watched ^[1] 53:11 water ^[15] 28:17 32:8,17 32:22 34:8,10,13,14 35:1 43:14 48:19 52:7 57:15 65:15,19 Watson ^[1] 29:20 watt ^[2] 51:3 56:14 watts ^[6] 50:3 51:1,4	<hr/> -Y- <hr/> year ^[22] 9:25 10:6,10 16:8 22:7 29:5 32:2 44:14,15,18,21 52:13 56:21 57:22 60:14 65:11 75:14,14 82:7 84:25 97:1 97:1	<hr/> -Z- <hr/> zero ^[2] 5:16 44:20 zone ^[1] 30:6	