Multi-PageTMNL Hydro's 2003 General Rate Application

October 20, 2003 Mi	ulti-Pag	ge ^m NL Hydro's 2003 General Rate Application
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1 (9:07 a.m.)	1	Q. Mr. Haynes, I'd like first to look at Schedule
2 CHAIRMAN:	2	2 to your evidence. And looking at Schedule 2
3 Q. Thank you. Good morning. Good morning, Ms.	3	there, could you please summarize the capacity
4 Newman, do you have any preliminary items?	4	and energy capabilities of Hydro's production
5 MS. NEWMAN:	5	facilities and the changes from the 2002 cost
6 Q. No, Chair.	6	of service?
7 CHAIRMAN:	7	A. On the Island Interconnected System, Hydro
8 Q. Good morning, Mr. Haynes. How are you?	8	owns and operates nine hydro plants capable of
9 MR. JAMES HAYNES (SWORN)	9	producing a peak of 927 megawatts and annual
10 Q. Thank you, sir. Good morning, Ms. Greene.	10	average energy of 4582 gigawatt hours. There
11 When you're ready to start your direct	11	has been an addition of one plant in 2003,
12 examination, please.	12	Granite Canal, which was included in the
13 GREENE, Q.C.:	13	previous numbers. It has a peak capacity of
14 Q. Good morning, Mr. Chair and Commissioners.	14	40 megawatts and an average annual energy
15 Mr. Haynes, what is your position with	15	capability of 224 gigawatt hours. These
16 Newfoundland and Labrador Hydro?	16	hydroelectric plants represent approximately
17 A. I'm the Vice-President of Production.	17	61 percent of the Hydro-owned total capacity
 17 A. Finance vice-frestdent of Floddetion. 18 Q. Evidence was filed on behalf of Hydro called 	17	and average energy production capability. As
19 Production, and in the pre-filed application,	19	well, on the island, Hydro own and operate one
20 it was stated that this evidence would be	20	of the largesta large oil-fired steam
20 If was stated that this evidence would be 21 adopted by you at this hearing. Do you adopt	20	electric plant at Holyrood, three gas turbines
		and three diesel plants, with a total peak
1 5	22	capability of 598 megawatts and a annual firm
	23	- · ·
24 proceeding?25 A. I do.	24	energy capability of 2996 gigawatt hours. The Holyrood thermal plant is the largest and
	25	
Pag	e 3	Page 4
1 provides 40 percent of Hydro's average annual	1	energy with aging generation facilities;
2 energy capability and 31 percent of Hydro's	2	operating an isolated electrical system in a
3 capacity. In addition, Hydro has entered	3	harsh physical environment; improving the
4 power purchase contracts with four non-utility	4	efficiency of existing energy production
5 generators or NUGS for a total of 66 megawatts	5	facilities; and also improving the production
6 and an average energy capability of 394	6	and operating maintenance activities; and as
7 gigawatt hours.	7	well, improving the environmental performance,
8 Through these facilities, both owned and	8	particularly with respect to our Holyrood
9 contracted by Newfoundland Hydro in 2004,	9	facility.
10 Hydro will provide approximately 82 percent of	10	Q. What initiatives has Hydro undertaken to
11 the Island's energy capability and supply	11	improve the efficiency of existing energy
approximately 83 percent of the Island's	12	production facilities?
13 generation capacity. On the Labrador system,	13	A. Over 1,060 megawatts or approximately68
14 Hydro owns and operates a gas turbine and a	14	percent of Hydro's capacity on the Island
15 diesel plant in the Goose Bay area with a	15	Interconnected System has been in service for
total capacity of 38 megawatts. However,	16	over 25 years. This is made up of 12
17 almost all of the power and energy	17	generating plants, both hydroelectric and
18 requirements of the Interconnected Labrador	18	thermal, with the majority having a capacity
19 System are supplied through a purchase	19	in excess of 50 megawatts. Hydro has
20 contract with CF(L)Co.	20	commenced a process of replacing key
21 Q. Mr. Haynes, what are some of the major	21	components of these facilities where the
22 challenges facing the production division,	22	amount of maintenance or the number of
23 looking forward?	23	breakdowns is increasing or where the original
24 A. There are a number. These include:	24	vendor support is questionable or, in fact,
25 maintaining reliable production of power and	25	non-existent. As the dependence upon Holyrood
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	Page 5		Page 6
	R. HAYNES:	1	savings of approximately 1.2 million dollars
2	increases with time, Hydro has made a	2	in the 2004 test year, since the last hearing.
3	concerted effort, with the assistance of the	3	Q. You said earlier that one of the challenges
4	original equipment manufacturers or the OEM's	4	for the production division is improving the
5	through partnering agreements to significantly	5	productivity of operating and maintenance
6	improve the plant's availability, particularly	6	activities. What has the division achieved in
7	during the 1990s.	7	this area?
8	A number of initiatives were introduced	8	A. Over the period of 1999 to 2002, through
9	within the production environment to enhance	9	process change, technology improvements, the
10	energy production facility, including a	10	permanent complement in the production
11	controllable loss program at Holyrood and a	11	division has been reduced by approximately six
12	unit commitment program at the Energy Control	12	percent from 320 to 300 positions. This
13	Centre. All designed to allow optimum	13	improvement comes despite the additional
14	scheduling and loading of the hydraulic units	14	maintenance costs associated with the Granite
15	and also to increase the efficiency of the	15	Canal facility and increase in demands for IT
16	Holyrood plant. This has led to an efficiency	16	and communication facilities and capability.
17	improvement at the Holyrood plant and Hydro is	17	Q. The last challenge you mentioned a moment ago
18	recommending with this application that we	18	was improving environmental performance,
19	move to 624 kilowatt hours per barrel to be	19	particularly at the Holyrood plant. How has
20	used for the annual energy conversion factor	20	Hydro addressed this challenge?
21	at Holyrood. This is a 3.1 percent increase	21	A. In an effort to define and minimize our
22	over the efficiency used for the cost of	22	environmental footprint, Hydro has adopted the
23	service prior to the 2001 GRA, and a one and a	23	ISO 14001 Environmental Management System
24	half percent improvement over the current	24	Standard. Following external audits, the
25	figure of 615. This alone results in a fuel	25	Holyrood facility was registered initially in
	Page 7		Page 8
1	Page 7 1999 and was re-registered in 2002. Hydro's	1	Page 8 performance. In particular, we use the CEA
1 2	1999 and was re-registered in 2002. Hydro's	1 2	performance. In particular, we use the CEA
2	1999 and was re-registered in 2002. Hydro's hydraulic facilities were registered during		performance. In particular, we use the CEA standard measures of incapability factor,
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2 3	1999 and was re-registered in 2002. Hydro's hydraulic facilities were registered during 2000. To maintain certification to this ISO 14001 standard, Hydro has to demonstrate it is	2 3 4	performance. In particular, we use the CEA standard measures of incapability factor, derated adjusted forced outage rate or DAFOR and failure rate to measure generator
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	Page 9		Page 10
	IR. HAYNES:	1	quite a variation in the actual kilowatt hours
2	with respect to the thermal plant, the ICDF,	2	per barrel. All these blue dots are basically
3	the DAFOR and the failure rate. It is	3	monthly figures and the reddish line is
4	important that the 25 percent target continue	4	basically the best fit between the lot.
5	for this critical plant that has been	5	We strive to move the curve upward so
6	supplying an increasing portion of the	6	that any given output we use less fuel, but
7	system's energy requirement.	7	there are numerous influencing factors which
8	The under frequency events measure was	8	change basically on a dailywhich can change
9	below expectations in 2002 and a number of	9	on a daily basis.
10	initiatives, as outlined in my evidence, are	10	Recent years performance and changes
11	underway in 2003 and will continue in 2004 in	11	implemented at the Holyrood plant has led to a
12	an attempt to keep this number to eight or	12	recommended average conversion factor of 624
13	less per year.	13	kilowatt hours per barrel for fuel costing
14	Q. How are you doing with respect to unit	14	purposes, as I noted previously.
15	efficiency measures?	15	Q. Mr. Haynes, at the previous hearing in 2001,
16	A. The most critical unit efficiency measure is	16	there was considerable discussion on fuel
17	the Holyrood fuel conversion factor. This	17	management. How has Hydro addressed this?
18	factor can be quite variable due to the	18	A. The responsibility for control and management
19	effects of hydraulic production levels, unit	19	of all aspects of fuel rests with my position,
20	loading and general system conditions. For	20	vice-president of production. Individual
21	that reason, Hydro targets improvements based	21	tasks within the process of purchasing,
22	on unit average monthly output rather than a	22	storage, utilization of fuel, are carried out
23	particular conversion factor. The curve in	23	within various departments but the overall
24	Schedule 5, Mr. O'Reilly, in my evidence shows	24	responsibility is mine. In accordance with
25	this relationship, and as you can see, there's	25	the direction from Order No. P.U. 7, a report
	Page 11		Page 12
1	was filed on December 23rd, 2002 outlining the	1	29.20 per barrel and hydraulic production
2	policies with respect to fuel and procedures	2	based on a 30-year record of historical inflow
3	policies with respect to fuel and procedures and other aspects of fuel management,	2 3	
	· · · ·		based on a 30-year record of historical inflow
3	and other aspects of fuel management,	3	based on a 30-year record of historical inflow average, as directed by the Board.
3 4	and other aspects of fuel management, including a review of the adequacy of our fuel	3 4	based on a 30-year record of historical inflow average, as directed by the Board.Q. During the 2001 hearing, there was also
3 4 5	and other aspects of fuel management, including a review of the adequacy of our fuel storage, particularly at Holyrood, and fuel	3 4 5	based on a 30-year record of historical inflow average, as directed by the Board.Q. During the 2001 hearing, there was also significant discussion and assessment of Hydro's hydraulic production forecast. How
3 4 5 6	and other aspects of fuel management, including a review of the adequacy of our fuel storage, particularly at Holyrood, and fuel price hedging possibilities. It is included	3 4 5 6	based on a 30-year record of historical inflow average, as directed by the Board.Q. During the 2001 hearing, there was also significant discussion and assessment of
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Discoveries Unlimited Inc., Ph: (709)437-5028

Multi-PageTMNL Hydro's 2003 General Rate Application

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10 implemented for the 2004 test year revenue requirement. Hydro is seeking resolution of this issue during the proceeding so that for its next filing, the full historic record will be utilized and utilized for other forecasting activities prior to the next filing. 10 Q. Your pre-filed evidence refers to a number of new supply sources comising into service during its next filing, the full historic record will be utilized and utilized for other forecasting activities prior to the next filing. 10 Q. Mr. Haynes, you're also responsible for load forecasting at Hydro. Could you please explain the various load forecasts which Hydro is explain the various load forecasts which Hydro and forecast by moth for the Island and in generation scheduling, system planning. 16 Constructed by Hydro, and two other sources, one a hydroelectric project constructed by other, a co-generation facility constructed by constructed by Hydro the resulting energy purchase agreements. The is generation scheduling, system planning. 22 Maynes, rate setting and cost of service is completed in March of this year, and the is completed within the next couple of weeks. 1 A. That's correct, yes. 2 Q. Mr. Haynes, in August, the Government announced that it had given approval in project? 1 A. That's correct, yes. 3 A. Hydro is currently negotiating a power purchase agreement with the proopenet for a 2 5 1 A. That's correct, wes. 4 Hydro's is currently negotiating a poricipic for 1 A. That's correct, yes. 2 5 Dowa	8	other significant drivers in this particular	8	requirement for the next source of power and
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14be utilized and utilized for other forecasting activities prior to the next filing.14A. Yes. These new sources consist of Granite Canal hydroelectric project, which was constructed by Hydro, and two other sources, one a hydroelectric project constructed by the Exploits River Hydro Partnership and the 1916Q. Mr. Haynes, you're also responsible for load 1716Constructed by Hydro, and two other sources, one a hydroelectric project constructed by the Exploits River Hydro Partnership and the 1918explain the various load forecasts which Hydro 1918Exploits River Hydro Partnership and the 1920A. Hydro prepares a separate five-year operating 2110Cormer Brook Pulp and Paper Limited, both with the resulting energy purchased by Hydro 2221Labrador Interconnected Systems and for each 2321Cormer Brook Pulp and Paper Limited, both with the resulting energy purchased by Hydro22Labrador Interconnected Systems and for each 2422Cormer Brook Pulp and Paper Limited, both with the resulting energy purchased by Hydro23budgeting, rate setting and cost of service23Granite Canal project went into commercial operation in July of this year. The Bishop Falls portion of the Exploits River project24monuced that it had given approval in sprinciple for the establishment of a wind wenture in announced that it had given approval in project?A. Yes, based on the current load forecast, the project?3A. Hydro is currently negotiating a power in project?A. Hydro's last hearing, Order No. P.U. 7, the Board ordered that Hydros should file, as part in dri	12	this issue during the proceeding so that for	12	2003. Could you please provide an update on
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17forecasting at Hydro. Could you please17one a hydroelectric project constructed by the18explain the various load forecasts which Hydro18Exploits River Hydro Partnership and the19prepares and their use?19other, a co-generation facility constructed by21load forecast by month for the Island and21the resulting energy purchased by Hydro22Labrador Interconnected Systems These are used23the resulting energy purchase agreements. The23of the Isolated Rural Systems. These are used23Granit Canal project went into commercial24in generation scheduling, system planning,24operation in July of this year. The Bishop25budgeting, rate setting and cost of service25Falls portion of the Exploits River project26Grand Falls portion is expected to be2Q. Okay. If the wind demonstration project3completed within the next couple of weeks.3projector, use4The Corner Brook Pulp and Paper facility was5on the Island Interconnected System, as5brought into service in January of this year.5outlined in your evidence?7announced that it had given approval in7A. Yes, based on the current load forecast, the8principle for the establishment of a wind9generation supply by approximately one year,10you please provide the Board with an update on10Q. In the Order of the Board with respect to12project?11A. Hydro is currently negotiating a power1	15	activities prior to the next filing.	15	Canal hydroelectric project, which was
18 explain the various load forecasts which Hydro 18 Exploits River Hydro Partnership and the ord-grants and ther use? 19 prepares and their use? 10 Ocmer Brook Pulp and Paper Limited, both with the resulting energy purchased by Hydro 20 A. Hydro prepares a separate five-year operating a dot forecast by month for the Island and 21 Corner Brook Pulp and Paper Limited, both with the resulting energy purchased by Hydro 21 Labrador Interconnected Systems and for each 23 Granite Canal project went into commercial 23 of the Isolated Rural System Planning, 24 Operation in July of this year. The Bishop 25 budgeting, rate setting and cost of service 25 Falls portion of the Exploits River project 24 Grand Falls portion is expected to be 2 Q. Okay. If the wind demonstration project 3 completed within the next couple of weeks. 1 A. That's correct, yes. 2 3 completed in March of this year. 5 on the Island Interconnected System, as outlined in your evidence? 7 4 The Corner Brook Pulp and Paper facility was 5 on the Island Interconnected System, as outlined in your evidence? 7 announced that it had given approval in project in the province. Could 9 generation sc	16	Q. Mr. Haynes, you're also responsible for load	16	constructed by Hydro, and two other sources,
19prepares and their use?19other, a co-generation facility constructed by20A. Hydro prepares a separate five-year operating20Corner Brook Pulp and Paper Limited, both with21load forecast by month for the Island and21the resulting energy purchase dy Hydro23of the Isolated Rural Systems. These are used23Granite Canal project went into commercial24in generation scheduling, system planning,24operation in July of this year. The Bishop25budgeting, rate setting and cost of service25Falls portion of the Exploits River project26Grand Falls portion is expected to be2Q. Okay. If the wind demonstration project3completed within the next couple of weeks.3proceeds, will i affect the timing of the4The Corner Brook Pulp and Paper facility was5on the Island Interconnected System, as5brought into service in January of this year.60. Mir. Haynes, in August, the Government7announced that it had given approval in7A. Yes, based on the current load forecast, the9generation supply by approximately one year,10to approximately 2011.10you please provide the Board with an update on111111project?111113A. Hydro is currently negotiating a power13Board ordered that Hydro should file, as part14purchase agreement with the project is capable of17Basques assets and the Burin Peninsula assets.1525-megawatt wind project	17	forecasting at Hydro. Could you please	17	one a hydroelectric project constructed by the
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22Labrador Interconnected Systems and for each of the Isolated Rural Systems. These are used in generation scheduling, system planning, budgeting, rate setting and cost of service22through long-term purchase agreements. The 	20	A. Hydro prepares a separate five-year operating	20	Corner Brook Pulp and Paper Limited, both with
23of the Isolated Rural Systems. These are used in generation scheduling, system planning, budgeting, rate setting and cost of service23Granite Canal project went into commercial operation in July of this year. The Bishop Falls portion of the Exploits River project24Page 15Page 161was completed in March of this year, and the Grand Falls portion is expected to be s completed within the next couple of weeks.1A. That's correct, yes.2Grand Falls portion is expected to be s completed within the next couple of weeks.2Q. Okay. If the wind demonstration project proceeds, will it affect the timing of the proceeds, will in service in January of this year.6Q. Mr. Haynes, in August, the Government announced that it had given approval in project?7A. Yes, based on the current load forecast, the generation supply by approximately one year, to approximately 2011.10you please provide the Board with an update on project?10Q. In the Order of the Board with respect to Hydro's last hearing, Order No. P.U. 7, the13A. Hydro is currently negotiating a power 1411Q. In the Order of the Board with respect to Hydro's last hearing, Order No. P.U. 7, the14Dord ordered that Hydro should file, as part of this application, a detailed study on the to scapable of year under average wind conditions and should 201621producing approximately 96 gigawatt hours per year under average wind conditions and should 201622the agreement be finalized this fall, could be year under average wind conditions and should 212122the proje	21	load forecast by month for the Island and	21	the resulting energy purchased by Hydro
24in generation scheduling, system planning, budgeting, rate setting and cost of service24operation in July of this year. The Bishop Falls portion of the Exploits River project2Page 151A. That's correct, yes.Page 161was completed within the next couple of weeks.2Q. Okay. If the wind demonstration projectproceeds, will it affect the timing of the2Grand Falls portion is expected to be3operation in July of this year.93Completed within the next couple of weeks.4The Corner Brook Pulp and Paper facility was4requirements for additional generation supply5brought into service in January of this year.5on the Island Interconnected System, asoutlined in your evidence?7announced that it had given approval in mprinciple for the establishment of a wind7A. Yes, based on the current load forecast, the project?10you please provide the Board with an update on progress to date with respect to the wind10Q. In the Order of the Board with respect to Hydro's last hearing, Order No. P.U. 7, the13A. Hydro is currently negotiating a power13Board ordered that Hydro should file, as part14purchase agreement with the proponent for a 1516Northern Peninsula assets, the Doyles-Port aux16the Town of St. Lawrence on the Burin year under average wind conditions and should16Northern Peninsula assets, the Doyles-Port aux15producing approximately 96 gigawatt hours per year under average wind conditions and should1914	22	Labrador Interconnected Systems and for each	22	through long-term purchase agreements. The
25budgeting, rate setting and cost of service25Falls portion of the Exploits River projectPage 15Page 161was completed in March of this year, and the1A. That's correct, yes.2Grand Falls portion is expected to be2Q. Okay. If the wind demonstration project3completed within the next couple of weeks.3proceeds, will it affect the timing of the4The Corner Brook Pulp and Paper facility was5on the Island Interconnected System, as6Q. Mr. Haynes, in August, the Government6outlined in your evidence?7announced that it had given approval in7A. Yes, based on the current load forecast, the8principle for the establishment of a wind9generation supply by approximately one year,10you please provide the Board with an update on11Q. In the Order of the Board with respect to11project?11Q. In the Order of the Board with respect to12project?12Hydro's last hearing, Order No. P.U. 7, the13A. Hydro is currently negotiating a power13Board ordered that Hydro should file, as part14purchase agreement with the proponent for a17Basques assets, and the Burin Peninsula assets, the Doyles-Port aux15producing approximately 96 gigawatt hours per18Would you please summarize the conclusions of19year under average wind conditions and should19the study, which was filed in response to this18producing energy with some or possibly all of<	23	of the Isolated Rural Systems. These are used	23	Granite Canal project went into commercial
Page 15Page 161was completed in March of this year, and the1A. That's correct, yes.2Grand Falls portion is expected to be2Q. Okay. If the wind demonstration project3completed within the next couple of weeks.3proceeds, will it affect the timing of the4The Corner Brook Pulp and Paper facility was5brought into service in January of this year.5brought into service in January of this year.2Q. Okay. If the wind demonstration project7announced that it had given approval in7A. Yes, based on the current load forecast, the8project?7A. Yes, based on the current load forecast, the9demonstration project in the province. Could9generation supply by approximately one year,10project?11Q. In the Order of the Board with respect to11project?12Hydro's last hearing, Order No. P.U. 7, the13A. Hydro is currently negotiating a power14of this application, a detailed study on the1525-megawatt wind project to be located near15cost of service assignment of the Great16the agreement be finalized this fall, could be18Would you please summarize the conclusions of19year under average wind conditions and should19the study, which was filed in response to this20the agreement be finalized this fall, could be20direction and is filed as Exhibit JRH-3?21producing approximately 96 gigawatt hours per21A. Yes. The study res	24	in generation scheduling, system planning,	24	operation in July of this year. The Bishop
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3completed within the next couple of weeks.3proceeds, will it affect the timing of the requirements for additional generation supply4The Corner Brook Pulp and Paper facility was brought into service in January of this year.3proceeds, will it affect the timing of the requirements for additional generation supply5brought into service in January of this year.4requirements for additional generation supply6Q. Mr. Haynes, in August, the Government announced that it had given approval in principle for the establishment of a wind 95on the Island Interconnected System, as outlined in your evidence?7A. Yes, based on the current load forecast, the project could delay the requirement of a new generation supply by approximately one year, to approximately 2011.11progress to date with respect to the wind project?913A. Hydro is currently negotiating a power purchase agreement with the proponent for a 151114Deriverse on the Burin Peninsula. The project is capable of producing approximately 96 gigawatt hours per 191119periverse wind conditions and should the agreement be finalized this fall, could be the projected 38 wind turbines during the fall of 2004.1021Q. And that would be with the wind turbines being2122Q. And that would be with the wind turbines being2124Q. And that would be with the wind turbines being24	1	was completed in March of this year, and the	1	-
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	23	· · · ·	23	generation assets on the GNP should be
25 installed during 2004? Is that correct? 25 the 2003 GRA which was filed as directed in	24	Q. And that would be with the wind turbines being	24	assigned common plant. This is a change from
-	25	installed during 2004? Is that correct?	25	the 2003 GRA which was filed as directed in

Page 17Page 171 MR. HAYNES:Q. Mr. Haynes, you're an engineer by profession.2 P.U. 7, where these assets were specificallyWhat type of engineer are you?3 assigned to Hydro Rural. Secondly, the Hydro-A. Electrical engineer.4 owned generation on the Burin Peninsula shouldQ. Your resume with the introduction to your5 remain assigned to common plant, as wasevidence indicates you are a transmission6 previously done in the 2003 GRA. The GNPplanning engineer. What type work does that7 transmission assets should remain specificallyA. That was prior to 1989. I worked in the9 done in the 2003 GRA. The Doyles-Port aux910 Basques transmission assets should remain1011 specifically assigned to Newfoundland Power,1112 as was previously done in the 2003 GRA, and1213 the Burin Peninsula transmission assets should1314 remain assigned to common plant as was1415 previously done in the 2003 GRA.1516 Q. Thank you, Mr. Chair. That completes my1717 direct examination of Mr. Haynes.1818 CHAIRMAN:1819 Q. Thank you, Ms. Greene. Good morning, Mr.2020 Mr. Chairman.2222 Q. Mr. Chairman.2223 CHAIRMAN:2324 Q. When you're ready, please.2425 BROWNE, Q.C.:2426 And how long are you in that position? Since243 A. Yes, a little over two years.244 Q. And how long are you in that position? Since241999, is it?24 </th
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3A. Yes, a little over two years.3anything and everything with respect to
4 Q. At 2001, you were at point? 4 CF(L)Co, except the financial support that's
5 A. Yes. 5 provided by Newfoundland and Labrador Hydro.
6 Q. What are your goals in that position? What do 6 Q. Were you a liaison with Hydro Quebec in that
7 you see your goals as being? 7 position?
8 A. My I guess primary objection is to ensure that 8 A. Yes, we were on awe have what's called an
9 we deliver power and energy at a cost 9 operating committee with Hydro Quebec, which
10effective price and keep our reliability as10discusses operational matters between CF(L)Co
11 high as we possibly can, given the age and our 11 and Hydro Quebec.
12 challenges. That would be the first and 12 Q. There was some discussion last week concerning
13foremost.It's basically cost and13work that was undertaken by Hydro and billed
14 reliability. 14 to CF(L)Co. Do you have any knowledge as to
15 Q. So it's down to these two factors? 15 the way that is done?
16 A. Well, there's lots of other things within the 16 A. Some of this is a bit historic, but CF(L)Co's
17 various divisions, but those would be the key 17 approach to some change with respect to the
18things. We plan the system. We operate the18plant are that basically that Hydro Quebec
19 system, and we endeavour to do it cost 19 will pay a fair portion of that cost. In
20 effectively and provide the greatest 20 fact, most of the costs for improvements,
21reliability that we can.21beyond the contracts. At certain times, if
22 Q. I notice that you were, for a period, general 22 CF(L)Co does not have the resources, the
23 manager of CF(L)Co. What were your 23 engineers available, that they have in the
124 responsibilities there? 124 next used Newtoundland and Labrador Undro
24responsibilities there?24past used Newfoundland and Labrador Hydro25A. Basically, that position is responsible for25engineering, who would basically undertake

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	Page 21	1	Page 22
	AR. HAYNES:	1	contract, they have an ability to influence
2	that work and do it for CF(L)Co, who would in	2	the way things are done? Can you expand upon
3	fact charge Hydro Quebec and also pay	3	that?
4	Newfoundland Hydro for their services.	4	A. They set certain parameters around the power
	9:30 a.m.)	5	system frequency regulation, that sort of
6	Q. Is there anyone else that you seek to do that	6	thing, but that's about it.
7	work, CF(L)Co seeks to do that work besides	7	Q. But in terms of Newfoundland and Labrador
8	Newfoundland and Labrador Hydro?	8	Hydro providing services to CF(L)Co. and
9	A. CF(L)Co does retain its own consultants for	9	billing for those services, has there been any
10	various things that it do. It also uses some	10	discussion with Hydro Quebec as to what a fair
11	expertise within Newfoundland Hydro in	11	way to billing would be in reference to these
12	transmission areas or generation areas, but	12	services?
13	they are not precluded to going and hiring a	13	A. Not to my knowledge.
14	contractor or consultant directly.	14	Q. To your knowledge has there ever been an
15	Q. And what about reference to Hydro Quebec?	15	objection from Hydro Quebec in reference to
16	Have you used any of the expertise that would	16	the way this billing was done?
17	be available there?	17	A. When I was at CF(L)Co., there was obviously
18	A. CF(L)Co has, on occasion, had people from	18	lots of discussion on the prices, but we
19	CF(L)Co involved in certain aspects and they	19	agreed at the end of the day that they would
20	have some rights under the power contract to	20	pay the rates that were proposed.
21	influence the way some things are done, but	21	Q. And the rates that were proposed were based on
22	Newfoundland Hydro has not directly sought	22	what factors?
23	engineering services or technical support from	23	A. Based on cost plus appropriate markup and
24	Hydro Quebec directly.	24	covering off CF(L)Co's risk. There was a fair
25	Q. What do you mean when you say under the	25	bityou know, there hasn't been that much of
	· · · ·		
	Page 23	1	Page 24
1	Page 23 late, as I understand, but there was a fair	1	Page 24 member of the Institute of Electrical and
1 2	Page 23 late, as I understand, but there was a fair bit of improvement to the overall system made	2	Page 24 member of the Institute of Electrical and Electronic Engineers, and that you've served
1 2 3	Page 23 late, as I understand, but there was a fair bit of improvement to the overall system made when Hydro Quebec were trying to meet the	2 3	Page 24 member of the Institute of Electrical and Electronic Engineers, and that you've served as a member of the Generation Council of the
1 2 3 4	Page 23 late, as I understand, but there was a fair bit of improvement to the overall system made when Hydro Quebec were trying to meet the goals, if you will, of their whole grid, and	2 3 4	Page 24 member of the Institute of Electrical and Electronic Engineers, and that you've served as a member of the Generation Council of the Canadian Electricity Association. What does
1 2 3 4 5	Page 23 late, as I understand, but there was a fair bit of improvement to the overall system made when Hydro Quebec were trying to meet the goals, if you will, of their whole grid, and it would require CF(L)Co. cooperation, and	2 3 4 5	Page 24 member of the Institute of Electrical and Electronic Engineers, and that you've served as a member of the Generation Council of the Canadian Electricity Association. What does that involve?
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1 BROWNF, Q.C.: next new generation appears to be wind 2 Q. Now pertaining to your evidence, can we go to next new generation appears to be wind 3 page one of your evidence and in line 23, you next new generation. Is that correct? 4 indicate that the system planning department, 0. And they is the proponent? 6 generation. Can you explain what that 6 A. It's a company or a group of companies called 7 involves? 0. And they re in private enterprise? 9 which comprised generation, transmission and 9. And they are a group of companies, that have 11 analysis department, look at and review the 11 12 load forecast to see if transmission line 12 14 we anticipate. So they will actually do 14 15 technical studies, what is called Load How 14 16 studies to look at transmission line loadings, 16 17 transformer loadings and to identify copilal 17 18 budget improvements that are required. They 18 19 also review particularly in the generation 24 21 look at transmission line loadings, 22 look at transmission line loadings, 33 and power necds of the next generation 44 the tinining of the next generation		Page 25		Page 26
2 0. Now pertaining to your evidence, can we go to indicate that the system planning department is responsible for planning all new indicate that the system planning department. 3 A. That is under discussion at the present time, with the proponent? 5 is responsible for planning all new involves? 4 A. It is a company or a group of companies called New ind. 7 involves? 5 0. And who is the proponent? 4 A. It is a company or a group of companies called New ind. 8 A. Basically, the system planning department, analysis department, look at and review the 1 0. And who is the proponent? 4 14 0. And who is the proponent? 9 which comprised generation, transmission and 10 0. Artal wey 're in private enterprise? 9 A. It is a company or a group of companies, local or propice distribution planning, along with economic 10 12 loading is capable of cok at and review the 1 10 0. There are no specific plans on the 1 10 13 tastic block at transmission line loadings, 1 11 11 11 11 11 14 we anticipute. So they will actually do area, the Island load forecast and they, for 2 11 11 11 11 11 11 11 11 11 11 11 11 <td< td=""><td></td><td></td><td>1</td><td>-</td></td<>			1	-
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25 Utilities Board for approval. 25 Q. You can ballpark it, if you like.	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	 significant changes in the load or the situation on the Island Interconnected System and we will adjust our timing and ensure that the appropriate studies are done in time that we can build a source or buy a source or whatever to meet those future requirements. Q. So 2010 and 2011 are not that far off. What are you planning for 2010 and 2011, in terms of new generation? A. We have no specific conclusive project that we would do at that particular time. The process would normally be thatwe have some, we have Island Pond, which was mentioned in the evidence, as a 36-megawatt potential hydro plant in the Bay D'Espoir water shed area. We would likely go and review costing fordepending on the amount of load required in 2010/2011, we may prepare cost estimates for gas turbines. We may go to an RFP process where we would seek proposals from private companies and then we would evaluate the whole and at the end of the day, we would propose what's most economic and in the long-term best 	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	 Page 28 Q. So after Island Pond and the wind generation, that's about it. Otherwise you're looking-are you straining at that point to find new generation? A. Hydro doesn't have anyother than Island Pond is the only, you know, significant resource that we have in our portfolio, if you will, other than, you know, building a gas turbine plant or a combined cycle plant at Holyrood or elsewhere. There are other small hydro projects on the island that other people have rights to, which we would likely solicit bids for and evaluate what is the most appropriate next source. In the very long term, once all these small hydros are used, basically we do see a thermal future, unless we get a Labrador in feed, of course. Q. Now you say there, in your first sentence, that the system planning department is responsible for planning all new generation. How many people are working there in the system planning department? A. I think there are approximatelyI shouldn't
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	Page 29		Page 30
	I age 25 IR. HAYNES:	1	Q. Now when you were completing Granite Canal,
$\begin{vmatrix} 1 \\ 2 \end{vmatrix}$	A. I think it's ten actually that are there, and	2	you must have had a fair complement of people
3	that's distribution planning. That's	3	involved in working on that, did you?
4	distribution planning, generation planning and	4	A. From within Hydro?
5	transmission planning. They also dothere's	5	Q. Yes.
6	a lot of ongoing, you know, yearly or annual	6	A. There were five or six people engaged in that
7	activities. There are 12 actually. There's a	7	pretty well full time.
	lot of annual activities with respect to	8	Q. Well, what are they doing now, those five or
8 9	operational support, doing load flows,	9	six people, now that Granite Canal is
10	stability analysis, reviewing diesel plant.		completed?
10	All the isolated diesel areas have to have a	10	A. Granite Canal is online and producing. It's
11	review of the load forecast and whether	11 12	not exactly finished. There's still work
12			ongoing, which we expect to take us to the end
	there's new diesel generation required or	13	· · ·
14	change outs required. Q. Yes, but you just informed that the next plan,	14	of the year, cleaning up deficiencies and a few things like that. But for most of the
15		15	-
16	save for the wind generation, is Island Pond and that won't be until 2010 or 2011. Is that	16	people, if not all the people who were
17	what you're telling us?	17	assigned to that particular project, we had
18 19		18	backfilled with temporary and term employees, and basically they would bemost of those
	A. I didn't say the next one would be Island Pond. Island Pond is one of aIsland Pond is	19	
20	one that we have. We would have to evaluate	20 21	would be finished their work with Hydro towards the end of the year, unless there's
21 22	Island Pond against the economics of any other		other work that comes in to take its place.
22	proposal and evaluateit may not be Island	22	Q. So those people will betheir work is
		23	complete?
24 25	Pond. It may well be, but we don't know that at this point in time.	24 25	A. Yes, and it has slowed down in the last number
23		23	
	Page 31		Page 32
1	of months, but I mean, there were a fairthe	1	general in describing what you're looking for
2	Granite Canal team, if you will, were four or	2	after that. Can you be a little more specific
3	five people who were dedicated full time and	3	as to telling the Public Utilities Board as to
4	we basically backfilled those positions with	4	what the plan is? If you don't choose Island
5	temporary or term engineers or spread it	5	Pond, where is electricity headed in this
6	around amongst other areas or, in some cases,	6	province, in terms of where is the plan?
7	some work could be delayed until a later date.	7	A. I have been less than specific because we do
8	Q. Now in planning new generation, the ten people you got there in the planning department, it	8	not know what the next source will be. It's a
9			matter of what the antions are available at
10		9	matter of what the options are available at
1	seems to me, would they be overly busy right	10	the time, the cost of fuel, if natural gas is
11	seems to me, would they be overly busy right now, if nothing is coming on in the	10 11	the time, the cost of fuel, if natural gas is available, and so on. It will bethat will
12	seems to me, would they be overly busy right now, if nothing is coming on in the foreseeable future?	10 11 12	the time, the cost of fuel, if natural gas is available, and so on. It will bethat will be the subject of an evaluation which will
12 13	seems to me, would they be overly busy right now, if nothing is coming on in the foreseeable future?A. As I mentioned, in the generation and planning	10 11 12 13	the time, the cost of fuel, if natural gas is available, and so on. It will bethat will be the subject of an evaluation which will start in three or four years. What we will do
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Multi-PageTMNL Hydro's 2003 General Rate Application

	ober 20, 2003 Mult	1-Pag	ge ^m NL Hydro's 2003 General Rate Application
	Page 33		Page 34
1 1	MR. HAYNES:	1	loading capacity requirements. There's a
2	hydro that may be developed by others. It	2	iterative process. A load forecast is done
3	will be the subject to an economic and	3	which considers the gross domesticthe GDP of
4	technical evaluation.	4	the province, the housing starts and a whole
5	Q. And is there a time line for this as to where	5	raft of other things, and there was an RFI, I
6	you're headed?	6	believe, submitted which kind of lists those
7	A. In 2005, we need to be2005, 2006 at the	7	things. So that is looked at. It churns out
8	latest, we would need to be kind of landing on	8	a bunch of numbers, if you will, on the energy
9	a solution to propose to the Public Utilities	9	and power requirements of the Interconnected
10	Board, but we don't have that done at this	10	System. We go through and we do a rate
11	point in time. The load forecast does not	11	exercise and there's an iterative process, you
12	require that we have a definitive solution for	12	know, that you go around until you come down
13	2010 or 2011.	13	to auntil you arrive at a load forecast
14	Q. You indicate, on line 27 of your evidence,	14	whereby things are more or less balanced if
15	that the department prepares load forecasts.	15	you will. You do look at, you know,
16	Can you give us a description of how that is	16	elasticity to a point of view. If you had
17	done?	17	submitting a rate increase, there may be some
18	A. Well, there are multiple load forecasts.	18	dulling of the load forecast, so you have to
19	There are isolated system load forecasts, but	19	do two or three iterations to arrive at a
20	I guess, I'm assuming the one that you're most	20	point that says this is the load forecast, and
21	interested in is the one that dictates the	21	it's revised every year.
22	next source. Basically, we do an econo-metric	22	Q. And that's the long-term load forecast?
23	forecast and we do have the provincial	23	A. That's the long-term load forecast.
24	government do some economic forecast and that	24	Q. Okay. What about the short-term load forecast
25	basically drives a model which determines the	25	year over year? How is that completed?
	Page 35		Page 36
1	A. The short-term load forecast takes information	1	provided?
2	from the Industrial Customers, Newfoundland	2	A. The forecast from the customers may or may not
3	Power and our own forecast for Rural, and we	3	be updated. We usually go back for a reality
4	generate these. These are used basically for	4	check, if you will, and if there is any
5	budgetary purposes, for revenue requirements	5	significant change in the forecast, we will
6	in the test year, for instance. But we	6	basically do a revision and we will revise our
7	basically take the information from the	7	estimates, our production estimates, our fuel
8	customers and we review it. We question it if	8	estimates, based on the energy that we
9	we feel it's a little bit odd or it doesn't	9	anticipate needing by the end of the year.
10	kind of fit our expectations, and we build the	10	Q. And since you've been in charge of this
11	forecast for the system from there. That	11	particular department, have you been required
12	then, in turn, will go and do the hydrothermal	12	to do any updating pursuant to the forecasts
13	split, which we'll consider the water	13	that were given to you?
14	resources we have available and generates	14	A. Yes, that's quite common to revise the
15	everything from that, from a cost point of	15	forecast. I mean, the weather obviously
16	view.	16	drives a lot of it. If it's a mild winter, we
17	Q. Now in terms of when your customers provide	17	usually decrease our fuel use. If it's a
18	you with their forecast, at what time of year	18	harsh winter, and depending on the water
19	is that normally done?	19	situation, we will increase the usage, and
20	A. That's usually done around this time of the	20	this has been revised, is being revised now,
21	year, in the fall.	21	for the filing that we will undertake towards
22	Q. And it's for what period?	22	the end of October, early November. That will
23	A. It's usually one to five year horizon.	23	all be revised for -
24	Q. And during the course of a year, is there any	24	Q. In which direction would it be revised?
25	update given in the forecast that has been	25	A. The forecast, the overall forecast, there's a

1	Page 37		Page 38
1 N	IR. HAYNES:	1	of avoiding new capacity coming on?
2	little bit more fuel required because our	2	A. If we look at conservation or DSM in the
3	inflows have basically continued in a downward	3	Isolated Diesel areas, specifically when new
4	trend. We're still below average on our	4	capacity is required and when the load
5	inflow situation this year. So there is a	5	forecast indicate that a requirement is, for a
6	requirement for more volume of fuel, somewhat	6	new diesel plant is required, we do do an
7	balanced by the exchange rate, so there is a	7	exercise to the economic analysis to determine
8	change, but -	8	whether there are any costsany economic
9	Q. So if there's more rain in the forecast coming	9	merit into actually initiating some demand
10	up, will that be of assistance?	10	side management, you know, through compact
11	A. Yes, certainly, it would be, yes. We have to	11	florescent lighting and whatever. On the
12	maintain thewe have guidelines around the	12	provincial grid, we had not undertaken
12	reservoir operation to maintain a guide curve	12	anything other than our HYDROWISE Program to
13	and we occasionally dip below that, but it's	13	attempt to educate the general public that
15	not a comfortable place to be and we are,	14	conservation is important, but we have not
15	right now, just a little bit above it or on	15	undertaken any "initiatives" in that
	the line. If we get more rain, it'll help us.		particular area. I mean, submitting a thing
17 18	If we get less rain, it'll obviously require	17	that can be done, from my point of view, is
	more fuel consumption at Holyrood.	18	through rates, to encourage people to conserve
19	- ·	19	
20 21	Q. Now when you were mentioning previously the new capacity that you're looking to and the	20 21	or to bemake wise choices regarding the use of electricity.
21	various expansion, you didn't mention		Q. What do you mean through rates?
	conservation. How is conservation factored	22 23	A. Well if the ratesif people do not appreciate
23			the cost effectiveness, overall cost
24	into the timing for additional capacity? Have	24	effectiveness of electricity versus, for
25	you looked at that as a possibility and a way	25	effectiveness of electricity versus, for
	Page 39		Page 40
1	instance, oil fired heat, or whatever, then	1	particular individual's job requirements to be
2	instance, oil fired heat, or whatever, then they will naturally make a decision which they	2	particular individual's job requirements to be solely responsible for that particular aspect,
2 3	instance, oil fired heat, or whatever, then they will naturally make a decision which they think is most cost effective. The capital	2 3	particular individual's job requirements to be solely responsible for that particular aspect, no.
2 3 4	instance, oil fired heat, or whatever, then they will naturally make a decision which they think is most cost effective. The capital cost, obviously, of oil-fired system is a bit	2 3 4	particular individual's job requirements to be solely responsible for that particular aspect, no. Q. And in your meetings nationally with the
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2 3 4 5 6 7	instance, oil fired heat, or whatever, then they will naturally make a decision which they think is most cost effective. The capital cost, obviously, of oil-fired system is a bit higher than electric heat, as Mr. Wells mentioned the other day, and people tend to go with their, I guess, their initial short-term	2 3 4 5 6 7	particular individual's job requirements to be solely responsible for that particular aspect, no.Q. And in your meetings nationally with the Canadian Energy Council and the particular sub-group you're involved with, is there much discussion of conservation?
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Oc	tober 20, 2003 N	Iulti-Pag	ge [™] NL Hydro's 2003 General Rate Application
	Pag	e 41	Page 42
1	MR. HAYNES:	1	than Holyrood. Holyrood is still a cost-
2	manifestation is through the load forecast.	2	effective source of energy for the Province.
3	We look at the housing starts and a function	3	Q. And you mention that people are still putting
4	done of how many new housing starts are all	4	electric heat and baseboard electrical
5	electric and that's all factored into the	5	radiation into their homes. If in account of-
6	equation to come up with the load forecast.	6	-have you done any analysis to find out how
7	And then we basically strive for the least	7	much that is really costing, in terms of the
8	cost way to meet that particular demand. We	8	fuel requirements for Holyrood?
9	have not made major efforts into trying to	9	A. You mean on a household basis?
10	influence what the total energy requirements	10	Q. Yes, just generally, you know, is this really
11	of the Province are.	11	costing youcosting Hydro a lot financially
12	Q. In terms of the conservation theme, what	12	to provide this service?
13	efforts have been made and what plan have you	ı 13	A. Well, it cost the home owner, I guess,
14	in place to reduce the amount of fuel that's	14	electricity or it cost them capital cost and
15	required at the Holyrood Generating Station?	15	fuel cost if he buys from whichever oil
16	A. What we have been striving to do at Holyrood	16	company. I don't think we have gone down
17	is to make sure that for every barrel that we	17	through and, from a corporate point of view,
18	do burn, that we squeeze as many kilowatt	18	and specifically looked at what that is. I
19	hours as we can out of it through, you know,	19	mean, I know that our economist has looked at
20	through our efforts in the plant and through	20	the overall, the overall efficiency or
21	system dispatch. We havemost new sources, I	21	effectiveness of, say, oil-fired home heat
22	would suggest that all new sources basically	22	versus Holyrood, and I mean, that's the high
23	have some difficulty competing with the	23	level or the bird's eye view is that we are
24	marginal cost of Holyrood. Granite Canal was	24	burning oil at a 35 to 40 percent efficient
25	close, but most sources are more expensive	25	process and a homeowner could put in a furnace
	Pag	e 43	Page 44
1	and burn it at 80 percent efficient process.	1	A. I guess it's really a consumer education
2	Q. But why aren't homeowners told that?	2	process and it's a consumer education thing.
3	A. I'm sure they would be by the oil companies.	3	I think the HYDROWISE Program does assist in
4	Q. But why isn't Hydro taking the lead in telling	4	that there. I think theI would think that
5	people that there will be a more efficient	5	the various entities can have some
6	process by putting in your own furnace, rather	6	responsibility, whether it's the PUB or the
7	than having Hydro burning bunker C fuel at the	7	Government through NRCAN (phonetic), Federal
8	Holyrood generating station?	8	Government Programs, but Hydro has not taken
9	A. We have not targeted the customers of	9	that upon itself to speak directly to the
10	Newfoundland Power from the point of view that	10	customers of Newfoundland Power.
11	they're in a diesel system, it looks after	11	Q. But Hydro generally has no program attempting
12	itself because the rate structure is, you	12	to persuade consumers to use less energy as a
13	know, the more you use, the more you pay. We	13	technically acceptable alternative to new
14	have not targeted Newfoundland Power customers	14	generation?
15	from that particular aspect?	15	A. No, although Hydro does encourage the wise use
16	Q. Why haven't you?	16	of energy, but we have no, we have not
17	A. We did not feel it was our role to actually	17	instituted programs on a customer-by-customer
18	persuade or to discourage use by another	18	basis, whereby we could actually show them or
19	company's customers.	19	encourage them not to put in electric heat.
20	Q. Well, whose role would it be? Whose	20	Q. Have you undertaken any studies, has Hydro
21	responsibility would it be to inform people	21	undertaken any studies to show that
22	concerning the efficiencies that could be	22	conservation, a massive conservation would be
23	gained by if they put a furnace in their home	23	a technically acceptable alternative to new
24	as opposed to the lack of efficiency you have	24	generation?
25	in Holyrood by burning oil there?	25	A. Not specifically. Not recently, not that I'm
L		I	$\mathbf{D}_{\mathbf{D},\mathbf{G},\mathbf{G}} \mathbf{A} 1 \mathbf{D}_{\mathbf{D},\mathbf{G},\mathbf{G}} \mathbf{A} \mathbf{A}$

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1 N	MR. HAYNES:	1	Q. And in terms of new construction, even if you
2	aware.	2	undertook that as a project to point out the
3	Q. And why wouldn't you look to that as a	3	fact that you just pointed out to us, that
4	possibility?	4	people would be more efficient in putting a
5	A. Look to actually going on a massive campaign	5	furnace into their home, than having you burn
6	for conservation?	6	the oil at Holyrood. Have you considered that
7	Q. Yes, to examine conservation as opposed to	7	as a possibility of lessening the strain on
8	putting in alternative new energy?	8	the system?
9	A. I think from aI think on a go-forward basis	9	A. Not as a major impact into the next source, we
10	that there may be gains to be made by	10	have not considered that at this point in
11	influencing or encouraging people to put in	11	time.
12	oil-fired electric heat. I think maybe some	12	Q. Have you done an analysis to determine where
12	of the environmental programs with the Federal	12	that would get you?
13	Government may be of some assistance because	13	A. Not to my knowledge.
15	it is more environmentally appropriate as	14	Q. In terms of system planning and system
16	well, you know, to get 80 percent efficiency	15	operation, on page 2, lines 8 and 9, you make
17	out of a home furnace than it is 37 percent		reference to the Energy Control System and the
	efficiency out of Holyrood. But for people to	17	co-ordination with Newfoundland Power and the
18		18	non-utility generators and the Industrial
19	go back and retrofit their homes to be, you	19	
20	know, a hot-air furnace or a hot-water furnace	20	Customers. The non-utility generators, they
21	or whatever would be prohibitive and I think	21	provide back-up service of sorts. How do they
22	the only in-roads you may make is on new	22	get into this equation?
23	construction and that will be education over		(10:00 a.m.)
24	time. We have not undertaken any specific	24	A. No, all the non-utility generators provide
25	target program to curtail power or energy use.	25	power energy to Hydro on a kind of a take or
	Page 47		Page 48
1	pay basis and basically when they generate, we	1	say. So there's no appreciable effort from
2	take it and basically we displace primarily	2	the point of view of dispatching those NUGS
3	Holyrood fuel. Maybe not in the immediate	3	and with respect to the amount of NUG power
4	you know, in the middle of the summer,	4	that we have right now, which is approximately
5	obviously, we wouldn't be displacing Holyrood	5	66 megawatts, I believe, that's not a major
6	fuel directly, but we would generate less of	6	issue for Hydro. We can easily absorb that
7	our hydraulic and the fuel would be displaced	7	into our system and we will work our
8	at a later point in time. There would be some	8	facilities around those. We have more storage
9	time lag on that particular activity.	9	capability.
10	Q. And Newfoundland Power has its own generation	10	Q. So in terms of the NUGS, they can produce as
11	sources too.	11	much, according to capacity as they can, and
12	A. Yes, but they are behind Newfoundland Power	12	you will take it into the system, is that the
13	delivery points and most of the NUGS actually	13	way it works basically?
14	deliver into the system and then it's	14	A. That's correct.
15	accounted for Newfoundland Power, that's taken	15	Q. Now, the NUGS, is that an expensive form of
16	off their load forecast and then accounted for	16	power for you to purchase?
17	in their load forecast.	17	A. Well most of them are new plants and all the
18	Q. How do you determine how much energy you	18	new plants typically are obviously more
19	require from the NUGS at any given day?	19	expensive than the, you know, Bay D'Espoirs
20	A. It's basedprimarily we take as they	20	and the Upper Salmons and so on, it's a bit
21	generate. We don'tmost of the NUGS do not	21	more expensive thanit's more expensive than
22	have a lot of storage capability. They're not	22	Holyrood, it's a bit more expensive than
23	necessarily run of the river, all run of a	23	Granite Canal, but it's probably on par with
24	river, but basically when they generate, we	24	Island Pond or not too far from that.
25	take the power or take the energy, I should	25	Q. So the power you're buying from the NUGS is
	he power of the the chergy, I bhould		e and possed you to oujing nom the read to

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1 H	BROWNE, Q.C.:	1	cost over the term to meet the needs of the
2	more expensive than the power you could	2	system.
3	produce with fuel at Holyrood?	3	Q. Okay, so you're buying as much from the NUGS
4	A. On a marginal basis, yes. Holyrood fuel	4	as they can produce. What about Newfoundland
5	basically if you consider the O & M and so on	5	Power's generation, how does that work in your
6	at Holyrood, you wouldn't be much more than	6	control system?
7	\$60.00 per megawatt hour and the Granite Canal	7	A. Basically we don't control any of Newfoundland
8	is about 53, 54 and the NUGS are higher again.	8	Power's generation, nor do we actually control
9	Q. Well from a business perspective, is that the	9	the NUGS. Newfoundland Power's generation,
10	wisest course, to be purchasing from the NUGS?	10	Newfoundland Power can generate approximately,
11	A. That depends, when you go down through and	11	in Schedule 2, on an average capability of
12	look at your load forecast, we have to do	12	about 424 gigawatt hours and basically they do
13	something. We have to meet the load. We plan	13	that and it's absorbed in their system.
14	a system for loss of load expectation or loss	14	Obviously they don't buy it from us, it's not
15	of load hours of 2 point hours and we plan the	15	purchased and blended in, if you will, it's
16	system to meet the hydraulic firm, so when we	16	totally behind their delivery points, our
17	get to that particular point, we have to do	17	delivery points from Newfoundland Power.
18	something. As I mentioned, when we go	18	Q. So it directly affects their own customers and
19	through, for instance our next source, we will	19	not you?
20	evaluate all those options and we will propose	20	A. Yes, if they weren't there, if they never had
21	to the Public Utilities Board what is the most	21	those Hydroplants, I would presume that they
22	cost-effective way to meet that load at that	22	would be looking to buy another, you know,
23	time. Now that may be NUGS, it may be Island	23	point four, 424 gigawatt hours on average from
24	Pond, it may be Holyrood 4, it may be	24	Newfoundland and Labrador Hydro.
25	whatever. It will be the lowest evaluated	25	Q. Has there ever been a study undertaken at
	Page 51		Page 52
1	Hydro involving Newfoundland Power and their	1	would call for that particular load. And I
2	generation capacity to see if Hydro should be	2	think in some of our RFI's it was actually
3	taking over the generation from them or it	3	indicated the times when we actually called
4	could purchase the generation from them?	4	upon them to generate thermal. On any
5	A. Not to my knowledge. Most of their plants	5	particular day, if we find ourselves in a
6	are, except for Rose Blanche, I guess, have	6	situation where because of outages or
7	been there for quite a number of years and I	7	unscheduled outages that we found ourselves a
8	would suggest that their capital cost is long	8	little bit tight on generation, we wouldn't
9	since written off and they're probably very,	9	hesitate to call Newfoundland Power to make
10	very cost effective for Newfoundland Power	10	sure that all their Hydro is on or even call
11	just to absorb that into their system and sell	11	Industrial Customers to see if they can, you
12	it as they do. And there are a lot of small	12	know, could be of assistance.
13	plants, most of Hydro plantsnot all, most of	13	Q. Now about a month ago or it might have been a
14	them are larger plants.	14	little longer, it might have been six weeks or
15	Q. When you call upon Newfoundland Power to	15	so, the electricity went off on at least most
16	generate, yourselves, have you had occasion to	16	of the Island, at least the Avalon, due to a
17	call upon them to supplement your system?	17	failure where, in Bay D'Espoir, was it?
18	A. We don't normally call upon them to generate	18	A. Bay D'Espoir station service.
19	on their hydro plants. They usually try to	19	Q. Okay. How were the services that Newfoundland
20	ensure that those plants are available in the	20	Power, and others, had to offer incorporated
21	winter during peak. We do call upon them on	21	to assist you there?
22	some of their thermal generation if we have a	22	A. I think at that particular time we, I'm not
23	situation whereby we need power, and I think	23	sure if we actually asked forI think we may
1.4	that's set out in one of the exhibits, what	24	have actually initiated a request for
24	the pecking order is, if you will, of when we		Newfoundland Power to start their gas

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1	Page 53		Page 54
	IR. HAYNES:	1	in feeding to the system when you have a
2	turbines, but I think by the time that that	2	deficit situation, such as that?
3	was ready to go, I think we may have had the	3	A. Our largest gas turbine is on the Burin
4	situation looked after with other generations.	4	Peninsula.
5	I think we actually had some generation, our	5	Q. Okay, so it's on the Burin Peninsula,
6	GNP turned on the diesels and so on, until we	6	whereabouts on the Burin is it?
7	got that problem resolved at Bay D'Espoir,	7	A. I think Green Hill ismy geography, I don't
8	which has been since resolved, by the way.	8	remember exactly from my planning days exactly
9	Q. So you initiated the request to them to help	9	where it is, but it's near the foot of the
10	out with the deficit, but by the time you	10	Burin Peninsula where the gas turbine is
11	ready, you didn't require it? How long does	11	located.
12	it take them to get going?	12	Q. Okay, so if you require additional power
13	A. That's in our RFI as well, I think it's	13	because of outages and you're requiring their
14	probably about a half an hour, you know,	14	thermal power, they will begin generating down
15	assuming that the gas turbine is operational.	15	at the foot of the Burin Peninsula?
16	Sometimes the gas turbines areour gas	16	A. If we get down to that hierarchy of requests
17	turbines and Newfoundland Power's gas turbines	17	for generation, we obviously will start our
18	don't necessarily have a stellar record of	18	own Hardwood in Stephenville, whatever is
19	starting when you want them to start. They're	19	required, but if they get down there, they
20	pretty good, but occasionally they don't do as	20	would be one of the ones that they could put
21	they're requested, as they're supposed to do,	21	on fairly quickly and I would assume that they
22	but I think it's about a half an hour or an	22	would have all their hydro plants, as much as
23	hour.	23	they can as well.
24	Q. Now where would the sources of Newfoundland	24	Q. And from the foot of the Burin Peninsula, from
25	Power's gas turbines be that would assist you	25	the boot, they would be generating electricity
	Page 55		Page 56
1	-		
	for the entire grid, is that correct?	1	entire system?
2	for the entire grid, is that correct? A. Oh ves, it all goes into the grid, it will		entire system? A. Yes, as would the generators and the GNP or,
2	A. Oh yes, it all goes into the grid, it will	2	A. Yes, as would the generators and the GNP or,
3	A. Oh yes, it all goes into the grid, it will displace, you know, it will reduce	2 3	A. Yes, as would the generators and the GNP or, you know, anywhere else.
3 4	A. Oh yes, it all goes into the grid, it will displace, you know, it will reduce transmission from thefrom Sunnyside down and	2 3 4	A. Yes, as would the generators and the GNP or, you know, anywhere else.Q. What would be the source of the generation on
3 4 5	A. Oh yes, it all goes into the grid, it will displace, you know, it will reduce transmission from thefrom Sunnyside down and allow power to be used somewhere else. I	2 3 4 5	A. Yes, as would the generators and the GNP or, you know, anywhere else.Q. What would be the source of the generation on the Great Northern Peninsula?
3 4 5 6	 A. Oh yes, it all goes into the grid, it will displace, you know, it will reduce transmission from thefrom Sunnyside down and allow power to be used somewhere else. I mean, the electrons go wherever electrons go, 	2 3 4 5 6	A. Yes, as would the generators and the GNP or, you know, anywhere else.Q. What would be the source of the generation on the Great Northern Peninsula?A. Basically there are three diesel plants on the
3 4 5 6 7	 A. Oh yes, it all goes into the grid, it will displace, you know, it will reduce transmission from thefrom Sunnyside down and allow power to be used somewhere else. I mean, the electrons go wherever electrons go, but it's an assistanceall the generation, as 	2 3 4 5 6 7	A. Yes, as would the generators and the GNP or, you know, anywhere else.Q. What would be the source of the generation on the Great Northern Peninsula?A. Basically there are three diesel plants on the Great Northern Peninsula owned by Hydro, one
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3 4 5 6 7 8 9 10	 A. Oh yes, it all goes into the grid, it will displace, you know, it will reduce transmission from thefrom Sunnyside down and allow power to be used somewhere else. I mean, the electrons go wherever electrons go, but it's an assistanceall the generation, as we are suggesting in our review, is used and useful to the overall system. Q. And where else would Newfoundland Power be 	2 3 4 5 6 7 8 9 10	 A. Yes, as would the generators and the GNP or, you know, anywhere else. Q. What would be the source of the generation on the Great Northern Peninsula? A. Basically there are three diesel plants on the Great Northern Peninsula owned by Hydro, one at St. Anthony, Hawke's Bay and Roddickton and there are a total ofI think at Hawke's Bay there are two two and a half megawatt units;
3 4 5 6 7 8 9 10 11	 A. Oh yes, it all goes into the grid, it will displace, you know, it will reduce transmission from thefrom Sunnyside down and allow power to be used somewhere else. I mean, the electrons go wherever electrons go, but it's an assistanceall the generation, as we are suggesting in our review, is used and useful to the overall system. Q. And where else would Newfoundland Power be able to generate thermally from, what other 	2 3 4 5 6 7 8 9 10 11	 A. Yes, as would the generators and the GNP or, you know, anywhere else. Q. What would be the source of the generation on the Great Northern Peninsula? A. Basically there are three diesel plants on the Great Northern Peninsula owned by Hydro, one at St. Anthony, Hawke's Bay and Roddickton and there are a total ofI think at Hawke's Bay there are two two and a half megawatt units; at St. Anthony there are four one megawatt
3 4 5 6 7 8 9 10 11 12	 A. Oh yes, it all goes into the grid, it will displace, you know, it will reduce transmission from thefrom Sunnyside down and allow power to be used somewhere else. I mean, the electrons go wherever electrons go, but it's an assistanceall the generation, as we are suggesting in our review, is used and useful to the overall system. Q. And where else would Newfoundland Power be able to generate thermally from, what other points on the Island? 	2 3 4 5 6 7 8 9 10 11 12	 A. Yes, as would the generators and the GNP or, you know, anywhere else. Q. What would be the source of the generation on the Great Northern Peninsula? A. Basically there are three diesel plants on the Great Northern Peninsula owned by Hydro, one at St. Anthony, Hawke's Bay and Roddickton and there are a total ofI think at Hawke's Bay there are two two and a half megawatt units; at St. Anthony there are four one megawatt units and two two and a half megawatt units;
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3 4 5 6 7 8 9 10 11 12 13 14 15 16	 A. Oh yes, it all goes into the grid, it will displace, you know, it will reduce transmission from thefrom Sunnyside down and allow power to be used somewhere else. I mean, the electrons go wherever electrons go, but it's an assistanceall the generation, as we are suggesting in our review, is used and useful to the overall system. Q. And where else would Newfoundland Power be able to generate thermally from, what other points on the Island? A. I think they havea diesel generator is located inthey have diesel generators, two and a half megawatts in St. John's; they have a half of megawatt in Port Union; two and a 	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	 A. Yes, as would the generators and the GNP or, you know, anywhere else. Q. What would be the source of the generation on the Great Northern Peninsula? A. Basically there are three diesel plants on the Great Northern Peninsula owned by Hydro, one at St. Anthony, Hawke's Bay and Roddickton and there are a total ofI think at Hawke's Bay there are two two and a half megawatt units; at St. Anthony there are four one megawatt units and two two and a half megawatt units; and at Roddickton there are two units at 850 kilowatts, but they're all used and useful when we're in a pinch. Q. Now were you in a pinch six weeks ago when the
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3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	 A. Oh yes, it all goes into the grid, it will displace, you know, it will reduce transmission from thefrom Sunnyside down and allow power to be used somewhere else. I mean, the electrons go wherever electrons go, but it's an assistanceall the generation, as we are suggesting in our review, is used and useful to the overall system. Q. And where else would Newfoundland Power be able to generate thermally from, what other points on the Island? A. I think they havea diesel generator is located inthey have diesel generators, two and a half megawatts in St. John's; they have a half of megawatts in Port Union; two and a half megawatts in Port aux Basques; and they also have one point seven megawatts of 	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	 A. Yes, as would the generators and the GNP or, you know, anywhere else. Q. What would be the source of the generation on the Great Northern Peninsula? A. Basically there are three diesel plants on the Great Northern Peninsula owned by Hydro, one at St. Anthony, Hawke's Bay and Roddickton and there are a total ofI think at Hawke's Bay there are two two and a half megawatt units; at St. Anthony there are four one megawatt units and two two and a half megawatt units; and at Roddickton there are two units at 850 kilowatts, but they're all used and useful when we're in a pinch. Q. Now were you in a pinch six weeks ago when the system went down? A. Yes, we had initiated a request to
3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19	 A. Oh yes, it all goes into the grid, it will displace, you know, it will reduce transmission from thefrom Sunnyside down and allow power to be used somewhere else. I mean, the electrons go wherever electrons go, but it's an assistanceall the generation, as we are suggesting in our review, is used and useful to the overall system. Q. And where else would Newfoundland Power be able to generate thermally from, what other points on the Island? A. I think they havea diesel generator is located inthey have diesel generators, two and a half megawatts in St. John's; they have a half of megawatt in Port Union; two and a half megawatts of portable diesel generators; and they have the 	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19	 A. Yes, as would the generators and the GNP or, you know, anywhere else. Q. What would be the source of the generation on the Great Northern Peninsula? A. Basically there are three diesel plants on the Great Northern Peninsula owned by Hydro, one at St. Anthony, Hawke's Bay and Roddickton and there are a total ofI think at Hawke's Bay there are two two and a half megawatt units; at St. Anthony there are four one megawatt units and two two and a half megawatt units; and at Roddickton there are two units at 850 kilowatts, but they're all used and useful when we're in a pinch. Q. Now were you in a pinch six weeks ago when the system went down? A. Yes, we had initiated a request to Newfoundland Power, we had also started
3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	 A. Oh yes, it all goes into the grid, it will displace, you know, it will reduce transmission from thefrom Sunnyside down and allow power to be used somewhere else. I mean, the electrons go wherever electrons go, but it's an assistanceall the generation, as we are suggesting in our review, is used and useful to the overall system. Q. And where else would Newfoundland Power be able to generate thermally from, what other points on the Island? A. I think they havea diesel generator is located inthey have diesel generators, two and a half megawatts in St. John's; they have a half of megawatt in Port Union; two and a half megawatts of portable diesel generators; and they have the gas turbines at the Green Hill; and there's 	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	 A. Yes, as would the generators and the GNP or, you know, anywhere else. Q. What would be the source of the generation on the Great Northern Peninsula? A. Basically there are three diesel plants on the Great Northern Peninsula owned by Hydro, one at St. Anthony, Hawke's Bay and Roddickton and there are a total ofI think at Hawke's Bay there are two two and a half megawatt units; at St. Anthony there are four one megawatt units; and at Roddickton there are two units at 850 kilowatts, but they're all used and useful when we're in a pinch. Q. Now were you in a pinch six weeks ago when the system went down? A. Yes, we had initiated a request to Newfoundland Power, we had also started generation that we had available because
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1 MR. HAYNES:	1 ele	ctronically. It's a connectionand all
2 A. It fed into the system, so it would have	2 our	main systems are connected, St. John's,
3 allowed generation at Holyrood or where	ver to 3 He	ad Office is connected to Bishop Falls and a
4 be used, you know, when a generator gen	erates, 4 lot	of the systems that they run in Bishop
5 it doesn't go in any particular place, it jus	t 5 Fal	ls actually run on computers in here,
6 goes into the grid, and it contributes to the	e 6 par	ticularly the JD Edwards System and so on.
7 overall grid. There's no accounting of wl	ere 7 It's	all done through the LAN/WAN.
8 the electrons go, if you will, so it feeds, it	8 Q. So	it's an electronic connection?
9 displaces, the load flow will just rearrang	e 9 A. Oh	yes, it uses the Microwave System and so
10 itself automatically to meet the load.	10 on.	
11 Q. Now you mention in your evidence cond	erning 11 Q. An	d you mention the wide area network, WANS,
12 information systems and telecommunic	ation 12 wh	at's that?
13 systems that you have. I just want you	o 13 A. Th	e LAN is, for instance, in Hydro Place
14 take us through those on page 3, at line 3		re's a LAN, it's a local area network, so
15 you mention the local area networks, LA		the desks and all the computers are all
16 What kind of system is that and how doe		ed and connected up to servers within the
17 operate?		lding and so on. The wide area, that
A. I'm not sure of the actual manufacturer,		ically extends its reach so that we have
19 that's what you mean, but basically -		nections to Bishop Falls' office and Port
20 Q. No, I'm not asking you that.		inders' office and Goose Bay, et cetera, and
A. Okay, basically it's all these things that y		Bay D'Espoir and Holyrood, that is the
see around here in this room so that we		ig that connects all those communication
tie all these computers together, so we have		ilities to our integrated system is the
email, have access to Internet if required		
that we exchange data, it's all done		d the wide area network in the LAN and the -
	Page 59	Page 60
1 A. Same sort of data goes over it, but it would	•	d would it continue to function and pick up
2 typically involve other communication system		primation in other areas of the Province?
3 such as Microwave System, for instance. In		e Microwave System is basically separate
4 the building of Hydro, there may be, you know		m the rest and it has its own emergency
5 it's basically hard wired and then as you get		ver sources that will run with everything
6 into the WAN area, you would actually, you	· ·	e flat, for awhile. All the Microwave
7 know, use fibre optic links, possibly to		s arehave some redundant power supply,
8 Newfoundland Tel or through our own or th		viously we'd prefer to hook it up to the
9 Microwave System. It just extends the reach		I, but there is usually a diesel or some
10 tobut it usually involves another	_	er power supply on site, batteries and so
11 intermediate area communication system, suc		to keep it going so that we can recover;
12 as microwave or fibre or whatever.		erwise, if we lose communications, we are
13 (10:15 a.m.)		viously handicapped in returning the system
14 Q. And the Microwave System, how does that w		ervice.
15 Life if there was an outage, I gather your		
16 local area network would be down as well at		
	15 Q. An	d you mention here, internal phone systems,
	15 Q. An 16 tha	d you mention here, internal phone systems, t's just LAN lines, is it?
17 Hydro Place, would it not?	15 Q. An16 tha17 A. In	d you mention here, internal phone systems, t's just LAN lines, is it? he office phones we had a number of years
Hydro Place, would it not?A. Some, not necessarily all, there are some	15 Q. An 16 tha 17 A. In 18 age	d you mention here, internal phone systems, t's just LAN lines, is it? he office phones we had a number of years o, I guess, like most people, at one point
 Hydro Place, would it not? A. Some, not necessarily all, there are some things that are powered on, you know, on a 	15 Q. An 16 tha 17 A. In 18 ago 19 in t	d you mention here, internal phone systems, t's just LAN lines, is it? he office phones we had a number of years b, I guess, like most people, at one point ime, we would always require that from a
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 Hydro Place, would it not? A. Some, not necessarily all, there are some things that are powered on, you know, on a the Energy Management System will not go d normally during an outage and there are, I think probably the AS400 probably stays ongoing, some of the peripherals may drop, b 	15 Q. An 16 tha 17 A. In 18 ago 19 in t 20 Ne 21 tim 22 pun at 23 bui	d you mention here, internal phone systems, t's just LAN lines, is it? he office phones we had a number of years o, I guess, like most people, at one point ime, we would always require that from a wfoundland Tel or T&T or whoever at the e, I guess over the years we have basically chased these switches and put them in our ldings and saw significant savings in cost
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1 1	MR. HAYNES:	1	total absolute failure of everything.
2	but most of the significant switches that we	2	Q. In terms of the VHF radio system, you have
3	have now are owned by Hydro as opposed to	3	made application to this Board in the last
4	being leased from Newfoundland Telephone and	4	number of applications for your capital works
5	being administered by them, we do it	5	to put in a new VHF radio system. Why do you
6	ourselves.	6	need that where you have so many alternatives
7	Q. Have you have a situation where the LANS	7	that you can use?
8	network went down and the WANS went down and	8	A. A lot of that was discussed, I guess, in the
9	the Microwave went down and the internal phone	9	last two Capital hearings, and in our view,
10	system went down at the same time?	10	the VHF system is the most reliable, it's the
11	A. I don't think that we had an event where we	11	backbone, it's the back stop to the failure of
12	lost all of those things the same time, no.	12	anything else that we have, and it reaches
13	We have, obviously, you know, depending on	13	people in the field who have no access to cell
14	what happened here and there, we may have had	14	phone sites or other communication systems to
15	certain failures in the system. We've lost	15	facilitate the return tofor instance, if you
16	the Energy Management System on two occasions	16	were restoring a transmission line and it's
17	which would handicap our return to service,	17	out in the middle of the wilderness area, VHF
18	but that's underthat's presently being a	18	radio is the only means of communication with
19	spec for replacement to enhance that. But we	19	the crew, from a safety point of view, from a
20	haven't lost everything at one time. We have	20	material's point of view and just to expedite
21	contingency plans in place if we lose the	21	the return to service of those pieces of
22	Energy Management System, whereby we go back	22	equipment.
23	on VHF radio and whatever is available, but,	23	Q. Have you ongoing discussions with Newfoundland
24	you know, we have contingency plans for losing	24	Power re their VHF radio system and any
25	these things, but we have not experienced a	25	discussions in reference to having one
	Page 63		Page 64
1	provider and two users for that, yourself and	1	there be reductions in staffing as a result of
2	-	2	the completion of Granite Canal?
3	A. We have had various discussions over the years	3	A. As I mentioned, I think there are some term
4	with Newfoundland Power on that aspect and I	4	engineers, particularly, and so on that will
5	guess, you know, we do coexist right now with	5	be reduced and some have been reduced in
6	Works Services & Transportation which	6	respect to cluing up the conclusion of Granite
7	basically is effectively paying for half the	7	Canal, but there are no permanent staff
8	cost. With respect to the last order from our	8	reductions planned because of Granite Canal;
9	2003 Capital hearing, we have initiated	9	in fact, from the point of view of, you know,
10	meetings with Newfoundland Power to address if	10	taking on Granite Canal, we have no increased
11	there are ways and means that we can integrate	11	the operating maintenance staff because of
12	or that we can use the same system in the	12	that. We are basically going to incorporate
13	future. Those meetings have just started, but	13	Granite Canal operating and maintenance into
14	we are preparingwe are still endeavouring to	14	the Bay D'Espoir system as it is today, with
15	somewhere along the way come back with another	15	no increase in staff.
16	Capital Budget proposal to the Board for	16	Q. So the answer is no?
17	consideration to move on. We strongly feel	17	A. Well there are some temporaryterm engineers
18	that we have to replace the VHF radio system	18	that will be reduced as towards the end of the
19	and recognizewe recognize the Board Order	19	year, but there are nothere is no
20	and we are trying to accommodate all of those	20	anticipation that it would actually reduce our
21	requests.	21	original complement, solely due to Granite
22	Q. So that's ongoing now?	22	Canal.
23	A. That's ongoing, yes.	23	Q. And how many term engineers will be gone at
24	Q. I asked you previously about Granite Canal and	24	the end of the year as a result?

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1 N	IR. HAYNES:	1	there was no major, you know, these were
2	four hired initially, two are gone and there	2	basically senior engineers and technical
3	are two to go.	3	people who brought their background and skills
4	Q. And that's already accounted for in the	4	and experience and Churchill Falls,
5	evidence, the fact that these four positions	5	Newfoundland Hydro, to that particular
6	are eliminated?	6	project.
7	A. That's allall of that is all in the 2004	7	Q. So it's all contracted out and you only had
8	Cost of Service forecast.	8	five people working there?
9	Q. How come a project, such as Granite Canal, you	9	A. I think five people were allocated fulltime to
10	would only see fit at the end of the project	10	the project, yes.
11	to let four people go? It seems to me the	11	Q. From the entire Hydro complement there was
12	magnitude of the project would have had a lot	12	only five people?
13	more people working there, would it not?	13	A. There was a lot of other people involved at
14	A. Well there were in excess of 300 people	14	different time for different stages, but they
15	working on the project, but basically what we	15	would not have been a fulltime commitment, you
16	did was through our generation and engineer	16	know, obviously we would have had time
17	department and there were other departments	17	involved from the Bay D'Espoir operations
18	involved as well, you know, transmission,	18	people, the maintenance people, to review a
19	obviously, had to be built and Microwave	19	drawing or to review an operating philosophy
20	Systems and Communications Systems were done.	20	to say whether they agreed or whether they
21	But basically most of the work was all done	21	could add anything to it, but those were, you
22	through contractors to the joint venture and	22	know, I won't say spurious, but they were, on
23	we only had really five, five to six people	23	the design stage, there were a lot of things
24	who were allocated pretty well fulltime to the	24	done, decided and we moved on. But there was
25	Granite Canal project. So there was not	25	not a, you know, five people for a turn-key
	Page	67	Page 68
1	project would be adequate. And they were	1	of several that it has been used. It's also,
2	seasoned experienced people who were allocated	l 2	for instance, a couple of years ago, we were
3	to the project.	3	into this insulator problem and we replaced a
4	Q. On page 7 of your evidence, lines 16 and 17,	4	lot of the insulators, so it was used
5	you make reference to the Labrador	5	considerably during the Insulator Replacement
6	Interconnected System and the 38.3 megawatt	6	Program for the 138 kV line because it was
7	gas turbine and diesel plant capacity there,	7	more cost effective to take the line out of
8	used for backup and limited peaking capacity,	8	service. That would be a horrendous job to do
9	how often have these units been utilized?	9	hot, so basically it was de-energized and just
10	A. From a generation point of view, primarily	10	get in and get out and it would be used at
11	used when there is a problem with a single	11	that particular time. I would add too, that
12	there's a single 138 kV line from Churchill	12	the gas turbine in Goose Bay also functions as
13	Falls to Goose Bay and Churchill Falls	13	a synchronous condenser, which provides
14	actually maintained that particular line and	14	voltage support at the end of the line and
15	while they do do a lot of live line	15	also allows a transfer of more megawatts to
16	maintenance, there are occasions when the line	16	the Goose Bay area.
17	has to be out of service. And when the line		Q. So they're absolutely essential for that
18	is out of service, the gas turbines and	18	system there in your opinion?
19	possibly a diesel plant would be utilized.		A. Yes, in my opinion.
20	Q. From your own experience there, has that been		Q. On page 13 of your evidence, can we go there
21	once a year or twice a year or every ten years	21	please? And lines 18 to 29, you indicate that
		22	the ECC utilizes the Energy Management System
22	or -		
22 23	A. I would say a couple of times a year it's	23	to optimize the use of hydro and thermal
22			

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11	BROWNE, Q.C.:	1	it's more of a hydraulic management. They
2	water spillage minimized?	2	have to look at the load forecast, you have to
3	A. There's a fairly complexthere are a lot of	3	look at the actualthey would take into
4	factors that come into that because of the	4	consideration the actual weather forecast, if
5	number of reservoirs that we have, the number	5	they anticipate a lot of rain, they may back
6	of potential spillage sites that we have. So	6	off a little bit because they anticipate a
7	in the day-to-day running of the hydraulic	7	fair bit of rain, because some of the
8	system, the system operation and operation's	8	reservoirs respond fairly quickly to a
9	people look at, on a weekly basis, the	9	significant rain store. So basically it's a
10	reservoirs, how much water is there, how much	10	hydraulic planning. They have to plan the
11	room to, you know, we have to go to full	11	water to be at the intake of the hydraulic
12	supply. They have to look at the load	12	structure for when the hydraulic structure
13	forecast for the next week to determine how	13	needs to generate. It's a fairly complicated
14	much generation is required from each of the	14	process.
15	hydraulic facilities and they have to plan the	15	Q. Is there any planning with Newfoundland Power
16	discharge of water so the water is there in	16	and the Industrial Customers as part of this
17	time for the hydro plants to generate. If	17	optimization process?
18	they miss the boat, if they release too much	18	A. Not significant planning. If the optimization
19	water from the upcountry structures, the water	19	process for most of our plants is because we
20	is en route and basically they have to make	20	have significant storage. As you have hydro
21	sure that the generation, the load is there to	21	plants that have a lot less storage
22	take the load, otherwise, depending upon the	22	capability, your ability to optimize is
23	difference between where a reservoir is and	23	significantly reduced. The Bay D'Espoir, the
24	full supply level, if they exceed full supply,	24	big hydro plants would be the most appropriate
25	they would have to spill. So there's a fair	25	for that particular approach, particularly the
	Page 71		Page 72
1	run of the river plants because we have Bay	1	demand energy rate, I think that that is a
2	D'Espoir, we have Upper Salmon, we have	2	long-termI don't think the pay back of a
3	Granite Canal all on the same reservoir	3	demand energy rate are not short term, they're
4	system, so there's a -	4	longer term when it comes down to the things
5	Q. What about the NUGS, are they part of this	5	you discussed before with respect to the next
6	optimization at all?	6	generation source and maybe having some
7	A. No, they basically, as they generate, we buy.	7	control or influence over the long-term load
8	And most of those have very limited storage	8	growth, that that may assist in that. But
9	capability.	9	it's not a short-term thing, it's something
10	Q. Newfoundland Power has indicated that if the	10	that, you know, the demand energy rate should,
11	wholesale power rate is changed to a demand	11	over time, it may over time, depending on the
12	energy rate from the current energy only rate,	12	way the rates are implemented by Newfoundland
13	there's a danger that its hydro generating	13	Power, have some influence on the future
14	facilities would be operated at less than	14	choices of consumers.
15	optimum with the possibility of spillages.	15	Q. And you indicate your Energy Management System
16	What's your thoughts on that?	16	optimizes the use of hydro and thermal
17	A. But they did say that they would operate under	17	resources to optimize the mix and minimize
18	the Act, which basically was the most	18	water spillage. Did they have a lesser
19	efficient resources, I mean, I think what they	19	vehicle than you have to minimize their water
20	said was there may be an incentive to-an	20	spillage?
21	incentive to stray from that mantra. But I	21	A. I think in the case of Newfoundland Power was
22	don't think there's any doubt that	22	similar to the NUGS. I don't think, you know,
23	Newfoundland Light & Power, Newfoundland Hydro	23	I'm not suggesting they don't have spill, when
24	will operate all the facilities in the best	24	you undertake to construct a hydro plant, you
25	interest of the rate payers. I think on a	25	look at a whole raft of things. You look at

	Page 73		Page 74
1 N	IR. HAYNES:	1	after it in their reservoir system. And we
2	particularly the hydraulic regime and you look	2	have much, you know, we have more reservoir
3	at as much information as you can. You would	3	storage ability than Newfoundland Power or any
4	never build a hydro plant and design a hydro	4	of the NUGS to do that.
5	plant that never spills because the economics	5	Q. So you don't agree then with what they're
6	would not be there. So there's always a	6	stating that if there is a demand energy rate
7	built-in acceptance of some spills from each	7	from the current energy only rate, that there
8	and every plant you build. Depending on the	8	is athat that danger of spillage, as they
9	economics at the time of some of the older	9	are professing, is in fact there?
10	plants, Newfoundland Power may spill in some	10	A. I think the context of their statement was
11	areas more often because of the plant. The	11	that if they were to use their hydro
12	other thing I would suggest with Newfoundland	12	generation or their generation to reduce the
13	Power was that because Newfoundland and	13	peak, that what they would do is they would
14	Labrador Hydro basically back stops the	14	impound, possibly impound more water going
15	generation of basically everybody on the	15	into the winter than they would normally do
16	Island, that they can generatethey can, I	16	and there would be a risk of spillage because
17	would suggest in 99.9 percent of the cases, as	17	if you have a full reservoir and you can
18	long as they have the equipment available,	18	discharge "X" thousand of cubic feet a full
19	that they can generate whatever they want.	19	load and the inflows are "X" thousand cubic
20	Q. Who is "they"?	20	feet, plus 10 percent, then 10 percent of the
21	A. Newfoundland Power. They can generate	21	water will have to be spilled. So I think
22	whateverI don't think they would be forced	22	it's more of a matter of the way they plan the
23	to spill because of, you know, load	23	winter generation.
24	conditions. They can generate and basically	24	Q. So if you had to plan that and were moving to
25	Newfoundland and Labrador Hydro would look	25	a demand energy rate, what would you do?
	Page 75		Page 76
1	A. We would plan the whole, but it would be a	1	wintertime to avoid that.
2	little bit prohibitive to plan the whole for,	2	Q. Can you expand upon that a little, just give
3	I don't know how many plants Newfoundland	3	us your views on the demand and energy rate
4	Power has, but there are numerous number of	4	and how that would work, ultimately?
5	small hydro plants. It would be a lot more	5	A. I'm notI wouldn't profess to know a lot
6	difficult to do with a lot of small plants, as	6	about the demand and energy rate, but I guess
7	opposed to several significant storage areas,	7	what we were proposing to Newfoundland Power,
8	you know, the Bay D'Espoirs, for instance, and	8	I guess, or what we're now proposing is to go
9	the Upper Salmons.	9	with the demand energy rate. The benefits, as
10	Q. But if you were given a job, if Newfoundland	10	I said, are long term, that over a period of
11	Power has come to seek your advice as to ways	11	time that you would encourage the end
12	to minimize water spillage in a demand energy	12	consumers to bethey would get a better price
	to minimize water spinage in a demand energy		
13	rate system. What would your advice to them	13	feed back with respect to, for instance,
13 14			·
1	rate system. What would your advice to them	13	feed back with respect to, for instance,
14	rate system. What would your advice to them be?	13 14	feed back with respect to, for instance, winter usage. With respect to Newfoundland
14 15	rate system. What would your advice to them be? A. I'm not sure what my advice would be, I would	13 14 15	feed back with respect to, for instance, winter usage. With respect to Newfoundland Power's hydro plants, I mean, there's no doubt
14 15 16	rate system. What would your advice to them be?A. I'm not sure what my advice would be, I would suggest that if we were to go with a demand	13 14 15 16	feed back with respect to, for instance, winter usage. With respect to Newfoundland Power's hydro plants, I mean, there's no doubt that when they look at the whole of the demand
14 15 16 17	rate system. What would your advice to them be?A. I'm not sure what my advice would be, I would suggest that if we were to go with a demand energy rate, that Newfoundland Power would probably have to seek to minimize that risk to rate design, as opposed toand to ensure that	13 14 15 16 17	feed back with respect to, for instance, winter usage. With respect to Newfoundland Power's hydro plants, I mean, there's no doubt that when they look at the whole of the demand charge and they look at the possibility of
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	Page 77		Page 78
1 1	AR. HAYNES:	1	know, repercussions if they exceed the power
2	energyin the capacity requirements and it's	2	on order, for instance.
3	not something they have to worry about. It's	3	Q. And in reference to what we began this
4	definitely a consideration for Newfoundland	4	discussion, to minimize water spillage, you
5	Power, you know, it's something that they	5	have your Energy Management System in place
6	would have to think about, but it would be a	6	for that purpose and they could have something
7	business risk to them which they would have to	7	similar, is that correct?
8	address and resolve possibly through the rate	8	A. I'm not sure what they have, but I presume
9	structure.	9	they look at all their hydro plants to some
10	Q. But you're here before this Board, Hydro is	10	degree of optimizeat least right now,
11	here advocating the demand energy rate be	11	optimizing the water usage.
12	implemented from the current energy only rate?	12	Q. In terms of the system that's there to
13	A. Yes.	13	minimize water spillage as you refer to it in
14	Q. What benefits do you see in that to Hydro?	14	your evidence and optimize the mix, how
15	A. I think as I have said, it's a longer term	15	exactly is that done? Is that some kind of
16	it's in the longer term we seewe may see	16	computerized projection?
17	some impact on the load forecast, expansion of	17	A. The hydro thermal mix?
18	electric use, depending on the rate structure	18	Q. Yes.
19	that's ultimately employed by Newfoundland	19	A. As I mentioned, that whole process which was
20	Power. But Newfoundland Power right now do	20	done on system operations, looks at the
20	not have anythere is no strong factor to	20	availability of the machines, what machines
22	curtail demand in Newfoundland Power with an	22	are available, it looks at reservoir and
23	energy only rate. Obviously demand and energy	23	storage levels, it looks at load forecast.
23	rate would treat them the same as the	24	Q. So it's all computerized, is it?
25	Industrial Customers who do have some, you	24	A. A lot of computer programs to assist us and
120	maastriar Castomers who ao nave some, you	20	The first of compared programs to assist us and
	D ₂ = 270		
	Page 79	1	Page 80
1	there's obviously some judgment invoked by Mr.	1	Page 80 end of the day there's judgment involved, but
2	there's obviously some judgment invoked by Mr. Henderson and his group, but there's a fair	2	Page 80 end of the day there's judgment involved, but I think the modelling, the several programs
2 3	there's obviously some judgment invoked by Mr. Henderson and his group, but there's a fair bit of assistance by computerized models to do	2 3	Page 80 end of the day there's judgment involved, but I think the modelling, the several programs that they do actually run, do come out and
2 3 4	there's obviously some judgment invoked by Mr. Henderson and his group, but there's a fair bit of assistance by computerized models to do that and then it comes back and optimizes and	2 3 4	Page 80 end of the day there's judgment involved, but I think the modelling, the several programs that they do actually run, do come out and give a suggested course. Then they have to
2 3 4 5	there's obviously some judgment invoked by Mr. Henderson and his group, but there's a fair bit of assistance by computerized models to do that and then it comes back and optimizes and reduce our risk of spillage. We also attempt	2 3 4 5	Page 80 end of the day there's judgment involved, but I think the modelling, the several programs that they do actually run, do come out and give a suggested course. Then they have to consider the weather and they have to consider
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Discoveries Unlimited Inc., Ph: (709)437-5028

Multi-PageTMNL Hydro's 2003 General Rate Application

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	Page 81		Page 82
1 1	MR. HAYNES:	1	amount of remote control of hydro plants in
2	a lot of, you know -	2	the province?
3	Q. It's human judgment as well.	3	A. We have looked atwe don't have remote
4	A. Human judgment, experience of the operators	4	control over two of our small hydro plants,
5	and the fellows in the control centre applied	5	Snook's Arm and Venam's Bight and we have not
6	to that.	6	looked at any particular thing in the short
7	Q. So, in terms of Newfoundland Power, they're	7	term to provide any remote control. We are
8	using as the excuse for not wanting to move to	8	looking at increasing remote control of some
9	a demand energy rate that the possibility of	9	of our structures, hydraulic control
10	spillage, there are programs out there can be	10	structures. Right now, some of our hydraulic
11	adapted to assist with that. Would you	11	control structures are manned most of the time
12	believe that that would be the case?	12	and we are looking, we are reviewing that. We
13	A. I'm reluctant to agree to Newfoundland Power's	13	have no conclusions yet, butand if the
14	specific situation.	14	conclusions are that it's an economic thing to
15	Q. You haven't studied their system.	15	do, it'll eventually come forward as capital
16	A. I'm really not sure of the -	16	budget proposal. But all of our primary
17	Q. But you do know that there are computerized	17	plants are remote controlled. And the diesel
18	programs out there for Hydro production.	18	plants, most of them are remote controlled;
19	A. Yes, but one is a financial issue and one is	19	the gas turbines are all remote controlled.
20	aone may be a financial issue versus, you	20	Q. What plants out there are not remote
21	know, squeezing every kilowatt hour out of	21	controlled?
22	every gallon of water. They don't always come	22	A. Snook's Arm and Venam's Bight, but they's two
23	together, unfortunately.	23	very small old plants up on the Baie Verte
24	Q. In terms of the Energy Management System	24	Peninsula.
25	generally, are there plans to increase the	25	Q. So, it's only two we're talking?
	Page 83		Page 84
1	A. Only two and Roddickton Hydro, I think, is	1	A. No, we have not looked at that, no.
2	alsoRoddickton mini hydro which is looked	2	Q. Would you have a view on that, an opinion?
3	after by TRO is not remote controlled from a	3	A. I haven't really thought about it, but you
4	control centre.	4	know, it depends on the size of the plant. If
5	Q. How many employees would be involved in these	5	youin our control centre right now, we
6	areas where they're not remote controlled?	6	basically have, on shift, we have one operator
7	A. In Snook's Arm and Venam's Bight there are no,	7	and basically one supervisor who's obviously
8	I don't think there are any employees. I	8	doing a fair bit of, in some respects, some of
9	think we have a, kind of, basically starts and	9	the operating things along with the operator.
10	stops as the water is available. It's a very	10	And we're looking after nine plants and all
11	small run of the river sort of plant. The	11	the transmission systems and so on. If you
12	maintenance is done -	12	were to inundate that control centre with
13	Q. And what about in Roddickton?	13	looking after another 20 or 30 small hydro
14	A. Roddickton, I'm notthat's in TRO. I don't	14	plants, I think you have a staffing issue off
15	think there's anybody specifically assigned	15	the bat. I don't think that could be done in
16	solely to looking after that plant. I think	16	a simple way, we have not looked it. The
17	it's more ofit's kind of on automatic, if	17	small plants are of questionable value on any
18	there's water, it runs; if there's not, it	18	control centre because there's very little
19	doesn't, but I'm not 100 percent certain on	19	storage capability. The value of doing all
20	the Roddickton mini hydro.	20	this generation planning and so on or dispatch
21	Q. It's your evidence that they haven't done any	21	planning, is usually when there's a submitting
22	study of Newfoundland Power's generating	22	of reservoir storage where you have some
23	stations to see if they're savings which could	23	flexibility to move load around and dispatch
24	be found by putting them under your Energy	24	at different times of the day and do an
25	Management System, generally.	25	overhaul. On the small run of the river plants,
		1	1

	Page 85		Page 86
11.N	IR. HAYNES:	1	Newfoundland Hydro taking over all of
2	basically you use turbine water when it's	2	Newfoundland Power; I don't think there was
3	available as the NUGS are doing right now.	3	any discussion -
4	Q. Now, in your opinion, does Hydro expertise lie	4	Q. That's not a bad idea either, but -
5	in generation in this province?	5	A. We'll leave that to others.
6	A. I think Hydro's expertise lies in generation	6	Q. We don't get that far. In terms of to manage
7	and in the bulk transmission grid as we also	7	Newfoundland Power's generation or to take
8	maintain quite a diesel expertise because we	8	over Newfoundland Power's generation,
9	operate so many isolated diesel systems and	9	discussions within Hydro in reference to that,
10	the distribution that goes with it, but	10	have you been party to any of those
11	primarily generation and the bulk grid	11	discussions?
12	transmission are two of the big areas that we	12	A. No.
13	serve. And there's also a significant,	12	Q. Do you think it would be practical for Hydro
14	obviously, involvement in the	13	to take over Newfoundland Power's generation?
15	distribution/isolated diesel areas. But	15	A. I really haven't thought about it, so I really
16	generation is an area that we take a fair bit	16	have no opinion. It would be the subject of a
17	of pride in as is the transmission and	17	fair study looking at the number of plants,
18	distribution. I think we do it all	18	the physical location, the fact that we do not
19	appropriately.	19	have human resources out in many of these
20	Q. I mean, there's talk out there in the	20	areas. That's a big question; it would be
21	community generally about Hydro taking over	20	I'm not -
22	Newfoundland Power's generation. You must		(10:45 a.m.)
23	have heard those discussions from time to time	23	Q. Newfoundland Power has some problems moving to
24	within Hydro.	24	the demand energy rate because they fear
25	A. Awhile ago. The current thing is	25	spillage in the areas which they generate.
			spinage in the areas which they generate.
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	Page 87		Page 88
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Discoveries Unlimited Inc., Ph: (709)437-5028

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	Page 89		Page 9
1 MR. HA	-	1	we're reviewing all those things to see if
2 v	vith 175 megawatts on units one and two, it	2	things could be delayed or if we actually need
	vill absolutely force under frequency load	3	to alert the control centre to run back on
	hange (phonetic) to be initiated when it does	4	load while we do it because it increased
	rip. But we have undertaken several things	5	risks. So, a lot of those things had been
	n Holyrood and elsewhere to look at this.	6	done and there are some things that are
	You know, we're undertaking review of our	7	presently in progress to improve our
	ripping logic to see if everything that	8	performance.
	nitiates a trip right now, maybe it can be an	9	Q. On page 28 of your evidence, line 11 to 13,
	larm. It was designed based on the, you	10	you indicate the forecast hydraulic production
	now, the standard industry design, if you	11	for 2004 is based on the 30 year average for
	vill, but we are looking at those things and	12	the existing plants where Granite Canal, the
	ve have actually retained a consultant to look	13	estimate was obtained from a power and energy
	t some aspects of the key systems that can	14	analysis. What's that, a power and energy
	ause under frequency tripping in Holyrood.	15	analysis?
	So, you feel you have this under control?	16	A. When you propose or go into design process for
	We are striving to improve it. I hope it's	17	hydro plant, you basically look at the
	inder control; I'm sure it is. The action	18	hydrology of the flows that you anticipate.
	hat we've taken, you know, we've gone and	19	And Granite Canal is a part of the Bay
	ve've actually met with the Public Utilities	20	D'Espoir system, so we know how much water was
	Board on occasion to review this, but we are	21	turbined at Bay D'Espoir and Upper Salmon.
	eviewing all on line testing that we do. In	22	So, you can assume how much water actually is
	Holyrood because of the steam plant, there's	23	available to the Granite Canal. So, that was-
	undreds and hundreds and hundreds of daily or	24	-to determine how much water was available and
	nonthly tests that are done on line. So,	25	therefore, how much energy it could produce.
	Page 91		Page 9
1 Q. A	And that's the analysis?	1	legislation or legislation that may be
	Yes, but we obviously don't have a 30 year	2	inactive which may force us to go to a maximum
	perating record for Granite Canal because	3	of 2 percent sulphur fuel.
	asically it was just a pond back in the Bay	4	Q. Is that federal legislation?
	D'Espoir reservoir and we had gauging in	5	A. Provincial legislation, Provincial Draft Air
	ertain places, but we were not measuring	6	Quality Regulations are basically calling for,
	pecifically the Granite Canal lake discharge.	7	I think they started off at one point in time
	Ve determined what that discharge is by	8	at 1.8 percent as the maximum that we could
	poking at the whole hydraulic study, the	9	import into the province. And I guess,
	ower energy study analysis and came up with a	10	between the various dialogues, I guess between
-	24 gigawatt hours average which we	10	all the users, obviously the Industrial
	nticipate.	11	Customers are some is now changed to 2
	Now, you mention in your evidence concerning	12	percent. But that has not been enacted as of
	he Holyrood generating station, that you've	15	yet, or not been whatever the legal term is to
	noved to a new type fuel that has less sulphur ontent, I guess, over the past year or so.	15 16	promulgate it or whatever, but we are in a position to obviously to adjust our contract
	No, not yet. We used to buy, I think if you	17	to that, if and when it does happen.
-	to back quite a number of years, we used to buy 2.8 percent sulphur was our specification.	18	Q. But if you do adjust your contract, that will be more expensive fuel, would it not?
		19 20	be more expensive fuel, would it not?
	n our specification right now, we've actually	20	A. About two to three percent more expensive to
	pecified 2.2 percent sulphur which allows us	21	go from 2.2 percent to 2 percent, yes. And
	o meet the 25,000 tonne per year cap. And in	22	our forecast is based on 2.2 percent, what's
	bur contract we have the provisions to move to	23	in our filing. Any impact in the interim
	lower sulphur content fuel and one of the	24	would actually fall to the RSP anyway, you
25 p	rimary reasons is that there is pending	25	know, if it happens after the hearing.

	Page 93		Page 94
1 B	ROWNE, Q.C.:	1	when all the dust settles on how it's going to
2	Q. I'm sure that will be the case. In terms of	2	happen, we may be forced to buy emission
3	the emissions that are coming from that plant,	3	credits or use our own credits from the
4	and the content of the fuel, are you looking	4	Granite Canal et cetera to meet those
5	to the climate control plan for Canada, the	5	obligations. It may not be an actual
6	so-called Kyoto implementation program to	6	reduction in the CO2, it may be through
7	assist Hydro in any way in reducing emissions	7	emission credits.
8	there?	8	Q. It's my understanding right now that the
9	A. With respect to the emissions at Holyrood,	9	federal government has put money on the table
10	Kyoto basically is greenhouse gas. And	10	for use by the provinces and consumers in this
11	greenhouse gas, I mean, the two big components	11	budgetary year for implementation of some of
12	of greenhouse gas from Holyrood are the CO2	12	the climate control plan. What is Hydro doing
13	and nitrous oxide. There are some things that	13	to try to incorporate that into their plan, to
14	we can do from a capital point of view to	14	make use of available dollars?
15	reduce the nitrous oxide levels. There's	15	A. The only thing that we have applied to from
16	really nothing that we can do with respect to	16	the federal government at this point is time
17	carbon dioxide levels because you burn carbon	17	is a subsidy with respect to the wind power
18	and it's a part of the process. And with	18	generation thing called GPPI.
19	respect to Kyoto, I guess, there's still a lot	19	Q. Is that part of the climate control plan for
20	of uncertainty, how that's going to manifest	20	Canada?
21	itself and in Holyrood, barring natural gas	21	A. That is a part of the whole package deal to go
22	which would have a, I think, probably 30	22	with renewables and so on, but we have not
23	percent or so, 25 to 35 percent reduction in	23	sought any particular funding for other things
24	CO2, we are stuck with number 6 oil. We may	24	and I think that planning has that
25	be, when Kyoto gets finally implemented or	25	information. I mean, there's nothing, to my
	Page 95		Page 96
1	Page 95 mind, to my knowledge, has come to date, as	1	Page 96 the wind subsidy from the federal government
1 2	mind, to my knowledge, has come to date, as being an opportunity at this point in time.	1 2	the wind subsidy from the federal government under Green Power Procurement Program.
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<u>Oct</u>	October 20, 2003 Multi-Page [™] NL Hydro's 2003 General Rate Application				
	Page 97	'	Page 98		
11	MR. HAYNES:	1	it.		
2	you now, I think in 2010 or whenever we go for	2	A. I wouldn't put it that way. It's not under		
3	a new source, it will likely be a contender	3	way, we are negotiating with the vendor and we		
4	for future generation sources. In today, the	4	are also negotiating with the federal		
5	federal government have programs to encourage	5	government for the most attractive terms that		
6	that technology, to encourage the construction	6	we can get for that. And I think, over time,		
7	and most of them are being facilitated because	7	it would likely be a viable source. Today,		
8	there are, you know, Green Power Procurement	8	without the federal government funding and so		
9	Initiatives by the federal government. They	9	on, it would be a bit more hard to justify,		
10	are willing to pay an extra two or three cents	10	but I think there's a lot of merit in having a		
1	a kilowatt hour for wind energy. Without	11	demonstration project, you know, within the		
12	those things, most of them are of questionable	12	system to see how it works. It is, you know,		
3	economics, unless you're in a jurisdiction	13	the St. Lawrence area, the first class wind		
14	where their next source is extremely	14	resource, you know, the studies that were done		
5	expensive, but it would not compete with	15	by the proponent indicate that it is a very,		
16	Granite Canal, for instance, but it may	16			
17	compete with NUGs.	17	with the vendor and our contract negotiations		
.8	Q. How would they compete with NUGS?	18	with the federal government to keep the cost,		
.9	A. I think they're, you know, nip and tuck,	19	the overall cost as low as possible.		
20	they're pretty close to NUGS as we see them	20	Q. It's 11:00 a.m., do you want to break now.		
21	right now.		-		
22	Q. So this project that's now under way, I guess,	21	Q. Thank you. We'll reconvene at 11:30.		
.2 !3	is it, down the Burin Peninsula, you don't	22	(BREAK - 11:00 a.m.)		
	hold up much hope for that in terms of an		(11:30 - RESUME)		
24	economic use ofin terms of the economics of	24	CHAIRMAN:		
25					
	Page 99		Page 10		
1	A. Ready, Mr. Haynes? When you're ready, Mr.	1	Q. Because for the years 11 though 20, I wouldn't		
2	Browne.	2	<i>, , , , , , , , , ,</i>		
31	BROWNE, Q.C.:	3	it?		
4	Q. Mr. Haynes, page 31 of your evidence at lines	4			
5	15 to 16, you indicate that the long term load	5	e		
6	forecast for the province is a 20-year	6			
7	forecast of annual peak and energy	7	forecast, but the most critical time period is		
8	consumption. How can you forecast out that	8	the next, to identify the timing for the next		
9	far, 20 years?	9	source.		
0	A. The forecasting, as I mentioned, is done	10	Q. On page 32, lines 26 to 28, you indicate that		
1	through an econo-metric model which looks at	11	high growth is expected on the isolated rural		
2	the expected housing starts which are	12	systems, 2.8 percent in 2003 and 3.8 percent		
3	basically provided to Hydro by the provincial	13	in 2004. Is this of concern to Hydro, given		
4	government, the gross domestic product, a	14	the size of the rural deficit?		
5	whole bunch of other factors which actually go	15	A. Yes, it is of concern. And from the point of		
6	into that exercise. I wouldn't be capable of	16	-		
17	explaining the intricacies of the econo-metric	17	right now, the rate structures do encourage		
8	model, but there's quite a number of inputs	18	somethe rate structures themselves that are		
9	which look at load growth, housing starts,	19	in the isolated areas do discourage the		
20	gross domestic product, et cetera, population,	20			
21	they all go into this particular model. It's	21	populations, particularly in Labrador, are		
22	not based on where we are today and	22	growing and most of that load growth is in		
23	expectations of a specific short-term forecast	23	Labrador on the isolated systems.		
			•		
			• • •		
24 25	for the customers, it's kind of more of a broader high level approach.	24 25	Q. So, what action are you taking to help the reduce the size of the rural deficit given Page 97 - Page		

	· · · · · · · · · · · · · · · · · · ·		e 112 Hydro 5 2005 General Rate Application
	Page 10		Page 102
1 B	BROWNE, Q.C.:	1	migration and so on, that is not a factor in
2	this anticipated load growth? What's the	2	the isolated areas of Labrador?
3	plan?	3	A. I think the out migration, I think on the
4	A. There werewith respect to the HYDROWISE	4	island system there has been some decrease in
5	program, that targets, you know, efforts in	5	the isolate areas, obviously Great Harbour
6	those areas and others. With respect to	6	Deep is gone and Petites is going. Most of
7	demand side management, when there is an	7	the other communities are fairly stagnant in
8	identified need for generation expansion in	8	their population growth. And even with the
9	the rural areas, there is a an exercise	9	population staggering, if you will, in
10	carried out by the Economics Department of	10	Newfoundland, the demand for electricity is
11	System Planning to look at whether it's cost	11	growing. In Labrador, in the Labrador isolate
12	effective to initiate some demand side	12	areas, there is an increase and has been
13	management programs, but other than HYDROWISE	13	demonstrated increase in the energy growth. I
14	and the rate structure that's already in the	14	think that population is one. I presume that
15	pediment to further electrification, that's	15	disposable income also drivesis another
16	not much else there to be done. The rate	16	factor that drives the growth or the load
17	structure is punitive when you get above the	17	increase. People are buying more things, if
18	life line block and that would be the biggest	18	you will.
19	factor. It's not a lot of electric heat	19	Q. So, basically other than the HYDROWISE
20	growth; it's other growth, population	20	program, we can expect aand that works in
21	increase, particularly in Labrador and we have	21	favour of conservationwe can expect the
22	not got intowe have not discouraged	22	rural deficit to grow?
22	population, if will, in the isolated areas.	22	A. Possibly. There were other initiatives, I
23	There not much we can do.	23	think the TRO area, which Mr. Martin could
24	Q. So, despite everything we hear about out	24	speak to about initiatives undertaken in the
			-
1	Page 103		Page 104
$\begin{vmatrix} 1 \\ 2 \end{vmatrix}$	isolated areas which he basically looks after to do that. The only thing I could reinforce,		person to answer that? A. I'm not the best person to answer. Mr.
$\begin{vmatrix} 2 \\ 2 \end{vmatrix}$	· •	2	Banfield of customer services would be the
3	I guess, is the fact that when generation is	3	
4	required, we do undertake a DSM, demand side	4	best, most appropriate to answer.
5	management review to review the economics to	5	Q. Okay, well we can put Mr. Banfield on notice,
6	see if there is any economic viability into	6	we'll want to know all about that. On page 33
7	instituting some particular program.	7	of your evidence, line 7 to 10, you indicate
8	Q. When you institute a program such as		that the laws taxes have favored in the deside
		8	that the long-term loan forecast includes the
9	HYDROWISE, is that the rural areas and the	9	hydro metallurgical industrial facility
9 10	isolated system, is that a targeted area for	9 10	hydro metallurgical industrial facility associated with Voisey's Bay on the Island in
9 10 11	isolated system, is that a targeted area for the HYDROWISE program?	9 10 11	hydro metallurgical industrial facility associated with Voisey's Bay on the Island in 2012. In reference to that, what is expected
9 10 11 12	isolated system, is that a targeted area for the HYDROWISE program? A. I think the HYDROWISE is probably a bit	9 10 11 12	hydro metallurgical industrial facility associated with Voisey's Bay on the Island in 2012. In reference to that, what is expected to be the size of the load there and what
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Multi-PageTMNL Hydro's 2003 General Rate Application

	bber 20, 2003 Mult	-Pa	ge "NL Hydro's 2003 General Rate Application
	Page 105		Page 106
1 B	ROWNE, Q.C.:	1	meet the needs of not only Voisey's Bay, but
2	Q. Where is coming from? Where are you going to	2	the other intended growth in the system.
3	get that?	3	Q. Is it conceivable that Hydro wouldn't have the
4	A. That would bewell, it'll come from the grid	4	ability to deal with that facility in
5	obviously, to do it, the actual next source	5	Argentia, that you might want to inform them
6	will be, as I mentioned, as we discussed	6	to find an alternative source?
7	before, it'll be possibly Island Pond or	7	A. That's not our mandate; our mandate under the
8	whatever the most economic source is at the	8	Act is to serve the load forecast need of the
9	particular time when we review in, say,	9	Province and we would endeavour to do that.
10	2005/2006 in time to build.	10	You know, it may be our own sources we
11	Q. And what's the potential for Island Pond in	11	purchase as we did with the NUGS recently, it
12	terms of output?	12	will be whatever the most economic way to meet
13	A. Island Pond is 36 megawatts and 196 gigawatt	13	the load is will be recommended by Hydro to
14	hours. It would not, in itself, look after	14	the Public Utilities Board, but it's premature
15	Voisey's Bay Nickel. There would be possibly	15	to conclude what those results are at this
16	other things required.	16	point in time.
17	Q. What other things, therefore, are you	17	Q. Why do you say that, it's premature?
18	planning?	18	A. Because we have not done the evaluations of an
19	A. We don't have any specific plan. As I	19	"X" source, we have not gone for a recent RFP
20	mentioned, we will, in time to facilitate the	20	to get the prices of what other proponents may
21	construction time for that load growing, that	21	have out there. So, until we do that and do
22	we will enter an RFP to look at other sources,	22	the economic evaluation, it would be a bitwe
23	we'll evaluate the cost of gas turbines,	23	would not be able to indicate today what that
24	Holyrood four and we will review and recommend	24	next source would be.
25	a generation expansion scenario which would	25	Q. Have you any idea of what the cost would be to
	Page 107		Page 108
1	develop Island Pond, a ball park?	1	our System Planning Department to look at the
2	A. I don't recall offhand, it would be a little	2	load. There's been not a lot of discussions
3	bit more than Granite Canal, I suspect.	3	to date. They're still in a preliminary stage
4	Q. More than 134 million?	4	as well. I think they are making progress,
5	A. I suspect, yet.	5	but we do not have the definitive. We have a
6	Q. So, even though you develop it at 134 million,	6	forecast number of 50 megawatts and 394
7	that entire project wouldn't be sufficient to	7	gigawatt hours. I guess, as their plans
8	energize that hydro metallurgical industrial	8	solidify over time and they actually refine
9	facility?	9	the process and what they're going to do, that
10	A. Based on the current load forecast	10	would be firmed up.
11	requirements, that in itself would not be, no.	11	Q. So, given the fact that you have little by way
12	You know, there may bebut when you expand a	12	of Hydro development left, say, for Island
13	system, you always build a reserve, it will	13	Pond, isn't it of concern to Hydro that if you
14	take you a number of years to work yourself	14	were to take the entire Island Pond
15	down to that particular load as to where you	15	development and dump it into Voisey's Bay,
16	actually generate the next source. Then, I	16	that what's remaining for the development of
17	guess, our expectations right now is answer to	17	the rest of the province, is precious little.
18	one of the RFIs, that we anticipate that we	18 ((11:45 a.m.)
19	would need probably about 80 to 90 megawatts	19	A. I think there are other non-Hydro owned
20	in that time frame to meet Voisey's Bay needs	20	hydraulic resources that can come into play.
21	and other load growth in the province.	21	We can build thermal plants. I don't think
22	Q. Have you had any discussions with Voisey's Bay	22	we'll see natural gas necessarily within 10 or
23	in reference to energizing the project in	23	12 years, but that may be something that's on
24	Argentia?	24	the horizon. But when you go back to
	A. We have a liaison with Voisey's Bay through		Newfoundland and Labrador Hydro's mandate,

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			Page 110
	IR. HAYNES:	1	may be Hydro or it may be a combined cycle or
2	basically our mandate is to serve the growing	2	conversion of Holyrood to combined cycle, all
3	energy and power needs of the province. And I	3	of which have varying economic history, basis.
4	don't think that we would, at least, I could	4	Q. You've made reference to a construction of a
5	not foresee that Newfoundland Hydro would	5	thermal generation facility. When was the
6	actually go back and curtail industrial	6	last time Hydro constructed such a facility?
7	development, for instance, because the	7	A. I guess the last, other than diesel, the last
8	resources aren't readily available. We can	8	gas turbine we installed would have been in
9	build something or have it built to meet those	9	Happy Valley/Goose Bay and the last steam
10	needs and we'll evaluate those economics,	10	plant would have been in 1979/1980 at
11	we'll evaluate the load forecast and we'll	11	Holyrood, unit number 3.
12	recommend to the Board for their approval and	12	Q. And did Goose Bay predate Holyrood?
13	consideration of the most economic future	13	A. No, Goose Bay was after that.
14	source. I would suggest in a 2005/2006 time	14	Q. What year was Goose Bay, roughly?
15	frame, that we would be very engaged in that	15	A. I would suggest the mid to late '80s, I don't
16	process.	16	know the date off hand.
17	Q. I would imagine an Industrial Customer such as	17	Q. So, your experience in thermal plant
18	Voisey's Bay would have a tremendous impact on	18	construction is limited a bit?
19	the rate stabilization plan, would it not?	19	A. Recent construction experience is limited, but
20	A. That depends on the source of the next supply	20	I suppose we could also say the same thing for
21	and depends on our forecast of what fuel is	21	Granite Canal since the last hydro plant we
22	and the structure and design of the rate	22	built was in 1989. So, I'm not concerned
23	stabilization plan. It would be aif it's a	23	about that, we operate and maintain, we're
24	thermal source that primarily provides, there	24	doing continuous improvement. We know the
25	will be an increase fuel usage, yes, but it	25	creature and when you undertake an exercise
	Dece 111		Dec. 112
	Page 111	1	Page 112
1	like that, you usually get a contract or, you	1	to these, what are you looking at?
2	like that, you usually get a contract or, you know, you will hire a consultant who's	2	to these, what are you looking at? A. On the station service losses, I'll just speak
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1 1	MR. HAYNES:	1	there's little we can do about that.
2	project to reconducter. Now, we have	2	Q. And that's not peculiar to our system; that's
3	reconductered some lines, but more from the	3	peculiar to electricity generally?
4	point of view of transfer capability as	4	A. Yes. You know, there's the synchronise
5	opposed to specifically targeted to reduce	5	condensers that we have on a system help keep
6	losses.	6	the voltage up and maintain and they
7	Q. Now, when you're with the Canadian Energy	7	contribute some reduction and they use some as
8	Council and the subcommittee that you're part	8	well.
9	of there, are transmission losses subject to	9	Q. Although we live in hope, I think there was a
10	discussion there and what to do in reference	10	news story this morning of someone saying that
11	to them or any new technology out there that	11	they can produce electricity out in Alberta
12	we have to look forward to?	12	somewhere by other than traditional means.
13	A. Not in the short term. If they ever	13	A. I heard that, yes.
14	futuristically come up with a low temperature	14	Q. Did you make a phone call?
15	superconducting wire, that would be a great	15	A. I think they were proposing, as being a power
16	plus for losses, but other than that, it's	16	supply for cell phones, so I didn't trigger my
17	basically I squared R, it's the laws of	17	interest right off the bat (Laughter). I was
18	physics. And if we can't change the	18	looking for a bit more.
19	resistance of the conductors, then basically	19	Q. Now, there are a few questions that were
20	the losses are going to be what they are	20	passed on to you when Mr. Roberts was on the
21	within a certain range, but we do endeavour to	21	stand, so, if I can make reference to these.
22	keep the system voltages high as reasonable to	22	One question dealt with CA-150, can we go
23	reduce the losses to allow the transmission of	23	there, please. That had to do with Goose Bay
24	more power, you know, with less current. As	24	and where a number of the Armed Forces that
25	you increase the current, the losses go up,	25	are in Goose Bay are leaving there. Have you
	Page 115		Page 116
1	been notified as to any change in the	1	Bay as being a stationing area for some
2	requirements for Goose Bay and the result?	2	portions of the Voisey's Bay activity.
3	A. The contract, the Memorandum of Understanding	3	Q. Another question I asked previously had to do
4	with the NATO allies or the Department of	4	with computers. And I asked in reference to
5	National Defence expires actually in 2006, and	5	CA-138, Mr. O'Reilly. And it was indicated in
6	our forecasting and we have not made any	6	the response that you plan to get more life
7	appreciable change in our forecast for that.	7	out of your computers, from three years to
8	I guess as you can see from the CA-150, we	8	four and five years which would be a blessing
9	have dropped down from 107 to 77 million	9	for consumers. How is that being
10	kilowatt hours over that time frame. And the	10	accomplished?
11	forecast for 2003/2004 arethey're not	11	A. I guess what we had proposed in our last
12	significantly different and we don't	12	capital budget proposal, that we would start
13	anticipateyou know, there are some activity	13	moving to thin clients which basically is a
14	in the area with respect to Voisey's Bay	14	slightly different technology than a PC on
15	Nickel and will be some countering of those, I	15	someone's desk. Most of the applications will
16	guess, but we don't anticipate any significant	16	run from a server and their life is
17	change in the secondary sales to DND, in the	17	anticipated to be five years. I would suggest
18	foreseeable future.	18	as well, at least, I hope for, as you
19	Q. In terms of Voisey's Bay Nickel, what is	19	mentioned for all consumers that the changing
20	Hydro's commitment there in Labrador?	20	the computer of capabilities and so on has
21	A. We have no commitment at the Voisey's Bay	21	slowed a little bit, I mean, they're still
22	Nickel site. It's basically, I guess, our	22	getting bigger and powerful, but they don't
23	what we are keeping an eye to and what we are	23	necessarily need all that to do our day-to-day
24	forecasting is the appropriate increases in	24	work. As long as the operating systems settle
25	energy and demand that we would see in Goose	25	a little bit and so on, we won't be forced

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1 N	MR. HAYNES:	1	Q. Generation Engineering, yes, there it goes.
2	there. So, we anticipate five years as being	2	A. That particular grouping of things, also
3	a reasonable time frame, on average, for our	3	covers conferences as well and there was an
4	PCs in the future.	4	amount of money there for travel and
5	Q. In terms of customer service and computers,	5	conferences. Travel was actually thirty nine
6	have you ever done any measurement to request	6	thousand which is indicated NP-259 and travel
7	the response from consumers if they're willing	7	was seventeen. And the conferences and travel
8	to pay more for having a call answered in 30	8	and put in there as our best guess, basically.
9	second as opposed to 45 seconds?	9	And if we need it; it's there. And if weyou
10	A. I'm not aware, but from a customer point of	10	know, the generation people provide support
11	view, that would probably be a better directed	11	services to the Hydro Generation which is Cat
12	question to Mr. Banfield who looks after the	12	Arm and Hynes Lake, so there is travel
13	customer service area. I know we measure a	13	required. We did not experience those levels
14	lot of these things.	14	in 2002.
15	Q. The other question I asked of Mr. Roberts	15	Q. Yes, but I would imagine you always needed to
16	which he put forward to you and you probably	16	travel to these particular locations, that
17	know the answer to this, it's in reference to	17	hasn't changed. But what has changed in the
18	travel cost for 2001 and 2002. And I was	18	production division, the generating
19	referring to CA-139, I believe. And I think	19	engineering travel costs have gone up from
20	actually I think it might have been a line in	20	fifteen thousand in 2002 to sixty four and
21	Mr. Roberts evidence where the travel costs	21	fifty six thousand which seem to be all time
22	were seventeen thousand and fifteen thousand	22	highs since 1996.
23	for Generation Engineering 2001 and 202 and w	e 23	A. Well, you would be primarily travelled to the
24	saw them increasing for 2003 and 2004.	24	areas for operating projects, but in 1996, I
25	A. That particular -	25	think the anomaly is more 2001/2002 where
	Page	119	Page 120
1	they're lower and there is somewhen they	1	A. We would maintain in Granite Canal, but that
2	travel out to these areas, they do try to put	2	would be actually in the last entry there,
3	two of three operating projects, they try to	3	Hydro generation at line 24. Line 19 is the
4	go out and cover off two or three jobs at one	4	generation operations is a little bit of a
5	time as opposed to going out this week to look	5	misnomer. It's really the operations, the
6	at one project and going out two weeks later	6	control centre, system operations. Hydro
7	to looks at another particular project,	7	Generation on line 24 is the actual -
8	they'll try to marrying those up and economize	8	(12:00 p.m.)
9	on that basis and maybe some capital as well.	9	Q. Okay. So, the budget line 24 would include
10	Q. In terms of travel cost in 2001 and 2002, you	10	work in reference to the Granite Canal?
11	would be doing the Granite Canal during that	11	A. Yes, but we have started a couple of
12	time and I see that under Generation	12	initiatives in Hydro Generation to try to
13	Operations for 2001 they're thirteen thousand	13	reduce some of that cost by having the
14	and twenty thousand, yet we see a jump to	14	operators do more work and so on. So, we are
15	twenty nine and eighteen thousand for the next	15	targeting to hold the line on the travel costs
16	two years. Are we missing something here?	16	associated with Hydro Generation by, you know,
17	A. I'm sorry, could you repeat that question.	17	we've done a couple of things as evidence in
18	I'm sorry.	18	NP, I believe, 87 with respect to operators of
19	Q. Yes, I'm looking at Generation Engineering and		Paradise River and remote plant operators to
20	Generation operations line 19 and 20 in the	20	try to minimize or to reduce that particular
21	Production division.	21	travel cost, to have them to do more
22	A. Yes.	22	maintenance, therefore, reduce travel costs
23	Q. And we see for 2001 and 2002, you would be	23	from some employees of Bay D'Espoir.
		1.0.1	
24 25	doing the Granite Canal at that point, wouldn't you?	24 25	Q. All right. Is a lot of this travel discretionary, you mentioned conferences?

	D 101		D 100
	Page 121	1	Page 122
	IR. HAYNES:	1	have one permanent employee out in the field who does that. So that was -
2	A. Well, conferences maybe, but conferences are a	2	
3	valuable way to interact with your peers and	3	Q. So what are you telling me? There's
4	to find out what other utilities are doing.	4	contractual wages there in line 22 under
5	We don't do a lot of that and most of the	5	travel?
6	travel within Generation Engineering and hydro	6	A. No, on line 22, we had temporary employees
7	operations is basically to go to the plants to	7	hired who were called client support
8	review operating problems, to address issues	8	assistants, who would actually facilitate use
9	and so on.	9	and deployment of PCs in the field. We have
10	Q. And in line 22, we see under "Information	10	reduced that now. Those temporary employees
11	Systems and Telecommunications" start at 1997,	11	are no longer with us. We do have one
12	125,000, then it goes right up to 347,000 in	12	permanent individual located in the field.
13	2001. It's my understanding that's when you	13	That was the bump there primarily.
14	were into using the JD Edwards programs?	14	Q. Were the wages for these contractual people,
15	A. Actually the big bump, if you will, of 347,000	15	are they contained in line 22 there?
16	in 2001 was primarily driven by the fact that,	16	A. If they were temporary salaries, it would have
17	you know, we have over 100 of these sites out	17	been in line 22, yes.
18	there where we support the LAN and WAN and	18	Q. Why would they be in travel? That seems to be
19	users and we had deployed to the field area	19	-
20	some temporary employees who were called	20	A. I'm sorry.
21	client support assistants, clientthey are	21	Q an anomaly.
22	basically people in the field who would	22	A. They're not innot the wages, but their
23	actually facilitate user knowledge of PCs and	23	travel expense. Their travel expenses would
24	to fix problems that were ongoing, and	24	be in travel.
25	basically, we have reduced that now and we	25	Q. Oh, I see, okay.
	Page 123		Page 124
	1490 120		1 age 124
1	A. You know, you have somebody in Port Saunders	1	those are all projections of what we
1 2	A. You know, you have somebody in Port Saunders who's looking after, you know, St. Anthony,	1 2	those are all projections of what we anticipate to spend for travel. The IS&T
	A. You know, you have somebody in Port Saunders who's looking after, you know, St. Anthony, Southern Labrador, maybe Goose Bay on		those are all projections of what we anticipate to spend for travel. The IS&T department are maintaining sites all over the
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2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	 A. You know, you have somebody in Port Saunders who's looking after, you know, St. Anthony, Southern Labrador, maybe Goose Bay on occasion, and so on. You have somebody in Bishop Falls who is looking after Bay D'Espoir and Deer Lake and so on. So they were distributed around. So their travel would have been up because they were travelling a fair bit to do that. And we've undertaken several other initiatives there by having some of that done now, done through St. John's, through electronic means as opposed to having somebody actually in the field. But there is still some field support personnel. Q. What were you doing in 1996 and 1997 in reference to travel and information systems, 101,000, 125,000 as opposed to what you're doing in the forecast year, 244 and 256,000? What has caused these additional costs in the forecast years? A. In the future, in the 2002, 2003, 2004, we have expanded the WAN and the LAN. We have installed new microwave facilities. You know, 	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	 those are all projections of what we anticipate to spend for travel. The IS&T department are maintaining sites all over the island and Labrador and we have IS&T people deployed in St. John's, Bishop Falls, a few, and some in Deer Lake. So there's a fair bit of travel to maintain all these particular things at all the stations. The people at Deer Lake will look after the Deer Lake office obviously, Hind's Lake, Granite Canal, all the microwave sites that we have, the VHF systems, that they need to go to. So there is a fair travel by that particular group of communications and IT people. Q. Why are they travelling so much now as opposed to in the past? A. In the past, back in the earlier time, we would not have done as much forwe would not have necessarily had as many PCs deployed out there. In 1996, we would not have been as reliant onso much relying on the computers, such as JD Edwards, et cetera. So there has been an increased need for that support.

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1 BROW	NE, Q.C.:	1		still ongoing discussions in reference to
2 h	ave paid for, that we would see a benefit in	2		that, these may not be necessary at this time,
3 re	educed travel as opposed to more.	3		so I'm going to pass on those for the time
4 A. B	But there are more facilities to maintain.	4		being, mercifully so, I guess, and these will
5 T	here are more users to support. I shouldin	5		be all our questions for now. Thank you very
	999, there was also some extra costs there	6		much, sir.
	with respect to the preparation for the Y2K.		CHAI	RMAN:
	here was a fair bit of activity along those	8		Thank you, Mr. Browne, Mr. Haynes. We move
	nes as well.	9	C.	now to Newfoundland Power. Good morning, good
	That would be year 2000, 1999 and 2000?	10		afternoon, I guess, Mr. Kelly. When you're
	99 and 2000, yes, there was a bump, yes.	11		ready, please.
	And a spike in 2001 was due to what?		VELL	Y, Q.C.:
	Client support assistance, where we had three	12		. Thank you, Chair.
				RMAN:
	r four people deployed to the field to look fterwe've had a fair number of issues with			
		15		You can begin your cross.
	ome of the PCs. Since then, we've gone to a			.Y, Q.C.:
	tandard platform. We've tried to have one	17	Q.	Mr. Haynes, I'd like to start by having a look
1 1	perating system as opposed to multiple, and	18		at some of the system characteristics and how
	o we haveyou know, we have reduced that	19		the system works and let's start, if we can,
	rom the 2001 now to what we think are	20		by going to your Schedule 1. Now I understand
	ustainable levels.	21		that you've been the vice-president of
	think those are the questions that I had	22		production since 2001?
23 ai	rising from Mr. Roberts. I have some	23	A.	Yes.
24 q	uestions dealing with the Rate Stabilization	24	Q.	And you have six departments that report to
25 P	lan, but in view of the fact that there is	25		you, as shown in your Schedule 1 there?
	Page 127			Page 128
1 A. T	'hat's correct.	1	Q.	So that's essentially Hydro's principal
2 Q. O	Okay. And you spoke with Mr. Browne about the	2		generation or engineering staff related to
3 sy	ystem planning department and that is	3		generation?
-	esponsible for the generation, transmission	4	A.	The engineering support for generation, that
	nd distribution planning as you discussed	5		expertise. They look after, for instance, the
	vith him?	6		contract administration and ultimately, the
7 A. Y		7		Granite Canal construction.
	Vhat I'd like to do is I'd like to go through-	8	0.	Okay. Now next one you got there is
	we won't spend any more time on system	9	C.	information systems and telecommunications. I
	lanning now, because we'll come back to that	10		think we have some sense of what IT is, but
-	little bit. Can we go through each of the	11		could you help us understand why IT is in your
	thers and just get you to explain what each	11		production department, as opposed to, for
	f these departments are made of and what they	12		example, since it deals with PCs and things
	o, and let's start with generation	13		like that, one of the other administrative
	-			
	ngineering.	15		type departments?
	guess, in our pre-filed evidence, there is a	16	A.	I guess, in the late 1990s, before I was VP,
	aragraph on page three which describes the	17		there was a fair bit of discussion on the role
	ble of the department. Basically, they	18		of the communications. We used to have a
-	rovide engineering support to primarily to	19		department called the telecommunications
	ne thermal and hydraulic generation	20		department, and we had a department called
	epartments of Hydro. They look after	21		MIS, management information services. I guess
22 oj	perating projects, capital projects, with the	22		through reviews and so on, there was thought
1				
	ssistance, obviously, of the people in the	23		to be a fair bit of synergy between those
24 fi				

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1 1	MR. HAYNES:	1	A. The system operations department basically
2	position. The MIS prior to that was under the	2	look after the day-to-day, 24-hour-a-day,
3	Department of Finance, the finance department.	3	seven-day-a-week operation of the Energy
4	Q. And MIS is what?	4	Control Centre. They look after basically the
5	A. MIS was the management information systems	5	day-to-day administration for the most part of
6	department. It used to report to Department	6	the NUGS purchase contracts. They do the
7	of Finance. When the departments were rolled	7	switching for transmission lines. They turn
8	together, because of the synergies we saw	8	on and off generation and look after the day-
9	between the communications and the MIS	9	to-day ongoings in the control centre.
10	department, from the point of view of the LAN,	10	Q. So that's the overall control of the
11	the WAN, the communications, the dependence	11	transmission system?
12	upon communications as being a key thing, they	12	A. Transmission and generation system, outage
13	were married together and they were retained	12	coordination and so on.
14	under the production division.	13	Q. Now thermal generation then is Holyrood?
15	Q. Okay. How many people are in that department	14	A. Yes.
	now approximately?		
16 17	A. In that department, in total, there are 67,	16 17	Q. And is it anything other than Holyrood? Because you talked a little bit earlier about
1	*		•
18	but they're not all IT people. I think there's probably shout more on loss 50(50 of	18	number of gas turbines that you've got and discolverite. Where do they fit into the
19	there's probably about more or less $50/50$ of	19	diesel units. Where do they fit into the
20	IT versusmaybe 60/40 of IT versus, you know,	20	structure of Hydro?
21	telecommunications, microwave, VHF radio,	21	A. Holyrood isthe thermal generation manager,
22	LAN/WAN people.	22	under production division, looks after the
23	Q. Okay. The next block you got up there is	23	three steam machines at Holyrood, plus one gas
24	system operations, and where does that fit	24	turbine, which is an 18 or 15-megawatt unit.
25	into the production department?	25	The gas turbines that are at Hardwoods and
	Page 131		Page 132
1	Oxen PondI'm sorry, at Hardwoods and	1	on, I take it the control centre has the power
2	Stephenville and Goose Bay are looked after	2	to call up that diesel unit?
3	through the TRO division, but engineering	3	A. That's for the most part done by remote
4	support is also provided from a generation	4	control and they turn those on and off as
5	engineering section. But where these gas	5	required.
6	turbines are in the field, it was more	6	Q. Through your systems operation in production
7	appropriate and considered to be more cost	7	though, is what I'm trying to understand?
8	effective that they be maintained by the	8	A. Yes. They -
9	individuals in those areas.	9	Q. Right.
10	Q. And the diesel units, you got a number of	10	A they don't maintain. They actually turn
11	those around the province, they also fall, for	11	them on and them off and look after the fuel
12	maintenance purposes, under TRO, correct?	12	forecasting and so on, but they don't actually
13	A. Yes, there areyes, that's correct.	13	maintain.
14	Q. Right. But in terms of system engineering and	14	Q. And your hydraulic generation is simply all
15	system's operation, those units really fall	15	your hydro plants scattered around the
16	under production. Would that be fair?	16	province?
17	A. The diesel generation in the TRO engineering	17	A. Yes, they basically look after all the hydro
18	department maintain a high level of expertise	18	plants.
19	in the diesel areas. They look after all	19	Q. Okay. Now the production department would be
20	aspects of the Isolated Diesel generation.	20	the biggest department, in terms of the items
21	There's very little, if any, done by	21	that go into the overall cost of service?
22	generation engineering or production division	22	Because you've got fuel, you've got all your
23	for the diesel Isolated systems.	22	salaries and things for the production
23	Q. And what about systems operation though? If	23	department. Would that be generally correct,
24	the control centre wants one of those diesels	24	Mr. Haynes?
145	the control centre wants one of those diesels	125	1411. Huynos:

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1 1	MR. HAYNES:	1	share of the costs that are at issue in this
2	A. From a dollar point of view?	2	proceeding? Would you agree with that?
3	Q. Yes.	3	A. I guess if you put it that way, yes.
4	A. If you include fuel, yes. I think if you	4	Q. Okay. Now let's look a little bit at Schedule
5	exclude fuel, I'm not quite sure if that's the	5	2, so we look at some of the characteristics
6	case.	6	of the system here. Now in this summary, and
7	Q. Even excluding fuel, if we went to Mr.	7	you touched on this with Ms. Greene, you have
8	Roberts' Schedule 2 and just looked at the	8	plants which are owned by Hydro in the first
9	controllable costs, depending on whether you'd	9	block there, first couple of blocks. Then we
10	look at net or gross, you'd be somewhere	10	have some plants which are owned by the non-
11	between 90 and 100 million, and if we go to	11	utility generators and power sold to Hydro,
12	your Schedule 6, just on operating alone,	12	and then there are plants which are owned by
13	you're about 35 million dollars or	13	Newfoundland Power and the Industrial
14	approximately a little bit better than a third	14	Customers, primarily for their own generation
15	of the total.	15	purposes, down in the bottom? We got that
16	A. I don't have Mrthe TRO, but I would suggest	16	basically correct?
17	that TRO's is probably pretty darn close, and	17	A. Yes.
18	I don't recall the numbers. They would be	18	Q. Okay. And if we look at column 1, we've got
19	fairly close.	19	the source, as to whether it's thermal,
20	Q. But then these other things like fuel and	20	hydraulic, et cetera, and column 2 provides
21	things would come under your department as	21	something called the net capacity, and could
22	well?	22	you just explain for us how net capacity is
23	A. Yes.	23	determined?
24 (12:16 p.m.)	24	A. I guess the best explanation, I guess, is by
25	Q. Okay. So you're responsible for a very large	25	way of example. If you were to look at the
	Page 135		Page 136
1	Holyrood oil-fired steam, it has a net	1	and Newfoundland Power's -
2	capacity of 466 1/2 megawatts. The nameplate	2	A. Actually I had the total capability of Hydro
3	capacity is more like 490 megawatts. That	3	and Hydro's contracts is more. I think it was
4	difference is what's used internally in the	4	about 83 percent of the total actually. 1591
5	plant for its own internal usage, and Holyrood	5	over 1919.
6	would be an extreme example. Holyrood	6	Q. Yes, but in that, you probably have the
7	requires more power to keep it going, if you	7	thermal number for Holyrood in too, do you?
8	will, than say a hydro plant.	8	A. Yes, I do.
9	Q. So net capacity is kind of rated capacity less	9	Q. Okay. But if we look at just how much is
10	the station service requirement?	10	hydroelectric, I'll suggest to you about 65
11	A. More or less, yes.	11	percent is hydroelectric? Sound about right?
12	Q. And that would be higher for Holyrood than,	12	A. I'll trust your math, yes.
13	for example, the hydro plant because there are	13	Q. Okay. And then obviously the balance is
14	many more components that require power in a	14	thermal. Now column 3, if we go back to the
15	steam plant? Essentially correct?	15	top again, we've got something called the
16	A. That's correct. The percentage would be	16	average annual energy for each source. So if
17	higher of station service.	17	we look across, for example, at Bay D'Espoir,
18	Q. Okay. Now we get down to the bottom of the	18	we've got 2,657 gigawatts and that's based on,
19	if we scroll up to the bottom of thethere we	19	in terms of the hydroelectric plants, on a 30-
20	arewe have the total Island Interconnected	20	year average hydraulic production?
21	System of 1,919 megawatts and out of that, if	21	A. Yes, that's correct.
22	we work through the capacity, about 65 percent	22	Q. Okay. And so for the production estimation,
23	is from hydro generation, that's including	23	you use the 30-year average?
24	hydro, the power from the non-utility	24	A. That's what we've used in this particular
25	generators, except the Corner Brook thermal,	25	filing, yes.

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	r number, but we basically used the
	sophy. On the Corner Brook Pulp and
	Exploits River, these numbers were
	rived at doing engineering studies
	ccepted by Hydro. Obviously, as we
	ne, we will find out whether they
e	or worse than that, but the
8 A. Well, it's netted out of their forecast what 8 contracts ba	asically do call for a specific
	nich are as the firms (phonetic).
10 Q. Right, but in terms of how much they are going 10 Q. Sorry. How	v do get the average annual energy
11 to produce, are capable of producing, that 11 then for Ho	lyrood?
12 information comes from the power company and 12 A. The average	ge annual energy for Holyrood is
	5 percent availability or 25 percent
14have their own generation?14incapability	factor. It's basically 466
15A. By and large, that should be correct.15megawatts to	times 8760 hours in a year times 75
16 Q. Okay. And how did you determine the non- 16 percent, an	d we plan the system and then
17 utility generation estimates? How is that 17 strive to me	eet that 75 percent availability or
18determined?1825 percent i	incapability.
19A. The non-utility estimates for Star Lake and19Q. Okay.So	that 75 percent factor is what
20 Rattle Brook were revised in this application 20 essentially g	goes into the mix to determine the
21 to reflect the operating experience that we 21 average and	nual energy then from Holyrood?
22 have to date. Star Lake has basically 22 A. Yes.	
23 generated a bit more than they anticipated 23 Q. Okay. Now	v then column 4, the last far right
24 when they actually built the plant, and I'm 24 column give	es us something called firm annual
25 not sure, I think Rattle Brook was maybe a 25 energy in g	gigawatt hours for each of the
Page 139	Page 140
1 generation sources. Can you explain what firm 1 survive. W	e plan the system to meet our firm
2 annual energy is and how those estimates are 2 energy supp	ply, based on a repeat of that firm
3 determined? 3 sequence, a	nd that's pretty standard hydro-
4 A. The firm number, particularly for hydraulic, 4 technical pe	ower system sort of stuff.
5 is based on us being able to manage the 5 Q. So to plan h	now much firm energy you could get
6 hydraulic resources to survive the worst dry 6 out of the s	system, you postulate a scenario
7 sequence that we had, which is back in the 50s 7 that looks a	t your three driest years in your
8 or 60s, and basically, we planit does not 8 operating h	nistory? Is that essentially
9 drive figures on an annual basis for cost of 9 correct?	
10 service. It's more of a number that's used 10 A. Not necess	arily the operating history, of
11 primarily for next source identification. 11 record. Of	record.
12 What we try to do is protect the firm 12 Q. Of record?	
13sequence.13A. Yes.	
	riod in the late 50s, early 60s, I
15 to elaborate on that? But you talked about a 15 take it Hyd	ro was operating plants at that
	e, were they not?
	s, I don't think so.
	right. So that's what you use for
	part of it. What about for the
	art of it, to get the firm annual
21time, but it's back the 50s or 60s, 50 to 60,21energy?	
-	d, we consider the firm and the
· · · · ·	be the same. The average and the
24 worst sequence on record that we have, and 24 firm are 29	996 We basically plan our
-	be the same. The average and the 996. We basically plan our
-	e program, by and large, to meet the

	Page 141		Page 142
	IR. HAYNES:	1	diesels to meet day-to-day production
$\begin{vmatrix} 1 \\ 2 \end{vmatrix}$	2996 target. On an average basis, it's going	2	planning. We use them obviously when we're
3	to be whatever we can't do hydraulically. We	3	required, but we do not have any firm numbers
4	don't use Holyrood towe do notour average	4	peaking plant. The cost of operation is in
	production from Holyrood, from any point in		excess of \$100 per megawatt hour, so they're
5	· · · ·	5	· · ·
6	time to today, would never approach 2996,	6	not part of our day-to-day plan. They would
7	because basically whatever hydraulic	7	just fall off the table on economic priority.
8	production, we will work around. It picks up	8	Q. So you don't count them for firm energy
9	the slack, Holyrood does, of whatever energy	9	requirement in the far column, but they count
10	we can't get from our hydraulic resources.	10	for the capacity factor in the first column
11	But there's no difference in the peak and the	11	over?
12	average. We assume the same.	12	A. Yes, because they are used a lot less than the
13	Q. Okay. So for your firm energy criteria, in	13	other plants.
14	other words, what you can use to meet the	14	Q. Okay. Now what do you use the estimate of
15	system, you assume that 75 percent capability	15	firm annual energy for? What's the primary
16	factor?	16	purpose of that estimate?
17	A. Yes.	17	A. It's primarily for system planning to identify
18	Q. Okay. Now if we just go down that column,	18	future generation and condition requirements.
19	under thermal, after you get past Holyrood,	19	Q. Okay. Now you talked with Mr. Browne about
20	you've got Hardwoods, Stephenville, Holyrood	20	Holyrood and the last unit that was added in
21	gas turbines, and the various diesels, and you	21	Holyrood, Unit 3, you told us was 1979 to '80?
22	show no firm annual energy for each of those	22	A. Yes.
23	units. Can you just explain why that is the	23	Q. Okay. And out of the hydroelectric plants or
24	case?	24	the plants that have come in service since
25	A. We don't plan to run the gas turbines or the	25	1980, the bulk of the energy that's come on
	Page 143		Page 144
1	Page 143 stream since then have been through various	1	Page 144 A. No.
1 2	stream since then have been through various	1	A. No.
2	stream since then have been through various hydroelectric plants. Let's just run down	2	A. No. Q. Okay. So the bulk of those, since 1980, have
2 3	stream since then have been through various hydroelectric plants. Let's just run down through a couple of those. Cat Arm would have	2 3	A. No.Q. Okay. So the bulk of those, since 1980, have been hydroelectric and in terms of Hydro's
2 3 4	stream since then have been through various hydroelectric plants. Let's just run down through a couple of those. Cat Arm would have come after the last unit at Holyrood? Would	2 3 4	 A. No. Q. Okay. So the bulk of those, since 1980, have been hydroelectric and in terms of Hydro's stable of potential projects, as you talked
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2 3 4 5 6	stream since then have been through various hydroelectric plants. Let's just run down through a couple of those. Cat Arm would have come after the last unit at Holyrood? Would you agree with that? A. Yes.	2 3 4 5 6	 A. No. Q. Okay. So the bulk of those, since 1980, have been hydroelectric and in terms of Hydro's stable of potential projects, as you talked about with Mr. Browne, the next potential one would be Island Pond again, a hydroelectric
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1 1	rage 145 IR. HAYNES:	1	megawatt hours, the other one is capacity of
$\begin{vmatrix} 1 \\ 2 \end{vmatrix}$	discussed a few minutes ago, basically it's	$\begin{vmatrix} 1 \\ 2 \end{vmatrix}$	megawatt nours, the other one is capacity of megawatts and in the ideal system, it would be
$\begin{vmatrix} 2\\ 3 \end{vmatrix}$	that we plan the Interconnected System so that	3	nice if they were all kind of matched up one
4	we can survive, if you will, if we have a	4	hundred percent, but it never happens. So on
5	repeat of the firm sequence, which is a fairly	5	the LOLH, we have to plan the firm capacity
6	common practice in the utility business, to	6	and that is one of the reasons why, as we
7	ensure that you can actually survive that	7	discussed a few minutes ago, we had this
	particular event. In other words, that we do	8	peaking plant there and the gas turbines and
8	not have to curtail deliveries of energy	9	so on. So what we do is if you go down to a
	because we just do not have the resources		probabilistic approach and we look at the load
10	available. So that is the energy driver.	10	forecast and the forced outage rates of the
11	Q. So there we're looking at the energy forecast	11	equipment and so on, and we analyze that and
12	on the firm basis, which is our three driest	12	
13	year sequence, plus Holyrood, and weighing	13	we come up and basically say that our criteria
14		14	is that we will plan the system so that we will always have enough capacity available to
15	that against the energy forecast for any	15	
16	particular year, is that essentially correct?	16	meet our customers demands, with the exception
17	A. To give us an estimate of the timing for the next source, yes, that's correct.	17	of, on average, 2.8 hours per year where we
18	Q. Okay, now let's go on to capacity and your	18	cannot do it because of availability or
19		19	resources.
20	LOLH, if you could just explain that loss of	20	Q. Okay, so is that a computer run model, which
21	load hours?	21	you talked about a probabilistic or
22	A. The loss of load hours is, obviously in the	22	statistical type approach to it?
23	electrical business you are delivering	23	A. It considers the forced outage rates of
24	related, but I suppose maybe different	24	machines, it considers the load factor and the
25	products in the sense one is energy, i.e.	25	load shape and so on, but it does come out of
	Page 147		Page 148
1	a computer model and it may change. The LOLH	1	Q. Okay, let's go over to the energy one.
2	a computer model and it may change. The LOLH number that's generated may change over time	2	Q. Okay, let's go over to the energy one.A. And the energy basically, similarly is the
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2 3	a computer model and it may change. The LOLH number that's generated may change over time if the load factor changes or if the load shape changes and so on, but it is basically an output from a program.	2 3	Q. Okay, let's go over to the energy one.A. And the energy basically, similarly is the amount of energy that we require to fulfil our customer needs.Q. Okay, and then net capacity comes back from
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2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	 a computer model and it may change. The LOLH number that's generated may change over time if the load factor changes or if the load shape changes and so on, but it is basically an output from a program. Q. Okay, and the theory then is to ensure that you've got enough capacity so that not more thanthere's not more than 2.8 hours per year of outages due to a lack of capacity on the system, is that it in a nutshell? A. That's the plan in a nutshell, yes. Q. Okay, now, let's go next to Table 8 which I think is on page 37. I want to get you to walk us through this particular table and let's start withyou've got the years, obviously, and then we've got the peak. Just explain what that column means? A. Well the peak is basically the demand forecast for the Interconnected System, the number of megawatts we would require to fulfil our expected demands, our obligations. Q. And that's a matter of the peak load on the system as to what you forecast for every year? A. Yes, there are, you know, there areyes, 	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	 Q. Okay, let's go over to the energy one. A. And the energy basically, similarly is the amount of energy that we require to fulfil our customer needs. Q. Okay, and then net capacity comes back from your Schedule 2? A. That's what we have available today. Q. Okay, and you're showing the same numbers all the way down through that column, so I take it that doesn't yet and we have the same thing on firm capability which is the energy side of the ledger in the next column over. That's the same all the way down through, so that wouldn't include yet, for example, anything for the Burin Wind Farm? A. Well that's correct, if that goes as conceived or as perceived, that will add 25 megawatts to that particular column. Q. Okay, and we come across, you got your firm capability, again that comes from what we just looked at in Schedule 2, correct? A. Yes, if we have a repeat of a dry sequence, we would be able to provide 8.7 terawatt hours. Q. Okay, and then we have our LOLH, now just to
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Discoveries Unlimited Inc., Ph: (709)437-5028

October 20, 2003

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	Page 149		Page 150
1 K	ELLY, Q.C.:	1	peakingwe need more megawatt capability on
2	point six hours per year in 2003? That's	2	the system.
3	obviously something better than your 2.8 you	3	Q. Okay, so in 2011 then, your criteria for peak
4	talked about a minute ago?	4	capacity is exceeded and you'd need a capacity
5	A. Yeah, well what we don't have shown on the	5	requirement for 2011?
6	chart would be 2002, which would have	6	A. That would beon face value, that would be
7	anticipatedwe would have exceeded that	7	the indication, yes.
8	criteria. I don't know what the number is,	8	Q. Okay, now let's look at the energy balance and
9	but it would have been in excess of 2.8 based	9	have you just explain that column.
10	on a forecast when there was generation	10	A. It's done in a similar way except that you're
11	committed. Whenever you build new plant or	11	looking at the firm sequence and basically by
12	incorporate new megawatt capability into the	12	adding on the Granite Canals, the Corner Brook
13	system, you will stagger that number. So in	13	Pulp and Paper and the Exploits River, we
14	2003, we added 40 megawatts for Granite Canal,	14	basicallywe have a reserve, if you will, of
15	we added 15 megawatts for Corner Brook Pulp	15	an energy balance in 2003 of 265 kigawatt
16	and Paper and 32, I believe, for the Exploits	16	hours, and as weas our load forecast
17	River, so that would actually push that number	17	increases, we will erode to that and 2010 we
18	down. So then you, as your load forecast	18	have an energy balance or a deficiency, very
19	continues to grow, you will start eroding on	19	small but it's there nonetheless. We, in
20	that capability by actually increasing that	20	theory, would not have enough energy, assuming
21	number. And if you get down to 2010, we	21	we had a repeat of the firm sequence to meet
22	actually hit that particular criteria of 2.8	22	our commitments.
23	and 2011 we've exceeded the criteria, and at	23	Q. That negative 10 is in 2009?
24	that particular time, that would be the	24	A. That's correct.
25	message that we really need to address, new	25	Q. Okay, so at that stage in 2009, then your
	Page 151		Page 152
1	energy criteria has been overcome or violated?	1	is required to meet both demand and energy
2	A. Yes, you wouldn't necessarily go and rush out	2	requirements, a reduction in peak only with no
3	and do something based on a deficit of 10.	3	associated energy reduction will not defer the
4	You look at the timing between, you know, the	4	next plant addition, although it may have an
5	energy balance deficit and the loss of load	5	impact on which options would be considered
6	hours and ideally you would do a project	6	least cost at that time and beyond. So that
7	somewhere in that time frame of 2009 to 2011	7	the next plant would add both energy and peak
8	which would cover off both factors.	8	capacity is what Hydro's thinking is?
9	Q. Okay, but the first one that is driving the	9	A. Because there's a, you know, there's only
10	system planning in terms of time frame, would	10	about two years, one or two years apart in the
11	be energy, would you agree with that?	11	LOLH criteria hit (phonetic) and the energy
12	A. Yeah, based on this, yes.	12	balance, that would be correct.
13	Q. Right. But if you addif you build a plant	13	Q. So as you build to meet the energy violation
14	which will provide more energy, it will also	14	in 2009, you'll also build for capacity for
15	have the effect of providing more capacity,	15	2011 and beyond, correct?
16	isn't thatthat's also true?	16	A. It would be the consideration of the load
17	A. Yes, it can be varying numbers, but it is	17	forecast and the operating factor of that
18	typically true, yes.	18	particular plant, depending on what the
19	Q. Right, let's just go to NP-154 for a second	19	resource is, but I'll come together to
20	and have a look at that issue and I'll just	20	determine that.
21	give you a moment to find that, if you like.	21	Q. Now, I'd like to take you next to exhibit, Mr.
22	Do you have that there?	22	Brockman's exhibit, LBB No. 3, here we go.
23	A. Yes.	23	And Mr. O'Reilly, I don't know if you can put
24	Q. And as you come down through your answer,	24	that on the screen so we can get both the two
25	lines 11 and 12, since the next plant addition	25	parts of the table together? Okay. In the

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Page 153 Page 154 1 KLLLY, QC: 1 A. That's correct. 2 top part, Mr. Haynes, we have from the 1990 1 A. That's correct. 3 hearing some information taken from Mr. 3 load indicates that he load factor has 6 Collett's evidence and then in the botom, we 4 load indicates that he load factor has 7 information, some additional information? 7 coughly about 61 percent? 8 A, Yes. 7 eproduced your Table 8 with the same 9 Q. And if we compare the two, we see that the 9 means? 11 1.728 megavatts; and in 990, that-Hydro had means? 12 been forecasting that that would occur by 1a na ideal world if you had pure energy 13 about 1996, approximately? 1a that your resources are being uil-gov and so forth, you'd 14 A. Correct. 1a that was annicipate? 15 O. Okay, and so overall would you agree that the 1a that your resources are being uil-gov and so forth. 19 A. Yes, there's been a fair dcrease over that 1a that as anticipate? 19 a verset's as training for twaious factors, that's 1a that so the energy, but 21 correct. 13 mot gave as striking for the energy, but 1a the load factor. Not if 22 Q. And tha's also true if we look at the energy. 1a tha t	October 20, 2003	Mului-1 age	r NL fiyuro s 2005 General Kate Application
2 0. And if we look at the forecast of total Island 3 hearing some information taken from Mr. 10ad indicates that the load factor has 5 have reproduced your-Mr. Brockman has 5 6 reproduced your Table 8 with the same 7 7 0. And if we compare the two, we see that the 7 8 A.Yes. 7 9 0. And if we compare the two, we see that the 7 10 peak demand in 2012 will have only reached 7 11 7.28 megavatts; and in 1990, fhart-Hydro had 7 12 been forecasting that that would occur by 13 13 aber of retracting that that would you agree that the 7 14 A. Correct. 14 15 O.Okay, and so overall would you agree that the 7 16 overatil oad growth has decreased dramatically 17 17 the state designed for, you know, operating factors, so it would's to to 60 19 peried of time for various factors, that 's 20 ond that's also true if we look at the energy, sour may fast as anticipated? 10 the we look at th		Page 153	Page 154
3 hearing some information taken from Mr. 3 load indicates that the load factor has 4 Collett's evidence and then in the bottom, we improved since 1990, went from 59 percent to 5 have reproduced your-Mr. Brockman has reproduced your-Mr. Brockman has 6 reproduced your-Mr. Brockman has 7 7 Q. And if we compare the two, we see that the 7 9 Q. And if we compare the two, we see that the 7 10 peak demand in 2012 will have only reached 11 11 1.728 megawatts; and in 1990, that-Hydro had 11 12 been forecassing that that would you agree that the 10 14 A. Correct. 11 15 overall load growth has decrease over that 12 16 oversit the solut as abait cipated? 17 St mot grown as fast as anaticipated? 12 18 not grown as fast as an anticipated? 14 14 words, you turn on megawatts on innous to meet 30 14 16 words, wou turn on megawatts on innous to meet 30 14 17 orecreat	1 KELLY, Q.C.:	1	A. That's correct.
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8 A. Yes. 8 means? 9 Q. And if we compare the two, we see that the 9 A. In an ideal world if you had pure energy 10 peak demand in 2012 will have only reached 10 resurces that had no constraints of forced 11 1,728 megawatts; and in 1990, that-Hydro had 11 have a hundred percent load factor. Typically 12 been forecasting that that would occur by 12 have a hundred percentage of load factor. means 14 A. Correct. 14 have a sufficipated? 14 15 O. Okay, and so overall would you agree that the 15 more-are being utilized more to the maximum 16 overall load growth has decreased dramatically 16 ability. Now that's not really, necessarily 17 since the evidence in the 1990 hearing from 17 the case for a Hydro plant may they most you would get out of a 19 A. Yes, there's been a fair decrease over that 19 percent operating factors, so it wouldn't 20 And that's also true if we look at the energy, 22 is not the same as load factor, but it influences that. But the closer-let me go 21 words, you turn on megawatts and had, but the athithe bit, the higher your load factor, t	6 reproduced your Table 8 with the sa	me 6	A. Yes.
9 Q. And if we compare the two, we see that the 9 A. In an ideal world if you had pure energy resources that had no constraints of forced 10 17.28 megavatts; and in 1990, that-Hydro had 10 resources that had no constraints of forced 11 17.28 megavatts; and in 1990, that-Hydro had 10 nuclear tats: and so or and so forth, you'd 12 been forecasting that that would occur by 11 nuclear tats: and so or and so forth, you'd 13 about 1996, approximately? 13 the higher percentage of load factor. Typically 14 A. Crect. 14 that your resources are being used, you know, 16 overall load growth has decreased dramatically 16 nore-are being utilized more to the maximum 16 overall had's also rue if we look at the energy, but 17 the case for a Hydro plant maybe, you know, 40 to 60 18 period of time for various factors, that's 20 not dhat's also rue if we look at the energy, but 21 influences that. But the close-let me go 24 still energy demand-or energy consumption has 24 back a little bit, the higher your load 25 not grown as fast as anticipated? 25 factor, the flatter your porfile, in other 24 words, y	7 information, some additional information	1? 7	Q. Just explain that to the Board, what that
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11 MS. NEWMAN:11different programs, I guess.12Q. That would be Information Item No. 12 if it's11different programs, I guess.13going to be entered as a -12Q. And I understand you can't mathematically kind14KELLY, Q.C.:13of get from one to the other, but at the end15Q. Thank you. Now this table, Mr. Haynes, is the14of the whole analysis, the two are pretty much16source of some of the information that is in16A. That's correct.17the top block, in terms of LBB-3 that's17Q. Okay, and so if we go down through the column18already on the screen, but I want to take you18under LOLE Index, which equates to your loss19over to the middle column, which is LOLE19of load hours currently being used, we see20index, and as I understand it, that's like our21loss of load hours, but is a slightly22different index and perhaps we can start by23having you explain what that means to the24Board?24that it would have been exceeded in 1991			
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23having you explain what that means to the 2423Q. Okay, now if I go back up above, I also see 2424Board?24that it would have been exceeded in 1991		by 22	A. Yes, that's correct.
24 Board? 24 that it would have been exceeded in 1991		-	Q. Okay, now if I go back up above, I also see
25 (12:45 a.m.) 25 because we have a .0268, but if we go over to-	24 Board?	24	that it would have been exceeded in 1991
	25 (12:45 a.m.)	25	because we have a .0268, but if we go over to-

Multi-PageTMNL Hydro's 2003 General Rate Application

	ober 20, 2003 Mul	u-ra	ge NL Hydro's 2003 General Rate Application
	Page 157	7	Page 158
1 M	IR. HAYNES:	1	Would you agree with that?
2	A. Sorry, it's .2 days per year, not .02, the	2	A. There's not a big difference in the years, but
3	criteria is .2, so it would not have been	3	in energy is the first criteria that we
4	exceeded until 1993.	4	violate as in our forecast that we have today.
5	Q. You're correct, thank you for that. So it	5	Q. Today, and back in 1990, it was demand being
6	would have gotten exceeded in 1993 on	6	exceeded in 1993 versus energy in 1996?
7	capacity?	7	A. That's correct.
8	A. That's correct.	8	Q. Okay, now let's move on from there and I'd
9	Q. Okay, and if we come over to the next couple	9	like to go to your Schedule 4 next and I'd
10	of columns, they're essentially the same as in	10	like you to take us through this graphthis
11	your table 8, and we come over to the energy	11	series of graphs, and explain to the Board
12	balance column.	12	what this means?
13	A. Yes.	13	A. Schedule 4 is the total system energy storage,
14	Q. The energy requirement was good until 1996 at	14	basically it is hydraulic only and the red
15	that point in time?	15	line at the upper most part of the chart is
16	A. That's correct.	16	basically how much energy we would anticipate
17	Q. So back in 1990, we had a capacity constraint	17	having in our storage based on our reservoir
18	affecting the system more quickly than the	18	planning criteria, based not necessarily on
19	energy constraint and we have the opposite	19	full supply, but at certain times of the year
20	situation today?	20	we would not plan all reservoirs to be full.
21	A. Yes, that's correct.	21	But that would be the maximum energy that we
22	Q. Now, so comparing 1990 with where we are	22	could have in storage, assuming we had a lot
23	today, today we have new sources of generation	23	more rain than we're having today.
24	being driven more by energy than demand and we	24	Q. That line down the bottom is called "maximum
25	have the opposite being the case back in 1990?	25	operating level" and it's got a bump in the
	Page 159)	Page 160
1	middle kind of running from roughly about	1	Q. Right, because you're going to get rainmore
2	April through to September. Why is that	2	likely to get rain in the fall so you have the
3	there?	3	potential to capture a little bit of extra if
4	A. In the months approaching the spring run off,	4	your reservoir is not quite as full?
5	we would actually plan the reservoirs down a	5	A. Typically we catch a few of September, pieces
6	little bit lower so that we would minimize our	6	of hurricanes as they go by and we get some
7	risk or spill. We would try to capture all	7	rain there, but once the cold starts, then
8	possible water that we can from snow melt and	8	that's really, the temperature obviously comes
9	so on, so basically we would plan our	9	into that picture as well.
10	reservoirs to be a little bit lower in the	10	Q. Right, so the red line at the top is your
11	spring, so that we can ensure that we catch	11	perfect world, so to speak?
12	all possible water so that we don't spill	12	A. The ideal world, yes.
13	anything and so on, and that's why it would be	13	Q. Okay, let's go down through the other lines.
14	higher. In June and July, we would try to	14	A. The green line is our minimum storage targets
15	cover off rainfalls, but we would not have to	15	and that is, that line is not necessarily a
16	worry about snow melt.	16	static line, at different times when we redo
17	Q. And then why does it drop down again then in	17	the situation as we see it today, there's some
18	September from a planning operation's point of	18	changes to that, but not major ones. It is
19	view?	19	where we would like to be or where we want to
20	A. Usually in September we have a little bit more	20	be to protect our firm sequence; in other
21	rainfall, but it alludes me as to why it's	21	words, when you come into January of this
22	flat after that. I suspect that's just our	22	year, we came into that year at a little over
23	expected utilization and so on. So it's	23	1500 kigawatt hours of energy in storage.
24	basically a minimize of potential risk of	24	Very little risk of spill, but it's notwe
25	spill would be the driving factor.	25	would prefer it to be higher and that's the

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	Page 161		Page 162
	IR. HAYNES:	1	Holyrood and the Hydro plant.
2	way we would try to run our Holyrood	2	Q. This is pure water we're talking about here?
3	production would be to pick that up. It did	3	A. In this particular chart, but it is influenced
4	come back up in February when we got an	4	by, you know, the availability of factors and
5	initial melt of the inflow. That's the	5	the 25 percent incapability factor for
6	purplish line, I'm sorry, or whatever colour	6	generating that particular, that green line.
7	that is, would be to the date of that	7	Q. Right, but I notice the green line drops down
8	particular time. The blue line is basically	8	through January to about April, then rises
9	how we fared last year. We came in a little	9	through the summer and then starts to
10	bit below the minimum and basically stayed, by	10	hopefully rise back December, just walk us
11	and large, most of it, except for the latter	11	through the logic of that?
12	part of the year, we were a bit under our	12	A. As you're coming into the spring, the load is
13	target, our goals.	13	starting to decrease, you know, and we
14	Q. And the green line, if we can just focus on	14	anticipate a certain inflow which is reflected
15	that one, is minimum energy storage targets?	15	when the green line starts to take a rise
16	Just explain how that is intended to work?	16	again.
17	A. That is to product our firm capability. The	17	Q. So that would be your snow melt.
18	intent is that we should be there, if we were	18	A. Snow melt, your inflow and then basically it
19	on the green line with our actualwhere we	19	kind of levels off and then in the fall then,
20	are today, that if the firm sequence started	20	you get snowyou get some rain and you get
21	right now, we would be in reasonable shape to	21	snow accumulation and so on. So it's, you
22	survive that without having to curtail energy	22	know, the sole purpose is to assist the
23	deliveries. And this doesn't include, you	23	hydraulic planning, to minimize the risk of
24	know, this doesn't include any generation from	24	spill would be the primary purpose.
25	gas turbines and so on, basically it's	25	Q. Now I notice you called this schedule "Total
25	- ·	25	-
	Page 163		Page 164
1	System Energy Storage". All the rest of us	1	approximately the same for all months of the
2	unsophisticated types would probably look at		
3		2	year, except for the effect of fuel cost
	it as water storage.	3	changes due to fuel purchases in each month.
4	A. It is.	3 4	changes due to fuel purchases in each month. That's just the price of fuel going up or
4 5	A. It is. Q. But from your point of view, this is energy	3 4 5	changes due to fuel purchases in each month. That's just the price of fuel going up or down, as I understand it, and assuming equal
4	A. It is.Q. But from your point of view, this is energy storage because every gallon of water that's	3 4	changes due to fuel purchases in each month. That's just the price of fuel going up or down, as I understand it, and assuming equal unit output levels, and that's essentially the
4 5	A. It is.Q. But from your point of view, this is energy storage because every gallon of water that's stored is essentiallygot an energy value to	3 4 5	changes due to fuel purchases in each month. That's just the price of fuel going up or down, as I understand it, and assuming equal unit output levels, and that's essentially the conversion factor for our oil?
4 5 6 7 8	A. It is.Q. But from your point of view, this is energy storage because every gallon of water that's stored is essentiallygot an energy value to it? Have I got that essentially correct?	3 4 5 6 7 8	changes due to fuel purchases in each month. That's just the price of fuel going up or down, as I understand it, and assuming equal unit output levels, and that's essentially the conversion factor for our oil? A. Yes.
4 5 6 7	A. It is.Q. But from your point of view, this is energy storage because every gallon of water that's stored is essentiallygot an energy value to it? Have I got that essentially correct?A. Yes, and the access on the left-hand side, it	3 4 5 6 7	changes due to fuel purchases in each month.That's just the price of fuel going up or down, as I understand it, and assuming equal unit output levels, and that's essentially the conversion factor for our oil?A. Yes.Q. So other than those minor changes, the cost of
4 5 6 7 8	 A. It is. Q. But from your point of view, this is energy storage because every gallon of water that's stored is essentiallygot an energy value to it? Have I got that essentially correct? A. Yes, and the access on the left-hand side, it is actually in gigawatt hours, but I mean, if 	3 4 5 6 7 8 9 10	 changes due to fuel purchases in each month. That's just the price of fuel going up or down, as I understand it, and assuming equal unit output levels, and that's essentially the conversion factor for our oil? A. Yes. Q. So other than those minor changes, the cost of producing energy is the same at Holyrood for
4 5 6 7 8 9 10 11	 A. It is. Q. But from your point of view, this is energy storage because every gallon of water that's stored is essentiallygot an energy value to it? Have I got that essentially correct? A. Yes, and the access on the left-hand side, it is actually in gigawatt hours, but I mean, if you go down and look at each reservoir, it's 	3 4 5 6 7 8 9 10 11	 changes due to fuel purchases in each month. That's just the price of fuel going up or down, as I understand it, and assuming equal unit output levels, and that's essentially the conversion factor for our oil? A. Yes. Q. So other than those minor changes, the cost of producing energy is the same at Holyrood for whatever months it's running?
4 5 6 7 8 9 10 11 12	 A. It is. Q. But from your point of view, this is energy storage because every gallon of water that's stored is essentiallygot an energy value to it? Have I got that essentially correct? A. Yes, and the access on the left-hand side, it is actually in gigawatt hours, but I mean, if you go down and look at each reservoir, it's "X" thousand of cubic feet at Bay D'Espoir, 	3 4 5 6 7 8 9 10 11 12	 changes due to fuel purchases in each month. That's just the price of fuel going up or down, as I understand it, and assuming equal unit output levels, and that's essentially the conversion factor for our oil? A. Yes. Q. So other than those minor changes, the cost of producing energy is the same at Holyrood for whatever months it's running? A. Yes, I mean, obviously in the discussions, I
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4 5 6 7 8 9 10 11 12 13 14 15 16	 A. It is. Q. But from your point of view, this is energy storage because every gallon of water that's stored is essentiallygot an energy value to it? Have I got that essentially correct? A. Yes, and the access on the left-hand side, it is actually in gigawatt hours, but I mean, if you go down and look at each reservoir, it's "X" thousand of cubic feet at Bay D'Espoir, this conversion factor, plus "X" thousand of cubic feet at Cat Arm and its conversion factor and that's the sum result. Q. Okay, now I'd like to move next, having looked 	3 4 5 6 7 8 9 10 11 12 13 14 15 16	 changes due to fuel purchases in each month. That's just the price of fuel going up or down, as I understand it, and assuming equal unit output levels, and that's essentially the conversion factor for our oil? A. Yes. Q. So other than those minor changes, the cost of producing energy is the same at Holyrood for whatever months it's running? A. Yes, I mean, obviously in the discussions, I guess some of the RFI's with respect to the unit loading and Schedule 5, there's some variation, but basically it is more or less the same. Q. Okay. A. It's the incremental fuel cost.
4 5 6 7 8 9 10 11 12 13 14 15 16 17	 A. It is. Q. But from your point of view, this is energy storage because every gallon of water that's stored is essentiallygot an energy value to it? Have I got that essentially correct? A. Yes, and the access on the left-hand side, it is actually in gigawatt hours, but I mean, if you go down and look at each reservoir, it's "X" thousand of cubic feet at Bay D'Espoir, this conversion factor, plus "X" thousand of cubic feet at Cat Arm and its conversion factor and that's the sum result. Q. Okay, now I'd like to move next, having looked at that, to discuss a little bit about 	3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	 changes due to fuel purchases in each month. That's just the price of fuel going up or down, as I understand it, and assuming equal unit output levels, and that's essentially the conversion factor for our oil? A. Yes. Q. So other than those minor changes, the cost of producing energy is the same at Holyrood for whatever months it's running? A. Yes, I mean, obviously in the discussions, I guess some of the RFI's with respect to the unit loading and Schedule 5, there's some variation, but basically it is more or less the same. Q. Okay.
4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	 A. It is. Q. But from your point of view, this is energy storage because every gallon of water that's stored is essentiallygot an energy value to it? Have I got that essentially correct? A. Yes, and the access on the left-hand side, it is actually in gigawatt hours, but I mean, if you go down and look at each reservoir, it's "X" thousand of cubic feet at Bay D'Espoir, this conversion factor, plus "X" thousand of cubic feet at Cat Arm and its conversion factor and that's the sum result. Q. Okay, now I'd like to move next, having looked at that, to discuss a little bit about marginal costs and if we go to NP-171 is 	3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	 changes due to fuel purchases in each month. That's just the price of fuel going up or down, as I understand it, and assuming equal unit output levels, and that's essentially the conversion factor for our oil? A. Yes. Q. So other than those minor changes, the cost of producing energy is the same at Holyrood for whatever months it's running? A. Yes, I mean, obviously in the discussions, I guess some of the RFI's with respect to the unit loading and Schedule 5, there's some variation, but basically it is more or less the same. Q. Okay. A. It's the incremental fuel cost.
4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19	 A. It is. Q. But from your point of view, this is energy storage because every gallon of water that's stored is essentiallygot an energy value to it? Have I got that essentially correct? A. Yes, and the access on the left-hand side, it is actually in gigawatt hours, but I mean, if you go down and look at each reservoir, it's "X" thousand of cubic feet at Bay D'Espoir, this conversion factor, plus "X" thousand of cubic feet at Cat Arm and its conversion factor and that's the sum result. Q. Okay, now I'd like to move next, having looked at that, to discuss a little bit about marginal costs and if we go to NP-171 is probably the starting point and we asked a 	3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19	 changes due to fuel purchases in each month. That's just the price of fuel going up or down, as I understand it, and assuming equal unit output levels, and that's essentially the conversion factor for our oil? A. Yes. Q. So other than those minor changes, the cost of producing energy is the same at Holyrood for whatever months it's running? A. Yes, I mean, obviously in the discussions, I guess some of the RFI's with respect to the unit loading and Schedule 5, there's some variation, but basically it is more or less the same. Q. Okay. A. It's the incremental fuel cost. Q. Right. Now, under normal operating conditions
4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	 A. It is. Q. But from your point of view, this is energy storage because every gallon of water that's stored is essentiallygot an energy value to it? Have I got that essentially correct? A. Yes, and the access on the left-hand side, it is actually in gigawatt hours, but I mean, if you go down and look at each reservoir, it's "X" thousand of cubic feet at Bay D'Espoir, this conversion factor, plus "X" thousand of cubic feet at Cat Arm and its conversion factor and that's the sum result. Q. Okay, now I'd like to move next, having looked at that, to discuss a little bit about marginal costs and if we go to NP-171 is probably the starting point and we asked a question there, that was confirmed, that the 	3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	 changes due to fuel purchases in each month. That's just the price of fuel going up or down, as I understand it, and assuming equal unit output levels, and that's essentially the conversion factor for our oil? A. Yes. Q. So other than those minor changes, the cost of producing energy is the same at Holyrood for whatever months it's running? A. Yes, I mean, obviously in the discussions, I guess some of the RFI's with respect to the unit loading and Schedule 5, there's some variation, but basically it is more or less the same. Q. Okay. A. It's the incremental fuel cost. Q. Right. Now, under normal operating conditions then, the cost of producing on a kilowatt-hour
4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	 A. It is. Q. But from your point of view, this is energy storage because every gallon of water that's stored is essentiallygot an energy value to it? Have I got that essentially correct? A. Yes, and the access on the left-hand side, it is actually in gigawatt hours, but I mean, if you go down and look at each reservoir, it's "X" thousand of cubic feet at Bay D'Espoir, this conversion factor, plus "X" thousand of cubic feet at Cat Arm and its conversion factor and that's the sum result. Q. Okay, now I'd like to move next, having looked at that, to discuss a little bit about marginal costs and if we go to NP-171 is probably the starting point and we asked a question there, that was confirmed, that the cost of providing energy at Holyrood on a 	3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	 changes due to fuel purchases in each month. That's just the price of fuel going up or down, as I understand it, and assuming equal unit output levels, and that's essentially the conversion factor for our oil? A. Yes. Q. So other than those minor changes, the cost of producing energy is the same at Holyrood for whatever months it's running? A. Yes, I mean, obviously in the discussions, I guess some of the RFI's with respect to the unit loading and Schedule 5, there's some variation, but basically it is more or less the same. Q. Okay. A. It's the incremental fuel cost. Q. Right. Now, under normal operating conditions then, the cost of producing on a kilowatt-hour basis is approximately the same incrementally
4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	 A. It is. Q. But from your point of view, this is energy storage because every gallon of water that's stored is essentiallygot an energy value to it? Have I got that essentially correct? A. Yes, and the access on the left-hand side, it is actually in gigawatt hours, but I mean, if you go down and look at each reservoir, it's "X" thousand of cubic feet at Bay D'Espoir, this conversion factor, plus "X" thousand of cubic feet at Cat Arm and its conversion factor and that's the sum result. Q. Okay, now I'd like to move next, having looked at that, to discuss a little bit about marginal costs and if we go to NP-171 is probably the starting point and we asked a question there, that was confirmed, that the cost of providing energy at Holyrood on a cents per kilowatt basis is approximately the 	3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	 changes due to fuel purchases in each month. That's just the price of fuel going up or down, as I understand it, and assuming equal unit output levels, and that's essentially the conversion factor for our oil? A. Yes. Q. So other than those minor changes, the cost of producing energy is the same at Holyrood for whatever months it's running? A. Yes, I mean, obviously in the discussions, I guess some of the RFI's with respect to the unit loading and Schedule 5, there's some variation, but basically it is more or less the same. Q. Okay. A. It's the incremental fuel cost. Q. Right. Now, under normal operating conditions then, the cost of producing on a kilowatt-hour basis is approximately the same incrementally over the whole period of the year?
4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	 A. It is. Q. But from your point of view, this is energy storage because every gallon of water that's stored is essentiallygot an energy value to it? Have I got that essentially correct? A. Yes, and the access on the left-hand side, it is actually in gigawatt hours, but I mean, if you go down and look at each reservoir, it's "X" thousand of cubic feet at Bay D'Espoir, this conversion factor, plus "X" thousand of cubic feet at Cat Arm and its conversion factor and that's the sum result. Q. Okay, now I'd like to move next, having looked at that, to discuss a little bit about marginal costs and if we go to NP-171 is probably the starting point and we asked a question there, that was confirmed, that the cost of providing energy at Holyrood on a cents per kilowatt basis is approximately the same for all months of the year. And the 	3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	 changes due to fuel purchases in each month. That's just the price of fuel going up or down, as I understand it, and assuming equal unit output levels, and that's essentially the conversion factor for our oil? A. Yes. Q. So other than those minor changes, the cost of producing energy is the same at Holyrood for whatever months it's running? A. Yes, I mean, obviously in the discussions, I guess some of the RFI's with respect to the unit loading and Schedule 5, there's some variation, but basically it is more or less the same. Q. Okay. A. It's the incremental fuel cost. Q. Right. Now, under normal operating conditions then, the cost of producing on a kilowatt-hour basis is approximately the same incrementally over the whole period of the year? A. After, as I said, after you consider the

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1 K	KELLY, Q.C.:	1	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
2	Q. Now, if wejust have a look at NP-130 next,	2	
3	that cost as we currently have it, as a	3	A. Yes, it wouldn't bea long-run cost would
4	marginal cost of production is 5.13 cents?	4	4 incorporate a few other unforeseens out there,
5	A. Yes, that's based on \$29.20 a barrel.	5	5 it would be, you know, the variable O&M or
6	Q. Okay, now the language in the answer at line 8	6	6 there would be another factor added to make
7	is the forecast short-run marginal cost of	7	7 that a little bit higher to reflect other
8	production at Holyrood is. Now, let's just	8	8 things that would happen on occasions.
9	understand the terminology first. Just	9	9 Q. Now, if weI'd like to talk next about the
10	explain short-run marginal cost?	10	0 relationship between Holyrood and your
11	A. The short-run marginal cost would be if we	11	1 hydraulic production. If we have Holyrood
12	were to go and look for another, say another	12	2 shut down, for example we're in the summer,
13	kilowatt hour today would be basically the	13	
14	fuel cost, plus the variable O&M. So if the	14	
15	variable O&M is reflection of the additional	15	
16	fuel that is required and so on in the plant	16	6 electricity in the winter, would you agree
17	to do that, so it comes out to be 51.051.	17	7 with that? In other words, in one sense it's
18	Q. But it's the cost of getting an extra kilowatt	18	
19	hour out of the system today?	19	
20	A. In the short term, it doesn't consider, you	20	
21	know, additional maintenance that's required	21	
22	or things like that. It's basically just we	22	
23	need a few extra kilowatts today, here they	23	
24	are.	24	
25	Q. Right, and that would be contrasted with a	25	
	Page 167	,	Page 168
1	very low load.	1	
2	Q. No, but my point is this, that if you were to	2	
3	run, either run Holyrood and burn oil or run	3	
4	the hydraulic plants and use up the water that	4	
5	we have in storage, those are the two options,	5	5 of supply, yes.
6	correct?	6	6 (1:00 p.m.)
7	A. Pretty well, yes.	7	
8	Q. Yes. So that the cost of energy on the	8	
9	system, the marginal cost of energy on the	9	
10	system is always the cost of producing out of	10	
11	fuel at Holyrood. Would you agree with that?	11	
12	A. In the short run. In the long run, you would	12	
13	eventually be pushed to a new generating	13	
14		14	4 cents a kilowatt hour or 51 -
14 15	source, which would have a higher cost. Once	14 15	
	source, which would have a higher cost. Once you exhaust your capability at Holyrood,		5 Q. 5.1 -
15	source, which would have a higher cost. Once you exhaust your capability at Holyrood, you'll be forced into new sources of supply,	15	 Q. 5.1 - A 5.1 cents a kilowatt hour will be the
15 16 17	source, which would have a higher cost. Once you exhaust your capability at Holyrood, you'll be forced into new sources of supply, which would be higher than that.	15 16	 Q. 5.1 - A 5.1 cents a kilowatt hour will be the marginal source.
15 16	source, which would have a higher cost. Once you exhaust your capability at Holyrood, you'll be forced into new sources of supply, which would be higher than that.Q. Right. But within the constraints of the	15 16 17	 Q. 5.1 - A 5.1 cents a kilowatt hour will be the marginal source. Q. Okay. Now can I take you next to the EES
15 16 17 18	source, which would have a higher cost. Once you exhaust your capability at Holyrood, you'll be forced into new sources of supply, which would be higher than that.Q. Right. But within the constraints of the existing system, and we looked at the forecast	15 16 17 18 19	 Q. 5.1 - A 5.1 cents a kilowatt hour will be the marginal source. Q. Okay. Now can I take you next to the EES report, to page 22, and if you come down to
15 16 17 18 19	source, which would have a higher cost. Once you exhaust your capability at Holyrood, you'll be forced into new sources of supply, which would be higher than that.Q. Right. But within the constraints of the existing system, and we looked at the forecast period for those, the marginal cost of	15 16 17 18	 Q. 5.1 - A 5.1 cents a kilowatt hour will be the marginal source. Q. Okay. Now can I take you next to the EES report, to page 22, and if you come down to lines 33 to 35, and you see there's a comment
15 16 17 18 19 20 21	source, which would have a higher cost. Once you exhaust your capability at Holyrood, you'll be forced into new sources of supply, which would be higher than that.Q. Right. But within the constraints of the existing system, and we looked at the forecast period for those, the marginal cost of producing energy on the system is always the	15 16 17 18 19 20	 Q. 5.1 - A 5.1 cents a kilowatt hour will be the marginal source. Q. Okay. Now can I take you next to the EES report, to page 22, and if you come down to lines 33 to 35, and you see there's a comment there that begins on line 33. The sentence
15 16 17 18 19 20	source, which would have a higher cost. Once you exhaust your capability at Holyrood, you'll be forced into new sources of supply, which would be higher than that.Q. Right. But within the constraints of the existing system, and we looked at the forecast period for those, the marginal cost of producing energy on the system is always the Holyrood cost because we're either going to	15 16 17 18 19 20 21	 Q. 5.1 - A 5.1 cents a kilowatt hour will be the marginal source. Q. Okay. Now can I take you next to the EES report, to page 22, and if you come down to lines 33 to 35, and you see there's a comment there that begins on line 33. The sentence reads "above 420 gigawatt hours, NP would be
15 16 17 18 19 20 21 22 23	source, which would have a higher cost. Once you exhaust your capability at Holyrood, you'll be forced into new sources of supply, which would be higher than that.Q. Right. But within the constraints of the existing system, and we looked at the forecast period for those, the marginal cost of producing energy on the system is always the Holyrood cost because we're either going to useburn the fuel at Holyrood or use the	15 16 17 18 19 20 21 22 23	 Q. 5.1 - A 5.1 cents a kilowatt hour will be the marginal source. Q. Okay. Now can I take you next to the EES report, to page 22, and if you come down to lines 33 to 35, and you see there's a comment there that begins on line 33. The sentence reads "above 420 gigawatt hours, NP would be charged an energy rate that represents the
15 16 17 18 19 20 21 22	source, which would have a higher cost. Once you exhaust your capability at Holyrood, you'll be forced into new sources of supply, which would be higher than that.Q. Right. But within the constraints of the existing system, and we looked at the forecast period for those, the marginal cost of producing energy on the system is always the Holyrood cost because we're either going to	15 16 17 18 19 20 21 22	 Q. 5.1 - A 5.1 cents a kilowatt hour will be the marginal source. Q. Okay. Now can I take you next to the EES report, to page 22, and if you come down to lines 33 to 35, and you see there's a comment there that begins on line 33. The sentence reads "above 420 gigawatt hours, NP would be charged an energy rate that represents the incremental fuel costs of the Holyrood

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1	KELLY, Q.C.:	1	A. Not base load in the sense that we put it on
2	used as a peaking unit." Is Holyrood used as	2	for 130 megawatts and leave it there, but
3	a peaking unit? Would you agree with that	3	basically it is required, you know, virtually
4	statement or not?	4	90 percent of the year and it's definitely not
5	A. No, it's not.	5	a peaking plant.
6	Q. It's not correct?	6	Q. Right. Let's have a look next at how the
7	A. No.	7	system operates between thermal and hydraulic
8	Q. Okay. How would you describe Holyrood?	8	production, and a good place to go to look at
9	A. I wouldn't necessarily say it's a "classical"	9	this question is let's start with NP-172. Do
10	base-loaded plant. That plant operates ten to	10	you have that?
11	eleven months of the year, sometimes twelve	11	A. Yes.
12	months a year, there are components of	12	Q. Now let's go down throughthe question
13	operation. It basicallyit picks up the	13	postulates what happens if you took 25
14	energy requirements basically that we don't do	14	megawatts off of peak and what I want to focus
15	hydraulically. But a peak plant would be your	15	on is how do you operate the system to account
16	gas turbines, which are put on for a few hours	16	for that load? And at line 6, you begin "the
17	here, a few hours there, just to get you over	17	reduction in load could result in a reduction
18	a short term capacity thing. Holyrood's	18	in either Holyrood's stand-by plant or
19	energy requirement, when you look at that	19	hydraulic plant production. The generating
20	Schedule 2 which we talked about, Holyrood is	20	plant that has its output reduced is dependent
21	in there at 2996 gigawatt hours as a firm	21	on current system operating costs. If stand-
22	basis. The peak plants are in there at zero	22	by plant, such as a gas turbine, is operating
23	gigawatt hours.	23	it would be reduced first." Now if we'd just
24	Q. Okay. So Holyrood is more of a base load	24	stop there. That's relatively rare in the
25	plant than a peaking plant?	25	system, isn't it, especially with Granite
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1	Canal and the NUGS in place?	1	A. In striving to optimize or to ensure that we
2	A. In today'sas we stand today, yes, it would	2	are the most cost effectivethat we are
3	be rare, but as you approach requirements for	3	taking the most cost effective approach, the
4	next source, it is a possibility, but we	4	Energy Control Centre people look at Holyrood
5	don'tit doesn't usually run for energy.	5	and they look at it on a week-ahead basis and
6	It's usually run to shave peak and it's a	6	they try to dispatch Holyrood at a number, at
7	possibility, but it's -	7	a high enough load that gives us good
8	Q. And those plants -	8	economies with respect to energy conversion
9	A less likely today, since we just built, you	9	factor. If you're going to move the machine
10	know, Granite Canal.	10	around, the Holyrood machine around based on
11	Q. And those plants, as you talked about with Mr.	11	25 megawatts being gone for a few hours a day
12	Browne, do have a value today. We'll come	12	and then back up, you're going to be moving
13	back and look at that in a little bit, a	13	that machineyou know, it's not a cost
14	little bit later. But let's leave those aside	14	effective way to operate the hydroI'm sorry,
15	for the second. If the reservoir storages are	15	the thermal plant. You basically take that
16	high, Holyrood would be reduced before	16	particular swing on a hydraulic unit, if
17	hydraulic units. If the reservoir storages	17	there's no gas turbines going. And at the end
18	are low, then hydraulic units would be reduced	18	of the day, what you'll end up with is you'll
19	before Holyrood, and during an average daily	19	have met your customer demand, you will have
20	peak, hydraulic units are generally reduced	20	done it a little bit more economically because
21	before Holyrood because Holyrood is base	21	you retained Holyrood at a higher energy
22	loaded. Now just explain what that means,	22	conversion factor capability. The more you
23	especially the part about reducing the	23	load Holyrood, the most efficient it is, to a
	hydraulic units before Holyrood and why you do	24	large extent. And if you're operating at 100
24	nyaraane antis service norgrood and why you do	2.	megawatts and you drop down to 75, it's an

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1,1	MR. HAYNES:	1	supply the increasing load without
$\begin{vmatrix} 1 \\ 2 \end{vmatrix}$	inefficientas indicated in Schedule 5 of my	2	deterioration of the power system frequency
3	evidence, we have that curve of megawatts	3	and have to account for the rate of increasing
4	versus efficiency. So you don'tyou do that	4	load in their decision when to start
5	on a kind of a look-ahead basis and you may	5	additional generating units. For that reason,
6	shut down a machine at Holyrood if you had a	6	they are able to allow the units to go to full
7	sustained change, as opposed to running all	7	capacity before going to the next step in the
8	three machines down at a lower inefficient	8	loading sequence." Just explain that and
9	load. You will try to shut one down and keep	9	where that ties in with Holyrood and our
	two up at a more economic dispatch.	10	hydraulic discussion. Sorry, I misread that.
10	Q. So the peak swings are normally handled by	10	"Unable to allow the units to go to full
11	hydraulic, as opposed to changing the		capacity." Just explain where that fits into
12		12	our discussion.
13	operating output of Holyrood, for efficiency reasons?	13	
14		14	A. Just give me one second, just to read the
15	A. I mean, that'sthere's no pat answer, but by	15	paragraph in context.
16	and large, that's correct.	16	Q. Sure.
17	Q. That's correct, okay. And if we just go to	17	A. Okay. So this basically is the day-to-day
18	IC-294, we'll have another look at that same	18	operation of the control centre, and for
19	issue. If we scroll up, there we go. The	19	instance, you know, maybe the easiest thing is
20	latter part of this answer, it talks about	20	to pick a point in time. Let's say it's today
21	reserve capacity. I'll come back to that a	21	and basically we have X amount of machines on,
22	little bit later on. "When load is increasing	22	and you know, there's 1,000 megawatts of load
23	during peak periods, the power system operator	23	and if you look at the rating of the machines
24	must ensure that the operating generating	24	or the ability, we may have 100 megawatts
25	units have sufficient operating reserve to	25	reserved. You do not go up to 100 megawatts
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1	or run right up to the pins, if you will,	1	car that way and you had some reason to pick
2	before you start to initiate another	2	up speed to avoid something, you got nowhere
3	generation source. You have to maintain a	3	to go. On the system, on a hydro unit and a
4	reserve. You have to look at the expected	4	thermal unit, the system has the same thing.
5	load increase. If it's coming up around	5	If it's operating, all the valves are wide
6	suppertime or in the evening, you know, 4-	6	open, the wicket gates are fully open, there's
7	5:00, the load starts to pick up as people go	7	nowhere to go. Somebody comes on with 15
8	home and start to turn on their electrical	8	megawatts of load and your frequency
9	appliances. So the operator has to be kind of	9	deteriorates. So you have to maintain that
10	one step ahead, knowing where it's going to	10	reserve on a day-to-day basis.
11	be. He also has in the back of his mind if	11	Q. Okay. And that takes us back then to, at some
12			
	there's any work ongoing, if there's any	12	stage if we havelet's just assume we have
13	there's any work ongoing, if there's any potential for losing a machine because of		stage if we havelet's just assume we have one of Holyrood's units running and it's at,
13 14		12	-
1	potential for losing a machine because of	12 13	one of Holyrood's units running and it's at,
14	potential for losing a machine because of something in the system or a customer is	12 13 14	one of Holyrood's units running and it's at, as we looked at in NP-172, an efficient
14 15	potential for losing a machine because of something in the system or a customer is picking up load. He has to be one step ahead	12 13 14 15	one of Holyrood's units running and it's at, as we looked at in NP-172, an efficient stream, depending on how much energy you're
14 15 16	potential for losing a machine because of something in the system or a customer is picking up load. He has to be one step ahead of that. You don't wait until you have no	12 13 14 15 16	one of Holyrood's units running and it's at, as we looked at in NP-172, an efficient stream, depending on how much energy you're going tohow much demand is on the system,
14 15 16 17	potential for losing a machine because of something in the system or a customer is picking up load. He has to be one step ahead of that. You don't wait until you have no reserve before you start a machine. If you	12 13 14 15 16 17	one of Holyrood's units running and it's at, as we looked at in NP-172, an efficient stream, depending on how much energy you're going tohow much demand is on the system, you may run a hydraulic plant and at some
14 15 16 17 18	potential for losing a machine because of something in the system or a customer is picking up load. He has to be one step ahead of that. You don't wait until you have no reserve before you start a machine. If you did that, if something happened that there was	12 13 14 15 16 17 18	one of Holyrood's units running and it's at, as we looked at in NP-172, an efficient stream, depending on how much energy you're going tohow much demand is on the system, you may run a hydraulic plant and at some stage, you might then bring in a second
14 15 16 17 18 19	potential for losing a machine because of something in the system or a customer is picking up load. He has to be one step ahead of that. You don't wait until you have no reserve before you start a machine. If you did that, if something happened that there was an unanticipated load increase or if you, you	12 13 14 15 16 17 18 19	one of Holyrood's units running and it's at, as we looked at in NP-172, an efficient stream, depending on how much energy you're going tohow much demand is on the system, you may run a hydraulic plant and at some stage, you might then bring in a second Holyrood unit and shut down a hydraulic plant.
14 15 16 17 18 19 20	potential for losing a machine because of something in the system or a customer is picking up load. He has to be one step ahead of that. You don't wait until you have no reserve before you start a machine. If you did that, if something happened that there was an unanticipated load increase or if you, you know, lost a machine or there was some run	12 13 14 15 16 17 18 19 20	one of Holyrood's units running and it's at, as we looked at in NP-172, an efficient stream, depending on how much energy you're going tohow much demand is on the system, you may run a hydraulic plant and at some stage, you might then bring in a second Holyrood unit and shut down a hydraulic plant. Is that essentially correct?
14 15 16 17 18 19 20 21	potential for losing a machine because of something in the system or a customer is picking up load. He has to be one step ahead of that. You don't wait until you have no reserve before you start a machine. If you did that, if something happened that there was an unanticipated load increase or if you, you know, lost a machine or there was some run back on load, you maythe machines would not	12 13 14 15 16 17 18 19 20 21	 one of Holyrood's units running and it's at, as we looked at in NP-172, an efficient stream, depending on how much energy you're going tohow much demand is on the system, you may run a hydraulic plant and at some stage, you might then bring in a second Holyrood unit and shut down a hydraulic plant. Is that essentially correct? A. You wouldn't bring in a Holyrood unit on a

24

25

Q. Fair enough, yes.

A. But you would--you know, a more apt comparison

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the gas pedal to the floor, which I don't

recommend, by the way, but if you operate the

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1 MR. HAYNES:	-	1	other factors involved in that decision, but
2 would be that you may bring of	on another hydro	2	that is, on a all things being equal basis,
3 unit to have there running at, y	•	3	that's more or less the way we apply it.
4 some load so it has room to g		4	Q. And as you take water out of that system or as
5 load.		5	you talk about it in your graph, as you take
6 Q. So the short-term peaks over a	number of days	6	energy out of that hydraulic system, then
7 are covered by hydraulic, but	then as we get	7	that's energy that is not available then at
8 into the winter period, at som	e stage that	8	other times. So we come back to ultimately
9 demand is then going to grow	and then, do I	9	the cost, the marginal cost on the system is
0 understand you correctly, you'	d bring a second	10	the cost of producing out of Holyrood? Is
1 Holyrood unit online and get it	up to maximum	11	that correct? Same analysis?
2 efficiency then as quickly a	s possible,	12	A. That's my interpretation, yes.
3 adjusting your hydraulic produ		13	Q. Okay. All right. Now if I could magically
4 A. You would attempt to put Holy	rood on at a very	14	move some of my production from one point in
5 high efficiency. It wouldn't n	ecessarily be	15	time to another point in time, I still
6 at the 175 megawatts, but you	would still need	16	ultimately have that marginal cost at Holyrood
7 a little bit of room to go, but i	t will be	17	in the short term, don't I? In other words,
8 close.		18	if I move it from 5:00 in the night to
9 Q. Right.		19	midnight, I still have that same marginal cost
0 A. Because it's more efficient tha	t way.	20	because I'm either going to burn it at
1 Q. Exactly. Okay. And so what y	ou're then doing	21	Holyrood in oil or take energy out of my
2 is using your hydraulic resour	ces, turning	22	storage, as we've ultimately talked about?
3 them on and off, to meet the a	vailable peaks	23	A. All things being equal, yeah, probably.
during the whole system year?	That fair?	24	Q. And if I move it from the winter to the
A. For the most part. I mean, the	re's a lot of	25	summer, if I could somehow magically move my
	Page 179		Page 18
1 loads from winter to summer, a	appreciate that's	1	analogy because, you knowI wouldn't agree
2 not easy to do, but if I could	do that, I	2	with that particular analogy of an air-
3 would still have either water of	r oil out of	3	conditioner. We don't have a big air-
4 Holyrood and then I'd still be a	at 5.13 cents,	4	conditioning load, and I don't think that
5 essentially correct?		5	people would actually would go there because
6 A. If you assume that the energy i	requirements do	6	of thewell, maybe they would if it was a
7 not change, but sometimes wi	nen you do that	7	cheaper electricity, but I think by having a
8 around, you also change the c	verall energy	8	higher rate in the winter time or something
9 needs of the customers becau		9	like that, you actually discourageyou may
0 moving around. It's not alwa	• •	10	improve your fact factor further and so on.
1 necessarily move a demand ar		11	Q. But I may increase the demand, load demand and
2 impact on the energy, but it ma		12	energy demand elsewhere in the system?
3 Q. I may move and actually end	l up with an	13	A. It's possible, but I'm notyou know, I'm not
4 increase in energy, couldn't I?		14	exactly sure of what the numbers are. You
5 A. I'm not sure.		15	would have to do an econo-metric analysis to
6 Q. Well, let me just give you a hy	-	16	look at and perceive what that would be, but I
7 I movedif I might try to cr		17	think it would be small.
8 structure that might, in fact, gi		18	Q. Has Hydro done any kind of econo-metric
9 price in the summer but I still	-	19	analysis like that?
all of the houses in the winter	0	20	A. With respect to?
increase an air-conditioning d		21	Q. Moving from one period to the other and the
2 summer, mightn't I? So I cou	• •	22	effects on demand and energy? In your
to move demand and only incr	ease energy load,	23	production division, have you done it?
24 possibly.		24	A. I'm not sure that we've actually done a study
A. I wouldn't agree with your ai	r-conditioning	25	like that. Our view is that, I guess, by

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1 MR. HAYNES:		1	1 includes Newfoundland Power's production of 9	3
2 having, you	know, a demand energy rate that	2	2 in hydroelectric and 54 in thermal. See that?	
3 you would	actually improve the overall	3	3 A. Yes.	
4 efficiency of	the system. You may curtail	4	4 Q. Okay. And all of the generation, including	
	ical growth expansion in the	5	5 Newfoundland Power's and Hydro's thermal, ha	.S
6 winter, which	h is a positive, because of our	6	6 an impact on the timing of the next generation	
7 marginal co	sts and delay next sources.	7	7 addition for capacity purposes, doesn't it?	
8 Q. Yes. But h	ave you donehas anybody in the	8	8 (1:15 p.m.)	
9 production of	livision that reports to you done	9	9 A. It affects the LOLH, yes.	
10 any kind of	hese econo-metric type studies?	10	10 Q. Affects the LOLH, okay. And let's just kind	
11 A. Not in recen	t times, to my knowledge, have we	11	11 of try to go through this. You have your	
12 undertook a	ny extensive review.	12	12 exhibit JRH No. 3, which is the report on the	
13 Q. How far bac	k in time?	13	13 cost of service assignments.	
14 A. Well, I can	only speak to 2001, that I'm aware	14	14 A. Yes.	
15 of. I don't t	nink we've doneI'm not sure of	15	15 Q. And if you go to page 7 of that, you do	
16 prior.		16	something called a reliability assessment and	
17 Q. Not within a	ny knowledge that you have?	17	17 I want to get you to walk us through how this	
A. No, not that	I have.	18	18 works and let's start with what it means.	
19 Q. Okay. Now	I want to go next and pick up a	19	19 What's a reliability assessment?	
20 point that w	e touched on a little bit as we	20	20 A. Just one second please.	
21 went throug	n. Let's go back to your Schedule	21	21 Q. Sure.	
22 2, just to kin	d of set the stage for this one.	22	A. I guess what was actually done in that	
23 Scheduleth	ere we go. Now in that schedule,	23	23 particular review is that this report was	
24 for example	near the bottom, we have a total	24	24 specific to the GNP, Doyles-Port aux Basques	
25 net capacity	of 1,919 megawatts and it	25	and the Burin systems. We went down through	
	Page 183		Page	84
1 and looked a	t the impact on the LOLH of not	1	1 that we have basically 1919 megawatts	
2 having that	particular generation available,	2	2 available, and in 2011, we have a 3.5 LOLH	
3 if it was not	there to serve the overall needs	3	3 criteria, you know, that's when we would	
4 of our custo	ners.	4	4 actually see having a close look at new	
5 Q. Okay.		5	5 sources. In the next column, which says less	
6 A. And that inf	ormation was presented in a table	6	6 the GNP, we have only excluded the GNP	
7 there further	on.	7	7 generation, which is roughly 15.1 megawatts.	
-	if we go to that table, which is	8	8 So we actually end up with 1904 megawatts	
9 we started w	ith your Table 8, and then we go	9	9 available. And it basically moves the LOLE	
10 over to your	Table 3.3 on page 12.	10	10 two years to 2009. The next case was at	
11 A. Yes.		11		
-	aps if we just scroll back to	12	5	
	and put up that table. That's	13		
	e we looked at at Table 8 in your	14		
15 evidence, is		15		
16 A. That's corre		16	1	
17 Q. With the ide		17	5,	
18 A. That's corre		18		
	just take us over to page 12, and	19		
	what you did in this table here	20		
		0.1	21 Basques back in, the Burin Peninsula system	
	impact is of these various plants			
22 on the system	n planning.	22	has 34.7 megawatts of generation in total on	
22on the system23A. Okay. In th	n planning. e first heading, which is called	22 23	has 34.7 megawatts of generation in total onthat system and when we actually take that	
 22 on the system 23 A. Okay. In th 24 Base Case, t 	n planning.	22	 has 34.7 megawatts of generation in total on that system and when we actually take that out, we actually move the capacity issue from 	

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	Page 185		Page 186
	MR. HAYNES:	1	customers needs.
2	based on that.		Q. And that's that probabilistic scenario that
3	Q. And that's just the Burin Peninsula, not	3	you talked about with the computer model about
4	Doyles and Great Northern Peninsula?	4	an hour ago, I guess now, in your evidence?
5	A. No, these three columns in the middle are by		A. Yes, that's correct.
6	the each, if you will. The GNP only removed,		Q. Okay. Now just so we get a sense as to what
7	Doyle's only removed, the Burin Peninsula only	7	plants we're talking about here, just scroll
8	removed. In the last column, and we also did	8	back to page five of your evidence, where you
9	the energy balance that particular time as	9	have a table there, in this report. There we
10	well, but in the last column, we actually took	10	go. So the ones up on the Great Northern
11	out the GNP, Doyle's-Port aux Basques and the	11	Peninsula, we have a diesel in Hawke's Bay and
12	Burin systems and the LOLH ended up being	12	Roddickton, a small hydro plant in Roddickton
13	three and a half in 2004, which basically is	13	and another diesel in St. Anthony?
14	just next year. That's a total of 65.6	14	A. Most of these are, you know, two or three
15	megawatts removed from that particular	15	diesels or four diesels in a plant. They're
16	analysis, and the energy was alsoit didn't	16	not one single machine, but the plant itself,
17	change the year, but there was a slight change	17	the facility is -
18	in the actual number from 10 to 61.		Q. The totality of that particular plant.
19	Q. So if you didn't have all of those thermal	19	A. The totality. Hawke's Bay has five megawatts
20	units, that generation capacity, then you	20	and Roddickton, 1.7.
21	would have an LOLH problem or a capacity	21	Q. Okay. And if we look at Doyle's, these are
22	problem for 2004?	22	Newfoundland Power generation?
23	A. Yes, that's correct. In fact, it effectively	23	A. That's correct.
24	removes 65 or 66 megawatts from the portfolio	24	Q. We have a diesel in Port-aux-Basques, a gas
25	of generation that's available to meet all	25	turbine and Rose Blanche hydro for 15.8, and
		1	
	Page 187		Page 188
1	Page 187 we come down to the Burin Peninsula, there's	1	Page 188 number of other Newfoundland Hydro systems,
1 2	0	1 2	-
	we come down to the Burin Peninsula, there's		number of other Newfoundland Hydro systems,
2	we come down to the Burin Peninsula, there's the Green Hill turbine, some hydro at West	2	number of other Newfoundland Hydro systems, gas turbines in Stephenville, Holyrood, for
2 3	we come down to the Burin Peninsula, there's the Green Hill turbine, some hydro at West Brook, Lawn, Salt Pond, and your facility at	2 3	number of other Newfoundland Hydro systems, gas turbines in Stephenville, Holyrood, for example and there are other thermal stations,
2 3 4	we come down to the Burin Peninsula, there's the Green Hill turbine, some hydro at West Brook, Lawn, Salt Pond, and your facility at Paradise River?	2 3 4	number of other Newfoundland Hydro systems, gas turbines in Stephenville, Holyrood, for example and there are other thermal stations, Newfoundland Power, small hydro electric
2 3 4 5	we come down to the Burin Peninsula, there's the Green Hill turbine, some hydro at West Brook, Lawn, Salt Pond, and your facility at Paradise River?A. Yes, that's correct.	2 3 4 5	number of other Newfoundland Hydro systems, gas turbines in Stephenville, Holyrood, for example and there are other thermal stations, Newfoundland Power, small hydro electric stations as well. Do all of them fulfil the
2 3 4 5 6	 we come down to the Burin Peninsula, there's the Green Hill turbine, some hydro at West Brook, Lawn, Salt Pond, and your facility at Paradise River? A. Yes, that's correct. Q. For approximately about 35. Now does it 	2 3 4 5 6	number of other Newfoundland Hydro systems, gas turbines in Stephenville, Holyrood, for example and there are other thermal stations, Newfoundland Power, small hydro electric stations as well. Do all of them fulfil the same type of function? In other words, you
2 3 4 5 6 7	 we come down to the Burin Peninsula, there's the Green Hill turbine, some hydro at West Brook, Lawn, Salt Pond, and your facility at Paradise River? A. Yes, that's correct. Q. For approximately about 35. Now does it matter for purposes of system capacity where 	2 3 4 5 6 7 8	number of other Newfoundland Hydro systems, gas turbines in Stephenville, Holyrood, for example and there are other thermal stations, Newfoundland Power, small hydro electric stations as well. Do all of them fulfil the same type of function? In other words, you have them in there as part of capacity in this
2 3 4 5 6 7 8	 we come down to the Burin Peninsula, there's the Green Hill turbine, some hydro at West Brook, Lawn, Salt Pond, and your facility at Paradise River? A. Yes, that's correct. Q. For approximately about 35. Now does it matter for purposes of system capacity where any of these plants are located? A. As long as the plants are connected to the grid, and when I say the grid, it does not 	2 3 4 5 6 7 8 9	number of other Newfoundland Hydro systems, gas turbines in Stephenville, Holyrood, for example and there are other thermal stations, Newfoundland Power, small hydro electric stations as well. Do all of them fulfil the same type of function? In other words, you have them in there as part of capacity in this LOLH?
2 3 4 5 6 7 8 9	 we come down to the Burin Peninsula, there's the Green Hill turbine, some hydro at West Brook, Lawn, Salt Pond, and your facility at Paradise River? A. Yes, that's correct. Q. For approximately about 35. Now does it matter for purposes of system capacity where any of these plants are located? A. As long as the plants are connected to the 	2 3 4 5 6 7 8 9	number of other Newfoundland Hydro systems, gas turbines in Stephenville, Holyrood, for example and there are other thermal stations, Newfoundland Power, small hydro electric stations as well. Do all of them fulfil the same type of function? In other words, you have them in there as part of capacity in this LOLH? A. Yes.
2 3 4 5 6 7 8 9 10	 we come down to the Burin Peninsula, there's the Green Hill turbine, some hydro at West Brook, Lawn, Salt Pond, and your facility at Paradise River? A. Yes, that's correct. Q. For approximately about 35. Now does it matter for purposes of system capacity where any of these plants are located? A. As long as the plants are connected to the grid, and when I say the grid, it does not have to be connected to the bulk, you know, the Newfoundland and Labrador Hydro owned 	2 3 4 5 6 7 8 9 10 11 12	 number of other Newfoundland Hydro systems, gas turbines in Stephenville, Holyrood, for example and there are other thermal stations, Newfoundland Power, small hydro electric stations as well. Do all of them fulfil the same type of function? In other words, you have them in there as part of capacity in this LOLH? A. Yes. Q. So, it's the same type of analysis, they're all used and useful for the purpose of meeting that LOLH planning criteria.
2 3 4 5 6 7 8 9 10 11	 we come down to the Burin Peninsula, there's the Green Hill turbine, some hydro at West Brook, Lawn, Salt Pond, and your facility at Paradise River? A. Yes, that's correct. Q. For approximately about 35. Now does it matter for purposes of system capacity where any of these plants are located? A. As long as the plants are connected to the grid, and when I say the grid, it does not have to be connected to the bulk, you know, the Newfoundland and Labrador Hydro owned facility. As long as it's connected to the 	2 3 4 5 6 7 8 9 10 11 12	 number of other Newfoundland Hydro systems, gas turbines in Stephenville, Holyrood, for example and there are other thermal stations, Newfoundland Power, small hydro electric stations as well. Do all of them fulfil the same type of function? In other words, you have them in there as part of capacity in this LOLH? A. Yes. Q. So, it's the same type of analysis, they're all used and useful for the purpose of meeting that LOLH planning criteria. A. You wouldn't get into a discussion on the
2 3 4 5 6 7 8 9 10 11 12 13 14	 we come down to the Burin Peninsula, there's the Green Hill turbine, some hydro at West Brook, Lawn, Salt Pond, and your facility at Paradise River? A. Yes, that's correct. Q. For approximately about 35. Now does it matter for purposes of system capacity where any of these plants are located? A. As long as the plants are connected to the grid, and when I say the grid, it does not have to be connected to the bulk, you know, the Newfoundland and Labrador Hydro owned facility. As long as it's connected to the system anywhere, it will assist in serving 	2 3 4 5 6 7 8 9 10 11 12	 number of other Newfoundland Hydro systems, gas turbines in Stephenville, Holyrood, for example and there are other thermal stations, Newfoundland Power, small hydro electric stations as well. Do all of them fulfil the same type of function? In other words, you have them in there as part of capacity in this LOLH? A. Yes. Q. So, it's the same type of analysis, they're all used and useful for the purpose of meeting that LOLH planning criteria. A. You wouldn't get into a discussion on the assignment of plant because they're buried in
2 3 4 5 6 7 8 9 10 11 12 13	 we come down to the Burin Peninsula, there's the Green Hill turbine, some hydro at West Brook, Lawn, Salt Pond, and your facility at Paradise River? A. Yes, that's correct. Q. For approximately about 35. Now does it matter for purposes of system capacity where any of these plants are located? A. As long as the plants are connected to the grid, and when I say the grid, it does not have to be connected to the bulk, you know, the Newfoundland and Labrador Hydro owned facility. As long as it's connected to the system anywhere, it will assist in serving this purpose of meeting our LOLH criteria. It 	2 3 4 5 6 7 8 9 10 11 12 13	 number of other Newfoundland Hydro systems, gas turbines in Stephenville, Holyrood, for example and there are other thermal stations, Newfoundland Power, small hydro electric stations as well. Do all of them fulfil the same type of function? In other words, you have them in there as part of capacity in this LOLH? A. Yes. Q. So, it's the same type of analysis, they're all used and useful for the purpose of meeting that LOLH planning criteria. A. You wouldn't get into a discussion on the assignment of plant because they're buried in your system, an auxiliary point, but they all
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	 we come down to the Burin Peninsula, there's the Green Hill turbine, some hydro at West Brook, Lawn, Salt Pond, and your facility at Paradise River? A. Yes, that's correct. Q. For approximately about 35. Now does it matter for purposes of system capacity where any of these plants are located? A. As long as the plants are connected to the grid, and when I say the grid, it does not have to be connected to the bulk, you know, the Newfoundland and Labrador Hydro owned facility. As long as it's connected to the system anywhere, it will assist in serving this purpose of meeting our LOLH criteria. It can be in Port aux Basques. It can be at the 	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	 number of other Newfoundland Hydro systems, gas turbines in Stephenville, Holyrood, for example and there are other thermal stations, Newfoundland Power, small hydro electric stations as well. Do all of them fulfil the same type of function? In other words, you have them in there as part of capacity in this LOLH? A. Yes. Q. So, it's the same type of analysis, they're all used and useful for the purpose of meeting that LOLH planning criteria. A. You wouldn't get into a discussion on the assignment of plant because they're buried in your system, an auxiliary point, but they all factor into the LOLH calculation. They are
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	 we come down to the Burin Peninsula, there's the Green Hill turbine, some hydro at West Brook, Lawn, Salt Pond, and your facility at Paradise River? A. Yes, that's correct. Q. For approximately about 35. Now does it matter for purposes of system capacity where any of these plants are located? A. As long as the plants are connected to the grid, and when I say the grid, it does not have to be connected to the bulk, you know, the Newfoundland and Labrador Hydro owned facility. As long as it's connected to the system anywhere, it will assist in serving this purpose of meeting our LOLH criteria. It can be in Port aux Basques. It can be at the three extreme ends of the system, and it will 	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	 number of other Newfoundland Hydro systems, gas turbines in Stephenville, Holyrood, for example and there are other thermal stations, Newfoundland Power, small hydro electric stations as well. Do all of them fulfil the same type of function? In other words, you have them in there as part of capacity in this LOLH? A. Yes. Q. So, it's the same type of analysis, they're all used and useful for the purpose of meeting that LOLH planning criteria. A. You wouldn't get into a discussion on the assignment of plant because they're buried in your system, an auxiliary point, but they all factor into the LOLH calculation. They are available and, you know, through control
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	 we come down to the Burin Peninsula, there's the Green Hill turbine, some hydro at West Brook, Lawn, Salt Pond, and your facility at Paradise River? A. Yes, that's correct. Q. For approximately about 35. Now does it matter for purposes of system capacity where any of these plants are located? A. As long as the plants are connected to the grid, and when I say the grid, it does not have to be connected to the bulk, you know, the Newfoundland and Labrador Hydro owned facility. As long as it's connected to the system anywhere, it will assist in serving this purpose of meeting our LOLH criteria. It can be in Port aux Basques. It can be at the three extreme ends of the system, and it will be of benefit to the system. 	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	 number of other Newfoundland Hydro systems, gas turbines in Stephenville, Holyrood, for example and there are other thermal stations, Newfoundland Power, small hydro electric stations as well. Do all of them fulfil the same type of function? In other words, you have them in there as part of capacity in this LOLH? A. Yes. Q. So, it's the same type of analysis, they're all used and useful for the purpose of meeting that LOLH planning criteria. A. You wouldn't get into a discussion on the assignment of plant because they're buried in your system, an auxiliary point, but they all factor into the LOLH calculation. They are available and, you know, through control centre, to Newfoundland Power, that can be
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19	 we come down to the Burin Peninsula, there's the Green Hill turbine, some hydro at West Brook, Lawn, Salt Pond, and your facility at Paradise River? A. Yes, that's correct. Q. For approximately about 35. Now does it matter for purposes of system capacity where any of these plants are located? A. As long as the plants are connected to the grid, and when I say the grid, it does not have to be connected to the bulk, you know, the Newfoundland and Labrador Hydro owned facility. As long as it's connected to the system anywhere, it will assist in serving this purpose of meeting our LOLH criteria. It can be in Port aux Basques. It can be at the three extreme ends of the system. Q. So, it would bewhether it's in St. Anthony 	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19	 number of other Newfoundland Hydro systems, gas turbines in Stephenville, Holyrood, for example and there are other thermal stations, Newfoundland Power, small hydro electric stations as well. Do all of them fulfil the same type of function? In other words, you have them in there as part of capacity in this LOLH? A. Yes. Q. So, it's the same type of analysis, they're all used and useful for the purpose of meeting that LOLH planning criteria. A. You wouldn't get into a discussion on the assignment of plant because they're buried in your system, an auxiliary point, but they all factor into the LOLH calculation. They are available and, you know, through control centre, to Newfoundland Power, that can be turned on or whatever. That is the norm.
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	 we come down to the Burin Peninsula, there's the Green Hill turbine, some hydro at West Brook, Lawn, Salt Pond, and your facility at Paradise River? A. Yes, that's correct. Q. For approximately about 35. Now does it matter for purposes of system capacity where any of these plants are located? A. As long as the plants are connected to the grid, and when I say the grid, it does not have to be connected to the bulk, you know, the Newfoundland and Labrador Hydro owned facility. As long as it's connected to the system anywhere, it will assist in serving this purpose of meeting our LOLH criteria. It can be in Port aux Basques. It can be at the three extreme ends of the system, and it will be of benefit to the system. Q. So, it would bewhether it's in St. Anthony or Grand Falls or St. John's, it doesn't 	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	 number of other Newfoundland Hydro systems, gas turbines in Stephenville, Holyrood, for example and there are other thermal stations, Newfoundland Power, small hydro electric stations as well. Do all of them fulfil the same type of function? In other words, you have them in there as part of capacity in this LOLH? A. Yes. Q. So, it's the same type of analysis, they're all used and useful for the purpose of meeting that LOLH planning criteria. A. You wouldn't get into a discussion on the assignment of plant because they're buried in your system, an auxiliary point, but they all factor into the LOLH calculation. They are available and, you know, through control centre, to Newfoundland Power, that can be turned on or whatever. That is the norm. Q. And they go into your calculation for what you
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	 we come down to the Burin Peninsula, there's the Green Hill turbine, some hydro at West Brook, Lawn, Salt Pond, and your facility at Paradise River? A. Yes, that's correct. Q. For approximately about 35. Now does it matter for purposes of system capacity where any of these plants are located? A. As long as the plants are connected to the grid, and when I say the grid, it does not have to be connected to the bulk, you know, the Newfoundland and Labrador Hydro owned facility. As long as it's connected to the system anywhere, it will assist in serving this purpose of meeting our LOLH criteria. It can be in Port aux Basques. It can be at the three extreme ends of the system, and it will be of benefit to the system. Q. So, it would bewhether it's in St. Anthony or Grand Falls or St. John's, it doesn't matter in terms of the impact on capacity? 	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	 number of other Newfoundland Hydro systems, gas turbines in Stephenville, Holyrood, for example and there are other thermal stations, Newfoundland Power, small hydro electric stations as well. Do all of them fulfil the same type of function? In other words, you have them in there as part of capacity in this LOLH? A. Yes. Q. So, it's the same type of analysis, they're all used and useful for the purpose of meeting that LOLH planning criteria. A. You wouldn't get into a discussion on the assignment of plant because they're buried in your system, an auxiliary point, but they all factor into the LOLH calculation. They are available and, you know, through control centre, to Newfoundland Power, that can be turned on or whatever. That is the norm. Q. And they go into your calculation for what you do for overall system planning for the next
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	 we come down to the Burin Peninsula, there's the Green Hill turbine, some hydro at West Brook, Lawn, Salt Pond, and your facility at Paradise River? A. Yes, that's correct. Q. For approximately about 35. Now does it matter for purposes of system capacity where any of these plants are located? A. As long as the plants are connected to the grid, and when I say the grid, it does not have to be connected to the bulk, you know, the Newfoundland and Labrador Hydro owned facility. As long as it's connected to the system anywhere, it will assist in serving this purpose of meeting our LOLH criteria. It can be in Port aux Basques. It can be at the three extreme ends of the system, and it will be of benefit to the system. Q. So, it would bewhether it's in St. Anthony or Grand Falls or St. John's, it doesn't matter in terms of the impact on capacity? 	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	 number of other Newfoundland Hydro systems, gas turbines in Stephenville, Holyrood, for example and there are other thermal stations, Newfoundland Power, small hydro electric stations as well. Do all of them fulfil the same type of function? In other words, you have them in there as part of capacity in this LOLH? A. Yes. Q. So, it's the same type of analysis, they're all used and useful for the purpose of meeting that LOLH planning criteria. A. You wouldn't get into a discussion on the assignment of plant because they're buried in your system, an auxiliary point, but they all factor into the LOLH calculation. They are available and, you know, through control centre, to Newfoundland Power, that can be turned on or whatever. That is the norm. Q. And they go into your calculation for what you do for overall system planning for the next generation for capacity purposes?
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	 we come down to the Burin Peninsula, there's the Green Hill turbine, some hydro at West Brook, Lawn, Salt Pond, and your facility at Paradise River? A. Yes, that's correct. Q. For approximately about 35. Now does it matter for purposes of system capacity where any of these plants are located? A. As long as the plants are connected to the grid, and when I say the grid, it does not have to be connected to the bulk, you know, the Newfoundland and Labrador Hydro owned facility. As long as it's connected to the system anywhere, it will assist in serving this purpose of meeting our LOLH criteria. It can be in Port aux Basques. It can be at the three extreme ends of the system, and it will be of benefit to the system. Q. So, it would bewhether it's in St. Anthony or Grand Falls or St. John's, it doesn't matter in terms of the impact on capacity. Q. Now, let's just go back to your Schedule 2 for 	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	 number of other Newfoundland Hydro systems, gas turbines in Stephenville, Holyrood, for example and there are other thermal stations, Newfoundland Power, small hydro electric stations as well. Do all of them fulfil the same type of function? In other words, you have them in there as part of capacity in this LOLH? A. Yes. Q. So, it's the same type of analysis, they're all used and useful for the purpose of meeting that LOLH planning criteria. A. You wouldn't get into a discussion on the assignment of plant because they're buried in your system, an auxiliary point, but they all factor into the LOLH calculation. They are available and, you know, through control centre, to Newfoundland Power, that can be turned on or whatever. That is the norm. Q. And they go into your calculation for what you do for overall system planning for the next generation for capacity purposes? A. Yes, and I think that's in line with, I guess,
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	 we come down to the Burin Peninsula, there's the Green Hill turbine, some hydro at West Brook, Lawn, Salt Pond, and your facility at Paradise River? A. Yes, that's correct. Q. For approximately about 35. Now does it matter for purposes of system capacity where any of these plants are located? A. As long as the plants are connected to the grid, and when I say the grid, it does not have to be connected to the bulk, you know, the Newfoundland and Labrador Hydro owned facility. As long as it's connected to the system anywhere, it will assist in serving this purpose of meeting our LOLH criteria. It can be in Port aux Basques. It can be at the three extreme ends of the system, and it will be of benefit to the system. Q. So, it would bewhether it's in St. Anthony or Grand Falls or St. John's, it doesn't matter in terms of the impact on capacity? 	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	 number of other Newfoundland Hydro systems, gas turbines in Stephenville, Holyrood, for example and there are other thermal stations, Newfoundland Power, small hydro electric stations as well. Do all of them fulfil the same type of function? In other words, you have them in there as part of capacity in this LOLH? A. Yes. Q. So, it's the same type of analysis, they're all used and useful for the purpose of meeting that LOLH planning criteria. A. You wouldn't get into a discussion on the assignment of plant because they're buried in your system, an auxiliary point, but they all factor into the LOLH calculation. They are available and, you know, through control centre, to Newfoundland Power, that can be turned on or whatever. That is the norm. Q. And they go into your calculation for what you do for overall system planning for the next generation for capacity purposes?

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1 N	MR. HAYNES:	1	I'd like you to take us through those and
2	island energy and capacity needs and basically	2	explain them to the Board.
3	we have, if you will, by and large,	3	A. Yes, I think there'sin January 2003 we had a
4	backstopped those things for demand and	4	lightening failure at Oxen Pond which caused
5	energy.	5	us a fair bit of system upset and basically in
6	Q. Okay. Now -	6	restoring the system to service, you know, the
7	A. It's appropriate that Hydro consider that in	7	generation was turned on and any generation
8	the LOLH calculation which would be the	8	that's provided in such a situation allows
9	overall system planning.	9	more of generationthere's more generation to
10	Q. Okay. Now, let's just go to page 15 of your	10	meet everybody's needs, to pick the system up
11	report again, JRH 3, if we could just go back	11	again sooner and so on. That would be kind of
12	there and this is in the first sentence in	12	standard operating procedure, to call upon
13	paragraph 3, there you go. It talks about the	13	those units to help out and do what they're
14	Industrialthis is in the last GRAthe	14	designed and intended to do. I wouldn't say,
15	Industrial Customers presented argument to the	15	shouldn't say designed, some of these units, I
16	effect that since the Great Northern Peninsula	16	guess, are a fall over from other times, but
17	generation assets have seldom been operated	17	they are used and useful to do that and I
18	from either generation capacity shortage since	18	would add that they were used twice in 2003
19	their introduction in 1996, therefore, they	19	when we had some issues on the system as
20	did not provide substantial benefit to	20	recently as a little while ago when we had the
21	customers outside the Great Northern	21	Bay D'Espoir problem that we spoke about a
22	Peninsula. And then in the following	22	while go.
23	paragraph, you go on, scroll down a bit, you	23	Q. Okay.
24	talk about two occasions where the value of	24	A. That the generation on the GNP was called in
25	the reserve capacity was demonstrated. And	25	to play and so on.
	Page 191		Page 192
1	Q. You talk about two in 2003, is that in	1	point is you're making here?
2	addition to the January 30th incident?	2	A. I apologize. Can you just point me to the
3	A. I guess there one'sthere's a new one in	3	page again there?
4	September, in September when we lost the Bay	4	Q. The bottom of 15, last -
5	D'Espoir, we had difficulties at Bay D'Espoir	5	A. Okay, I'm sorry, okay.
6	with the station service and lost the plant,	6	Q and a couple of sentences in the top of 16.
7	thosethe GNP generation was called into	7	A. Yes, I guess, in 2002, I think that was our
8	play.	8	record peak and basically all our resources
9	Q. Facilities were calledokay, and that would	9	deployed there and if we had lost one of the
10	bethat's a good example because that is	10	Holyrood machines which is basically 175
11	actually after Granite Canal and after the	11	megawatts which is our biggest single source
12	NUGS come into existence, correct?	12	of generation, if anything had happened to
13	A. That's correct.	13	that particular machine, we had to run back on
14	Q. Okay, can you just touch briefly on the	14	load or tripped or whatever, we would have had
15	January 31st, 2002 example?	15	to call in the gas turbines and any resource
16	A. Do you mean 2003?	16	that we could. It was 175 megawatts which is
17	Q. No, you have two, ifyou talk on theas you	17	a major component of our generation and we
18	go down to page 16 there's, I believe,	18	would have basically pulled all stops, diesel,
19	anotherend of page 15, a year earlier on	19	gas turbines, whatever is required to get that
20	January 31st 2002 the load on the	20	load back on.
21	interconnected system was at an all-time peak.	21	Q. Okay. So, these three examples show the value
22	All three units at Holyrood were operating at	22	of these small generation facilities, whether
100	near full capacity and hydraulic production on	23	they're yours or Newfoundland Powers and
23			
23 24 25	the system was near peak capacity. Could you just explain what happened then, what the	24	whether, for example, on the Northern Peninsula or out in Wesleyville?

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1 MR. HAYNES:	1	CERTIFICATE		
2 A. Doesn't matter the location.	2	I, Judy Moss Lauzon, hereby certify that the		
3 Q. Doesn't matter. Chair, this would be a good	3	foregoing is a true and correct transcript in the		
4 place to break.	4	matter of Newfoundland and Labrador Hydro's 2003		
5 CHAIRMAN:	5	General Rate Application for approval of, among		
6 Q. Thank you, Mr. Kelly, Mr. Haynes. I guess	6	other things, its rates commencing January, 2004,		
7 tomorrow is a fairly important day throughout	7	heard on the 20th day of October, A.D., 2003 before		
8 the province, being election day, and I think	8	the Board of Commissioners of Public Utilities,		
9 the only formal requirement that I know of is	9	Prince Charles Building, St. John's, Newfoundland		
10 that everybody must have four clear hours to	10	and Labrador and was transcribed by me to the best		
11 vote. I think that can be established or that	11	of my ability by means of a sound apparatus.		
12 can be accommodated within the schedule we	12	Dated at St. John's, Newfoundland and Labrador		
13 have. Certainly, I think we'll be just	13	this 20th day of October, A.D., 2003		
sitting at the normal hours tomorrow and if my	14	Judy Moss Lauzon		
15 math serves me correctly, that gives everybody				
16 six and a half hours. So, we should have				
17 ample time. Anyway, we'll see you at 9:00 in				
18 the morning. Thank you.				
19 Upon conclusion.				