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YUKON UTILITIES BOARD

YUKON ENERGY CORPORATION  
WHITEHORSE DIESEL TO LIQUEFIED NATURAL GAS  
CONVERSION PROJECT (LNG PROJECT)

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P R O C E E D I N G S

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Volume 1  
March 31, 2014  
Whitehorse, Yukon

1 Proceedings taken at the Westmark Whitehorse Hotel &  
 2 Conference Center, 201 Wood Street, Whitehorse, Yukon.

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4 Volume 1

5 March 31, 2014

6

Mr. B. McLennan	Chair
Mr. R. Laking	Vice-chair
Mr. N. Prasad	Board Member
Mr. A. Fortin	Board Member
Mr. R. (Les) Boisvert	Board Member

9

Ms. G. Bentivegna	Board Counsel
Ms. D. Lemke	Executive Secretary, Yukon Utilities Board

10

Ms. C. Henry	Hearing Officer
Mr. D. Ward	Board Staff
Mr. B. Clarke	Board Staff

12

Mr. J. Landry	Yukon Energy Corporation
Ms. S. Schmitz	

14

Mr. J. Maissan	Leading Edge Projects Inc. and
Ms. A. Middler	Yukon Conservation Society

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Mr. M. Janigan	Utilities Consumers' Group
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Mr. D. Roberts	In his own stead
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Ms. A. Jones, CSR(A)	Official Court Reporter
Ms. D. Gerbrandt, CSR(A)	Official Court Reporter

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21 (Proceedings commence at 9:10 a.m.)

22 THE CHAIR: Good morning. Please be  
 23 seated.

24 So good morning, everybody. I'm calling this  
 25 hearing to order. My name is Bruce McLennan, and I'm chair

1 of the Yukon Utilities Board, and I'd like to introduce the  
2 Board members sitting on the Panel with me. To my left are  
3 fellow Board members Naresh Prasad and Bob Laking, who is the  
4 vice-chair, and on the right are Les Boisvert and  
5 Andre Fortin.

6 Today starts the public hearing phase of the  
7 Yukon Energy Corporation's (YEC) application for an energy  
8 project certificate and an energy operation certificate for  
9 the Whitehorse Diesel to Liquefied Natural Gas Conversion  
10 Project, also known as the LNG Project.

11 These certificates are applied for under  
12 Part 3 of the *Public Utilities Act* and have been referred to  
13 the Yukon Utilities Board for review and hearing in  
14 accordance with the terms of reference prescribed by the  
15 Minister of Justice in his letter of December 18th, 2013.

16 On December 9th, 2013, YEC applied to the  
17 Minister for the said certificates under Part 3 of the *Public*  
18 *Utilities Act*. Accordingly, on December 20th, 2013, the  
19 Minister referred the matter to the YUB for review and  
20 hearing. The Minister provided in part the following  
21 background information for the terms of reference he  
22 provided.

23 On April 27th, 2012, Yukon Energy Corporation  
24 filed with the Yukon Utilities Board an update to its 20-year  
25 resource plan, 2006 to 2025, as an interrogatory response to

1 questions posed by interveners during the review of the  
2 2012-13 general rate application.

3           In this document it outlined the option of  
4 thermal generation using LNG for near-term development. The  
5 Whitehorse Diesel to Liquefied Natural Gas Conversion Project  
6 is a project to modernize the existing YEC Whitehorse thermal  
7 generating station to meet the growing requirements for  
8 reliable and flexible thermal generating on the Yukon grid,  
9 including the replacement of two diesel generating  
10 9.1 megawatt total capacity scheduled for retirement by 2015,  
11 with up to three new modular natural gas-fired generating  
12 units, 13.1 megawatts total capacity supplied by LNG, and the  
13 installation of LNG truck offloading storage, vaporization,  
14 and related infrastructure.

15           The Whitehorse Diesel to Liquefied Natural Gas  
16 Conversion Project has been designated in OIC 2013/200 as a  
17 regulated project under Part 3 of the *Public Utilities Act*  
18 pursuant to section 36 of that Act.

19           The Minister, in his terms of reference,  
20 stated that the general purpose of the review and hearing is  
21 to obtain the YUB's report and recommendations on the  
22 potential benefits, cost, risk, and customer impacts that  
23 influence whether the LNG Project should proceed as proposed  
24 by YEC and any terms and conditions which the Board considers  
25 should apply.

1                   The Board was asked to report on and make  
2 recommendations about the necessity for the proposed  
3 LNG Project and its timing and design with particular regard  
4 to the following five points:

5                   (a) the public need for the project under  
6 various reasonable electrical load forecasts, including  
7 near-term requirements related to industrial and  
8 nonindustrial loads and the effect of the project on the  
9 rates of customers;

10                  (b) the capability of existing and currently  
11 committed generation and transmission facilities including  
12 thermal generation facilities to provide reliable electric  
13 power generation to meet the forecast load requirements and  
14 YEC's capacity planning criteria and the effect of the  
15 LNG Project on this capability;

16                  (c) the risks facing the LNG Project and their  
17 potential impact on rates for customers;

18                  (d) what if any alternatives to the  
19 LNG Project might be advisable given reasonable load  
20 assumptions and risk assessments;

21                  and (e) whether it is prudent to build the  
22 LNG Project at this time.

23                   The Board is to provide a recommendation on  
24 whether the energy projects and the energy operations  
25 certificate should be granted for the LNG Project; whether

1 the certificates should be subject to any terms and  
2 conditions; and it is to make any other recommendations to  
3 provide any other information that it considers advisable in  
4 the circumstances.

5 In terms of oral argument and oral reply, the  
6 Board would appreciate if each party would organize its  
7 arguments and reply in line with section 3 on pages 2 and 3  
8 of the Minister's terms of reference which are dated December  
9 18th, 2013.

10 Now, I'd like to turn my attention this  
11 morning and introduce the Board counsel: Giuseppa Bentivegna  
12 and Board staff Bob Clark and Dwayne Ward. And assisting the  
13 Board in administrative capacity during this hearing are  
14 Deana Lemke and Colleen Henry.

15 Now, Deana will only be available for this  
16 morning's session and she may return on the other mornings,  
17 but Colleen will be here throughout the actual hearing. And  
18 the court reporters that are present are with Amicus  
19 Reporting.

20 Parties wishing copies of the transcripts for  
21 this hearing should contact one of the court reporters.

22 Any questions that come up with respect to the  
23 procedures or process should be directed to Board staff.

24 For this hearing we intend to sit from 9:00 in  
25 the morning to approximately 5 p.m. each day. We will plan a

1 midmorning break of about 15 minutes around 10:30, a lunch  
2 break from noon to 1:30 p.m. and a 15-minute afternoon break  
3 at 3:30 each day.

4 In order to allow for public input this  
5 evening, today we will recess at 4:30 p.m. so the public  
6 input can commence at 7 p.m.

7 I should mention that registered interveners  
8 are invited to attend this session and, in fact, encouraged  
9 to attend this session, but in accordance with community  
10 session guidelines that has been posted on the Yukon Utility  
11 Board website and distributed to each party, they will only  
12 be allowed to listen to the registered participants' oral  
13 presentations.

14 The Board intends to hear the application as  
15 follows: The Board will first hear from the witnesses for  
16 YEC, then interveners may cross-examine the YEC witnesses in  
17 the order that the interveners are registered.

18 Board staff and the panel will then ask their  
19 questions of the YEC witnesses, then YEC will have an  
20 opportunity to re-direct its witnesses to clarify or complete  
21 answers that were given during cross-examination or to  
22 questions from the Board or Board staff.

23 Also, YEC, as the applicant, will have an  
24 opportunity to present rebuttal evidence. Rebuttal evidence  
25 is a limited opportunity for the applicant to address any new

1 issues that have come forward in the course of the hearing.  
2 Rebuttal evidence is not an opportunity for the applicant to  
3 introduce new evidence or to shore up evidence that has  
4 already been presented.

5 At the end of the evidentiary portion of the  
6 hearing, the Board will proceed to oral argument and reply as  
7 indicated in Board Order 2014-01.

8 Before I conclude, I just want to remind  
9 parties about the appropriate use of aids to  
10 cross-examination during this hearing.

11 The purpose of an aid to cross is to assist  
12 the parties questioning a witness about the evidence of that  
13 witness. An aid to cross-examination should only be used if  
14 it assists in the questioning of a witness.

15 Questions that can be put to a witness  
16 directly should be asked without the use of an aid to  
17 cross-examination.

18 The party proposing to question the witness  
19 should submit a copy of the aid to cross-examination to the  
20 witness counsel at least 24 hours prior to using the aid to  
21 cross-examination. Providing the aid to cross-examination to  
22 the counsel before the witness testifies allows the witness  
23 an opportunity to become familiar with the document and  
24 results in a more efficient hearing.

25 The party questioning a witness does not



1 submit the aid to cross-examination to the Board at the time  
2 it sends it to the counsel for a witness.

3 If a party brings forward its aids to  
4 cross-examination during its questioning of a witness, the  
5 party must distribute sufficient hard copies to the Board and  
6 Board staff immediately prior to asking questions in relation  
7 to the aid to cross.

8 The party, after questioning the witnesses,  
9 asks the Board to give the aid to cross-examination an  
10 exhibit number. The Board will then decide whether the aid  
11 to cross will be filed and given an exhibit number which is  
12 obviously for the purpose of keeping track of this document.

13 If the Board gives the document an exhibit  
14 number, then it also needs to be provided to the Board  
15 executive secretary in electronic format at that time.

16 To facilitate efficient marking of exhibits,  
17 the executive secretary of the Board has circulated a list of  
18 exhibits received so far to date and this list will be  
19 updated daily.

20 Please note that the letters of comment that  
21 have been filed with the Board are marked as Exhibit D and  
22 are posted on the website as well.

23 So if any party has a cell phone, I would ask  
24 them to turn it off during their proceedings or put it on  
25 vibrate.

1                   And I would now ask Ms. Bentivegna, counsel  
2 for the Board, to proceed to register the parties.

3 MS. BENTIVEGNA:                   Thank you, Mr. Chair.

4                   The YEC. Who's representing YEC?

5 MR. LANDRY:                   Thank you, Mr. Chairman. My  
6 name is John Landry, and I'm here to represent Yukon Energy.

7 MS. BENTIVEGNA:                   For YECL? No one speaking up.  
8 We'll move on.

9                   For UCG?

10 MR. JANIGAN:                   Thank you. My name is Michael  
11 Janigan. I'm appearing on behalf of UCG.

12 MS. BENTIVEGNA:                   For YCS/LE.

13 MR. AUSTIN:                   Good morning, Mr. Chair. My  
14 name is David Austin representing or acting on behalf of the  
15 Yukon Conservation Society and Leading Edge Consulting. And  
16 this is my first appearance before the Yukon Utilities Board,  
17 and thank you very much for allowing me to be here.

18 THE CHAIR:                   We'll be gentle with you.

19 MR. AUSTIN:                   I can't say I'll return the  
20 compliment.

21 THE CHAIR:                   Thank you.

22 MS. BENTIVEGNA:                   Mr. Donald Roberts.

23 MR. ROBERTS:                   Donald Roberts. Welcome Bruce.  
24 I used to work with Bruce.

25                   I'm here as a layman and I'm hoping to learn a

1 lot and hoping to impart some of my concerns. Thank you.

2 THE CHAIR: Thank you.

3 MS. BENTIVEGNA: Is there any other person that  
4 wishes to register at this time? Seeing none, Mr. Chair,  
5 those are the parties.

6 THE CHAIR: Proceed with swearing in the --  
7 oh, sorry, I'll turn it over to Mr. Landry.

8 MR. LANDRY: Thank you, Mr. Chair. We will  
9 be presenting one panel of witnesses which you can see on  
10 your far right, and the witnesses will be, who I'm sure  
11 you're familiar with, David Morrison who is the president and  
12 CEO of Yukon Energy, Cameron Osler who is the chair and CEO  
13 of Energroup and a long-time consultant with Yukon Energy and  
14 has appeared before this Board many times. And on your far  
15 right is Mr. Hector Campbell who is a longtime employee of  
16 Yukon Energy and is the director of resource planning.

17 So that will be the panel and only panel of  
18 witnesses that Yukon Energy will be presenting.

19 And I should say that we also filed last night  
20 a copy of our -- the opening for Yukon Energy, opening  
21 statement, and that has been distributed to all parties. And  
22 there's extra copies if people in the room require a copy of  
23 the opening statement.

24 And so we'll go right into the opening  
25 statement after the witnesses are sworn. So it's probably a

**H. CAMPBELL, C. OSLER, D. MORRISON**

1 good time to swear the witnesses at this time.

2 THE CHAIR: Thank you.

3

4 **H. CAMPBELL, C. OSLER, D. MORRISON** (For Yukon Energy  
5 Corporation), sworn

6 MR. LANDRY: So, Mr. Chair, Mr. Morrison I  
7 believe will lead on the opening statement.

8 THE CHAIR: Please proceed, Mr. Morrison.

9 A. MR. MORRISON: Thank you, Mr. Chair.

10 Mr. Chair and members of the Panel,  
11 Yukon Energy welcomes the opportunity today to be in front of  
12 the Yukon Utilities Board for your review of the Whitehorse  
13 Diesel-Natural Gas Conversion Project application that  
14 Yukon Energy has filed with the Minister of Justice for  
15 energy certificates under Part 3 of the *Public Utilities Act*.

16 The project will modernize Yukon Energy's  
17 Whitehorse thermal generating station and provide reliable  
18 and flexible thermal generation on the Yukon grid with the  
19 conversion of diesel generation units scheduled for  
20 retirement to cheaper and cleaner burning natural gas-fired  
21 generating units supplied by liquefied natural gas delivered  
22 by truck from British Columbia or Alberta.

23 The project scope involves replacing two  
24 end-of-life diesel generating units, referred to as WD1 and  
25 WD2, scheduled for retirement in 2014 and 2015 in the

## H. CAMPBELL, C. OSLER, D. MORRISON

1 existing Whitehorse diesel plant, with three new modular  
2 natural gas-fired generating units to be located adjacent to  
3 the Whitehorse plant site - overall, replacing 9.1 megawatt  
4 of end-of-life diesel generation with 13.1 new gas  
5 generation; and the installation of LNG truck offloading,  
6 storage, vaporization, and related infrastructure.

7 To accommodate the new facilities required for  
8 the project, Yukon Energy will acquire approximately  
9 .9 hectares of public utility zoned Yukon government lands  
10 and create access and utility crossings at various locations  
11 along .6 hectares of privately held railway right-of-way,  
12 adjacent to the south of the existing Whitehorse thermal  
13 generating station site.

14 The first two natural gas-fired units  
15 (8.8 megawatt in total capacity) are to be in service before  
16 the end of 2014, to provide capacity and fuel cost savings  
17 during the winter of 2014/2015.

18 The third unit, the 4.4 megawatt unit, is  
19 planned to be installed, as required, to meet grid capacity  
20 planning requirements, likely by late 2016. The estimated  
21 capital cost for the project overall is 40.9 million, with  
22 \$36.5 million for the initial phase to be completed by the  
23 end of 2014 and the balance of 4.4 million when the third  
24 natural gas-fired units is installed.

25 The primary need for the project is related to

## H. CAMPBELL, C. OSLER, D. MORRISON

1 capacity. That is, it is needed to meet the Yukon Energy's  
2 capacity requirements for the Yukon grid. However, there is  
3 also an opportunity to utilize cheaper natural gas to replace  
4 incremental winter diesel requirements and benefit both the  
5 environment and ratepayers.

6 The purpose of the current YUB review and  
7 hearing is to provide the Minister with the Board's report  
8 and recommendations on the public need for the project under  
9 various reasonable electric load forecasts and the effect of  
10 the project on rates of customers;

11 the capability of existing and currently  
12 committed generation and transmission facilities to provide  
13 reliable electric power generation to meet the forecast load  
14 requirements and YEC capacity planning criteria;

15 alternatives to the project given reasonable  
16 load assumptions;

17 the risks facing the project and the potential  
18 impacts on rates for customers and whether it is prudent to  
19 build the project at this time.

20 The application and responses to approximately  
21 580 information requests from the Board and interveners  
22 address these matters and demonstrate the clear need for the  
23 project at this time, the robustness of the project economics  
24 given the number of sensitivity tests and the material  
25 savings expected to ratepayers over the project's economic

1 life.

2                   The 2006 resource plan indicated that as of  
3 2006 Yukon Energy faced significant pending capacity  
4 shortfalls on the WAF grid related to the adoption of the new  
5 capacity planning criteria, as well as the planned retirement  
6 of WD1, 2, and 3 in combination with ongoing load growth.  
7 Yukon Energy initiated a series of activities to address  
8 these potential shortfalls, including recommissioning of the  
9 Mirrlees diesel FD1 at Faro and planning for the staged  
10 refurbishment of up to three Mirrlees units at Whitehorse,  
11 totalling 14 megawatts, over the period 2012, commencing with  
12 refurbishment of WD3 in 2007.

13                   The 2006 resource plan also provided the  
14 foundation for Yukon Energy to pursue over the past decade  
15 major renewable grid enhancement projects. By the end of  
16 2011, completion of the Carmacks-Stewart Transmission Project  
17 connected the WAF and Mayo Dawson grids and completion of  
18 Mayo B and the Aishihik third turbine expanded Yukon Energy's  
19 hydro generating capability with ongoing reductions in diesel  
20 generation.

21                   In 2011 Yukon Energy continued its resource  
22 planning process. Discussions with stakeholders and public  
23 about energy choices, including the need for backup thermal  
24 capacity for Yukon's isolated hydro-based system, continued  
25 as part of a three-day Energy Charrette. One of the supply

1 options examined at the Charrette was LNG.

2 The Charrette planning process led to the  
3 definition and adoption of four criteria for evaluation and  
4 decision-making that were used to assess supply options in  
5 the 2011 resource plan: reliability, affordability,  
6 flexibility, and environmental responsibility.

7 Following the Charrette, Yukon Energy  
8 continued to host technology-specific workshops, including a  
9 public workshop in January 2012 on the potential use of LNG  
10 for electrical generation. Subsequent to this, the overview  
11 to the 2011 resource plan was made public in July 2012 during  
12 YEC's 2012/2013 GRA review by this Board.

13 Building on the Charrette process, the 2011  
14 resource plan reviewed a wide range of near-term and  
15 longer-term supply options against the number of grid load  
16 scenarios and identified the critical need for resource  
17 options to be both flexible and reliable in the near term in  
18 order to address changing load and supply conditions on the  
19 isolated Yukon grid.

20 Today, notwithstanding increased hydro  
21 generation capabilities and the absence of new mine loads  
22 being connected to the grid, ongoing load growth on the Yukon  
23 grid has depleted the surplus hydro available since the 1998  
24 Faro mine shutdown.

25 Based on long-term average hydro generation



1 and current loads, and notwithstanding the extensive  
2 investments made in renewable energy projects over the last  
3 ten years, diesel generation has once again become the  
4 default option to meet current energy and capacity  
5 requirements on the Yukon grid until long-term loads are  
6 sufficient to support other economic renewable generation.  
7 Diesel generation costs are also once again included in rates  
8 based on long-term average hydro generation.

9           The need for the project is driven by a  
10 forecast grid capacity shortfall of 7 megawatts by the start  
11 of 2015, 10.9 megawatts by the start of 2017, and  
12 17 megawatts by the start of 2019.

13           These forecast grid capacity shortfalls  
14 reflect forecast non-industrial peak winter load, reserve  
15 capacity needed to meet N minus 1 risk, the loss of the  
16 Aishihik line, and the firm winter capacity capability of  
17 existing and currently committed generation and transmission.  
18 The fact that WD1 and WD2 are end-of-life in 2014/15 removes  
19 8 megawatts of derated capacity at Whitehorse and drives the  
20 need for 7 megawatts of new capacity by the start of 2015.

21           The project's initial 8.8 megawatts of new  
22 gas-fired generation to be in service by the start of 2015  
23 will meet this capacity shortfall need. The third 4.375  
24 megawatt gas-fired unit is currently expected to be in  
25 service by the start of 2017 to meet the capacity shortfall

1 need forecast at that time.

2 This need also results in an opportunity to  
3 modernize the existing Whitehorse diesel plant with gas-fired  
4 generating units that are cleaner burning and cheaper to run  
5 than diesel units - benefitting the Yukon environment and  
6 ratepayers.

7 WD1 and WD2 have been in service for 46 years  
8 and are at end of life.

9 Plans for the retirement of these units have  
10 been in place as far back as the 1992 resource plan here. In  
11 the past retirement could be deferred due to the material  
12 surplus hydro generation available on the WAF grid after the  
13 closer closure of the Faro mine in 1998, the recommissioning  
14 of FD1 and refurbishment of WD3, and the expectation that WD1  
15 and WD2 units would not yet be needed to meet grid capacity.

16 Retirement of these Whitehorse diesel units  
17 can no longer be delayed and maintaining these units in  
18 service beyond the end of 2014 in their current condition is  
19 not an option.

20 In planning for the future it is also relevant  
21 to recognize that the remaining five diesel units at the  
22 Whitehorse plant are all planned to be retired within the  
23 next 13 years. And that ongoing modernization of this key  
24 facility at Yukon's largest load centre will be needed over  
25 this period.

1                   We have found no reasonable feasible renewable  
2 option alternatives to the project that have been identified.

3                   Potential near term hydro enhancement projects  
4 such as Mayo Lake and Marsh Lake Storage are estimated  
5 respectively to supply 4 and 6 gigawatt hours, based on  
6 long-term average, of incremental energy supply to the grid.  
7 However, these hydro enhancement options will not meet the  
8 identified need today or in the future for new, flexible, and  
9 reliable capacity.

10                  Greenfield renewal options, such as wind or  
11 hydro, are being considered for future development when  
12 higher and longer term grid energy loads can justify such  
13 developments. However, such options do not provide reliable,  
14 flexible capacity to meet the grid's backup capacity  
15 requirements.

16                  WD1 and WD2 are at end of life, as I've  
17 already mentioned. They are 46 years old and, without major  
18 refurbishment, can no longer be relied upon for backup  
19 capacity.

20                  In 2006 Yukon Energy considered refurbishment  
21 for the end-of-life diesel generation as a potential cost  
22 effective option to ensure continued reliable capacity on the  
23 grid. However, this option was only considered possible  
24 after receiving guarantees of continued support for the  
25 refurbished engines from the manufacturer (MAN) including the

1 continued availability of spare parts and technical support.  
2 At that time, YEC elected to focus on FD1 and WD3 in order to  
3 gain experience, and deferred expenditures on the other  
4 Mirrlees units until there was a confirmed need to meet a  
5 forecast capacity planning shortfall.

6           Unfortunately, YEC experience with the  
7 refurbishment of WD and FD1 has demonstrated that the  
8 promised support from MAN was, in fact, not available and  
9 aftermarket part suppliers and technical support is terribly  
10 unreliable. Long delays and significant problems in ordering  
11 parts, material issues with quality control and lack of  
12 component technical support means that refurbishment of these  
13 46-year-old engines is not feasible and they must now be  
14 replaced.

15           In short, refurbishment of the WD1 and WD2  
16 units is not an acceptable option today to meet the current  
17 capacity shortfall.

18           New higher efficiency diesel generation  
19 installed in the WD1 and WD2 service bays at the Whitehorse  
20 diesel plant was determined to be a feasible and  
21 cost-effective option to meet the current capacity shortfall  
22 on a grid with forecast long-term average default diesel  
23 generation requirements today. This alternative was,  
24 therefore, used in the application to assess the prudence and  
25 cost-effectiveness of this project.

1 Overall, although the application shows that  
2 replacing the old diesel units with new and more efficient  
3 diesel units would have an incrementally lower capital cost  
4 compared to the gas-fired units, the opportunity to meet the  
5 Yukon grid's capacity shortfall with new, cleaner burning  
6 cheaper operating gas-fired units mean that the project is,  
7 by far, superior and most cost-effective option.

8 In addition to the capacity needed on the  
9 Yukon grid, a second prerequisite for the project is a secure  
10 supply of LNG that can be trucked to Whitehorse from BC or  
11 Alberta.

12 At the time of Yukon Energy's January 2012 LNG  
13 workshop, the only identified source for near-term LNG supply  
14 to Yukon were LNG export developments planned at Kitimat, an  
15 announced Shell Canada LNG plant planned in Calgary, and a  
16 potential future LNG facility development in Fort Nelson.

17 Working with Western Copper & Gold,  
18 Yukon Energy in early 2012 carried out a request for interest  
19 proposal process which led to a proposal from Shell Canada to  
20 supply YEC with LNG from its Jumping Pound LNG plant to be  
21 opened in Calgary in 2014. YEC subsequently worked with  
22 Shell Canada to finalize by early 2013 the energy supply  
23 agreement outlined in the project application submitted to  
24 the Minister in December 2013.

25 During 2013, Yukon Energy was informed of

1 delays in planned construction of the Shell Jumping Pound  
2 facility construction from summer 2013 to late fall, and as a  
3 result, contingency planning for a delay in the Shell plant  
4 in Calgary beyond Quarter 4, 2014 has been underway since the  
5 fall of 2013. Although formal termination of the contract  
6 has not yet occurred, on February 19th, Shell senior  
7 officials informed YEC Energy that notwithstanding  
8 construction on the site had been commenced and material  
9 equipment purchases had been made, Shell had decided not to  
10 proceed with Jumping Pound at this time.

11 Although Yukon Energy reviewed its contingency  
12 plans in the IR responses filed at the end of February, it  
13 continued to wait to update the Board and the parties on the  
14 Shell situation until after it had fully absorbed the Shell  
15 decision and had in place a committed alternative LNG supply.

16 March 27th, 2014 update explains Shell's  
17 decision not to proceed with its Jumping Pound LNG plant, and  
18 set out the following revised plans by Yukon Energy to secure  
19 LNG supply for the project.

20 LNG supply from FortisBC: Yukon Energy will  
21 now secure LNG supply from FortisBC's LNG facility at  
22 Tilbury, near Delta B.C. until such time as lower cost source  
23 of LNG is available.

24 Yukon has met with FortisBC and has confirmed  
25 that ample LNG supply is available to meet project

1 requirements from the operating Fortis facility at Tilbury,  
2 including supply from existing facilities during 2015 and  
3 supply from the next major expansion that has BC Government  
4 regulatory approval and is planned to start operation in  
5 2016.

6 The rate for supply from Fortis will be based  
7 on the regulatory cost-based price under the BCUC approved  
8 Rate Schedule 46 (approved in accordance with a direction to  
9 the BCUC from the BC Government as set out in OIC 557-13).

10 Yukon Energy is also coordinating plans with  
11 NT Energy, who is currently securing LNG from Fortis at  
12 Tilbury for their use at Inuvik, to utilize NT Energy's  
13 Tridem units until such time as A-Train units are permitted.  
14 Yukon Energy and NT Energy are also exploring how joint cost  
15 savings with A-Train units can be secured once they are  
16 permitted.

17 Yukon Energy Corporation is working with NT  
18 Energy on other potential near term lower cost LNG supply  
19 options that could be located closer to Yukon, including  
20 potential options with AltaGas and Ferus as noted in the  
21 March 27th update.

22 Overall, the interest in near term LNG  
23 domestic supply development has grown considerably in the  
24 last 12 months in both Alberta and B.C., including potential  
25 facilities in Edmonton, Grande Prairie, Dawson Creek and Fort

1 Nelson.

2 In short, Yukon Energy has access to a secure  
3 LNG supply at a price level that is not materially different  
4 than the Shell agreement.

5 The economics of the project focus on three  
6 key comparisons with the only other flexible alternative new  
7 diesel: Capital costs; fuel costs per kilowatt hour; and  
8 volume of diesel displaced by the project.

9 There is no material difference in terms of  
10 equipment costs, new gas, or new diesel generation units.  
11 The primary capital cost difference between the new  
12 alternatives is the requirement to establish new facilities  
13 needed for LNG truck unload, storage, and vaporization.

14 As reviewed in the application and responses  
15 to IRs, important elements of these LNG facilities will have  
16 the capability to support up to 30 megawatts of gas-related  
17 future generation capacity at the Whitehorse thermal  
18 generation plant.

19 The capital cost estimates included in Table  
20 4.3 of the March update filing show \$36.5 million for the  
21 project to the end of 2014, and \$5.5 million for the third  
22 engine in 2016, including an added contingency of \$1.1  
23 million, compared with \$32.7 million for the new diesel  
24 alternatives assumed to be completed in two stages over 2014  
25 and 2015.



## H. CAMPBELL, C. OSLER, D. MORRISON

1           The updated capital costs estimate reflects  
2 Yukon Energy's response to YUB-YEC-1-1(d), which showed an  
3 increase from the \$34.4 million May 2013 estimate originally  
4 included in the application to \$36.5 million.

5           The updated estimates reflect the outcomes of  
6 tenders and RFPs carried out for engineering, project  
7 management, LNG plant and equipment, and transformer  
8 equipment; include \$1.0 million in contingency for  
9 construction contracts not yet awarded.

10           On March 19, 2014, the YESAB draft screening  
11 report was issued recommending to the Government of Yukon,  
12 the decision body in this case, that the project be allowed  
13 to proceed without a review -- proceed without review,  
14 subject to the eight terms and conditions recommended in the  
15 report.

16           The executive committee noted that the  
17 relatively few recommendations in its report are indicative  
18 of the comprehensiveness of Yukon Energy's commitments.  
19 Except for the recommendation to install underground power  
20 distribution lines, which YEC will discuss and seek to have  
21 revised, Yukon Energy's current plans accommodate all of the  
22 YESAB DSR recommended terms without any discernible  
23 adjustment to design or cost.

24           Public comment on the draft screening report  
25 is expected to close by April 22nd and, on this basis, a

1 final YESAB recommendation is still expected by about the end  
2 of April.

3 Release of a positive YESAB draft screening  
4 report means that Yukon Energy's mid-May estimated  
5 construction schedule is on track and, subject to formal  
6 completion of the YESAB process and decision document and  
7 permit processes, effectively mitigates one of the remaining  
8 risks to capital costs, i.e, cost impacts from the delays in  
9 construction. Yukon Energy continues to work cooperatively  
10 with YESAB and the relevant Yukon government officials to  
11 ensure that the mid-May scheduled construction can be met.

12 Further, in order to protect overall project  
13 construction schedule, tenders for the civil construction  
14 contracts have also now been issued.

15 The updated filing March 27th shows estimated  
16 fuel cost savings in 2015 at 12.3 cents per kilowatt hours of  
17 generation for gas versus new diesel and 16.8 cents per  
18 kilowatt hour for gas versus the existing or older diesel on  
19 the grid.

20 Focusing on the updated fuel cost savings per  
21 kilowatt hour for 2015, the following are noted:

22 Updated diesel fuel costs reflect average  
23 diesel price to YEC at Whitehorse for the latest six months  
24 as reviewed in IR responses.

25 Updated LNG costs reflect updated haul costs.

1                   The assumed AECO gas price of \$4.50 per  
2 million Btu's is retained. It is still considered a  
3 conservative assumption based on the average of AECO prices  
4 over the last six months, which averaged \$3.70 per million  
5 Btu's as reviewed in IR responses.

6                   The updated fuel cost savings per kilowatt  
7 hour has not been materially impacted by the change in LNG  
8 supply to the existing FortisBC plant at Tilbury.

9                   The material cost savings for gas versus  
10 diesel is forecast to be sustained in North America over at  
11 least the next two to three decades. Aside from US Energy  
12 Information Administration long-term world crude oil and US  
13 natural gas price forecasts reviewed in the application and  
14 in IRs, active ongoing consideration of various LNG export  
15 opportunities from British Columbia to Asia, as well as  
16 development of new LNG production facilities in Western  
17 Canada to supply domestic markets, reflect key stakeholders,  
18 including the B.C. government, expectations that the major  
19 gap between North American natural gas prices and world crude  
20 oil prices will likely be sustained for the next 20 years or  
21 more into the future.

22                   Table 4.3 in the application, as updated  
23 March 27th, illustrates that additional capital costs of  
24 9.3 million for the project, compared with the new diesel  
25 alternative, including an added 1.1 million cost contingency

1 for the third gas engine, are forecast to be fully paid off  
2 within the first four years of the project operation through  
3 annual fuel cost savings.

4           Given that Yukon electricity rates are based  
5 on long-term average hydro generation rates, projected  
6 ratepayer fuel cost savings from the project over the four  
7 initial years approximate \$11.9 million using the  
8 conservative base case load forecast with no Alexco load.

9           These fuel cost savings are well in excess of  
10 the projected capital cost charges of approximately  
11 \$2.7 million for the project compared to new diesel,  
12 resulting in overall ratepayer savings exceeding \$9 million  
13 over that time period, including 1 million in 2015 alone.

14           Projected fuel cost savings of 11.9 million in  
15 the first four years are also in excess of the 9.3 million  
16 additional capital cost assumed for the project compared to  
17 the new diesel alternative, which means that the project's  
18 added capital costs are projected to be fully covered during  
19 these initial four operating years.

20           The application demonstrates that the  
21 project's economics and ratepayer cost savings are very  
22 robust, confirming that ratepayer cost savings will be  
23 sustained under a wide range of possible scenarios, including  
24 material capital cost increases, reductions in fuel cost  
25 savings, and the changes in diesel generation forecast.

## H. CAMPBELL, C. OSLER, D. MORRISON

1                                    Thank you, Mr. Chairman. That's my opening  
2 remarks.

3 THE CHAIR:                                    Thank you, Mr. Morrison.

4 MR. LANDRY:                                    Thank you, Mr. Chairman. Just  
5 for the record, the opening statement has been marked already  
6 as B-14, Exhibit B-14.

7 THE CHAIR:                                    So marked. Thank you.  
8 Proceed.

9 MR. LANDRY:                                    So, Mr. Chairman, the panel is  
10 now available for cross-examination.

11 THE CHAIR:                                    So looking at my list here, I  
12 believe UCG, Mr. Janigan is up for cross-examination. You  
13 can proceed whenever you're ready.

14 MR. JANIGAN:                                    Thank you, Mr. Chair. I have a  
15 compendium of cross-examination material that is currently  
16 being printed and should be available to me sometime after  
17 10:00, if I retrieve them from Staples. But what I'm going  
18 to do is try and work around that compendium in relation to  
19 my cross so that I cover areas that I don't need that  
20 compendium. It may mean that I may have to go back briefly  
21 with a few questions and so my cross may be a bit choppy.  
22 But I think I can probably go to the break. And if I can get  
23 an extended break, to make sure that I get back from Staples  
24 in time with my box of materials, I would appreciate it.

25 THE CHAIR:                                    We would make sure we let you

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Janigan

1 get back. Yes, and that's fine. That process is fine. And  
2 if you need to take a break a little bit earlier, you can do  
3 that as well.

4 MR. JANIGAN: Thank you very much.

5 **MR. JANIGAN CROSS-EXAMINES THE PANEL:**

6 Q. So, panel, as you've heard, I may actually welcome long  
7 answers up until the break from the panel, for a change.

8 My first area of questioning deals with the  
9 terms of reference in relation to the task before the Board.  
10 And I believe that this is set out -- the terms of reference  
11 are in the exhibit list A-2, I believe.

12 If you have them, it indicates that the YUB  
13 shall report on and make recommendations about the necessity  
14 for the Whitehorse Diesel-Natural Gas Conversion Project and  
15 its timing and design with particular regard to item number  
16 C, the risks facing the Whitehorse Diesel-Natural Gas  
17 Conversion Project and their potential impacts on rates for  
18 customers.

19 Now, in a number of places in evidence I  
20 believe you put in the cost-benefit analysis, and I just want  
21 to confirm that I've got them all. First is the updated  
22 Table 4-3 -- initially in the application, updated with your  
23 updated March 27th -- and there's also been a what-if  
24 variance analysis that has been provided in response to  
25 interrogatory YCS/LE-YEC-1-42. You might want to turn that

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Janigan

1 up.

2 Next is YUB-YEC-1-12 and YUB-YEC-1-13. I just  
3 want to make sure that I've got the -- all of the various  
4 analyses that were prepared by YEC in relation to cost  
5 benefit.

6 A. MR. OSLER: The updated numbers are  
7 provided in the Exhibit E-13 update that you referred to at  
8 the beginning Table 4-3, page A-5. That would be the most  
9 current set of numbers.

10 A lot of the numbers in that table were  
11 provided previously in response to YUB 13, which you  
12 mentioned. In 13(a) in particular, there are some tables  
13 there. It's really only updated from YUB 13 to take into  
14 account the acquisition of the gas from Fortis rather than  
15 Shell.

16 There are a variety of different questions we  
17 were asked to look at variations on this table. You've  
18 mentioned YCS 42. There probably are a number of other ones.  
19 You know, we were asked by the Board and YCS, which will come  
20 up during the course of the discussions.

21 The information on the diesel alternative is  
22 found in various places. YECL 6 is a table under diesel  
23 costs, and there are other answers that work from that.

24 So, I mean, I don't think I'd like to  
25 summarize and say we've covered everything, but the most

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Janigan

1 important up-to-date table is the one you referenced first,  
2 is the Table 4.3 in the updated Exhibit E-13.

3 Q. Okay. Now, the updated table of 4.3, does that consider  
4 all components of YEC's revenue requirement in terms of  
5 effect? In other words, you have the list of the effect on  
6 depreciation return. Are there other impacts, financial  
7 impacts, apart from depreciation of return on YEC's revenue  
8 requirement associated with this project?

9 A. MR. OSLER: This analysis focuses on the  
10 elements of YEC's revenue requirement where you would expect  
11 the project to have any material effect. That would include  
12 the impacts from capital costs related to the project, which  
13 affect depreciation and return on rate base. And they also  
14 would relate to the fuel cost requirements associated with  
15 this project compared to the alternative new diesel.

16 There were questions asked about non-fuel O&M  
17 costs, and the answers in the IRs say that we do not expect  
18 there to be any material difference between the non-fuel O&M  
19 costs and the new diesel alternative project.

20 Beyond that, sir, we don't believe there's any  
21 other pathway to effect on the revenue requirements  
22 associated with this project.

23 Q. What's your definition of material in terms of quantum?

24 A. MR. OSLER: Ability to estimate it all  
25 usefully for the purposes of this investigation.



H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Janigan

1 Q. I don't quite know what that means.

2 A. MR. OSLER: There always can be some  
3 effect. For example, there might be differences on non-fuel  
4 O&M costs that will be averted over time, but we have no  
5 ability to estimate them in the context of this application.  
6 And if we look into it retrospectively, we would not expect  
7 it to have any effect on the overall decision-making  
8 assessment of the prudence of this project or the  
9 desirability of opportunity to its alternatives.

10 Q. And I take it we would look to Table 4.3 if we were to  
11 try to forecast overall revenue requirement impacts over the  
12 impacts on rates that might result from the proposed project.  
13 Would that be correct?

14 A. MR. OSLER: Yes. The table framework that  
15 you have in Table 4-3 allows you to see the nature and the  
16 magnitude expected of the impacts of this project relative to  
17 the new diesel alternative.

18 The table by itself does not show you the  
19 overall effect of the new alternative of the new project or  
20 its alternative compared to the world going forward without  
21 doing anything, but you can use this table to come up with  
22 that type of analysis if you're interested.

23 For example, the table shows you the forecast  
24 long term average diesel at 17 gigawatt hours in 2015, 22.9  
25 in 2016, etcetera. The table says that the average cost of

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Janigan

1 meeting that energy requirement for diesel using the existing  
2 grid energy from diesel would be approximately 30.8 cents per  
3 kilowatt hour.

4 So if you wanted to have an assessment of what  
5 the cost of meeting that requirement using existing diesel  
6 without any new capital expenditure, you can simply multiply  
7 30.8 cents by those numbers and you will see that it comes up  
8 with 5.2 million in the first year, etcetera. That would  
9 give you an indication of what the system would incur in  
10 terms of costs without any new capital expenditure at all.

11 If you contrast this project with that stream,  
12 you will see that it's basically the same cost in the first  
13 year and gets to be a little bit less than that stream each  
14 year thereafter.

15 Q. Now, including this YUB review and the review by the  
16 YESAB, how much money has been spent or committed to be spent  
17 on this proposed project to date?

18 A. MR. OSLER: We'll get the number, but it  
19 was in answer to YUB 2 that gives the assessment or response  
20 to the Board's question of costs that have been sunk to date,  
21 is the expression, and it goes through -- it goes through the  
22 costs incurred to January 2014. It shows an estimate broken  
23 down of 12.5 million. It shows an estimate of costs to be  
24 incurred from February to April 2014 broken down totalling  
25 4.5 million. And it includes a final column of costs that

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Janigan

1 would be incurred if the project had to be cancelled of, say,  
2 2.8 million.

3 The text -- so all of that comes in just under  
4 \$20 million. The text explains that these are costs that do  
5 not reflect the extent to which some of these items,  
6 particularly the 10.9 million of the 19.8 million is all  
7 related to the LNG engines acquisition, and the text explains  
8 that some of that cost would likely be recovered -- the  
9 material portion would be recovered but we have no basis to  
10 know what the estimated amount would be.

11 To quote it, YEC would expect to recover a  
12 major portion of the 10.9 million spent on the engines, but  
13 it is not feasible to estimate the net receipts or duration  
14 of a cancellation process.

15 In that package, the planning costs incurred  
16 to date are shown approximately 2.3 million. That would be a  
17 lot more than just the regulatory process. That would be a  
18 design -- I think there is an IR in the package that asks  
19 specifically about the costs respecting the two regulatory  
20 processes. We can find that if you're interested.

21 Q. That would be helpful for purposes of -- if possible --

22 A. MR. OSLER: We'll track it down rather than  
23 trying to grab it right at this moment.

24 Q. If I can understand the process for -- in the event the  
25 project goes ahead, the process for the collection of those

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Janigan

1 costs and rates. I take it that much of these costs will be  
2 capitalized and put in rate base at some point in time of the  
3 project.

4 A. MR. OSLER: The capital costs would be  
5 capitalized and, subject to the Board's review as to  
6 prudence, put into rate base.

7 Q. And that will include a portion of the planning costs  
8 that will be incurred?

9 A. MR. OSLER: It would include all of the  
10 costs incurred, including the planning costs.

11 Q. So it would include all the planning costs?

12 A. MR. OSLER: It should subject to Board's  
13 review and approval.

14 Q. When is that closed to rate base? When the -- when the  
15 project is being used?

16 A. MR. OSLER: Well, the two requirements for  
17 bringing a capital project into rates, one of them is that  
18 it's used. It's actually brought into service and useful.  
19 The second one is you have to have gone through a rate review  
20 process by this Board to change rates to reflect these costs.  
21 So two steps, both are required --

22 Q. Okay. So those costs won't be closed to rate base until  
23 those two steps occur?

24 A. MR. OSLER: Well, I'd be very careful. We  
25 can't go into rates until the Board changes the rates. So

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Janigan

1 you can be comfortable with that. I think the accounting  
2 department would put them into the costs of the company and  
3 charge them against their own revenues as soon as it becomes  
4 operational. So they don't get rates. They will still have  
5 to show on the books that they're incurring those costs.

6 Until they go into service, the costs are treated as work in  
7 progress and they do not affect the income of the company.

8 Q. And they're backed out of one and put into the other.  
9 Is that effectively what happens?

10 A. MR. OSLER: Could you say that again?

11 Q. Are they backed out of the one and put in the other. Is  
12 that effectively what happens?

13 A. MR. OSLER: You move it from work in  
14 progress into a cost that is charged against income, yes.

15 Q. Do you operate on the half-year rule in relation to  
16 capital costs and depreciation?

17 A. MR. OSLER: Do you mean by that question,  
18 sir, do we take an average rate base beginning and end of the  
19 year?

20 Q. Well, that was once one system; the other system being  
21 that one is put into rate base at any point in time in the  
22 year and it's credited with six-month depreciation cost of  
23 capital --

24 A. MR. OSLER: We'll check with our accounting  
25 people, but subject to check, we'll say yes.

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Janigan

1 Q. Okay. And I believe I've seen some discourse in the  
2 interrogatories concerning the possibility of necessity for a  
3 deferral account in relation to this.

4 As I understand YEC's position is that they're  
5 capable of tracking the costs associated with this project in  
6 a way in which would assure a completeness in relation to  
7 ensuring that only the costs of this project go into rate  
8 base and go into rate base after the two steps have been  
9 taken. Am I correct on that?

10 A. MR. MORRISON: Mr. Chair, our normal practice  
11 with all capital projects is completely segregated. The  
12 costs are tracked individually. We're operating this project  
13 the same as we have all others. We have no -- they have  
14 their own code. All charges to the project are only those  
15 charges to the project. It's a work-in-progress account at  
16 the moment. At some point we will move it into a rate base,  
17 but we -- that's how we normally do our accounting of a  
18 capital project.

19 Q. And until it's moved into rate base, how is it financed?

20 A. MR. MORRISON: It's financed from internal  
21 sources as required.

22 Q. And those internal sources are?

23 A. MR. MORRISON: Well, either we'll -- we'll  
24 either use existing cash flow. We may, in fact, look at our  
25 total capital requirements from one year to the next and

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Janigan

1 whatever borrowings we need to do, they will provide cash  
2 related to the project.

3 Q. And the cost of those borrowings will be applied to the  
4 project.

5 A. MR. MORRISON: As with all other capital  
6 works, the cost of borrowing money to finance works done by  
7 the corporation is a cost that comes before this tribunal  
8 when we have rate hearings, and those costs are either  
9 allowed or denied.

10 A. MR. OSLER: In essence, sir, all of the  
11 costs of the company requires for financing capital costs get  
12 to be financed and the overall average of all those financing  
13 costs gets charged against the company. So this project is  
14 just one of many elements that contribute to the capital  
15 costs and the financing requirements.

16 Q. But at some level it's segregated out for attribution  
17 purposes.

18 A. MR. MORRISON: Absolutely, yes.

19 Q. When did the YEC's Board of directors give approval to  
20 the proposed LNG Project?

21 A. MR. MORRISON: My best recollection,  
22 Mr. Chair, is May 2013.

23 Q. Do you know whether the decision by the Board of  
24 directors was unanimous?

25 A. MR. MORRISON: Well, I'm going to say it this

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Janigan

1 way: I don't recall anybody dissenting to the decision.

2 Q. Is that your recollection, or is it --

3 A. MR. MORRISON: Well, I was in the room. I  
4 didn't hear any dissent.

5 Q. Okay. Your memory is good on that with respect to that  
6 meeting?

7 A. MR. MORRISON: Yeah.

8 Q. Okay.

9 A. That doesn't mean to say it's always good.

10 Q. All right. Is there any difference in the project  
11 components and costs between the project that YEC's Board of  
12 directors included and the project components and costs  
13 currently before the YUB?

14 A. MR. MORRISON: Mr. Chair, we have a very  
15 iterative process with our Board. We get a lot of  
16 information and they get major changes. Any changes in a  
17 budget of a project are provided to the Board for --  
18 depending on levels, for either approval or review. The  
19 budget that's before this Board has been approved by the  
20 Board of directors.

21 Q. So that includes the update of March 27th?

22 A. MR. MORRISON: That's correct.

23 Q. Okay. I'm going to skip over to another area, and once  
24 again, first of all, look at the terms of reference again in  
25 the Exhibit A-2. And according to the terms of reference in



H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Janigan

1 the minister's referral to the YUB dated December 20th, 2013:

2 "The YUB shall report on and make  
3 recommendations about the necessity for  
4 the Whitehorse Diesel-Natural Gas  
5 Conversion Project and its timing and  
6 design, with particular regard to:"

7 In this case item number d.:

8 "What, if any, alternatives to the  
9 Whitehorse Diesel-Natural Gas  
10 Conversion Project might be advisable  
11 given reasonable load assumptions and  
12 risk assessments."

13 Now, I want to take you through the alternatives that YEC  
14 considered to the proposed project. And that first of all  
15 the first one would have been the status quo or do-nothing  
16 alternative. That was considered?

17 A. MR. MORRISON: Yes.

18 Q. Right?

19 A. MR. MORRISON: Considered.

20 Q. Yes. The next one was near-term hydro enhancement  
21 projects. Was that considered?

22 A. MR. MORRISON: Mr. Chair, for the -- I want to  
23 separate a couple of things here, and I think it's an  
24 important juncture. We consider and we do planning -- I  
25 think as most people in the room know, we have done an

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Janigan

1 extensive amount of planning on a lot of different  
2 alternatives over the past several years.

3 One of them, as of January 1st, is the  
4 near-term hydro enhancement project. And we certainly  
5 continue to work on those things, have worked on those  
6 projects. They're good projects. But they are not projects  
7 relevant for consideration in this situation. The primary  
8 function of this project is capacity. These hydro  
9 enhancement projects have not provided capacity.

10 Q. So you considered it and rejected it?

11 A. MR. MORRISON: We considered it and rejected  
12 it.

13 Q. Okay.

14 A. MR. MORRISON: Let me say -- I want to be  
15 clear. We did not consider those for this project, for this  
16 requirement. They're part of another list. I'm just parsing  
17 words, but I think Mr. Janigan's wanting something very  
18 specific. We did not consider it.

19 Q. Okay. Life extension of the Mirrlees WD1 and WD2 units?

20 A. MR. MORRISON: Yes, we did.

21 Q. Replacement of the Mirrlees units with new high  
22 efficiency diesel engines?

23 A. MR. MORRISON: Yes, we did.

24 Q. Okay. Now, I think you were touching upon the answer to  
25 this question in the last question, but I'll ask it directly.

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Janigan

1 Why didn't YEC look at other renewable generation  
2 alternatives?

3 A. MR. MORRISON: Well, I'll start, and Mr. Osler  
4 or Mr. Campbell may want to assist. As I said, the primary  
5 purpose of this initiative was to figure out a solution for  
6 the replacement of diesel units that had to be replaced and  
7 form the basis and the foundation of our capacity  
8 requirements for our backup system, if you want to talk about  
9 that. And we all know that we're an isolated grid, no link  
10 to anywhere else. We all know that if we lose the grid,  
11 which has become our risk point of concern, that we need to  
12 have a backup system in place that enables us to provide  
13 power to Yukoners for an extended period of time; not just in  
14 the winter but on a year-round basis.

15 And we have been in front of this Board on  
16 numerous occasions. We have established a capacity planning  
17 criteria along with this Board. We looked at that, and we  
18 look at that on a continuing basis. When we looked at the  
19 state of the engines, our inability to get the parts, we knew  
20 we had to do something.

21 So we sat down and, as we do with everything  
22 else, we consider all of the options because we realize --  
23 first of all because we want to know which is the best  
24 outcome. We also know that we have to be able to prove those  
25 options that we go forward with at some point in a regulatory

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Janigan

1 process; going into rates or in a hearing such as this.

2 So renewables are in general high capital  
3 cost, low operating cost. Having renewables and large  
4 renewables sitting in the system with high capital costs and  
5 performing at intermittent times during the year is not an  
6 economic proposition that works.

7 What we need in a backup system is a system  
8 that is flexible and reliable. We need a system that's  
9 dispatchable, that we can turn a switch when we need it.  
10 When we lose alternative A over here, the hydro, we can turn  
11 a switch and this power comes on. It may come on for very  
12 short periods of time, but it's still important that it comes  
13 on.

14 In addition to that the capacity issue. We  
15 also have to cover the risks of drought or long-term drought.  
16 And, again, high capital cost renewables sitting on the  
17 system don't give us that opportunity at an affordable rate  
18 for ratepayers. Waiting for a drought is something that  
19 diesel or thermal-based generation can do because they have  
20 low costs and you save the operating costs by not running.  
21 You don't save any costs by not running hydro. You're  
22 virtually down to very small O&M species. What you're faced  
23 with is the large capital costs that have to be absorbed by  
24 ratepayers.

25 So those are the reasons, primarily -- and I

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Janigan

1 don't know if Mr. Osler had something to add to that, but  
2 those are the primary reasons that renewables don't fit in  
3 this scenario.

4 A. MR. OSLER: I think the key points are all  
5 in the context of hydro and wind capital intensive renewables  
6 have all the features Mr. Morrison just went through in  
7 contrast to a thermal alternative, where you spend,  
8 relatively speaking, in terms of capital a lot less and you  
9 only incur the operating costs when you absolutely need to  
10 run a generating unit.

11 Yukon Energy in its last resource plan, 2011  
12 resource plan, went through exhaustively the various options  
13 for generation. So it's not that they don't have the  
14 information on the various renewables. And there have been  
15 IRs in this hearing where we've been asked questions about  
16 that, and no doubt we'll refer to them.

17 CW10 give us a general review of the issues --  
18 and there are specific ones on wind and other things, but the  
19 general point for what the need is here is to find the  
20 most -- to find a reliable, flexible generating option that  
21 will put in place the capacity needed to keep the grid  
22 reliable and not incur any more costs than needed, except  
23 when you absolutely have to do the generation because of  
24 drought, because of emergency, or because you don't have  
25 other generation available.

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Janigan

1 Q. Okay. If I can try to organize those two answers, at  
2 least so I can understand them, the big problem with  
3 renewable generation alternatives, as I understand it, is  
4 that for -- effectively for backup supply they are not an  
5 economic alternative?

6 A. MR. MORRISON: That's correct. And they  
7 also -- it depends on what renewable it is. So, you know,  
8 one of the issues that I mentioned earlier is it also has to  
9 be something that is dispatchable. What I mean by that is  
10 that it's available when needed in response to our operators  
11 turning the units on. Depending on what the renewable  
12 resource is, that may not be the case.

13 Q. So that's what I wanted to get at. The dispatchability  
14 is different between renewables and thermal?

15 A. MR. MORRISON: That's correct.

16 A. MR. OSLER: Just to be clear, there are  
17 renewables that can be thermal, such as a biomass generating  
18 facility. So we've got to be careful that we're not  
19 misstating anything. But in Yukon's context, from the  
20 information Yukon Energy's collected, the renewables that are  
21 there for future development tend to be capital intensive  
22 wind or hydro. It doesn't look as though the biomass  
23 alternative would be nearly as feasible.

24 Q. And wind and hydro are difficult or may have problems  
25 with dispatchability that diesel and LNG won't have?

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Janigan

1 A. MR. MORRISON: Well, that certainly is the  
2 case. The location, as well, is also an issue in relation to  
3 that. Remembering that within the system the thermal units  
4 are geographically located within communities. They don't  
5 suffer from having to be responsive to the line itself, to  
6 the grid. And if you're losing the grid in a major way, you  
7 don't want to be exposed to any renewable situation that  
8 has -- that requires that grid to give you access to the  
9 power.

10 So the other benefit is that within  
11 communities these diesel or thermal units provide localized  
12 response dispatchability and the cheap economics.

13 Q. And I take it the renewables aren't necessarily situate  
14 in these communities. They may be situate elsewhere and  
15 depend on the grid for delivery.

16 A. MR. OSLER: Certainly it's a possibility,  
17 yes. When we talk about the N minus 1 test for capacity,  
18 we're doing exactly what Mr. Morrison just referred to.  
19 We're looking at the possibility of the Aishihik line coming  
20 down, and we can't get access to the 37 megawatts of  
21 renewable energy at Aishihik. And so we have to design the  
22 capacity of the system to withstand that worst-case event,  
23 which in fact happened. Some people accused it of happening  
24 because we bothered to study it, but -- so it's a perfect  
25 example.

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Janigan

1           In my home province of Manitoba we have the  
2 problem of all of the big renewables are up north and they  
3 come down through transmission lines there. We are equally  
4 concerned about the ability to protect the reliability there.  
5 So that's the example.

6           Whereas you put your thermal generation in  
7 your load centres and you move the fuel to it -- and  
8 Whitehorse has the largest load centre in Whitehorse -- in  
9 the Yukon, and the largest generating unit there is the one  
10 we're talking about, the Whitehorse generators.

11 Q. Did YEC consider enhanced DSM as an alternative?

12 A. MR. MORRISON: Yes, we have considered DSM  
13 efforts. We are awaiting the decision from the YUB on YECL's  
14 DSM plan because we're partners with them on that.

15           The DSM savings, which we certainly feel we  
16 can get and hope to get over time, will help some, but they  
17 will not replace capacity requirements sufficiently to offset  
18 the requirements here.

19 A. MR. OSLER: But I would say, for the  
20 record, the forecasts used in this application in Appendix C  
21 incorporate the DSM measures that the companies have proposed  
22 to the extent that we can forecast them. So that it's not  
23 only been considered; it's reflected in the forecasts.

24 Q. And what percentage of capacity is being relieved by DSM  
25 savings, approximately, does Appendix C show?



H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Janigan

1 A. There's percentages in the -- there's information in the  
2 appendix -- I'd have to go through it to remind myself -- but  
3 it phases in over the next five years. So there isn't hardly  
4 anything yet because the Board's hasn't approved it and it  
5 grows to a number by 2018, something like that.

6 I don't know how specific people are as to  
7 capacity versus energy benefits in the actual plan, but in  
8 the forecasting, it's been assumed in general that the  
9 capacity tends to be reduced to the same extent as the energy  
10 just for forecasting purposes. It isn't so specific that  
11 it's getting into trying to mirror the program for capacity  
12 versus energy which would be in the detailed DSM plan.

13 Q. I guess I'm confused. In Appendix C, you built in DSM  
14 savings.

15 A. MR. OSLER: Correct.

16 Q. And the DSM savings are reducing capacity in some  
17 fashion. Is it possible to get a percentage of how much  
18 they're reducing over a period of years?

19 A. MR. OSLER: Well, we'll look at it and see  
20 if we can give you that type of information based on what's  
21 in that appendix.

22 Q. That would be helpful.

23 A. MR. OSLER: My recollection is it's the  
24 same percentage as applied to the energy which is a  
25 generalization, not a refined analysis that you'd get in a

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Janigan

1 true DSM.

2 Q. Whatever you can provide me, I would appreciate it. Can  
3 I have an undertaking on that?

4 A. MR. OSLER: Mr. Campbell thinks he can give  
5 it to you.

6 Q. Certainly.

7 A. MR. CAMPBELL: What I can tell you with  
8 respect to the DSM programs, they, in fact, are targeting  
9 towards energy conservation, for energy reduction, not  
10 specifically targeted to capacity reduction.

11 The low-hanging fruit for energy conservation  
12 programs typically is saving energy which is why that was the  
13 focus and target of our DSM programs.

14 If you look, for example, at the targeted  
15 energy reductions after five years, I believe it's in the  
16 orders of five gigawatt hours a year, if you apply that to  
17 our overall grid generation cost which exceed 400 gigawatt  
18 hours a year, you know, we're talking less, you know, maybe a  
19 1 percent reduction; in capacity, probably less. So it is  
20 not significant.

21 So, in short, it will have no significant  
22 reduction of capacity.

23 Q. Did YEC consider bi-fuel conversion kits that allow  
24 diesel generators to run on more than one fuel?

25 A. MR. OSLER: What was the question again?

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Janigan

1 Q. Did YEC consider bi-fuel conversion kits that allow  
2 diesel generators to run on more than one fuel?

3 A. MR. OSLER: Mr. Campbell can --

4 A. MR. CAMPBELL: The short answer is yes.

5 Q. And can you tell me why ultimately that they were  
6 rejected?

7 A. MR. CAMPBELL Sure. A few reasons. When we  
8 looked at the bi-fuel kits available, there was two  
9 disadvantages to them. One, they were only being applied on  
10 small engines. The engines that we have in our Whitehorse  
11 diesel plant are large engines. So basically, by the time we  
12 looked at them, they were not available in the size of  
13 engines that we were looking at.

14 The second reason is they only allow you to  
15 displace a percentage of the diesel fuel so you only get a  
16 partial savings on the fuel cost.

17 A. MR. OSLER: I can just -- a couple of  
18 points. One of them is, again, going back to the need here  
19 which is capacity. One way or the other, we had to provide  
20 new capacity, and the refurbishment of the existing WD1 and  
21 WD2, as Mr. Morrison has gone through, is not an option. So  
22 there was a fundamental requirement to come up with some new  
23 capacity.

24 Now, in that context, the option of buying a  
25 new diesel and then having a kit to modify it would be how

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Janigan

1 that would unfold. In the case here, that wouldn't be a  
2 cost-effective approach. You use these kits to modify old  
3 engines, existing engines. And I think that's about the  
4 essence of the point here.

5 It does not mean that Yukon Energy is not  
6 seriously looking at kits for modifying some of the remaining  
7 existing old engines inside the Whitehorse plant. To enhance  
8 the extent to which the LNG facility could be installed would  
9 increase the benefit displaced in diesel in future and  
10 increase the capability to get the savings we're talking  
11 about. But that would be with respect to existing EMDs or a  
12 Cat engine inside the facility. And that is a serious option  
13 I believe Mr. Campbell is looking at.

14 A. MR. CAMPBELL: That's correct. We maintained  
15 discussions with both EMD and Caterpillar and they have  
16 advised us the conversion kits will be available in the  
17 future, likely by 2016 or 2017. So again, we think that is a  
18 viable option in the future that will allow us to fuel switch  
19 to maintain the remaining life in the four diesel engines in  
20 the plant that do have the ability to provide reliable  
21 generation for up to ten more years.

22 Q. So I take it, Mr. Osler, your analysis follows in  
23 lockstep with the conclusion that WD1 and WD2 units are at  
24 the end of their life?

25 A. MR. OSLER: Yes. And not only end of life,

1 but there isn't an option that's practical to refurbish them  
2 for the reasons Mr. Morrison gave.

3 Q. Did YEC consider buying secondhand diesel generators  
4 which would not require any changes to the warehouse?

5 A. MR. MORRISON: Mr. Chair, the only secondhand  
6 units that would not require us changing a plant -- I think  
7 Mr. Janigan is referring to the balance -- or let's talk  
8 about it as we refer to the balance of plant. So, in other  
9 words, all the auxiliary work in the plant would be the same  
10 age as the units that we're talking about.

11 So buying really old engines, refurbishing  
12 really, really old engines is throwing, in my mind, good  
13 money after bad. You get a short period of time. We  
14 wouldn't get the long life economic value out of them that  
15 we're going to get with new engines. We have to find  
16 reliability in the product that we buy. The only way to get  
17 that truly is looking at the whole problem and doing an  
18 assessment from stem to stern.

19 So we can buy diesel -- we can buy new diesel,  
20 but the work that's going to have to be done in the  
21 generating station adds to the cost. We can go back with old  
22 engines, but the old engines, you know, suffer from the  
23 same -- same problems that the Mirrlees suffer. People don't  
24 make parts for them. They're hard to get. They break down  
25 more.

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Janigan

1                   You know, those Mirrlees engines are really,  
2 really difficult to run. They've been difficult to run from  
3 day one. We've got a lot of life out of them because we've  
4 put a lot of work into them. It's not a consideration that  
5 makes sense when we look at the principles of making sure  
6 that we've got reliability and flexibility in this backup  
7 capacity.

8 Q.   And so there's no market out there for secondhand diesel  
9 generators that are of vintage that is different than the  
10 ones that you were replacing. I take it that's what you're  
11 saying?

12 A.   MR. MORRISON:                   Well, Mr. Chair, what I'm  
13 saying is that different engines -- different engines, less  
14 old than the 46-year-old engines that we already have, are  
15 still going to require significant balance of plant work, and  
16 we don't necessarily get a long-term solution to the problem.  
17 We get a short-term solution because these engines will age,  
18 have the same issues that we were already trying to deal  
19 with. We don't think that that's an option.

20 Q.   Given the attractiveness of the price of liquefied  
21 natural gas to diesel, one would think that there might be  
22 diesel generators on the market that would be considerably  
23 less than the 46-year-old models that you have.

24 A.   MR. MORRISON:                   I'm not -- I'm not sure -- that  
25 a question?

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Janigan

1 Q. Yes, it is.

2 A. MR. MORRISON: Well, the gas price is  
3 attractive. Whether the engines, as Mr. Osler and  
4 Mr. Campbell indicated, the engines that are convertible can  
5 run dual fuel, are tiny. We don't need tiny engines, we need  
6 larger engines. Whether there are diesels out there that we  
7 can continue to run old diesels -- to run diesel in, old  
8 diesels, lack efficient output rates, I'm sure there are, but  
9 they will require significant cost structure related to  
10 balance of plant work. And we don't believe that that's a  
11 long-term option. That's a short-term solution.

12 Q. Did you put together a report in relation to the cost to  
13 refurbish the Mirrlees engines and the availability of parts  
14 for Mirrlees engines? I'll give you consideration of the  
15 issue.

16 THE CHAIR: Mr. Janigan, while they're  
17 thinking of the response, I just wanted to note that it's  
18 about 10:36. So I'll leave it to you to decide when you feel  
19 is an appropriate time to cut off for the break.

20 MR. JANIGAN: I'm happen to go at this point  
21 in time. We can consider that over the break.

22 THE CHAIR: We'll recess for about 15  
23 minutes subject to Mr. Janigan getting back from Staples and  
24 then resume once he's able to get back and get his material  
25 together. Thanks very much.

## H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Janigan

1 (ADJOURNMENT)

2 THE CHAIR: Please be seated.

3 So, Mr. Janigan, I'll turn it back to you.  
4 You don't look any worn from your run to Staples and back.

5 MR. JANIGAN: Well, thank you very much. I  
6 was greatly assisted by an employee of the applicant in going  
7 to Staples. I'm eternally grateful for that.

8 THE CHAIR: Thank you. So proceed, please.

9 MR. JANIGAN: Thank you. Just before we  
10 start, we have a -- what I was retrieving was a book of  
11 cross-examination materials, and what -- we want to ensure  
12 that we comply with the guidance that you have given to us in  
13 relation to the compilation of these materials so that in  
14 the -- what we're suggesting is that the book be marked for  
15 identification purposes and we go through the individual  
16 items that are set out here, nine of them in nature, and if  
17 any are such that objections are raised that are sustained by  
18 the Board in relation to their staying on the record, that we  
19 simply remove them from the book and go forward from there.

20 THE CHAIR: Okay. Now, my understanding,  
21 just having a brief discussion with our counsel, is that what  
22 you would do is if you used page 3 to 6, that at the end of  
23 your question you would then ask that to be given an exhibit  
24 number.

25 So we would specifically say within this book



## H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Janigan

1 pages 3 to 6 become Exhibit No. XXX; is that correct?

2 MR. JANIGAN: That would be fine.

3 THE CHAIR: That would be preferable to me,  
4 if that's okay with you.

5 MR. JANIGAN: That would be fine.

6 THE CHAIR: So, Mr. Landry, would you like  
7 to speak to that?

8 MR. LANDRY: I'm fine with that,  
9 Mr. Chairman. There will be a few documents that obviously  
10 I'll be objecting to, but I'm fine with that type of  
11 procedure to help everybody.

12 THE CHAIR: And my understanding is that it  
13 will either be for the purpose of the record if it hasn't  
14 been marked as an exhibit number as according to what we just  
15 spoke about, then it would not become part of the overall  
16 record.

17 MR. LANDRY: Part of the evidence.

18 THE CHAIR: Part of the evidence, yes.  
19 Thank you.

20 So I'll turn that back to Mr. Janigan.

21 Thank you, very much.

22 MR. LANDRY: Mr. Chairman, I think we have a  
23 couple of answers to undertakings that we could put on the  
24 record now too, if that would be okay.

25 THE CHAIR: Yes. Please proceed.

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Janigan

1 A. MR. OSLER: Okay. First of all I said I'd  
2 find an IR that dealt with the costs for the YESAB in this  
3 hearing as estimated in the planning costs. And,  
4 Mr. Janigan, you can find that in response to YCS 11,  
5 sections F and G.

6 Secondly, I undertook to review the DSM and  
7 how it was reflected in our forecast in Appendix C. On  
8 page C-1, under (a)(i), second bullet, there is a description  
9 of assumptions used for DSM. It included the forecasts and  
10 the source base for that.

11 Essentially, the forecast assumed 32 percent  
12 of the annual load growth would become reduced because of  
13 DSM, but that would only become fully effective starting  
14 2017. And it describes the process for the assumptions for  
15 phasing that in up to that time.

16 On page C-3, there's a Table C-1, which shows  
17 you the non-industrial DSM that was assumed in the final  
18 column for each year. And if you added that back into the  
19 non-industrial load in the first column, you'd have the  
20 picture before the DSM versus the picture that you see in  
21 this table after DSM.

22 And those numbers show that there is no DSM  
23 assumed until beginning in 2015. And it doesn't really  
24 become fully effective, as I just said, until 2017.

25 This table is an energy forecast table rather

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Janigan

1 than a capacity forecast table. All I can tell you is that  
2 the capacity forecasts that are provided subsequently in  
3 Table C-4 effectively reduce the forecast capacity  
4 requirement proportionately as the energy is reduced by DSM;  
5 which means that it's a very simplifying assumption that was  
6 adopted here, which Mr. Campbell has testified that the  
7 actual program is much more focused on reducing energy in  
8 terms of DSM impacts and capacity.

9 So to that extent these forecasts perhaps  
10 overstate the impact of DSM on capacity, and it wouldn't be  
11 material until 2017 and thereafter. And I have no basis  
12 today to, you know, advise you as to how to amend that. So  
13 that's the follow-up on that matter.

14 And the final one we were dealing with when we  
15 adjourned was the question of reports and evidence on  
16 refurbishment of Mirrlees and balance of plant work, and  
17 we've referred to YUB 13. It was discussed under (a) and  
18 (b), but it's also referred to in (c), and I'll have  
19 Mr. Campbell elaborate on what we have on the record on that  
20 matter.

21 A. MR. CAMPBELL: Thank you, Cam.

22 What I can state is that in fact the cost  
23 estimates that the company has generated for the  
24 refurbishment of the Mirrlees has risen from a half a million  
25 dollars a megawatt to three-quarters of a million dollars a

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Janigan

1 megawatt based on the experience gained in our first two  
2 rebuilds on WD3 and FD1. And that is now approximately half  
3 the cost of a new replacement diesel.

4 Q. I'm sorry. Could you just repeat that, the first part  
5 of that -- the first sentence that you gave in relation to  
6 the cost estimates?

7 A. MR. CAMPBELL: Yes. The cost estimates to  
8 rebuild the Mirrlees in our application here is  
9 three-quarters of a million dollars per megawatt, which means  
10 for WD1 to rebuild would be about a \$4 million price tag, and  
11 to rebuild WD2, which is a megawatt larger, would be a 3.75  
12 million dollar cost.

13 A. MR. MORRISON: Mr. Chair, I just want to  
14 complement Mr. Campbell's answer a little bit. There's a  
15 couple of things. First of all, those numbers are just raw  
16 engine numbers; they don't include the price, the cost of  
17 refurbishing the plant, which would have to be done in order  
18 to meet the standards of the refurbished engines, and that  
19 refurbishment lasts ten years. So if it's half the cost of  
20 new, in terms of the engine costs, and it lasts ten years,  
21 the economics are fairly poor when you can get 40 years plus  
22 out of a new engine.

23 But more importantly than any of those  
24 numbers, if we could make the numbers work, we can't -- we  
25 cannot -- and I can't -- I couldn't sleep at night -- we

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Janigan

1 can't get parts. It is almost impossible.

2 When we undertook FD1 and WD3, I personally  
3 went to MAN. They gave me assurances, and this was the only  
4 way that we proceeded, that they could supply those parts and  
5 they would be able to give us the kind of service and the  
6 parts servicing that we require. That did not materialize.

7 We had a dickens of a time getting parts in  
8 the end. These refurbishments took not just months longer,  
9 they took a year plus longer than they should have, that  
10 being a big part of the reason. In the end we had to try to  
11 get somebody to fabricate parts, which is not a good idea.  
12 We got parts that were completely ill-fitting, they didn't  
13 fit. They were the wrong dimensions. All of the capacity  
14 for building parts for these engines on a new basis has been  
15 outsourced to jobbers. There is no guarantee on quality on  
16 any of this stuff.

17 These engines haven't been made for -- and  
18 manufactured for, you know, 15 years plus probably, just even  
19 on the manufacturer's side.

20 So what you're getting is you're getting  
21 people where you can scavenge parts and you might be able to  
22 find some here and there.

23 We have numerous examples of ordering parts  
24 three, four and five times and never receiving them. And  
25 they sound like small things. The last one was -- is it's a

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Janigan

1 lower lube alarm on the Faro diesel. Well, you know, if  
2 there's no alarm and we lose the lube in that lower part of  
3 the engine, we could seize the engine. Even just getting  
4 things like that.

5 There is absolutely no way, in my opinion,  
6 that I could consciously agree to refurbishing these engines  
7 and sleep at night knowing that they're going to come on.

8 These engines are difficult at the best of  
9 times to operate. With parts that aren't working and  
10 breaking down, I don't see the reliability there.

11 Q. What upgrades have been made to the current WD1 and WD2  
12 generators that have extended their life, if any?

13 A. MR. MORRISON: Well, I can't -- Mr. Chair, I  
14 can't answer in detail. They've had, you know, parts  
15 replaced from time to time. The biggest thing that's  
16 extended their life is they haven't run.

17 We went through a long period post the Faro  
18 mine shutdown where these diesels didn't turn a crank, and  
19 that is also part of the problem here. When we extended  
20 their life, when we did the FD1 and WD3 refurbishment, it was  
21 with the knowledge that we had a hydro surplus. We didn't  
22 need to run these engines. And the knowledge that we didn't  
23 have to run those engines gave us a lot of comfort.

24 We know today that we're going to have to run  
25 engines on an incremental basis to meet winter loads because

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Janigan

1 we've run out of that surplus. If we know we have to turn  
2 them on, the risk profile for me goes sky high and I'm not  
3 prepared to sign off on saying that these are reliable and we  
4 can run them on a long-term basis.

5 Q. So I take it that there were parts replaced in WD1 and  
6 WD2 generators, but they're worse than the complete  
7 refurbishments as it was in the other two cases; is that  
8 correct?

9 A. MR. MORRISON: Not in recent years in my  
10 memory.

11 Q. Okay. Now, with respect to the new diesel generators  
12 option, where would YEC acquire these units at prices that  
13 have been included in Table 4-3?

14 A. MR. MORRISON: Well, there's a number of  
15 options. The -- we have prices from engine suppliers. The  
16 options would depend on what sizes we wanted to put in and  
17 what the options were available for those sizes from  
18 different manufacturers.

19 We looked at Wartsila engines. We looked at  
20 Cats. Probably a Wartsila engine but it would depend, and  
21 Mr. Campbell is probably better at it than I to say from a  
22 size perspective whether they have engines that fit in there.  
23 But those are the kinds -- if you're looking for something  
24 representative in terms of the kinds of engines, those would  
25 be the kinds of engines we would be considering.

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Janigan

1 Q. Without being inundated with material, do you have a  
2 copy of the quotations and the additional detail that was  
3 received on these new diesel units?

4 A. MR. MORRISON: Well, I think we've -- just  
5 hang on a minute.

6 Excuse me, Mr. Chair, if you can bear with us,  
7 we're just trying to find this. We may already have some of  
8 that information.

9 THE CHAIR: Sure.

10 A. MR. OSLER: Okay. There is a response to  
11 YEC-LE-5 which attaches a request for information that was  
12 made on January 21, 2013 to various suppliers of engines to  
13 provide information on what they could provide to put into  
14 the Mirrlees bays, that we were looking at dual fuel as well  
15 as gas engines that was the focus.

16 And out of that, as described in the answer --  
17 in this YCS 5 answer, the process eventually led to the  
18 selection of the engines that we're using for the modular gas  
19 units, but it also provided information that has been used to  
20 cost estimate the new diesel alternative based on the  
21 Wartsila information provided. And Mr. Campbell can  
22 elaborate on that if you need.

23 We did not provide in the record the  
24 information that we received from all of these various  
25 suppliers.



H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Janigan

1 I would just emphasize that the focus was on  
2 engines that could be utilized in the Mirrlees bays which  
3 puts some constraints on size and that was of keen relevance  
4 to the company was what types of engines could be fit within  
5 these bays. The WD1 bay is slightly smaller than WD2,  
6 etcetera. So that was a very specific focus at the time.

7 And when you're looking at options for a new  
8 diesel, you do have to figure out where you're going to put  
9 them. And the assumption was they would be put into the bays  
10 of the Mirrlees that are removed, rather than building a new  
11 plant or something.

12 Now, Mr. Janigan, I don't know whether you're  
13 looking for more than that. If so, Mr. Campbell can --

14 Q. If you want to put some additional information,  
15 Mr. Campbell, I wouldn't object.

16 A. MR. OSLER: Well, what are you looking for  
17 in terms of -- are you looking for the cost basis that we've  
18 used in our analysis?

19 Q. Yeah, exactly.

20 A. MR. OSLER: Okay. So Mr. Campbell can  
21 elaborate then on how we took this information from this  
22 process, including the BBA study, which has also been filed  
23 in response to the YUB 13, one of the attachments there, in  
24 order to develop the cost estimates that are summarized in  
25 YECL 6, I believe, for the new diesel engine option.

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Janigan

1 A. MR. CAMPBELL: Yes. Well, the basis for our  
2 pricing for diesel-only engines started with us looking  
3 through the RFI process for a dual fuel engine, because at  
4 the time, the thoughts were that we would put these engines  
5 in the Mirrlees space. And we thought the benefits of having  
6 dual fuel with already having an existing bulk diesel fuel  
7 tank there would outweigh the costs, and that proved to be  
8 the case if, in fact, that would have been a feasible option.

9 From the work that we did, the incremental  
10 cost from single diesel to single gas, there was about a  
11 5 percent adder, and to go from single diesel to dual fuel  
12 was a 10 percent increase in cost. So again, not a  
13 significant increase in the capital costs.

14 A. MR. OSLER: Mr. Campbell probably would  
15 elaborate a bit. It would help. There's the cost of the  
16 engine from the manufacturer and all that type of stuff, but  
17 there also were the cost estimates that BBA provided and are  
18 attached to YUB 13 --

19 A. MR. CAMPBELL: Sure.

20 A. MR. OSLER: -- that get you into why the  
21 cost is not a million and a half a megawatt but closer to 2.4  
22 as given in the numbers, and you have to understand the  
23 balance of plant work.

24 A. MR. CAMPBELL: Yes. BBA undertook a fairly  
25 intensive study into what would be the costs that the utility

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Janigan

1 would look at having to undertake in order to fit some large  
2 diesel engines or gas engines in the Mirrlees bays. And in  
3 fact Mr. Osler is correct, the cost of the engines was a  
4 significant but not the total price. There was a very  
5 significant cost to refurbish the panel of plant work within  
6 the Mirrlees bays that were either end-of-life or would  
7 require an increase in capacity to handle the larger engines.

8           The air handling system would have to be  
9 upgraded to handle the larger engine. The cooling systems  
10 would have to be upgraded to handle larger engines. The  
11 switchgear had to be replaced in any case because, again, it  
12 was 46 years old.

13           So there was a number of balance of plant  
14 work, civil work, mechanical work, electrical work that would  
15 have to be done in order to put any type of new engine into  
16 the Mirrlees bays.

17 Q. Okay. Thank you. I'd like to move to another area, and  
18 in this case I'm going to deal with my book of  
19 cross-examination materials.

20 MR. JANIGAN:                   Can the entire book be marked  
21 for identification purposes, Mr. Chair, subject to what we've  
22 said in terms of its ultimate faith?

23 THE CHAIR:                   I think what we -- I understood  
24 what we had agreed to is we would just mark the --

25 MR. JANIGAN:                   The exhibits themselves?

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Janigan

1 THE CHAIR: So if you -- again, say you  
2 were going to page 6 to 8, then we would mark that as an  
3 exhibit.

4 MR. JANIGAN: That's fine. I'll just call it  
5 my book then.

6 THE CHAIR: That's fine.

7 Q. MR. JANIGAN: Panel, in response to our  
8 interrogatory UCG-YEC-1-3, YEC stated that the results of the  
9 March 2011 Energy Charrette provided an impetus for further  
10 research into LNG. And as well if you could turn up  
11 YCS/LE-YEC-121(c) -- and that's YCS/LE-YEC-121(c) -- that  
12 there were 12 possible short-term, i.e. 2015, energy choices  
13 evaluated by the stakeholders involved in the day sessions of  
14 the Charrette, and LNG was seventh on the list that  
15 participants proposed.

16 Have I summarized the answers in those two  
17 interrogatories correctly?

18 A. MR. MORRISON: I haven't checked them in  
19 detail, but subject to check, sure.

20 Q. Okay. Now, I wonder if you could look at page 197 of my  
21 book.

22 A. MR. MORRISON: 197?

23 Q. Yes, please.

24 MR. LANDRY: Maybe this is a good time to  
25 have a preliminary discussion about this book so that we

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Janigan

1 could, Mr. Chair, understand the position that Yukon Energy  
2 will be dealing with here.

3 If we could just start with the table of  
4 contents so that we can have a sense of where we're at here.  
5 And I would also refer, Mr. Chairman, to your -- to a letter  
6 from the Board to Yukon Energy and the interveners, which is  
7 Exhibit A-11. And this relates to the whole issue of what is  
8 on the record and what is not on the record.

9 You will recall A-11 is in relation to a  
10 request by the Utilities Consumers Group regarding hyperlink  
11 documents. And it was in reference specifically to YEC and  
12 YESAB websites. And the ruling that was made by the Board at  
13 that time was that the parties had the capability to put in  
14 evidence, but those wouldn't be on the record unless parties  
15 put them in evidence.

16 So with that sort of a bit of a backdrop,  
17 Mr. Chairman, if you look at the table of contents, items 1,  
18 2, 3, 4 -- I don't know the numbers -- I guess, I've  
19 handwritten it.

20 MR. JANIGAN: The 6 has been removed.

21 MR. LANDRY: 6, yes. 6 and 5, the LNG  
22 presentation, and number 7 are not on the record. Most of  
23 those, with the exception, obviously, of 1 and 2, and I'm not  
24 sure about 3, most of them are documents that obviously would  
25 be on YEC's website.

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Janigan

1                   So we're at a situation which was effectively  
2 pre-identified in Exhibit A-11, which is their documents that  
3 are now as aids to cross and then ultimately, I assume, to  
4 try to get in as evidence by way of exhibit with some very  
5 documents that we're talking about; in other words, that were  
6 talked about in Exhibit A-11.

7                   Obviously some of these documents are  
8 Yukon Energy documents. They're from Yukon Energy's website.  
9 So any Yukon Energy senior management would no doubt be able  
10 to answer questions on them. That's not the issue. The  
11 issue is the process that's been established by the Board.

12                   I can say that, you know, subject to  
13 foundational requirements for an exhibit and relevance, which  
14 obviously you would have to determine, any YEC documents,  
15 obviously the panel could answer questions on them.

16                   Something that's not a YEC document, like  
17 items number 1 and 2, we will be objecting to. And I've  
18 informed my friend of that.

19                   So that just provides a bit of background for  
20 the purposes of the first one that we're referring to, which  
21 I believe was -- which page was that, Mr. Janigan?

22 THE CHAIR:                                   I think it was 198, or 197.

23 MR. JANIGAN:                               Mr. Chair, if I could interject  
24 here. These materials are not offered for the purpose of  
25 being put in evidence for the truth of what they contain.

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Janigan

1 They are before you for the purpose of -- only for the  
2 purpose of cross-examination. It is the responses of the  
3 panel that become the evidence in relation to their response  
4 to whatever is in these materials.

5 The materials themselves are not evidence  
6 per se. They are -- effectively form the basis of whatever  
7 response on cross-examination I get. But just to be clear on  
8 this -- because I don't necessarily think I -- I think I've  
9 been guilty of obscuring the issue before -- these materials  
10 are only for the purpose of cross-examination. If at some  
11 point in time the panel said, "I have never seen this before.  
12 I have no -- I have not dealt with it. I have no idea  
13 whether it's true or not," and that's the end of the story.

14 The exhibit itself does not become evidence of  
15 what it says. All that's in evidence at the end of the day  
16 is the testimony from the panel that says, "I have no idea  
17 what this is and, accordingly, I can't answer any questions  
18 on it." That's the only evidence that exists.

19 THE CHAIR: So could you not frame your  
20 question in a way that, you know, you may have the reference  
21 to the information, but -- as Mr. Landry said, that in  
22 theory, at least the YEC documents, the panel should have  
23 understanding or recall that information or be familiar with  
24 the content of that information? Could you try to proceed on  
25 that basis?

**H. CAMPBELL, C. OSLER, D. MORRISON****Cross-examined by Mr. Janigan**

1 MR. JANIGAN: Well, yeah, I think that's  
2 essentially what I'm attempting to do. Looking at the  
3 document -- looking at particular phrases or sentences in the  
4 document and then asking questions based on that -- on their  
5 knowledge of the document. But the document itself -- the  
6 Charrette report has not been put in evidence by us. All I'm  
7 doing is using it as a basis for cross-examination. Hence, I  
8 haven't gone through the process of putting in intervenor  
9 evidence per se on any of this. Number one, because it's  
10 been difficult from the standpoint of hearsay; but, secondly,  
11 it's not necessary for the purpose of my cross-examination.

12 And it's only the answers from the panel that  
13 I'm interested in in getting. I'm not interested in getting  
14 all of this into evidence as -- if that's helpful to you,  
15 Mr. Chair.

16 THE CHAIR: Mr. Landry, did you have any  
17 further comment?

18 MR. LANDRY: Mr. Chairman, I'm not sure that  
19 it's this document specifically that I'm overly concerned  
20 about, but I think it's the issue of just process and  
21 precedent. And I think you put it very well at the  
22 beginning, that if there is a question that can be put to the  
23 witness without the assistance of the aid in  
24 cross-examination, then it should be put to the witness.

25 In the case we're talking about here, given



H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Janigan

1 what Mr. Janigan is saying, in my submission, the appropriate  
2 way to do it would be to say it's not in evidence. You say,  
3 "In your Charrette report, can you confirm that this was what  
4 was said?" It doesn't bring the Charrette report in. And,  
5 presumably, I know these witnesses are quite familiar with  
6 the Charrette report, having actively taken part in that, as  
7 did I.

8 So I think that's the appropriate way to do  
9 it. It's not this one that I'm overly concerned about. I'm  
10 just talking about in terms of how it's properly done.

11 THE CHAIR: Well, with that understanding  
12 can we proceed on that basis, subject to Mr. Landry objecting  
13 through the process of items that you might raise?

14 MR. JANIGAN: Certainly. I think for the  
15 purpose of precision, when it comes to things like the  
16 Charrette report, it's best to refer to the actual segment  
17 before I ask the question because it gives the panel the  
18 chance to reference what exactly I'm talking about. And it's  
19 their own document, so it can scarcely be prejudiced. But I  
20 will try.

21 Q. I'm looking at page 197 where it indicates -- which is  
22 page 16 of the Charrette report, that:

23 "While there was not full consensus  
24 among the nine groups, or even among  
25 individuals within each group, there

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Janigan

1           were some common themes and predominant  
2           views that emerged from the game. The  
3           main realization was decision making is  
4           complex and involves a number of  
5           tradeoffs. The second was that,  
6           selecting short-term solutions was not  
7           as hard as selecting medium term and  
8           long term solutions, as the future is  
9           hard to predict and uncertainty  
10          increases risk. The chart on the  
11          previous page demonstrates some of the  
12          energy cards that were selected as a  
13          means of meeting each of the scenario  
14          targets."

15        Can the panel tell us how many stakeholders were involved in  
16        the game that determined the list of energy choices and who  
17        these stakeholders represented?

18        **A.    MR. MORRISON:**                    **Now, you are taxing my memory**  
19        **but 120, 130 people is my memory of the attendance at the**  
20        **Charrette.**

21        **Q.**    Okay. Does the YEC consider that the number of  
22        individuals that were involved in the Charrette to be enough  
23        of a representation of the population to competently say that  
24        YEC has been given a mandate by Yukoners to develop the LNG  
25        energy choice?

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Janigan

1 A. MR. MORRISON: I don't think we looked at the  
2 Charrette or any of the consultations that way. We were not  
3 seeking a mandate from anybody. I don't think we asked  
4 people to come there to give us a mandate. I think there's a  
5 lot more work that goes on in planning and the development of  
6 projects and a lot more stages including a YESAB review and a  
7 regulatory review before I would say that we would have a  
8 mandate. I don't think anybody asked people there to say,  
9 "You are giving us the authority to go ahead with something."

10 Q. Do you recall how LNG ended up being seventh on the list  
11 of energy options? Was this based on a voting system?

12 A. MR. MORRISON: It was a -- it was a game of  
13 different -- or an exercise of different small groups going  
14 through options and coming up with it and ranking them on a  
15 flip chart.

16 Q. Okay.

17 A. MR. MORRISON: But, Mr. Chair, I want to  
18 caution again. This exercise was about energy. We're  
19 talking about capacity.

20 Q. Can YEC confirm that the enhancement of existing diesel  
21 generators was also raised at the Energy Charrette as a  
22 viable short-term energy choice to pursue?

23 A. MR. OSLER: I can remember that we talked  
24 about diesel as an alternative default alternative. I think  
25 I gave a presentation on that. But I'm not sure we got into

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Janigan

1 specifically an option called enhancement of diesels. I  
2 think it was just a fundamental background in Yukon with an  
3 isolated grid, the need for flexible reliable capacity and  
4 last resort energy has been there a long time with the  
5 diesels. And I think we also went through the history of how  
6 renewable resources have developed -- that we now have in  
7 Yukon have developed by replacing diesel in the past largely  
8 related to large mine developments on the two grids.

9 Q. Now, on March 24th, 2014 in response to Board Order  
10 2014-004, YEC filed presentations from the January 2012 LNG  
11 workshop provided by three consultants. Is that correct?

12 A. MR. MORRISON: I believe so, yes.

13 Q. Were these consultants contracted by YEC to prepare and  
14 deliver the presentation for this LNG workshop?

15 A. MR. MORRISON: Yes.

16 Q. And were these costs included in revenue requirements  
17 being recovered in rates?

18 A. MR. MORRISON: Mr. Chair, we'd have to -- we'd  
19 have to check. Our memory is just not good enough to answer  
20 that at this time. So we will -- we will -- we'll get you an  
21 answer, Mr. Janigan.

22 Q. Thank you, panel.

23 MR. JANIGAN: Can I get an undertaking  
24 number? I've forgotten the protocol for who do I ask an  
25 undertaking number from.

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Janigan

1 MS. BENTIVEGNA: We don't do that. We just keep  
2 track of them and then to make sure at the end.

3 MR. JANIGAN: Okay.

4 THE CHAIR: But it's good referencing that  
5 we are taking an undertaking.

6 A. MR. OSLER: What we're specifically going  
7 to check is whether these were part of costs that were  
8 brought into rates in 2012/13 or whether they were part of  
9 work in progress to be brought into rates at some future  
10 time. That's what we're going to check.

11 Q. MR. JANIGAN: That would be fine.

12 **UNDERTAKING - TO CHECK WHETHER THE**  
13 **NUMBERS IN THE PRESENTATIONS FROM THE**  
14 **JANUARY 2012 LNG WORKSHOP PROVIDED BY**  
15 **THREE CONSULTANTS WERE PART OF COSTS**  
16 **THAT WERE BROUGHT INTO RATES IN 2012/13**  
17 **OR WHETHER THEY WERE PART OF WORK IN**  
18 **PROGRESS TO BE BROUGHT INTO RATES AT**  
19 **SOME FUTURE TIME**

20 Q. MR. JANIGAN: Now, on page 216 of my book --

21 THE CHAIR: Mr. Janigan, just to clarify,  
22 are you changing topics now?

23 MR. JANIGAN: I'm in another -- I'm in  
24 another piece of materials.

25 THE CHAIR: Okay. Because I guess what I

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Janigan

1 want to just clarify the ones that you had referred to  
2 earlier dealing with the Charrette, I'm of the view that you  
3 don't actually need to give that an exhibit number because I  
4 think you adequately were able to extract the information  
5 that you had in front of you to provide that to the panel,  
6 and they were generally able to respond to those questions.

7 So the exhibit may have been of value to you  
8 as an aid memoir, but I don't think it needs to be given an  
9 exhibit number.

10 A. MR. JANIGAN: I think that's fine, but I'm  
11 not so completely -- I can't remember my cross-examination so  
12 directly that there's not somewhere else that I might deal  
13 with the Charrette report. So if we could put that to one  
14 side and with that thought that if that's the end of the  
15 cross-examination and then we don't need the exhibit, that's  
16 fine.

17 THE CHAIR: That's fine. I'll just put  
18 that aside. We won't give it an exhibit number at this time.

19 MR. JANIGAN: Okay.

20 Q. MR. JANIGAN: And I'm dealing with your  
21 presentation, Mr. Osler, on 216 of my book. And on slide  
22 1 -- actually, I guess that's slide 2.

23 A. MR. OSLER: I believe this particular  
24 presentation, if I'm not mistaken, Mr. Janigan, is in  
25 evidence.

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Janigan

1 Q. MR. JANIGAN: Is in evidence as well?

2 A. MR. OSLER: I think it's in Exhibit B-11  
3 that was filed in response to a Board direction with respect  
4 to UCG questions. Subject to check, I believe this one is  
5 already there. Everyone is nodding at me, so we don't have  
6 to argue about this one.

7 Q. On page 2, I guess it was the second slide, I believe  
8 that you state under the LNG transition option that in the  
9 longer term there is a potential transition to other  
10 resources within the next 10 to 20 years.

11 A. MR. OSLER: Yes.

12 Q. And on page 222, you appear to expand on that thought by  
13 stating that this longer term transition option includes the  
14 potential transition to future local natural gas supply and  
15 the potential transition to new renewable resource  
16 development opportunities.

17 A. MR. OSLER: Yes. And in that particular  
18 workshop, I believe there was a representative from Eagle  
19 Plains or the development group that was talking to that  
20 particular potential, and all I was referring to was that  
21 people were talking about that at that time as a potential  
22 longer term development in Yukon.

23 In terms of the transition to new renewable  
24 resources, that was a fundamental thrust of the entire  
25 discussion around LNG at the time, that it wasn't viewed as

1 any more than diesel is viewed as a long-term energy option.  
2 It's there as a default option until such time as you can get  
3 the loads required to develop cost effectively the type of  
4 renewable resources we were discussing earlier that were  
5 capital-intensive resources such as hydro or wind.

6 Q. I guess what concerns me when I see that there may be a  
7 potential transition to other resources is what that means in  
8 terms of projecting the economic viability of the LNG Project  
9 forward if, in fact, we're looking at a transition to other  
10 resources in 10 to 20 years.

11 A. MR. OSLER: Yes. Now, the project we're  
12 talking about today, Mr. Chairman, was not envisaged at the  
13 time of this workshop. To be very clear, the discussion at  
14 this time was around what Mr. Morrison calls energy, yeah.  
15 And essentially we were looking at energy options, we were  
16 looking at possibility of Victoria Gold in a scenario that  
17 was the key focus for LNG options which would expand the  
18 requirements for default diesel up to maybe over 100 gigawatt  
19 hours a year but only for seven or eight or ten years.

20 Today, as we've said over and over again,  
21 we're looking at an option that is focused on capacity  
22 without any new big mines connected to the grid. In fact,  
23 Alexco is assumed not to be operating even though it was  
24 operating not that long ago, and it may be operating again  
25 according to it by 2015.



H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Janigan

1                   We are looking at a capacity requirement and  
2 saying that, one way or the other, you have to put in place  
3 new capacity and the capital cost associated with that, and  
4 by using LNG, we can save some costs on fuel going forward.

5                   Now, whether we're talking about potential new  
6 renewables in the future or whether we're talking about  
7 compression of the difference between gas and diesel fuel  
8 prices in the future in some decades away, these are all good  
9 questions about what's this look like in terms of its  
10 economics, not just for the next few years as we show in  
11 Exhibit 3-4 but over the 40-year life.

12                   I think, in summary, our evidence is as  
13 follows: Table 3-4 shows that the amount of fuel savings in  
14 the first four years is more than sufficient to cover the  
15 extra capital cost associated with selecting LNG and putting  
16 in place LNG facilities rather than diesel. And under  
17 various scenarios that date might potentially be shifted a  
18 year or so, but the point seems to be that this project pays  
19 for itself very quickly.

20                   After that time, as long as the price of gas  
21 is less than the price of diesel, this project will continue  
22 to yield benefits. To the extent that we can --  
23 Yukon Energy, Yukoners in general can develop renewable  
24 resources in the future to reduce the reliance on fossil  
25 fuels, that will be consistent with what I was talking about

1 in the seminar in January 2012 and consistent with the  
2 policies and objectives and goals of Yukon Energy, and it  
3 would not threaten the project's viability at all, for the  
4 reason I just gave.

5 Q. Which is effectively because of the short -- the pay-off  
6 in the short-term --

7 A. MR. OSLER: Right. Exactly.

8 Q. Okay. Now, in relation to these new renewable resource  
9 opportunities or future local natural gas supply, I think  
10 you've referred to -- I think in Slide 14 from your slide,  
11 which is page 222 of my book, you referred to Eagle Plain --

12 A. MR. OSLER: Right.

13 Q. -- as an example of the Yukon gas supply service. Is  
14 that an outlier or is that just another example of a number of  
15 different opportunities?

16 A. MR. OSLER: There were representatives of  
17 that project in the workshop. So I don't think they would  
18 describe themselves as an outlier.

19 All I can say is that in dialogue at that time  
20 it was necessary to make sure you referenced the fact that  
21 these people are developing and trying to develop the  
22 Eagle Plain resource, and they were starting to focus on gas  
23 and not just oil. And whether that evolves, when it evolves,  
24 and how it evolves is something I can't help you with. I  
25 just know that at that time, and particularly in that

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Janigan

1 workshop, it was necessary to make sure it was referenced  
2 because there were people there who were going to speak to it  
3 and talk about what they saw for the future.

4 I can say without any vagueness at all that  
5 this project that you're reviewing today in no way, shape, or  
6 form relies upon, contemplates, or anticipates getting gas  
7 from inside Yukon. It is entirely reliant upon getting  
8 reliable gas supplies from either Alberta or British Columbia  
9 from reliable gas operations and developments.

10 During the course that we've been working on  
11 this, the people in Inuvik have been through the experience  
12 of losing a gas supply or seeing it drastically reduced much  
13 faster than they thought it would be and having to find  
14 alternative fuels, which has led to anti-energy shipping gas  
15 before we are from Fortis all the way up to Inuvik through  
16 the Dempster Highway.

17 We do not want to rely upon a gas supply that  
18 is in any way, shape, or form risky, undeveloped, or  
19 potentially likely to be diminished in that manner.

20 Q. Am I correct in saying that Eagle Plain then is just one  
21 example of a potential Yukon gas supply source? Is that  
22 correct?

23 A. MR. OSLER: It was only intended to be that  
24 in this case and it was the one that had people present to  
25 discuss it.

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Janigan

1 Q. So there are others, obviously?

2 A. MR. OSLER: I think if you research it,  
3 there probably are potential other supplies, as well as  
4 supplies that technically arise in Yukon but are shipped  
5 south into Spectra or other source processing operations in  
6 Fort Nelson.

7 Q. Now, in relation to new renewable resource development  
8 opportunities, what were you referring to there?

9 A. MR. OSLER: We were looking at -- the  
10 resource planning process that we were in the middle of --  
11 Yukon Energy was in the middle of was looking at all the  
12 renewable resource options, including all the ones that were  
13 listed in the original IR you referenced.

14 So in terms of longer term, they would be  
15 greenfield developments of either hydro or wind, they were  
16 probably the big focus of attention at that time, and  
17 particularly hydro in terms of Yukon has a very wide -- the  
18 resource plan summarizes the extent to which Yukon has a  
19 documented and extensive potential resource development with  
20 respect to hydro at various scales and various cost ranges  
21 and in various locations that could potentially be relevant.

22 A. MR. MORRISON: And just to add, Mr. Chair, the  
23 list also included at that time biomass and waste energy,  
24 projects which we have investigated to a level at which we,  
25 you know, are no longer pursuing them as active projects but

1 we did examine them. They were worthy of examination and  
2 were on that list of projects that Mr. Osler just referred  
3 to.

4 Q. Would it be fair to say that but for the relatively  
5 quick payoff of the LNG Project that these developments may  
6 be more significant in relation to evaluating the economic  
7 feasibility of LNG?

8 A. MR. MORRISON: Maybe just for my  
9 understanding, you mean the renewable developments?

10 Q. Renewable and the possibility of natural gas coming  
11 onstream.

12 A. MR. MORRISON: Sorry. Maybe you could just  
13 give me your question again.

14 Q. I would say but for the fact that in the short-term this  
15 project has a payoff that justifies it economically, that the  
16 developments with respect to potential gas supply source in  
17 the Yukon or renewables may be more significant in relation  
18 to the analysis of the viability of the project.

19 A. MR. MORRISON: Well, Mr. Chair, let me start,  
20 and maybe Mr. Osler will jump in.

21 I'm going to sound like a broken record, but  
22 the renewable projects that we looked at -- and we did  
23 actually look at the possibility of biomass as a renewable  
24 that might fit this whole issue of capacity and backup,  
25 because it could be dispatchable, it's too expensive. That

1 one was taken off the list in that context.

2 Gas supply being closer to the Yukon -- and I  
3 don't know what gas supply might be from a Yukon source, I  
4 have no -- no knowledge of anything around pricing of local  
5 gas supply -- might be cheaper, but so might other options,  
6 you know, peripheral to Yukon such as Fort Nelson or Fort St.  
7 John or Dawson Creek. I have no knowledge of how those might  
8 compare.

9 Renewables -- Yukon Energy has a renewable  
10 energy strategy. We have a resource plan that has clearly  
11 outlined what that strategy is and how it might go forward.  
12 We have shelf-ready projects that could be implemented as  
13 necessary, depending on the load scenarios. And our job is  
14 to balance not only the need but the -- and I've talked about  
15 this a number of times. It's the right project and the right  
16 place at the right cost at the right time. And it's a tricky  
17 job to balance all of those.

18 This project is very different. This is a  
19 requirement to shore up our currently required capacity  
20 backup system in order to make sure that we've got  
21 dispatchable, flexible generation available to us when we  
22 need it in the case, first of all, of an emergency; second of  
23 all, of a drought; and, third, to bridge that gap where loads  
24 are incrementally small enough that we cannot afford as  
25 ratepayers to have high-priced assets sitting there in order

1 to bridge that gap.

2 And when you look at those three in  
3 combination, that would be my answer. I think those are the  
4 fundamentally important parts here. I'm not sure that I  
5 would agree with Mr. Janigan's assertion, but I'm not certain  
6 that I really understood it either as well.

7 Q. I guess to paraphrase, Mr. Morrison, that this project,  
8 even without the overwhelming advantage of the price  
9 advantage that gives it an early payoff in the first few  
10 years, this project would still be chosen by YEC as a better  
11 alternative to new nonrenewables or a new gas supply?

12 A. MR. MORRISON: Let me try it again. This  
13 project, for the purpose of capacity, is one of two options  
14 that we -- that really vie for the competition -- vie for  
15 going forward as realistic options; and that's new diesel or  
16 gas.

17 These are capacity projects. They don't  
18 really relate to renewable projects in that same sense.  
19 We're not building for energy and we're not trying to replace  
20 energy. We're building for capacity.

21 Q. Okay.

22 A. MR. OSLER: Mr. Janigan, renewable is not a  
23 competitor for what this project need is. And that wouldn't  
24 change whether we had no access to gas at low price or not.  
25 It would simply be a new diesel versus the other types of

1 diesel options that would have been debated.

2           So I think the key point that we were trying  
3 to make in the seminar in 2012, January, was the requirements  
4 for developing the capacities that exist in Yukon -- the  
5 capabilities that exist in Yukon for abundant hydro resources  
6 clearly depend upon having the load.

7           I've never had difficulty having a discussion  
8 with someone understand that a large hydro project may have a  
9 levelized cost of 5 cents a kilowatt hour if only we had the  
10 load. Without the load it's a heck of a burden on anybody  
11 who has to pay for it: government or ratepayers.

12           And we've learned that -- I would have thought  
13 in Yukon -- when we developed hydro resources and the grid in  
14 response to United Keno Hill mine in one case and the Faro  
15 mine in the other case. And when I first came to Yukon, it  
16 seemed to me that my prime preoccupation was discussing how  
17 to deal with the rate implications of the Faro mine closing.  
18 Or opening again or closing again.

19           And when Yukon Energy bought the assets from  
20 Canada, the first thing that I was aware of was the United  
21 Keno Hill mine was going to close.

22           So does that mean it was stupid to build those  
23 hydro assets that lead to lower rates in Yukon today than  
24 anywhere else in Northern Canada? No. We've lived through  
25 the problem of the surplus and then no longer a surplus, and



1 we're going through a new transition again today.

2 But that history to me would teach me, anyway,  
3 that eventually when the load is there on a sustained basis  
4 for not just a few years, but not just five or ten years in  
5 some short-term mines, but something that's 20 years or more,  
6 you will have the opportunity again to develop cost-efficient  
7 Yukon hydro resources and perhaps somewhere in that process  
8 also wind. So that's all we're trying to say. If you don't  
9 get the load that justifies somebody investing that money,  
10 you won't get the resource development we're talking about.

11 So if the gas helps Yukon be competitive so  
12 that you get loads being developed, it will speed the day  
13 that you get the renewable resources developed. That's all  
14 we were trying to get across, because it's so difficult to  
15 develop them and do the planning required for five to ten  
16 years' worth of work on a hydro project if nobody knows how  
17 we're going to finance it when you're finished it, or how  
18 it's going to be cost efficient or get through a Part 3  
19 application before this Board.

20 Q. And a combination of local natural gas supplies and gas  
21 storage is not a option for building capacity?

22 A. MR. MORRISON: I don't know if it is or not.  
23 I don't know when, I don't know -- I don't know whether there  
24 is one or not. I don't know anything about it.

25 Q. Have you heard of a feasibility study involving the

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Janigan

1 Vuntut Development Corporation in partnership with First  
2 Nations?

3 A. MR. MORRISON: Have I heard of it? Yes.

4 Q. Yes. And have you been involved -- has YEC been  
5 involved in any way with the study?

6 A. MR. MORRISON: No.

7 Q. If a representative of that corporation made a claim  
8 that natural gas could provide anywhere between 40 to 100  
9 megawatts of power for Yukon's energy grid, what would be  
10 your response?

11 A. MR. MORRISON: First of all, a claim, I  
12 would -- my response would be I have no idea whether they  
13 could or couldn't.

14 Q. And you haven't done any analysis with respect to Vuntut  
15 Development Corporation's plans or Eagle Plains' capacity in  
16 a general sense?

17 A. MR. MORRISON: I can tell you, Mr. Chairman, I  
18 don't know anything about those plans.

19 Q. Has the Yukon government had any role in getting YEC to  
20 pursue the conversion of its diesel generators to use  
21 liquefied natural gas?

22 A. MR. MORRISON: Mr. Chair, the natural gas  
23 initiative -- the LNG initiative is an initiative of Yukon  
24 Energy. It was developed by us. We have -- we have not been  
25 directed, instructed by anyone to pursue this initiative.

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Janigan

1 Q. On page 224 of my book, in his presentation at the  
2 January 2012 LNG workshop, Mr. McCallum claims on slide 4,  
3 which is actually on page -- yeah, it's on, yes, 224, that  
4 natural gas is a cleaner burning fuel compared to diesel,  
5 resulting in fewer human health-related emissions.

6 Is there anything in the evidence associated  
7 with that particular claim?

8 A. MR. OSLER: I don't think we've added  
9 anything else to what Mr. McCallum presented and this also is  
10 part of the Exhibit B-11.

11 Q. Do you know --

12 A. MR. OSLER: There has been evidence filed  
13 with the YESAB report and process on anything to do with  
14 emissions in Yukon and safety and everything else. So there  
15 could well be in that mixture of material more information on  
16 emissions from diesel versus gas at Whitehorse in the past,  
17 and Mr. McCallum was looking at a pretty broad spectrum  
18 there. He's got YEC current there, I see.

19 Q. I guess the question is, is there something specific  
20 that he may have been referring to here, a specific study or  
21 report associated with the comment that natural gas is a  
22 cleaner burning fuel than diesel, resulting in fewer human  
23 health emissions. I think the first part of the statement  
24 may be noncontroversial, but the second was --

25 A. MR. OSLER: Well, human health related

1 emissions would be emissions that people are concerned about,  
2 particulates and other things like that. And I know that in  
3 the YESAB submission, there are comparisons made on that and  
4 there is a comparison made on emissions from new and existing  
5 diesels versus gas burning, and it supports the same points  
6 here. But, if necessary, we could -- I believe there's  
7 probably an answer in the record which I could find  
8 afterwards.

9 Q. If you could find that for me without -- I don't want 35  
10 studies on the issue.

11 A. MR. OSLER: No. On emissions, particularly  
12 you're looking for, and I think we have an update and I think  
13 I can get the reference for you after the break.

14 THE CHAIR: Mr. Janigan, I'm just looking  
15 at the time here and I don't want to interrupt you in the  
16 middle of a questioning, but it's about 12:05, but you can  
17 continue on if you'd like to for a little while longer and  
18 then --

19 Q. MR. JANIGAN: I'm afraid I've forgotten the  
20 schedule that you --

21 THE CHAIR: We're going to go from 12 to  
22 1:30, so that would be the break period.

23 MR. JANIGAN: Okay. Well, that's fine. I'm  
24 prepared to adjourn my cross at this point.

25 THE CHAIR: Just for the record, because

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Janigan

1 many of these documents that you've been referring to from  
2 your book -- and that's been all right in terms of reference,  
3 as been noted, they are on the record, and I'd just like  
4 to -- so we can go back and if anybody was reading those  
5 transcripts would know where the documents are included.  
6 These are in B-11. I think that's -- and then there's  
7 various attachments 1s and there's various subsections of  
8 those pieces of presentations in that attachment. Just so  
9 the record is clear in terms of those being on the record  
10 already. Thanks very much.

11 So we'll adjourn now and resume at 1:30.

12

13 PROCEEDINGS ADJOURNED TO 1:30 P.M.

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H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Janigan

1 Volume 1

2 March 31, 2014

3 P.M. Session

4 \_\_\_\_\_

5 THE CHAIR: Please be seated. So before we  
6 begin this afternoon, are there any preliminary matters?

7 MR. LANDRY: Just one, Mr. Chairman. From  
8 our perspective we have one undertaking that we can give an  
9 answer to now.

10 THE CHAIR: Okay. Please proceed.

11 A. MR. OSLER: I think it was right near the  
12 end we were discussing where we could reference in the IRs  
13 materials and omissions. And I can give you CW-YEC-1-1  
14 item I, which has reference two attachments to that IR, which  
15 give emission information from the SF filing. And I could  
16 also reference you to Exhibit D-11, which includes the draft  
17 screening report from the SF. Sections 6.2, 6.3, and 6.4  
18 deal with their draft screening report on emissions for this  
19 project.

20 MR. JANIGAN: Thanks very much.

21 A. MR. OSLER: Thank you.

22 THE CHAIR: Unless there's any follow-up,  
23 Mr. Janigan, you can proceed from where you were.

24 MR. JANIGAN: All right, thanks. I have a  
25 little difficulty remembering where I was, but...

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Janigan

1 Q. Panel, I wonder if you could turn up in my book page 25.  
2 And this is part of a document entitled an "Application for  
3 Yukon Land and Subdivision Approval" dated August 2013. And  
4 I want to look at the second-last page of the document, which  
5 is on page 25, or page 3 in the actual way the document was  
6 paginated. And that is the section that says:

7 "Cost savings resulting from the  
8 Project will benefit all Yukon's  
9 electricity customers beginning in 2015  
10 (\$2.7 million) and increasing to  
11 \$4.2 million in annual savings by 2017  
12 and are directly related to decreased  
13 use of diesel. These cost savings are  
14 based on a 30 year rolling average for  
15 water availability and current load  
16 growth projections. It is anticipated  
17 that savings will continue to increase  
18 each year thereafter over the life of  
19 the natural gas facilities as diesel  
20 displacement increases."

21 My question is, how do we reconcile the cost savings that are  
22 listed in the land acquisition application to the cost  
23 savings listed at Table 4-3 in the application?

24 A. MR. OSLER: I'm looking at the application,  
25 Table 4-3, the numbers that were there at that time, and I'm

1 looking at what you just put in front of me, which I hadn't  
2 seen before. I'm not sure how what you've just put in front  
3 of me derives from the application, so...

4 Q. When you say "the application" you mean --

5 A. MR. OSLER: I mean the application that was  
6 filed by YEC on December 9th to the minister.

7 Q. Oh, okay.

8 A. MR. OSLER: So the date of this document  
9 seems to be July 2013. So you'd think they'd be the same.  
10 So at the moment, off of the top of my head, I can't help  
11 you. I have to go and find out where this document came  
12 from.

13 Q. Who compiled this document? Do you know?

14 A. MR. MORRISON: YEC compiled it, but what  
15 Mr. Osler is referring to is how the numbers are different.

16 Q. Yes.

17 A. MR. MORRISON: And certainly Mr. Osler didn't  
18 compile them.

19 Q. If you could undertake to just tell me how and why the  
20 numbers are different, that would be fine.

21 A. MR. MORRISON: Sure.

22 UNDERTAKING - TO ADVISE HOW AND WHY THE  
23 NUMBERS ARE DIFFERENT BETWEEN THE  
24 "APPLICATION FOR YUKON LAND AND  
25 SUBDIVISION APPROVAL" DATED AUGUST 2013



H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Janigan

1                   **AND TABLE 4-3 IN THE APPLICATION**

2    Q.    MR. JANIGAN:                    In response to UCG-YEC-1-5(c),  
3    there's set out therein that YEC indicates that the actual  
4    diesel generation at Whitehorse in 2010 to 2013, and it's  
5    listed numbers there, 2010 at 2.417 gigawatt hours, or  
6    .6 million, etcetera, etcetera, all the way down to 2013.

7                    In Table C-2 of Appendix C of the application  
8    YEC provides forecasts of average diesel generation at  
9    different forecast loads for the period of 2013 through 2030.

10                   My question is, have you put information on  
11   the record for forecast diesel generation and related costs  
12   just at Whitehorse for the 2014 to 2030 period?

13   A.    MR. OSLER:                    No.

14   Q.    Is that information easily referenced?

15   A.    MR. OSLER:                    You're talking about the  
16   forecast period?

17   Q.    Yes.

18   A.    MR. OSLER:                    What the application does is  
19   talk about operation with the new gas engines and assumes  
20   that the gas engines would be given first ranking for  
21   operation on the grid. So the assumption is that the gas  
22   engines will displace the diesel as discussed on the whole  
23   grid.

24                    In that sense the application addresses the  
25   impact on the grid's operations and not just Whitehorse. But

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Janigan

1 it's all focused on fuel and diesel operation and not getting  
2 into other details.

3 Q. Is what you're saying, it's likely a distinction without  
4 a difference?

5 A. MR. OSLER: I can't help you on that. I  
6 can just say what I said is reflecting what we're doing.

7 Q. Okay. What I understand you saying is that because it  
8 had first priority, effectively it represents actual diesel  
9 generation at Whitehorse in any event. Did I get that right  
10 or wrong? I'm talking about Table C-2 here.

11 A. MR. OSLER: Table C-2 is a forecast of the  
12 grid. It's got nothing to do with saying which generating  
13 stations are used to meet that default diesel requirement.

14 Q. Okay.

15 A. MR. OSLER: The application is taking those  
16 numbers of the forecast for long-term average diesel  
17 requirements on the grid and saying that they can be  
18 displaced by the gas engines at Whitehorse as discussed in  
19 the application. There is an IR that makes the point that  
20 there can be various other things that could lead to diesel  
21 operation on the grid that are not covered in Table C-2.

22 Q. Okay.

23 A. MR. OSLER: They would be fires, capital  
24 projects, short-term emergencies, things like that. And  
25 those are not discussed or covered in the forecasts that

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Janigan

1 we're covering because they're basically something that you  
2 don't sit around forecasting.

3 This is long-term average diesel requirement  
4 based on the -- Yukon Energy's models as to how much on  
5 average over the 31 water years the energy load would have to  
6 be met by thermal generation.

7 Q. Okay. So I guess where you're pointing me is that if I  
8 want to look at a forecast -- actual diesel generation at  
9 Whitehorse as a forecast from 2014 onward, that would have to  
10 be a separate analysis?

11 A. MR. OSLER: If it was to be a forecast of  
12 diesel generation without this project and where would it  
13 occur on the grid, it would have to be a separate analysis,  
14 and we have not attempted to do that.

15 Q. Now, as I understand your evidence, the driving force  
16 behind the need for this project is in fact the need to  
17 replace aging diesel generators and not simply to capture  
18 fuel savings. Am I correct on that?

19 A. MR. OSLER: Yes.

20 Q. And I believe it's indicated at various places in the  
21 application that YEC based its cost-benefit analysis on the  
22 assumption that all capital costs would be depreciated over  
23 40 years.

24 A. MR. OSLER: Yes.

25 Q. And does that mean that YEC conducted its analysis

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Janigan

1 assuming that all costs incurred related to the proposed  
2 LNG Project were depreciated over 40 years?

3 A. MR. OSLER: Essentially, yes.

4 Q. Isn't --

5 A. MR. OSLER: All costs incurred that were of  
6 a capital nature would be subject to depreciation. Obviously  
7 not fuel costs.

8 Q. Right. Isn't it true that many capital costs being  
9 incurred for this project will be depreciated over periods  
10 much less than 40 years?

11 A. MR. OSLER: Not to my knowledge, that I'm  
12 aware. Essentially the people in YEC went through and  
13 checked what we're talking about. And when you're looking at  
14 the major pieces of equipment that are involved in this  
15 project -- start with the diesel engines. If you were to  
16 operate those diesel engines at a high level of use, they  
17 probably would have a 20, 25-year life by most people's  
18 assessments. But the key to operation on this system is they  
19 won't be used intensively; they'll be used much more  
20 sporadically, and that's why they end up having a much longer  
21 life that we're talking about.

22 The same comment isn't perhaps not as relevant  
23 to some of the other equipment, the vaporization, storage  
24 tanks and basic infrastructure, but the assessment that  
25 Yukon Energy's people made after looking at those specific

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Janigan

1 pieces of equipment is that they have a life as well of at  
2 least 40 years.

3 So on that basis, all of the costs for the new  
4 diesel alternative or for the LNG Project, as it's being  
5 described here, are assumed to be depreciated over 40 years.

6 Q. What about if a transition option kicks in?

7 A. MR. OSLER: I don't --

8 A. MR. MORRISON: I don't know what you mean.

9 A. MR. OSLER: Can you be clear on what you're  
10 asking?

11 Q. What we discussed earlier, what about there's a  
12 potential transition to other resources?

13 A. MR. OSLER: Would something happen that  
14 would render this project obsolete? Is that the essence of  
15 the question?

16 Q. In essence, yes, and what occurs with respect to the  
17 unappreciative costs?

18 A. MR. OSLER: The transition concept wouldn't  
19 render the project obsolete. It probably would still be  
20 required even with a hydro development or wind development  
21 for reliable capacity on the system. What the -- what the  
22 renewable transition would do is displace the amount of  
23 diesel or LNG that needs to be generated by way of energy.

24 So if we -- one of the things we've resisted  
25 doing is showing a 40-year projection of these units and how

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Janigan

1 they would operate because after you get outside the four or  
2 five years that are used in the tables for the economic  
3 assessment, you're getting into a range of considerations as  
4 to what's going to happen. How much renewable energy is  
5 going to be developed and when? What loads are going to be  
6 on the system?

7 To assume that as you might do for resource  
8 planning base case that you would simply keep using diesel or  
9 LNG, would not be an appropriate assumption in terms of what  
10 would be really expected over time. And at some point, new  
11 renewable resources will come onto the system to displace use  
12 of thermal resources. When, which and how much cost we don't  
13 really have a basis for forecasting because there's so many  
14 variables that could play with it.

15 So if the project can be shown to be viable  
16 and recovering its key costs within four or five years, our  
17 conclusion was that that's -- if that's sufficient to make  
18 the point about the project's viability, let's not get into a  
19 whole bunch more complexity than we need to to establish the  
20 point.

21 But for development of renewables, transition  
22 in the future is an energy-focused exercise. I hope we've  
23 got that point across. And that will displace the need to  
24 keep relying on thermal units for energy. It will not  
25 displace the need to make sure you have reliable capacity

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Janigan

1 that can be flexible and reliably turned on by an operator  
2 when required.

3 So probably you will continue to need growing  
4 capacity for a growing system; and, secondly, new engines  
5 will tend to live their life if not longer -- you know, if  
6 you look at the ones that we're displacing, they lived a lot  
7 longer than anybody probably said they would live when they  
8 first were installed because the new ones will be the ones  
9 that you want to keep around.

10 In looking at the Whitehorse plant, all the  
11 other units are supposed to be retired, end of life, within,  
12 what, 13 years. This system has this problem around the  
13 whole system. So I would not be terribly concerned about  
14 future Yukoners not wanting to rely upon these units for at  
15 least their life.

16 Q. And I gather from what you've said effectively the need  
17 for backup generation, emergency generation, peak supply will  
18 continue and so that the need for these generators will  
19 likely continue as well?

20 A. MR. OSLER: That's essentially what I was  
21 trying to say.

22 Q. I wonder if I could turn you to the fuel adjustment  
23 rider and deferred fuel price variance policy, and that  
24 appears in my book in page 146?

25 THE CHAIR: Mr. Janigan, just before

**H. CAMPBELL, C. OSLER, D. MORRISON****Cross-examined by Mr. Janigan**

1 they're looking for that document, did you wish to give this  
2 Yukon Energy Corporation document an exhibit number?

3 MR. JANIGAN: Yes, please.

4 MR. LANDRY: I'm not sure he needs to. He  
5 read out a quote. They acknowledged that and I don't think  
6 it has to be put into an exhibit. It's not on the record  
7 now. It's one of the documents that's not on the record. I  
8 think Mr. Janigan got what he wanted out of the question.

9 THE CHAIR: That would be my preference. I  
10 think it's self-explained in your questions.

11 MR. JANIGAN: I don't have a problem with  
12 that.

13 Q. MR. JANIGAN: Yes, on page 146. And this is  
14 a fuel adjustment rider and deferred fuel price variance  
15 policy that was submitted by YEC and YECL on January 20th,  
16 2012, and as I understand, approved by the YUB in order  
17 2012-02. I take it you're familiar with that policy?

18 A. MR. OSLER: Yes, generally. I wasn't in  
19 the middle of this, and the people here are not in the --  
20 we're not in the middle of this particular set of details,  
21 but we are familiar with this policy and have addressed it  
22 during GRA hearings, yes.

23 Q. Does the current fuel adjustment rider policy make any  
24 reference to LNG?

25 A. MR. OSLER: I'm sorry, could you start that



H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Janigan

1 again?

2 Q. Does the current fuel price adjustment rider policy,  
3 which I believe is on page 152, does that make any reference  
4 to LNG?

5 A. MR. OSLER: Not to my knowledge, no. It  
6 would not have been considered at the time that this was  
7 prepared.

8 Q. Does YEC intend to make application to the YUB to change  
9 the fuel adjustment rider and deferred fuel price variance  
10 policy to account for LNG?

11 A. MR. OSLER: I think the answer is yes. I  
12 mean, it hasn't been something that people have dealt with at  
13 the detailed level, but in principle, yes.

14 The concept of treating all of these thermal  
15 fuels the same way, both in respect to this rate Rider F  
16 policy and also with respect to the diesel contingency fund  
17 so named, I know that in the filings from the last GRA with  
18 respect to the DCF, the diesel contingency fund, the point  
19 was made that fund should be amended at such time as LNG or  
20 natural gas fuels were to be used for generation and to  
21 displace diesel. So in principle, yes.

22 Q. And with reference to Section 8 of Rate Policy Directive  
23 Order in Council of 1995/090 --

24 A. MR. OSLER: Where are you, Mr. Janigan?

25 Q. That's a good question. I can't find the page where

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Janigan

1 this is listed. 230. Thanks very much. The rate policy  
2 directive starts at page 230 and goes on to 231.

3 A. MR. MORRISON: Right.

4 Q. 232. I take it that Section 8, which is the fuel price  
5 adjustment, I take it that that would have to be changed to  
6 account for LNG as well.

7 A. MR. OSLER: Yes. In the sense that if  
8 Yukon government wants to make sure that it is getting an  
9 Order in Council directive with respect to fuel price  
10 adjustment that covers natural gas as well as diesel fuel,  
11 then on the face of it, it would need to amend that point.  
12 But you're asking -- you're starting to get into legal stuff.

13 Q. Yeah.

14 A. MR. OSLER: In principle, utilities do deal  
15 with fuel price adjustment without necessarily having to have  
16 Order in Council directions. And I think the company is  
17 making the point that it would, in principle, see the need to  
18 do this. There's nothing in here that says you can't do it.  
19 That would be my only observation.

20 Q. It can't be amended; is that what you're saying?

21 A. MR. OSLER: That's somebody else's job than  
22 Yukon Energy's if they want to amend it.

23 Q. Okay.

24 A. MR. OSLER: But there's nothing in here  
25 that says you can't have a fuel adjustment rider to also deal

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Janigan

1 with natural gas.

2 Q. Okay. On page 29 of its application, YEC states that  
3 for its cost-benefit analysis, it has assumed that an LNG  
4 cost of 4.5 per million BTU.

5 A. MR. OSLER: That's an AECO Gas price  
6 assumption in roughly three quarters of the way down the page  
7 that you're referring to?

8 Q. I believe so, yes.

9 A. MR. OSLER: Yes, and that assumption has  
10 been retained through the updates.

11 Q. Okay. And it's the price that LNG -- that all LNG used  
12 between 2015 and 2018 as well as in the longer term analysis?

13 A. MR. OSLER: We didn't vary the price by  
14 year. It was used throughout.

15 Q. Okay. Now, would you agree with me that the natural gas  
16 prices since 2006 have shown a lot of variation?

17 A. MR. OSLER: Yes.

18 Q. And in brief, you've seen spectacular decreases since  
19 2006 with the coming onstream of shale gas and, of course,  
20 you've seen a bit of retreat in those price decreases in the  
21 last year or so largely driven by demand. Would you agree  
22 with that?

23 A. MR. OSLER: Yes. There was a material  
24 change in the natural gas market in North America.

25 Q. I guess the difficulty we're having is that given the

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Janigan

1 degree of change over the last eight to ten years or so, how  
2 can we view with confidence your estimates based on a fixed  
3 price of 4.5 per million Btu?

4 A. MR. OSLER: Well, the short answer is  
5 because the analysis indicates that the overall answer in the  
6 key conclusion is very robust to changes in that number.  
7 It's not dependent on \$4.50 AECO price. That's the short  
8 answer.

9 The more important point substantively, in my  
10 view, is to what extent can you be comfortable that there  
11 will remain a differential between the price of oil, which is  
12 reflected in diesel, and the price of gas. Because the issue  
13 isn't whether it's 4.50 for gas or 5.50 for gas or 3.50 for  
14 gas, it's how big is the saving compared to diesel.

15 And the report, the filing addresses this on  
16 pages 40 and 41. And there have been some questions, and I'm  
17 sure there will be more during the course of this hearing, on  
18 this matter.

19 And I will just say it succinctly for now  
20 because I'm sure we'll come back to it. The evidence that  
21 we've been able to see suggests strongly that projections  
22 made by leading American government agencies, the Canadian  
23 government agencies see this price potential being three  
24 times or more for at least three decades.

25 Q. I take it one of the risks on this revolves around

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Janigan

1 whether or not the continued development of shale gas might  
2 be impeded by new environmental restrictions?

3 A. MR. OSLER: Sorry. Could you repeat that?

4 Q. Sorry. I take it one of the risks associated with  
5 natural gas prices and something that may cause increases is  
6 the risk that new environmental restrictions on shale gas  
7 development may come about restricting the flow of shale gas  
8 into the North American system.

9 A. MR. OSLER: I think that people trying to  
10 understand what might cause the current consensus to be  
11 changed would raise that as one of the potential risks, that  
12 the -- something, whatever, environmental or otherwise, would  
13 lead to a change in what people expect to be their capability  
14 of the shale gas in North America.

15 The key to what we're talking about is very  
16 definitely gas supply in North America relative to world oil  
17 price.

18 So, yes. If something was to radically  
19 rechange the perspective of natural gas in North America such  
20 that the expectations that are driving everybody's thinking  
21 at the moment was to change, then of course there could be  
22 implications to what we're talking about.

23 Q. But you're confident, based on the numbers you've  
24 submitted, that within a reasonable range of predictions that  
25 the LNG Project is still a go based on those range of

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Janigan

1 potential LNG prices?

2 A. MR. OSLER: Yes. And my thinking is very  
3 definitely shaped by the timing elements of what we've been  
4 talking about. It seems that people are reasonably  
5 confident, you know, at an unusually high level about what  
6 life is likely to be like in these markets for the next five  
7 to ten years. And, as we've said, the evidence seems to be  
8 that this project will recover its cost differential in terms  
9 of capital within four years.

10 After that point, once it's recovered its cost  
11 differential and capital through fuel savings, as long as the  
12 price of gas doesn't get to be higher than the price of oil,  
13 the project will continue to have been beneficial to  
14 ratepayers on an ongoing basis.

15 So I don't think I'm very -- I haven't heard  
16 anybody recently coming at me about the price of gas ending  
17 up being more than the price of oil. In my career there was  
18 a phase when people told me that, but it was a long time ago.

19 Q. Can YEC explain what work is needed to be completed on  
20 the diesel warehouse building and what costs are included in  
21 the project cost estimate?

22 A. MR. OSLER: Can we be clear that we're  
23 talking about the diesel plant; right?

24 Q. Yes.

25 A. MR. OSLER: And you're interested in

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Janigan

1 knowing what costs need to be incurred in that plant for what  
2 purpose?

3 Q. That are included in the project cost estimate.

4 A. MR. OSLER: That are included in this cost  
5 estimate.

6 Q. Yes.

7 A. MR. OSLER: At a high level, and I'll get  
8 Hector to check, to the best of my knowledge the costs that  
9 are included in this cost estimate relate to decommissioning  
10 of the diesel, the two Mirrlees engines, but no costs really  
11 for upgrading of the facility. That would be a cost that  
12 would have to be incurred in the future when somebody tries  
13 to put new engines in those facilities.

14 I'm not sure -- Mr. Campbell can comment  
15 whether there's anything else. We're putting pipelines --  
16 pipes over from the LNG facilities to the diesel plant and  
17 you're going to run the boiler on that. You might want to  
18 elaborate on that. But I don't think there's any other costs  
19 other than connections of electricity and the gas.

20 A. MR. CAMPBELL: Sure. The scope of work for  
21 the LNG Project ends at the Whitehorse diesel plant wall.  
22 Okay? So it would include, you know, the piping over to the  
23 diesel plant and it would include, of course, the  
24 transmission line connecting to the S150 substation for the  
25 power.

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Janigan

1 Q. Was this work that was planned for future years that is  
2 now being brought forward? Is that fair to say? Or was this  
3 something that is very specific to the LNG Project?

4 A. MR. MORRISON: The only -- no, it's specific  
5 to the LNG Project.

6 Q. Okay. Is YEC aware of any analysis of emissions from  
7 LNG-fueled generators that could cause respiratory problems  
8 for people and animals living near such a plant?

9 A. MR. MORRISON: Mr. Chair, the emissions issue,  
10 from our perspective, has been thoroughly in a detailed  
11 manner dealt with by YESAB. We've provided what we, I think,  
12 earlier referenced by Mr. Osler as to what those emissions  
13 are, and the health, safety, environmental concerns related  
14 to emissions have been addressed by YESAB. We can look in  
15 the report and find some reference to it if Mr. Janigan would  
16 like, but I think the matter's been dealt with.

17 Q. Okay. Let's put it this way. YEC is satisfied that the  
18 YESAB report deals with this issue in a way which is  
19 conclusive for them?

20 A. MR. MORRISON: I believe so.

21 A. MR. OSLER: And they deal really in  
22 different headings. Emissions -- they also deal with health  
23 and safety in great detail. So very comprehensively.

24 Q. Okay. Now, in response to YUB-YEC-120(b), that's  
25 YUB-YEC-120(b), YEC states that the expected salvage value



H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Janigan

1 for the diesel fuel generating units being decommissioned is  
2 not known at this time, but to the extent YEC is successful  
3 in generating proceeds from the disposal, this income will be  
4 offset against the cost of decommissioning the units. In  
5 other words, the net value is to be charged off to the  
6 reserve for future removal and site restoration.

7 A. MR. MORRISON: That's correct.

8 Q. My question is, in its cost-benefit analysis, how much  
9 has YEC included for additional to the reserve for future  
10 removal and site restoration?

11 A. MR. OSLER: I'm not aware of any -- on the  
12 subject we're talking about, the capital cost estimate in  
13 YUB 1(d) talks about adjustments to the demolition portion of  
14 the cost estimate to reflect review, you know, of this  
15 matter. And so the costs that we're talking about that are  
16 in the project costs come from the demolition portion that's  
17 included in Table 1 of YUB-YEC-1(d).

18 And I think what people are trying to say here  
19 is they did not take into account any recovery of costs  
20 per se other than -- I think the comment was made that the  
21 costs for shipping materials would be recovered by the  
22 salvage. So they didn't include a cost for shipping.

23 But if they got something better that affected  
24 the future salvage fund, that's not taken into account or  
25 estimated here. They're just simply saying how they would

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Janigan

1 deal with it if the event arose. That's my understanding,  
2 sir.

3 Q. So it's not included then in the cost-benefit analysis.  
4 All right.

5 At an LNG public meeting on December 11, 2013,  
6 Mr. Morrison, I believe you stated that it appeared that YEC  
7 had a sale for the old Mirrlees to the B.C. Ferries; is that  
8 correct?

9 A. MR. MORRISON: No, not to my recollection.

10 Q. Did you ever make a statement similar to that at a  
11 meeting --

12 A. MR. MORRISON: No.

13 Q. -- about the sale of -- no?

14 A. MR. MORRISON: Not to my recollection anyway.  
15 You can show me something.

16 Q. Is it possible --

17 A. MR. MORRISON: What --

18 Q. Sorry. Go ahead.

19 A. MR. MORRISON: Sorry. I mean, you know, I  
20 don't think that I said that we had a sale of the engines to  
21 anything. If you -- if -- if -- and I would have to look --  
22 I don't remember -- I said anything, I would have said that  
23 there may be a possibility that those would be the kinds of  
24 people we would look at in order to see if there was an  
25 interest in a sale because they have Mirrlees engines.

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Janigan

1 That's all.

2 Q. Okay. There's been no -- has there been any  
3 negotiations --

4 A. MR. MORRISON: No, there haven't.

5 Q. And no contract or sale --

6 A. MR. MORRISON: No, there hasn't.

7 Q. -- has been concluded?

8 Do you know if any party, such as the  
9 B.C. Ferries, have assumed that these units may have a useful  
10 life remaining in order to buy them?

11 A. MR. MORRISON: I don't know of that, no.

12 Q. Okay. In response to UCG-YEC-1-20(b) -- and that's the  
13 same interrog I was referencing before -- YEC states that:

14 "... the Base Case with no Alexco is  
15 intended to be a conservative  
16 assessment of potential load  
17 requirements in the near term. The  
18 Base Case with Alexco would more  
19 closely resemble a 'likely' scenario at  
20 this time based on Alexco's stated  
21 plans to resume operation early in  
22 2015."

23 My question is does YEC still consider the base case with  
24 Alexco in operation the most likely scenario?

25 A. MR. OSLER: Yes. I mean, in the sense that

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Janigan

1 when YEC's been asked, it has been informed, as others have,  
2 that Alexco is still planning to come back and start  
3 operations in 2015. So on that basis it is deemed to be a  
4 likely scenario if you're talking to people about what may  
5 occur. It's not a certain scenario.

6 So for the purposes of trying to do this  
7 economic analysis, people wanted to be very clear about what  
8 loads they could rely upon, but which was, therefore, the  
9 base case without Alexco. But the base case with Alexco has  
10 certainly been examined, and we can give you information on  
11 it. It simply increases the fuel cost savings such that  
12 they're bigger than what we've assumed in the analysis that  
13 you have seen.

14 Q. Okay. I'd like to ask you to turn up page 28 in my book  
15 that deals with the YESAB draft screening report of  
16 March 19th, 2014. And page 28 is the preface.

17 A. MR. OSLER: Just for the record,  
18 Mr. Chairman, this would also be Exhibit B-11. I believe  
19 it's been filed in response to that document, so it is on the  
20 record of this hearing.

21 THE CHAIR: Thank you very much, Mr. Osler.

22 Q. MR. JANIGAN: Now, in the preface, it states  
23 that:

24 "The Project lies within the  
25 traditional territories of the Kwanlin

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Janigan

1 Dun First Nation (KDFN) and the Ta'an  
2 Kwach'an Council (TKC), and within a  
3 developed part of Whitehorse."

4 My question is do these First Nations need to provide any  
5 approvals in order for the project to proceed?

6 A. MR. MORRISON: No, they don't, sir.

7 Q. Okay. In response to YUB-YEC-1-18(d), YEC indicates  
8 that: (as read)

9 "The Ta'an Kwach'an Council is no  
10 longer participating in partnership  
11 discussions and the Kwanlin Dun First  
12 Nation remains fully supportive of the  
13 proposed LNG project and is working  
14 with YEC on an agreement addressing  
15 service and supply contracting  
16 opportunities related to the project,  
17 provisions for an investment  
18 opportunity in the project, and access  
19 to any surplus, LNG surplus capacity  
20 and inventory as part of a potential  
21 physically and financially separate  
22 wholesale retail natural gas facility  
23 to be developed by KDFN."

24 My first question is: Why did the Ta'an Kwach'an Council end  
25 the partnership discussions with YEC?

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Janigan

1 A. MR. MORRISON: Mr. Chair, that's something I  
2 can't tell you. I'm not privy to their reasons or their --  
3 and they've given me no reasons. So I have no idea.

4 Q. Has YEC finalized any agreements with the Kwanlin Dun  
5 First Nations?

6 A. MR. MORRISON: Perhaps for Mr. Janigan's  
7 assistance, we could call it Kwanlin Dun.

8 Q. Kwanlin Dun?

9 A. MR. MORRISON: And we have a project agreement  
10 with Kwanlin Dun. It's not detailed in any stretch of the  
11 imagination, but our original discussions with Kwanlin Dun  
12 and Ta'an were around the 25 percent investment by each of  
13 those First Nations in the project itself. When Ta'an  
14 decided to pull out, at the request of Kwanlin Dun,  
15 considered moving their investment from 25 to 50 percent in  
16 the project, and we have a project agreement that would allow  
17 Kwanlin Dun to make a 50 percent investment in the project as  
18 we go forward.

19 Q. And are they -- are they in agreement with that  
20 proposal?

21 A. MR. MORRISON: We have a project agreement  
22 signed by them outlining, you know, the general terms of  
23 that -- of that potential investment.

24 Q. When was that project agreement signed?

25 A. I don't have the exact date in my mind, but a month or

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Janigan

1 so ago.

2 Q. Okay.

3 A. MR. MORRISON: Two weeks ago.

4 Q. And if Kwanlin Dun takes an equity position in the  
5 proposed LNG Project, will that impact the debt equity  
6 percentage of project cost that YEC will attempt to recover  
7 in rates?

8 A. MR. MORRISON: No, it won't, sir.

9 Q. Could you explain that?

10 A. MR. MORRISON: Well, we have a regulated 60/40  
11 debt equity ratio, and any investments would be along those  
12 lines.

13 Q. I'm talking about the project cost that YEC will attempt  
14 to recover in rates.

15 A. MR. MORRISON: I'm trying to relate to that,  
16 the total cost of the project, and the investment in the  
17 project will be based on a 60/40 debt equity ratio.

18 Q. Okay. But the equity position of your partner, won't  
19 that --

20 A. MR. MORRISON: It doesn't really matter where  
21 the equity comes from in terms of a project. It's a capital  
22 project that's got 40 percent equity and 60 percent debt.  
23 That's what it has.

24 Q. Won't a share of that be -- won't the partner be  
25 responsible for a share of that?

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Janigan

1 A. MR. MORRISON: Sure, but all that will mean is  
2 it's either us putting up the equity or somebody else putting  
3 up the equity. But I thought -- sorry, Mr. Janigan, I  
4 thought your question was would it fundamentally change the  
5 debt equity structure, and I don't think it will.

6 Q. No, I know the debt equity structure -- or the YEC won't  
7 change. I'm more interested in what's going to be recovered  
8 in rates.

9 A. MR. MORRISON: And I don't believe it will  
10 change that either.

11 Q. Are you aware that there's been a new chief of the  
12 Kwanlin Dun First Nation elected?

13 A. MR. MORRISON: I am.

14 Q. And have you spoken with her concerning this particular  
15 arrangement?

16 A. MR. MORRISON: I have not.

17 Q. Is her agreement with this arrangement crucial for it  
18 going forward?

19 A. MR. MORRISON: That, I don't know, sir.

20 Q. Do you know if she has changed her -- changed the  
21 position of Kwanlin Dun?

22 A. MR. MORRISON: I do not.

23 Q. When do you expect that you're going to find out about  
24 that?

25 A. MR. MORRISON: I think it will be on her



H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Janigan

1 schedule. I'm sure she's very busy taking over her new job.

2 Q. Have you heard that she may be against this project?

3 A. MR. MORRISON: No, I haven't, sir.

4 Q. I guess -- what impact would Kwanlin Dun's pulling out  
5 of this project have on the overall LNG Project?

6 A. MR. MORRISON: Well, it would mean we'd have  
7 to rethink the quantum of equity that we would require from  
8 either our shareholder or internal sources. It wouldn't --  
9 it wouldn't change the debt issue at all because we would  
10 borrow the money the same as we would otherwise if we  
11 required it. So I don't think -- on a financial basis, I  
12 don't think it has any impact.

13 Q. And it's not required for any approvals in this project.

14 A. MR. MORRISON: No, that's correct, as I  
15 mentioned.

16 Q. All right. Now, I wonder if I could flip back to the  
17 draft screening report on page 65, which is page 25 of the  
18 report. And about two-thirds of the way down the page, it  
19 indicates that: (as read)

20 "YEC explained that installing new high  
21 efficiency diesel units would provide  
22 reliable generation capacity that is  
23 sufficient to meet forecasted thermal  
24 capacity requirements. The capital  
25 cost of new high efficiency diesel

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Janigan

1 units would be less than the proposed  
2 natural gas units; however, YEC  
3 concluded that the new diesel units  
4 would have a higher estimated fuel cost  
5 and produce more air emissions than the  
6 proposed natural gas units."

7 My question is, do you still agree that installing new high  
8 efficiency diesel units would provide reliable generation  
9 capacity that is sufficient to meet forecasted thermal  
10 capacity requirements?

11 A. MR. MORRISON: Yes, Mr. Chair. I agree that  
12 new high efficiency diesel units would give us the capacity,  
13 but however, the cost of operating those units when required  
14 is significantly higher than gas, and for that reason, we've  
15 put before you a proposal to use gas instead of high  
16 efficiency diesel.

17 Q. Would ratepayers see any change to their monthly bill  
18 due to implied higher emissions from high efficiency diesel  
19 units?

20 A. MR. MORRISON: Sorry, Mr. Janigan, are you  
21 talking about emissions?

22 Q. Yes.

23 A. MR. MORRISON: Well, they wouldn't see any  
24 changes to their bill related to emissions, but certainly,  
25 you know, the environmental impact would be higher overall

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Janigan

1 than the health impact.

2 Q. Can you confirm that YEC's updated Table 4-3 that was  
3 circulated on March 27th indicates that the capital cost  
4 difference between new high efficiency diesel units and the  
5 proposed LNG fuel generators is approximately 2.7 million  
6 between 2015 and 2018?

7 A. MR. OSLER: We can confirm that the annual  
8 charges for depreciation and return and the difference  
9 between -- in those charges between new diesel and LNG totals  
10 to approximately 2.7 million over those four years. The  
11 capital cost difference between those two elements is  
12 \$9.3 million in that table.

13 And I would just for sake of clarity on the  
14 record say what Mr. Morrison said in his opening. The prime  
15 factor causing that capital cost difference is not the  
16 engines. It's the LNG infrastructure that's being introduced  
17 with the gas alternative, the infrastructure for unload,  
18 storage, and vaporization.

19 Q. We've been down this road before. There are no other  
20 material revenue requirement items that should be added to  
21 the cost portion of the updated 4-3 comparison?

22 A. MR. OSLER: Not that we're aware of, sir.

23 Q. Okay. Now, the draft screening report states on  
24 page 26, and page 66 in my book.

25 "YEC has committed to exploring and

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Janigan

1           developing additional renewable  
2           generation supply options to reduce  
3           both diesel and liquefied natural gas  
4           (LNG) requirements wherever possible as  
5           the requirement for default diesel  
6           generation increases."

7   My question is what exactly are these commitments and could  
8   they impact the amount of diesel or LNG used in the 2015-2018  
9   time period?

10   **A.   MR. MORRISON:**                    **Mr. Chair, let me answer the**  
11   **last half first. No, there is nothing in there that will do**  
12   **that in that short a period of time, at least in my mind.**

13                   **The commitments are as we talked about**  
14   **earlier. We a hydro-based utility. Renewables are the**  
15   **direction that the corporation will focus its efforts for**  
16   **energy purposes. But there have to be some -- there have to**  
17   **be some conditions that are met in order for us to move to**  
18   **the next generation of renewables. And those are, as we've**  
19   **indicated earlier, loads that can be maintained over time.**

20                   **Now, we can do some small hydro. We can**  
21   **mitigate diesel or gas at the margins with projects like**  
22   **Mayo Lake storage and Marsh Lake storage, but they're 4 and**  
23   **6 gigawatt hours a year respectably. We're not going to get**  
24   **away in the near term in the material way from what we see as**  
25   **the incremental diesel required to meet the needs of the**

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Janigan

1 system over the next several years.

2 So our constant commitment is looking at what  
3 is the best alternative for ratepayers. Energy is very  
4 different than capacity. We've got a load, and we can put a  
5 long-term hydro or wind or, you know, maybe in the future  
6 solar project on the system. That's exactly what we'll do.  
7 But we have to justify those to this Board, and we've got to  
8 have loads that will be sufficient enough to cover those  
9 costs.

10 Q. Now, the draft screening report states on page 28, which  
11 is page 68 of my book:

12 "The public comment period for the  
13 Project was from November 5, 2013 to  
14 January 10, 2014. The Executive  
15 Committee received over 130 comments  
16 during the course of the public  
17 review."

18 And then over on page 29:

19 "The Executive Committee recognizes  
20 that the majority of comments received  
21 opposed the Project proceeding, as  
22 proposed, and has considered those  
23 comments. However, some of the  
24 concerns raised in the comments are  
25 outside the legislative authority of

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Janigan

1           what the Executive Committee can  
2           consider when conducting a YESAB  
3           screening."

4   My question is would you agree that the public comments  
5   submitted to the YESAB process were predominantly opposed to  
6   the proposed LNG Project?

7   **A.   MR. MORRISON:                    I wouldn't argue with YESAB's**  
8   **own report, no.**

9   Q.   Okay. Now, the draft screening report states on  
10   page 34, or page 73 of my book:

11           "The Executive Committee is satisfied  
12           the construction of a natural gas  
13           generating station will meet the  
14           purpose of the Project as outlined by  
15           YEC in the proposal."

16   And going back to page 11 of the report, or page 51 in my  
17   book, it has:

18           "The purpose of the Project is the  
19           construction of a new natural gas  
20           generating station and associated  
21           activities adjacent to YEC's existing  
22           primary power generating station, the  
23           WRGS. The proposed project will  
24           produce 13.2 MW, which will provide an  
25           additional 4.1 MW to the Yukon

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Janigan

1           electrical grid upon the  
2           decommissioning of the two diesel  
3           generators (total of 9.1 MW capacity)  
4           YEC intends to replace."

5       Now, would you agree that the draft YESAB report does not say  
6       that there are no alternatives that wouldn't also satisfy the  
7       same purpose?

8       **A. MR. OSLER:**                   The report says the same thing  
9       we're saying, that -- in fact you quoted it earlier, that the  
10      alternative of new high efficiency diesel is the alternative  
11      to compare the report to compare this project against.

12                   So, as we said a few minutes ago, that  
13      alternative would achieve the same need, just more costly in  
14      terms of fuel. I think YESAB accurately reflected that in  
15      its report.

16      **Q.** In effect, YESAB reviewed the environmental  
17      socioeconomic effects of the proposed project but their  
18      mandate did not include reviewing the cost impacts to Yukon  
19      electricity ratepayers?

20      **A. MR. OSLER:**                   They certainly look at economic  
21      impacts, as their statutory authority says, but they also  
22      acknowledge that this project is getting a thorough separate  
23      review at the minister's direction by the YUB, and therefore  
24      they're satisfied that it will not have any adverse effects  
25      on ratepayers given the thorough review that it will receive.

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Janigan

1 Q. Okay. Now, on page 116 of my book, the draft screening  
2 report lists terms and conditions related to its  
3 recommendation. What additional costs are associated with  
4 each of these eight terms and conditions?

5 A. MR. OSLER: I think Mr. Morrison in his  
6 opening comments said that with the exception of the  
7 recommendation respect to underground transmission that these  
8 recommendations do not make any -- we're not aware of any  
9 material differences or changes to the cost estimates in this  
10 project because these type of things are incorporated in the  
11 current package.

12 The one exception I've noted was noted in  
13 Mr. Morrison's opening comments. And the comment was also  
14 made at that time that YEC would be reviewing and seeking to  
15 get revision to that one recommendation.

16 Q. Okay. Let's leave aside that recommendation for a  
17 moment. But all of the rest of these were things that would  
18 have been done anyway and are incorporated in your cost  
19 estimates?

20 A. MR. MORRISON: That's correct.

21 Q. Okay. Well, let's deal with the outlier. What's that  
22 going to cost to comply?

23 A. MR. MORRISON: Well, we're working on the  
24 estimate, but it will be significant. It could be as much as  
25 a million dollars.



H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Janigan

1 Q. A million dollars?

2 A. MR. MORRISON: It could be. Which is why  
3 we're hoping that we can on a common sense basis convince  
4 YESAB that that's an issue that will add to the cost of the  
5 project. And really what they're talking about is an  
6 esthetics issue, not a material issue related to the  
7 operation of the plant.

8 Q. Okay. Now, with respect to the YEC LNG presentation at  
9 the YESAB public meeting of December 11, 2013, at page 142,  
10 YEC refers to all of the diesel generation on the Yukon grid  
11 as backup generation.

12 A. MR. MORRISON: That's correct.

13 Q. Can you confirm that the existing WD1 and WD2 diesel  
14 generators are used for backup and/or emergencies only and  
15 that there are no pending industrial loads that are driving  
16 the proposed project?

17 A. MR. MORRISON: That's correct.

18 Q. Okay. And can you confirm that the proposed LNG fuel  
19 generators will only be used for backup and/or emergency  
20 purposes?

21 A. MR. MORRISON: Mr. Chairman, I just want to be  
22 very clear. They are built -- they are installed to provide  
23 and meet the requirements of our capacity calculations. They  
24 will be used to back up the system in emergencies. They will  
25 be used from time to time if we have a drought situation on

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Janigan

1 the system, which is a short-term situation. If we lose  
2 water levels in one of our systems for a summer, we would use  
3 the LNG and the diesels to provide the additional load  
4 required. And, obviously, on an annual basis, as we've  
5 looked at here, they'll provide small amounts of incremental  
6 diesel required to meet the system's requirements where  
7 there's a deficit on hydro.

8 A. MR. OSLER: One thing to be clear about is  
9 that the Mirrlees at the moment are very low in the stacking  
10 order, as you can see from their history of how much they've  
11 been used. They are simply -- they are to be emergency  
12 backup, can contrast the new gas engines in order to secure  
13 the fuel cost savings, would be used as a first-on operation.  
14 So there's a quite a significant difference in how they would  
15 operate.

16 But, essentially, in summary, gas engines are  
17 used like the diesel engines are for the same purposes.

18 Q. How did YEC determine the frequency of generation  
19 sources to meet the demand?

20 A. MR. CAMPBELL: Well, I can certainly discuss  
21 how we dispatch our thermal generation, and that's based --  
22 it's an economic dispatch based on the cost of fuel which  
23 varies depending on where they're located, and the  
24 maintenance costs associated with those units.

25 So there is a stacking order that's an

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Janigan

1 economic basis. So our most cost-effective units are run  
2 first, and our least cost-effective units are run last.

3 Okay.

4 Q. Now, I take it the proposed LNG fuel generators will  
5 have a lower revenue requirement than leaving the existing  
6 diesel generators in place.

7 A. MR. OSLER: In the sense that they have a  
8 lower cost as shown in Table 4-3, they would, therefore, have  
9 a lower impact on the revenue requirement, if that's what  
10 you're asking.

11 Q. Would they be going up in the stacking order then?

12 A. MR. OSLER: They would be the lowest cost  
13 thermal generators on the stacking order. Before them would  
14 come the wind and the hydro generators. They are always used  
15 to the extent that they have energy available subject to some  
16 storage rules for hydro.

17 Q. What difficulties has YEC specifically run into when the  
18 WD1 and WD2 generators were not available for some reason?

19 A. MR. MORRISON: Well, we have to turn other  
20 units on. We have to get -- we have to find a way to get  
21 them on if we need them. Even when they're on, they're  
22 difficult to keep on.

23 Q. Okay. And that is because they're at the end of their  
24 life; is that what you're --

25 A. MR. MORRISON: That's because they break.

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Janigan

1 They -- they almost -- you almost need an oil truck -- lube  
2 oil truck sitting beside them pumping oil into them. They  
3 leak oil like crazy. They spew oil everywhere. It's because  
4 seals and things aren't tight anymore. Parts are worn, and  
5 replacements are difficult, if not impossible, to get.

6 A. MR. OSLER: Just to be very clear. When  
7 you're talking about reliability, the corporation has not  
8 found that these engines to date have failed to meet the need  
9 for reliability. If they had, they'd have a serious problem  
10 because they would have an unreliable system. So they're  
11 talking about the issue of they have reached their end of  
12 life. If they started to have problems today after their end  
13 of life, then the corporation would be very naturally  
14 concerned about it not having met its obligations to its  
15 ratepayers.

16 Q. What about the proposition that because they're only  
17 used for backup and emergency purposes, that YEC could simply  
18 let this equipment break down before replacing it?

19 A. MR. MORRISON: Well, I wouldn't want to be the  
20 guy that would have to face the ratepayers of this territory  
21 when -- and the citizens of this territory when it broke down  
22 at 40 below and I did need it.

23 And I don't know when it's going to break  
24 down, but I want to tell you that when we lost the Aishihik  
25 line a few years ago back in 2006, that was an extreme

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Janigan

1 condition, and I think everybody has to understand that  
2 losing a line doesn't mean you just lose the line. Losing  
3 the access to generation on a system that is balanced every  
4 day, and every hour of every day the operation of the system  
5 is balanced, it's balanced by the system operators who  
6 balance load and the amount of generation and the location of  
7 generation that's required to keep the system in that  
8 balance.

9           When we lost the transmission line from  
10 Aishihik in 2006, we not only lost Aishihik, we lost all of  
11 the hydro units in Whitehorse for a period of time and some  
12 of the diesel because when that load that was being carried  
13 by that system came looking for a home, it knocked the entire  
14 system out because it's 35 -- it was at that time 30  
15 megawatts of load that couldn't be handled by the Whitehorse  
16 generating station.

17           So it takes time and there is consequential  
18 issues that you have to deal with. The engines cannot be  
19 just barely okay to operate. They have to be in tiptop  
20 condition when they're required because if they're not in  
21 tiptop condition, then our efforts are turned towards trying  
22 to fix engines that are not operating at 100 percent when we  
23 need them to operate at 100 percent. And instead of getting  
24 people's power back on, we're fixing broken-down engines.  
25 And, quite frankly, I, as the CEO of this organization, am

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Janigan

1 not prepared to take that chance any longer.

2 Q. Going back to the discussion we had about what happens  
3 when one or both break down now, indicated that basically you  
4 have to look for other sources in the system, why would that  
5 not occur in the event of a complete breakdown, let's say, as  
6 far as replacement?

7 A. MR. MORRISON: Because there are not  
8 sufficient other sources on the system to meet the load  
9 requirements that you'd have to service.

10 Q. Okay. How many hours of use has each of these two  
11 Mirrlees had since it was last refurbished approximately?

12 A. MR. MORRISON: I can't tell you, sir.

13 Q. When YEC made the decision to retire these units  
14 internally, was that based on an analysis by mechanical  
15 engineer?

16 A. MR. MORRISON: Yes, that would have been based  
17 on an analysis by mechanical engineers, electrical engineers,  
18 our senior mechanics. All of those people within the  
19 organization would have been involved in those decisions.

20 Q. And were those opinions consolidated into a report?

21 A. MR. MORRISON: No, sir.

22 Q. How did you collect and disseminate and digest that  
23 information?

24 A. MR. MORRISON: Well, it's digested and  
25 gathered over a period of time. And at different points in

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Janigan

1 time, we look at the assessment on the engines and, you know,  
2 decisions are made internally from operating information  
3 that, as I've indicated to you, it isn't just the cost of  
4 refurbishment; it's also the ability to get parts and to get  
5 them in a timely manner and to be able to rely on the fact  
6 that we can get the parts. And, over time, that has  
7 deteriorated to a point where nobody's prepared to support  
8 continuing doing this.

9 Q. But I would assume that at some point in time, there was  
10 one consolidated report that recommended this?

11 A. MR. MORRISON: No, sir, there was not.

12 Q. So when it was determined, it was determined simply in a  
13 meeting of management; is that what you're saying?

14 A. MR. MORRISON: Well, it was determined in  
15 several meetings over a period of time, yes.

16 Q. And there was no report that was issued to management?

17 A. MR. MORRISON: No, sir. There was no one  
18 single consolidated report issued to management, no.

19 Q. Okay. It's kind of a big decision --

20 A. MR. MORRISON: Well, it's a very big decision  
21 but, you know, management decisions take the form of a whole  
22 lot of different sources of information and they don't  
23 necessarily always take the form of a written engineer's  
24 report.

25 And in this case we have a lot of experience

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Janigan

1 over a lot of years with these engines, and the people that  
2 know these engines the best and work with them every day, the  
3 mechanics, have a significant amount of input into decisions  
4 that are made as well as the electrical and mechanical  
5 engineers who also support this system. So --

6 Q. I don't doubt it, but presumably at some point in time,  
7 you'd want to transcribe those opinions into a report, would  
8 you not?

9 A. MR. MORRISON: You asked me if I had a  
10 consolidated report. I said no.

11 Q. No. What reports do you have?

12 A. MR. MORRISON: Mr. Janigan, I have what I  
13 indicated to you. Over time, we don't necessarily need to do  
14 a report on each of these engines. We have -- we have  
15 operating history, we have mechanical work that's been done,  
16 work orders, we have the experience and the knowledge of the  
17 operators. And all of that, when it comes together and you  
18 look at it, is a very compelling case.

19 Q. I've lost track of what should be going in and what is  
20 already in and what should be going in. I believe the YESAB  
21 public meeting --

22 THE CHAIR: I guess I can interrupt here  
23 because I don't think there's anything that has to go in as  
24 exhibits because they've all been dealt with in one form or  
25 another.



## H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Janigan

1 MR. JANIGAN: Okay. I think that's correct  
2 based on the fact that the excerpts from each of these  
3 different reports were put to the witnesses, and the  
4 witnesses responded so that -- they're given -- there's a  
5 context for their responses given by the excerpts that have  
6 been read to the witnesses before.

7 THE CHAIR: And that's how I took, and I  
8 believe that's how YECL had viewed it as well.

9 MR. LANDRY: Yes. And just for the record,  
10 as Mr. Osler I think said, a couple of the documents are  
11 actually in evidence --

12 THE CHAIR: Right.

13 MR. LANDRY: -- and I was making sure that  
14 when the reference was done that actually that exhibit  
15 reference is on the record, so I don't think there's any need  
16 to --

17 THE CHAIR: And there was one place where I  
18 came back just before the break at lunch to just confirm that  
19 there was an item that was on the record already.

20 MR. JANIGAN: Okay. I think that's fine,  
21 then.

22 Let me just take one more quick look at my  
23 notes here, but I think those are all my questions.

24 Oh, I have one question here.

25 Q. Does YEC have an option of asking any larger customers

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Janigan

1 to switch to their own generators when the system demand is  
2 high?

3 A. MR. MORRISON: We don't -- a couple of things,  
4 Mr. Chair. We don't have any -- anybody on an interruptible  
5 rate. So we don't have that just as a basis.

6 When service is interrupted and the  
7 Capstone Mine wishes to operate, it has to turn its diesels  
8 on. Its diesels don't supply all of the load requirement  
9 that they have, but it can do the basics. But that's the  
10 only customer that we have that has that.

11 Q. And what sort of percentage of the load is that?

12 A. MR. MORRISON: I couldn't tell you, sir.

13 Q. Any help from anyone else there?

14 A. MR. OSLER: Not off the top of my head. I  
15 mean, the Capstone load is 30 -- well, it's in -- the  
16 assumptions are in Appendix C as to what -- the Minto load is  
17 assumed to be 34.6 gigawatt hours in 2013, 38 gigawatt hours  
18 in 2014, 40 in 2015, and 43.5 for the years 2016 to '22.  
19 That's on page C-1 of the application.

20 A. MR. MORRISON: What I can't tell you is what  
21 they have in terms of capacity and what works. That's what I  
22 can't tell you.

23 A. MR. OSLER: To be very clear, that load  
24 includes losses to supply them. So their actual purchases  
25 from YEC would be somewhat less because it would be what they

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Janigan

1 pick up at the mine site.

2 A. MR. CAMPBELL: Sir, what I can tell you, when  
3 they originally went into service, obviously they started out  
4 self generating; and I believe they had 4 1/2 megawatts. 3  
5 by 1.5 megawatt units.

6 I believe those may still be in place. Their  
7 loads have grown since that time and they would no longer be  
8 able to achieve their full mill production, but they could --  
9 they could certainly do a controlled shutdown of their mill  
10 processing facilities and they may be able to operate at a  
11 reduced throughput through the mill.

12 A. MR. OSLER: And just for the record,  
13 Yukon Energy's capacity planning criteria is presented in its  
14 2006 resource plan and reviewed by the Board at that time.

15 As a certain -- as two tests that I'm going to  
16 be speaking at a high level. One of them is the loss of load  
17 probability test. The other one is the N minus 1 simple  
18 test.

19 The N minus 1 test is the one that's been used  
20 in this application. It only applies to non-industrial  
21 loads. It's not affected at all by industrial loads in terms  
22 of capacity requirement.

23 And what we've found in 2006 and updated in  
24 the 2011 resource plan is that the loss of load test wouldn't  
25 probably come into play as being relevant until you had mine

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Janigan

1 loads of a certain magnitude. And I think the 2011 resource  
2 plan says the magnitude of the mine load would probably have  
3 to be in the order of 12 to 14 megawatts. I think it was  
4 more like 7 or so in the 2006 resource plan.

5 A short point being, unless we have more mine  
6 loads than Minto and Alexco together, the capacity tests that  
7 are driving the need for this project are entirely determined  
8 by the non-industrial peak load; which means that Minto  
9 essentially had better look after its emergency conditions in  
10 the event that the shut -- that a emergency on the system.

11 MR. JANIGAN: Thank you.

12 Mr. Chair, those are all my questions.  
13 Thank you for the panel for their patience.

14 THE CHAIR: Thank you, Mr. Janigan. I'm  
15 going to propose that we take our break now. It's a little  
16 bit early, but we are going to be recessing today at 4:30 as  
17 opposed to the normal 5:00. And then that will allow  
18 Mr. Austin to get set up and we can move on from there, and  
19 then he won't be interrupted during his questioning.

20 So if there's no disagreement with that,  
21 that's what I would propose we go ahead. And we'll recess  
22 now 'til 3:00. Sorry. Take a break until 3:00.

23 (ADJOURNMENT).

24 THE CHAIR: Please be seated.

25 So, Mr. Austin, I'll turn it over to you

## H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Austin

1 whenever you're ready to proceed.

2 MR. AUSTIN: I'm ready to proceed right now.

3 THE CHAIR: Fair enough.

4 Just before -- is there any returns or  
5 preliminary matters?

6 MR. LANDRY: Unfortunately, I think there's  
7 one left on the record, and we still don't have that.

8 THE CHAIR: That's fine.

9 MR. LANDRY: We hopefully will have it by  
10 first thing tomorrow morning.

11 THE CHAIR: Thank you.

12 Sorry, Mr. Austin. I didn't mean to interrupt  
13 you.

14 MR. AUSTIN: That's fine.

15 **MR. AUSTIN CROSS-EXAMINES THE PANEL:**

16 Q. Panel, if you've already forgotten -- which you probably  
17 have -- my name is David Austin. I have at counsel table  
18 John Maissan and Anne Middler. They will assist me from time  
19 to time, so, if things get slowed down a little bit if I have  
20 to consult with them, I appreciate your indulgence.

21 So, panel, the first question I have for you  
22 is about the natural gas engines, the Jenbacher 620s. Have I  
23 got it right that the natural gas engines that you have  
24 purchased or about to purchase are the Jenbacher 620s?

25 A. MR. MORRISON: Yes. Hang on a second.

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Austin

1 A. MR. CAMPBELL: I believe they're actually a  
2 624, they're a 24-cylinder, not the 20-cylinder model.

3 Q. Okay. 624. So we're dealing with the Jenbacher 624s.  
4 Can these Jenbacher 624s be run on anything other than  
5 natural gas?

6 A. MR. CAMPBELL: The one that we have purchased,  
7 not without modifications. They are certainly designed to  
8 run on a variety of fuels including biofuel, waste gas. The  
9 ones that we have purchased are set up to run natural gas.

10 Q. So essentially what you're telling me, they're a  
11 gas-only engine?

12 A. MR. CAMPBELL: They're certainly a gaseous  
13 fuel engine.

14 Q. Okay. Well, let's put it this way. If you wanted to  
15 run them on a liquid fuel like diesel, would it be fair to  
16 say that you'd have to essentially completely tear them  
17 apart?

18 A. MR. CAMPBELL: We don't know the answer to  
19 that. That's not an area that we've looked at. We know that  
20 they have successfully run on a variety of other gaseous  
21 fuels.

22 Q. Okay. So for the purposes of your analysis in terms of  
23 purchasing engines over a 40-year life, your expectation is  
24 that they will run on natural gas, and you didn't look at  
25 whether they could ever be converted to run on a liquid fuel

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Austin

1 such as diesel.

2 A. MR. CAMPBELL: Subject to check, that's  
3 correct. I can check with our engineers that were involved  
4 in that, but that was my understanding. I don't believe this  
5 model is available to run on diesel.

6 A. MR. OSLER: Essentially the application  
7 presumes these are gas-only engines for the purpose of  
8 comparison with diesel as distinct from the dual fuel  
9 engines. So I don't think, subject to Mr. Campbell's  
10 checking, I don't think there's much debate about the nature  
11 of what the project is proposing.

12 Q. Now, in evidence this morning I heard that this project  
13 is all about capacity. Did I hear that correctly?

14 A. MR. MORRISON: That's correct.

15 Q. But for the purposes of your business plan that goes out  
16 to 2018, your estimated savings are based on essentially  
17 energy production in a dry period. Is that correct?

18 A. MR. MORRISON: Not quite, but I think mostly  
19 correct.

20 As we indicated earlier, Mr. Chair, the  
21 capacity is the primary driver. That's the underlying driver  
22 in the project. In addition to satisfying our capacity  
23 requirements, the project also allows us to meet the needs of  
24 incremental diesel generation that we have been experiencing  
25 over the last few winters and will experience at higher rates

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Austin

1 over the next several years as we go forward.

2 Q. Just to be clear, though, for the purposes of dry  
3 periods, you use these -- your expectation is that you will  
4 use these engines to produce energy. Is that correct?

5 A. MR. MORRISON: If we have a situation where we  
6 have a drought period and we do not have additional  
7 renewables on the system, that is fully our expectation that,  
8 on a short-term basis, getting us through a dry period we  
9 would use these units to offset our deficit on hydro.

10 Q. In terms of the period of record for your critical water  
11 sequence or your drought, how long is that?

12 A. MR. MORRISON: Sorry, I'm not sure I  
13 understand the question.

14 Q. For the purposes of your planning and estimating your  
15 length of your drought, what period do you use? How long?  
16 Is it one year, two years, three years?

17 A. MR. OSLER: Well, I mean, the evidence in  
18 the application is at page C-6, and it provides a review of  
19 the 31 years and apply of water records and applies them to  
20 forecast for 2016 base case and 2018 for scenario A. So you  
21 can see the distribution that that provides for different  
22 years and different loads different amounts of water.

23 To give an example, the forecast default  
24 diesel requirement for 2016 is 22.9 gigawatt hours without  
25 Alexco or 33 gigawatt hours with Alexco. In roughly 50



H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Austin

1 percent of those water years, you'd be needing at least 52  
2 percent. To be exact, you'd need 15 gigawatt hours or more  
3 of diesel without Alexco or 25.9 with Alexco. Some of those  
4 years you could need double that. You'd need up to 100 or  
5 more.

6 If you were focusing on a sequence of years  
7 that tend to lead to a very severe drought condition, you'd  
8 be looking at the late '90s as you can see from the  
9 left-hand side of that table, and it's a series of four or  
10 five years in a string where low water conditions that didn't  
11 really register on people here because at the time the Faro  
12 mine closed. If the Faro mine had been open, we'd all have  
13 this prominently in our memory banks.

14 Q. How long was the string?

15 A. MR. OSLER: It looks -- if you look at the  
16 left-hand side of the page; 1995, with 2016 base case would  
17 have required about 35 gigawatt hours; '96, about 63; and '97  
18 about 68 or 9; '98 about 76; '99, 101; 2052 -- and then it  
19 starts to back down to less than 25 gigawatt hours. So it's  
20 six, seven years. I wasn't counting, but -- that would be  
21 the Yukon's history's evidence as to a string of years low  
22 water.

23 Q. And when did YEC determine that it had a capacity  
24 problem?

25 A. MR. MORRISON: Well, Mr. Osler, I'm sure, will

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Austin

1 remind me in terms of the first time we had a discussion with  
2 this Board in recent years about capacity planning, but I  
3 think it goes back to as early as 2006.

4 A. MR. OSLER: In the 2005-6 resource plan,  
5 focused on the need to have a capacity planning criteria that  
6 would work for this grid, and pointed out that with the  
7 end-of-life of the Mirrlees, we had a capacity planning  
8 problem that had to be addressed.

9 It doesn't mean that Yukon Energy didn't think  
10 about capacity planning issues well before that. I'm not  
11 suggesting that. I'm just saying in the context of current  
12 hearings and discussion, there was a front-and-centre issue  
13 in that particular resource plan and the hearing that YUB  
14 held from that.

15 Yukon Energy updates their forecasts fairly  
16 frequently, so this particular forecast that you see here has  
17 many precursors on Table C-4. I mean, during the last GRA,  
18 we would have seen a previous version of this, and it would  
19 have showed capacity shortfalls in various years. So it's  
20 not a brand-new idea that there would be a capacity shortfall  
21 emerging when these units start to be, you know, end-of-life  
22 again.

23 Q. Could you repeat the last part that question? I didn't  
24 understand -- answer -- I didn't understand that very well.

25 A. MR. OSLER: It's not a new idea that there

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Austin

1 would be a capacity shortfall emerging about the time you see  
2 here.

3 I think -- we can check, but we had earlier  
4 forecast for the 2011 resource plan. We can check what dates  
5 they showed these capacity shortfalls emerging, but I  
6 wouldn't be at all surprised if they're roughly about the  
7 same time because we had exactly the same dates for  
8 retirement of various units. And the load forecast, if  
9 anything, is a little bit higher now than it was then for  
10 non-industrial loads, but I wouldn't have thought it would  
11 make that much difference.

12 Q. So in about 2006, you recognize that you would have a  
13 capacity shortfall problem emerging about now.

14 A. MR. OSLER: No, we actually knew we had a  
15 capacity shortfall problem that existed then. And the issue  
16 of refurbishing Mirrlees units was proposed as a game plan to  
17 deal with that problem. Otherwise they would have had to  
18 retire 14 megawatts, and the system would have been short of  
19 capacity then.

20 Q. But for the purpose of my question, can you just give me  
21 a clear answer as to when was the earliest date that you  
22 anticipated the capacity shortfall that you're trying to  
23 address now?

24 A. MR. OSLER: We'll get a check as to what  
25 the earlier plan showed and see whether or not the answer

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Austin

1 I've given you needs to be modified. I'm thinking that it's  
2 probably been known for several years, but we'll check it.

3 Q. Is it several years or is it starting in 2006?

4 A. MR. OSLER: We'll check it for you.

5 Q. In this morning's testimony, and you can correct me if I  
6 get this wrong, it was my understanding -- or it is my  
7 understanding that for the purposes of your business plan,  
8 you're projecting about -- and these are very rough  
9 numbers -- about 9 million in savings by using natural gas  
10 driven engines, and that approximately covers -- with the  
11 emphasis on approximately -- about 9 million in additional  
12 costs that would be incurred for LNG infrastructure not  
13 including the capital cost of the natural gas engines.

14 A. MR. OSLER: I don't think that would  
15 reflect what people were trying to say this morning. So let  
16 me summarize it.

17 Based on the update Exhibit B-13, Table 1 on  
18 page A-5, I'll go down the table. The capital costs for new  
19 diesel versus LNG are given at the top of the page. The new  
20 diesel alternative totals to \$32.7 million. The LNG  
21 alternative, including engines and everything else, \$42  
22 million and that includes 1.1 million of contingency on the  
23 third engine which was not a forecast; it's just a  
24 contingency for the purpose of this analysis. The difference  
25 is 9.3 million in capital costs, all inclusive.

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Austin

1           The annual capital costs allocation, given a  
2 40-year amortization, are shown in the table. The difference  
3 between LNG and new diesel is shown. The sum of those  
4 numbers for the four years is 2.7 million difference.

5           So the extra capital cost impact on ratepayers  
6 in those four years would be \$2.7 million for LNG, more than  
7 new diesel.

8           The fuel cost savings, as estimated in the  
9 table, is shown below. Over the time period, the same four  
10 years, they total \$11.9 million. The overall savings in the  
11 four years given amortization is \$11.9 minus 2.7 or 9.2  
12 million.

13           I think Mr. Morrison also said that the actual  
14 fuel cost savings during that time period of 11.9 were more  
15 than enough to cover off the full capital cost difference of  
16 9.3 million.

17 Q. Yes, but the full capital cost difference of 9.3 million  
18 does not include the remaining capital cost with respect to  
19 the natural gas engines because the total cost of the project  
20 is about 42 million as I think you've justly told me. You've  
21 told me that I'm getting savings of roughly 9 million because  
22 I'm using natural gas. So by my quick math, that means I  
23 have about another \$33 million that has to be recovered over  
24 the next 40 years; is that correct?

25 A. MR. OSLER:                           I don't understand at all what

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Austin

1 you're saying, so I can't...

2 In the four years if you had new diesel versus  
3 project as proposed, you would have paid off, you know, four  
4 divided by 40 of the capital costs for each one of the  
5 alternatives. So you'd still have a bunch of capital cost  
6 left to be recovered through depreciation, etcetera.

7 If that's your point, the \$9.2 million saved  
8 over this time period in fuel cost savings compared to the  
9 capital costs that are charged during that time period still  
10 has to apply against the balance of the capital costs for the  
11 rest of the time period, if that's your point.

12 But the point that we were making is that, one  
13 way or the other, if we didn't have this project, ratepayers  
14 would be paying \$11.9 million more in fuel during this time  
15 period. And by having this project, they are saved from  
16 paying that during this time period, and that difference,  
17 when pocketed, is enough to have paid off completely the  
18 capital cost difference between the two projects.

19 Q. All I'm doing is paying off the capital cost difference  
20 between the two projects with the fuel cost savings in the  
21 next four years; is that correct?

22 A. MR. OSLER: That's what I'm understanding.

23 A. MR. MORRISON: Let me try this maybe my way.

24 One way or another, we have to spend the  
25 amount of money as the base case here is -- and I don't have

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Austin

1 my figures, but the diesel is \$32 million -- \$32.7 million.  
2 And so we have to spend that money. In the four year -- and  
3 in comparison to that, if we do LNG, we're spending 41;  
4 right, 42. So \$10 million -- we're basically spending \$10  
5 million, \$9 million more.

6 So the argument here in this table simply is  
7 this: Ratepayers are better off because in four years we've  
8 paid off that \$9 million. We still have to pay for either  
9 diesel or LNG, but now we're even. And all of the savings  
10 going forward go to the benefit of the ratepayer.

11 But the point that was being made earlier is  
12 it only takes four years to get rid of the delta in the  
13 capital cost between LNG and new diesel. That's simply what  
14 we're saying.

15 A. MR. OSLER: And now that I get -- there's  
16 still the balance of the capital cost that would have been  
17 incurred with diesel to be paid off over the remaining life,  
18 that's true.

19 Q. And there's also the balance of the capital cost to be  
20 paid off with respect to the natural gas engines over the  
21 remaining life?

22 A. MR. OSLER: Either way, but it's no penalty  
23 for having chosen gas versus diesel; that's the point.

24 A. MR. MORRISON: There's a benefit for choosing  
25 natural gas in that as you go forward and if the engines are

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Austin

1 operated, so let's go to year six. Well, after year four, if  
2 there's diesel or gas used on the margin in year five and  
3 year six and year ten and year twenty because you're still  
4 using small increments of thermal requirement for the system,  
5 it's much better off for ratepayers the longer you use the  
6 small increments of additional requirement.

7 Q. That also assumes, does it not, that the price of  
8 natural gas is lower than diesel in years 4 through 40  
9 because if the price of natural gas is higher than diesel in  
10 years 4 through 40, it will actually start to lose money on  
11 the investment in natural gas engines. Is that not correct?

12 A. MR. MORRISON: Sure, but, Mr. Chair, we have  
13 seen nothing that tells us that.

14 Q. But that's a risk.

15 A. MR. OSLER: We've discussed it in the  
16 application, yes.

17 Q. For the purposes of people in this room and maybe people  
18 in the panel, could you please explain the difference between  
19 energy and capacity?

20 A. MR. OSLER: For the purposes of this  
21 discussion, it goes to the planning and operation of  
22 electrical grid. And as a utility responsible for the grid,  
23 Yukon Energy has to plan for two things. It has to plan to  
24 have a capability or a capacity to supply energy at any  
25 moment that it may be required. So it has to have a peak



H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Austin

1 capacity capability to do that, which means it has to have  
2 enough generation, transmission, etcetera, to meet a peak  
3 winter load. And on top of that, the requirement of the  
4 capacity planning criteria is that it be able to meet that  
5 peak winter load taking into account that its hydro  
6 generation is somewhat constrained during that time period.

7 At Whitehorse, the peak capability that you  
8 can firmly rely upon in wintertime from Whitehorse is not 40  
9 megawatts, it's more like 24, I believe.

10 So we have to take that into account. And we  
11 also have to take into account the so called N minus 1 event,  
12 the worst case event that could lose capability, which is the  
13 loss of the Aishihik line. So we cannot rely upon the 38  
14 megawatts at Aishihik for that purpose.

15 In contrast, the utility also has to plan for  
16 the most cost effective way to generate the energy required  
17 during the whole year and future years. Energy is measured  
18 and we usually talk about it here in millions of kilowatt  
19 hours or gigawatt hours, but it's a measurement of how much  
20 we actually generate over a period of time and it's often  
21 discussed in terms of the year in the context of this  
22 discussion, but it could be discussed in terms of time  
23 periods or seasons.

24 And at a very simple level in planning for  
25 those two things, capacity and energy, you'd like to spend as

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Austin

1 little capital as possible to meet your peak requirement  
2 because some of that capacity is not run very often. So you  
3 don't want to have to spend a lot of money on it.

4 But for the energy that you're generating all  
5 the time, or a lot of the time, you'd like to find the lowest  
6 way to generate energy which could be a fuel, or it could be  
7 a very capital-intensive hydro unit that is operated  
8 efficiently all the time. So they're quite different issues  
9 in terms of planning and in terms of costing, and that's why  
10 we talk about them that way.

11 This project is being put forward solely to  
12 meet a capacity requirement, and it is not expected that the  
13 units would, on average, be operated anywhere like 50  
14 percent, 80 percent. If this was a mine that was putting in  
15 gas engines, it would be expecting to operate these units  
16 very high level of efficiency, but these units are expected  
17 to be used for capacity purposes and not to be operated a  
18 great deal.

19 Q. Would the participants in the January 18th, 2012 LNG  
20 workshop know the difference between energy and capacity?

21 A. MR. MORRISON: Certainly some of them would,  
22 yes.

23 Q. Would it be fair to say most of them wouldn't?

24 A. MR. MORRISON: No, I don't think I'd say that.  
25 I don't know, but I wouldn't agree to that. There are a

1 number of people there who would very well know, including  
2 people in this room.

3 A. MR. OSLER: But I don't think the focus of  
4 the discussion was capacity versus energy. I think,  
5 generally speaking, the participants were talking LNG as an  
6 energy option more than a capacity option. It was noted that  
7 it provides firm capacity, but the conversation, as I recall  
8 it, was much more in the context of using it to displace  
9 larger volumes than we're talking about here, of diesel.

10 And certainly this project, as a capacity-only  
11 project, was not on the books or being talked about by  
12 Yukon Energy, to the best of my knowledge, at the time. It  
13 was about six months later that it started to be considered  
14 as a possibility.

15 Q. And this is another question that is a follow-up from  
16 the cross-examination of earlier today. There was the  
17 discussion with respect to the loss of the transmission line  
18 from Aishihik in 2006, and I certainly need some assistance  
19 here in understanding; what was actually lost? Was it the  
20 actual transmission line that comes from, presumably, the  
21 substation at Aishihik, or was it a loss or a failure of a  
22 cable within the generating system on the generating side of  
23 the transformer at Aishihik?

24 A. MR. MORRISON: The latter, sir.

25 Q. So it was a cable failure within the generating station.

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Austin

1 A. MR. MORRISON: That's correct.

2 Q. And has that generating station cable been twinned so  
3 that if it fails -- one cable fails, there's backup for it  
4 now?

5 A. MR. MORRISON: That's correct. But,  
6 Mr. Chair, that does not in any way change the capacity  
7 planning criteria and the criticality of the Aishihik line as  
8 our most risk -- the point with the greatest risk in the  
9 system. Because the line has the largest winter capacity, at  
10 least at that time, on the system, of 38 -- 37 and a half  
11 megawatts, that's the critical point of failure is that line.

12 Now, we don't design capacity planning  
13 criteria, and we've had witnesses, and we've certainly had  
14 numerous hours of discussion in front of the Board regarding  
15 that planning criteria and what it's set out as.

16 But, you know, when I first started in this  
17 business, we used to think it was generation that was our  
18 exposure. In fact, it really is, these days, transmission  
19 that gives us biggest exposure, largest exposure.

20 Q. Have you ever lost the transmission line, meaning the  
21 line that's on the transmission side of the transformer from  
22 Aishihik to Whitehorse?

23 A. MR. MORRISON: Have we ever had outages, are  
24 you saying?

25 Q. Have you ever lost the line?

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Austin

1 A. MR. MORRISON: Are that would be an outage.

2 I -- yes, we've had outages. How many on the Aishihik line?

3 I couldn't tell you. How many on the Faro line? I couldn't  
4 tell you. But we certainly have outages.

5 Q. And just --

6 A. MR. MORRISON: And, sir, I will point out as  
7 well that there are times when we have shut down the line --  
8 not the Aishihik line -- in the last few years, but certainly  
9 the Faro line, for forest fires in the area. We had -- I  
10 can't remember if it was last summer and the summer before,  
11 but we had numerous days where we had lines voluntarily shut  
12 down because of fire concerns in the area, and therefore, no  
13 ability to use that line to transmit power from the north or  
14 from Faro or out to Faro from Whitehorse.

15 A. MR. OSLER: And just for the record, the  
16 conversation we had in 2005, resource plan 2006 didn't make a  
17 big deal -- didn't make a big deal of the formalities of the  
18 generation station versus the transmission line. It actually  
19 envisage the failure going right down into the ground and  
20 coming up the elevator. Unfortunately, that's what happened.

21 But there were options looked at of twinning  
22 that line and everything else. It was a very serious  
23 consideration given to what it takes to build redundancy into  
24 that, and so far it hasn't been cost effective to build twin  
25 that line all the way to Whitehorse as is required.

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Austin

1 Q. Without being disrespectful or in any way trying to be  
2 humourous, do you have forest fires in the middle of winter?

3 A. MR. MORRISON: I'm not sure what the point of  
4 that is.

5 Q. Well, the point is that you just told me that you can't  
6 shut down lines for forest fire risk, and we're talking about  
7 a need to meet the peak load in the middle of the winter. If  
8 there's a need to meet the peak load in the middle of winter,  
9 is forest fire a risk that you have to take into  
10 consideration?

11 A. MR. MORRISON: Well, not to be disrespectful,  
12 sir, but the question you asked me was, have we ever lost a  
13 line? And that's what I answered, not whether or not I've  
14 lost the Aishihik line in the middle of winter.

15 Q. Well, have you ever lost the Aishihik line in the middle  
16 of winter?

17 A. MR. MORRISON: In my memory, the only one is  
18 2006.

19 Q. Thank you. In terms of cross-examination, there was  
20 reference to the Capstone mine, and it's not clear to me  
21 whether that's a firm customer or an interruptible customer.  
22 Can you tell me whether it's a firm customer or interruptible  
23 customer?

24 A. Capstone mine is a firm customer.

25 Q. And there was this afternoon some sort of discussion as

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Austin

1 to how big the Capstone mine load is. And does anybody on  
2 the panel know how big the load is?

3 A. MR. MORRISON: Well, I think Mr. Osler gave  
4 some numbers. But the problem with the question that your  
5 colleague Mr. Janigan was answering -- asking is, we don't  
6 know what they have on site in terms of openable units, so we  
7 couldn't give him a percentage of how much they can generate  
8 of their own load with their own equipment.

9 Q. Can you give me any idea what the estimated load is in  
10 megawatts? Because, again, we seem to be talking a lot about  
11 capacity.

12 A. MR. MORRISON: It's in the neighbourhood of 5  
13 megawatts.

14 Q. 5 megawatts?

15 A. MR. OSLER: It's in the neighbourhood, but  
16 it doesn't affect the capacity planning criteria, as I  
17 explained before the break.

18 A. MR. CAMPBELL: Yes. Sir, I would point out in  
19 our application in Table C-4 in terms of capacity planning.  
20 Again, the grid demand numbers that we're using exclude  
21 industrial customers. So the forecast demands and the  
22 reserve criteria being applied excludes industrial customer  
23 demand.

24 Q. Okay. I think I've got it. So the point there is, if  
25 you went to Capstone and said: If there is peak demand or

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Austin

1 N minus situation, we will pay you money if you shut down,  
2 wouldn't make any difference.

3 A. MR. CAMPBELL: They will want to run their own  
4 generation to meet their own emergency mine requirements.  
5 That's what our industrial customers do because we cannot  
6 guarantee them the same degree of reliability in terms of  
7 reserve capacity planning that we can do for our  
8 nonindustrial customers, and that was by order of this  
9 tribunal after a long debate in 2006.

10 A. MR. OSLER: But just to be clear, we  
11 proposed -- Yukon Energy proposed capacity planning criteria,  
12 the two steps that I explained earlier, and I won't repeat  
13 it.

14 Number two, the industrial load only came into  
15 apply when the loss-of-load-probability test required extra  
16 capacity. Under the loads the industrial loads have today,  
17 they're getting the loss-of-load-probability security that  
18 they would get in any event. The N minus 1 test is  
19 protecting them as much as anybody else.

20 It's just if their load got to 13 megawatts or  
21 12 megawatts or 14 megawatts or whatever, we would have to  
22 start looking at a loss-of-load-probability test rather than  
23 the N minus 1 test as being the dominant one as.

24 In respect to the question as to how big the  
25 Minto load is, it is in the application at page C-8 footnote



H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Austin

1 number 2. Minto at 4.8 megawatts in 2014 increasing to 5.3  
2 in 2015, shut down in 2022. I think there is other  
3 information there if your team is interested in it.

4 Q. I certainly appreciate all that, but as an alternative  
5 to investing money in a new generator because I need  
6 capacity, would it do any good to go to Capstone and say: If  
7 there's an N minus 1 situation or my peak demand is higher  
8 than I forecast, if I pay you some money, would you shut  
9 down? Is that an alternative -- or again, it's Mr. Campbell  
10 who's trying to help me out here, and I fully appreciate  
11 that. Would it do any good, is what I'm trying to ask.

12 A. MR. CAMPBELL: The experience that  
13 Yukon Energy has had to date with all of our industrial  
14 customers for the past 23 years is that their on-site mine  
15 generation, they have use for their own purposes in the event  
16 that we've had a grid blackout that they would not be willing  
17 to shut down their mill and try to make some money by selling  
18 some power back to the grid.

19 Q. Have you ever asked them about that?

20 A. MR. MORRISON: Well, there's two things that  
21 we're talking about here, and I'm going to let Mr. Osler jump  
22 in.

23 First of all, we looked at the units that  
24 Capstone has on site, and they meet in no way, shape or form  
25 the mechanical requirements that we have in order -- in order

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Austin

1 to purchase them. So in other words, we don't like the  
2 units. They are not reliable. They are in poor working  
3 condition, and they would not be capacity issues for us. In  
4 addition to that, they're on the grid, and if the grid  
5 failed, they may not be available in any event.

6 Q. Maybe I'm not making myself as clear as I should be.  
7 I'm not suggesting for a minute that Capstone should be  
8 supplying capacity to Yukon Energy. What I'm saying is I'm  
9 trying to find out what Yukon Energy's obligation is to  
10 supply capacity to Capstone and is there a business  
11 opportunity to go to Capstone and say, "If we've got a  
12 problem with capacity, we'll shut you down, and we will pay  
13 you for the privilege of being able to shut you down if we  
14 need not your capacity Capstone, but YEC's capacity would not  
15 go to Capstone, it would go to somebody else."

16 I realize that's a statement, not a question.  
17 But the question is, is there a business opportunity there,  
18 and if there is a business opportunity, has it been explored?

19 A. MR. CAMPBELL: I would --

20 A. MR. OSLER: Mr. Chairman, there is no  
21 business opportunity there. I dealt with Capstone and we  
22 tried to put together the initial deal and we did recommend  
23 to this Board that Yukon Energy, as part of that deal,  
24 purchased those engines that Mr. Morrison has just described  
25 to you. They've got a mine to run. They've got lots of

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Austin

1 issues.

2 I have no evidence from my discussions with  
3 them years ago that they would entertain this type of a  
4 conversation for more than three milliseconds, and now I  
5 don't think my colleagues would entertain it for more than  
6 half a millisecond because they know what those engines are  
7 like.

8 Mining companies do not have an interest in  
9 trying to look after the capacity of the Yukon grid. In  
10 fact, they sort of would like to get as low a rates as  
11 possible and not get involved in any commitments and they  
12 want to run their mine. That's where they get their money,  
13 not shut it down.

14 So no, it's -- we discussed this in 2005/'6.  
15 We discussed the various options. We discussed the criteria  
16 at length. The Board gave recommendations on it. At the  
17 moment, frankly, the company is trying to proceed, move  
18 forward based on the decisions made back then rather than  
19 revisit them all.

20 A. MR. MORRISON: Can I have one second?

21 A. MR. OSLER: Mr. Chairman, my colleagues are  
22 just giving me all sorts of other reasons why we shouldn't  
23 entertain it and I don't mean -- there are lots of practical  
24 reasons.

25 Alexco is shut down right now. So we want to

1 phone them and ask them to please start up again if they -- I  
2 don't think you'd get very far. We can't rely on that type  
3 of thing. It goes on. I mean, we could go on at great  
4 length if it's important to everybody, but in simple cases,  
5 it's not something worth thinking about.

6 Q. So your answer is that you've had no discussions with  
7 them between 2005, 2006 about this type of issue?

8 A. MR. OSLER: Correct.

9 Q. I'd like to move on to the application. This is on page  
10 10, and I'm just trying to get a bit better understanding of  
11 the concept of these A-trains. And on page 10, it says:  
12 (as read)

13 "Significant travel distances and  
14 comparatively low density of LNG  
15 approximately 60 percent of diesel..."

16 and it goes on to talk about the double trailer A-trains.  
17 And there's reference to 95,000 litre capacity versus the  
18 tridem units with a 54,000 litre capacity.

19 And as I understand it, you're trying to get  
20 A-trains permitted for use in British Columbia and Alberta;  
21 is that correct?

22 A. MR. MORRISON: And the Yukon.

23 Q. And the Yukon.

24 A. MR. MORRISON: And the Yukon.

25 Q. You haven't received approval for the Yukon yet?

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Austin

1 A. MR. MORRISON: We've received notice from the  
2 Yukon highways that they will approve an A train  
3 configuration.

4 Q. In relation to the first part of the sentence about the  
5 density of LNG being approximately 60 percent of diesel,  
6 would it be fair to say that for every six loads of diesel I  
7 would need -- six truckloads of diesel, I would need  
8 approximately ten truckloads of LNG to get the same amount of  
9 energy?

10 A. MR. CAMPBELL: Sir, that would be correct if,  
11 in fact, the trailers were the same size. They're not.  
12 A-trains are larger than conventional B-trains used because  
13 the --

14 Q. Can I stop you right there? What's a B-train? I'm  
15 sorry, I just want to get it clear in my mind.

16 A. MR. CAMPBELL: A B-train is a conventional  
17 hauler used today for hauling diesel fuel around the  
18 territory, and its governing weight is based on the weight of  
19 the fuel. Natural gas only weighs two-thirds the weight. So  
20 you can go to a larger trailer because the tare weight is  
21 less. So basically the objective in pursuing an A-train and  
22 being able to handle or to hold 95,000 litres per train is  
23 you get the equivalent BTUs per trainload as you would in a  
24 Super B -- in a B-train --

25 Q. Okay.

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Austin

1 A. MR. CAMPBELL: -- full of diesel. So it's a  
2 one-to-one comparison.

3 A. MR. OSLER: For the sake of everyone, we're  
4 going to bandy around some terms. So what Mr. Campbell just  
5 said is really important is that the weight -- not only does  
6 the energy differ, but the weight differs and the thing that  
7 really drives what people will permit is how much weight.

8 We can have A-trains or B-trains, even for  
9 LNG, and they might carry the same amount. It's more to do  
10 with the tire configuration in the case of them.

11 So let's not assume that the word A-train or  
12 B-train is terribly relevant to the conversation. What's  
13 really relevant right now is how much can you move of each  
14 fuel, taking into account the difference in their energy  
15 density and the difference in their weight? And that's the  
16 key point that Mr. Campbell is making.

17 Q. Thank you. Appreciate that.

18 Now, in terms of an A-train, meaning an LNG  
19 A-train, how much longer and/or how much higher and/or how  
20 much wider would it be than a B-train that normally hauls  
21 diesel?

22 A. MR. CAMPBELL: They're about the same length.  
23 They're two feet wider. They're 10 feet wide compared to  
24 eight feet wide and slightly taller because it's basically a  
25 round tank.

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Austin

1 Q. Essentially, it's a thermos bottle on wheels?

2 A. MR. CAMPBELL: Correct.

3 Q. For the purposes of the application, you're now saying  
4 that you would source LNG from Tilbury Island in the  
5 Vancouver area; is that correct?

6 A. MR. MORRISON: That's correct.

7 Q. And where is Tilbury Island in relation to the Greater  
8 Vancouver Metro area?

9 A. MR. MORRISON: It's in Delta.

10 Q. And Delta is about as far west as you can go in that  
11 area?

12 A. MR. MORRISON: I don't know. I'd take your  
13 word for that if you -- but I don't know if it's as far west  
14 as you can go. I don't know that.

15 Q. Subject to check, would you agree that it's about as far  
16 west as you can go?

17 A. MR. MORRISON: Sure, sure.

18 Q. So for the purposes of picking up LNG in Tilbury Island,  
19 you would have to move it through a good percentage of the  
20 densely populated area of Greater Vancouver and the lower  
21 Fraser Valley?

22 A. MR. MORRISON: Mr. Chair, again I don't know  
23 the routing off the top of my head. But all I would say is  
24 that Northwest Territories Energy Corp is moving LNG from  
25 Tilbury to Inuvik today.

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Austin

1 Q. But they're using not an A-train, they're using a tridem  
2 unit; is that correct?

3 A. MR. MORRISON: That's correct. And I think as  
4 noted earlier, they are part of the team that is looking at  
5 the A-trains with us.

6 Q. Right. And in relation to the tridem units in terms of  
7 width, height and length, how much smaller are they than the  
8 proposed A-trains?

9 A. MR. CAMPBELL: I believe they are the same  
10 width. I can't recall off the top of my head the length.  
11 They are one large tank as opposed to two smaller tanks.  
12 That's the way that they're configured. And they're  
13 currently designed to haul 65,000 litres per truckload.

14 A. MR. OSLER: Just to be clear on the record,  
15 the application talked about tridems using 54,000 litres.  
16 YUB 44 said 64, 65,000 litres because of the information we  
17 had. And the most recent material we filed says that  
18 NT Energy is securing about 60,000 in practice, just so the  
19 record's clear. And that's in the update that was filed.

20 Q. And in relation to the approval process in British  
21 Columbia, whereabouts are you?

22 A. MR. MORRISON: Well, as of meetings last week  
23 with the Highways ministry, who has to permit this  
24 configuration, they tell us that, from what they've seen so  
25 far, things are very positive, and they've asked for a little



H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Austin

1 bit more information, but we're not seeing any major  
2 difficulties in our route.

3 Q. And what sort of timeline have they given you for  
4 potential approval?

5 A. MR. MORRISON: I just don't have that in front  
6 of me, sir.

7 Q. Well, you just met with them. Did you --

8 A. MR. MORRISON: I didn't.

9 Q. -- prompt them to get any indication of what the  
10 timeline is?

11 A. MR. MORRISON: Well, I didn't just meet with  
12 them. We met with them, Yukon Energy. And I don't have that  
13 in front of me.

14 Q. And as I understand it in the application, is it fair to  
15 say that YEC is taking the cost risk of fabricating any  
16 A train units?

17 A. MR. OSLER: I think what we've answered in  
18 YUB 5 is an outline of a program where YEC is taking --  
19 getting the contractor to do the design work. But I think  
20 it's made clear that the actual decision to fabricate would  
21 be made after the permitting was clarified, and also, who  
22 would end up owning the engine -- the units was clarified.  
23 So I don't think that YEC is willy-nilly taking out a  
24 fabrication risk until it has some other things clarified.

25 But it did want to get on with the design of

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Austin

1 the units so that they could be fabricated on a timely  
2 manner.

3 Q. I understand that, but the actual cost of fabrication --  
4 is that a YEC risk?

5 A. MR. OSLER: I think the IRs make it clear  
6 that it could end up being owned by various people, and not  
7 necessarily YEC. Under contracting like NT Energy has, I  
8 guess, you could argue that no matter who owns it, if you  
9 have a contract with a trucker who owns the material, you'll  
10 probably end up carrying the risk of the unit in terms of  
11 it's solely for your purpose and you've got a lease for five  
12 years or a contract for five years. If that's what you're  
13 getting at, they might end up carrying the risk, if you like.  
14 But they're not necessarily planning to own it or spend money  
15 on fabricating it. I think that point was made clear in the  
16 IRs.

17 Q. I'd just like to follow up that so that I've got it  
18 clear in my mind. Let's suppose that you get all your  
19 necessary license, permits, approvals, you get a cost  
20 estimate of \$50,000 -- and that number is just pulled  
21 completely out of the air -- for fabrication of A train. It  
22 turns out it's \$100,000. Who's got the risk for cost overrun  
23 in my example of \$50,000?

24 A. MR. OSLER: Well, there's no contracting  
25 framework in place at the moment, but that would be an issue

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Austin

1 between the fabricator and whoever the heck is going to own  
2 it, in terms of their contract.

3 So the people that YEC has been dealing with  
4 have given some estimates before anybody asked them to  
5 fabricate it. Whether it was YEC or somebody else, they  
6 would have a contract that would answer the question you just  
7 asked me.

8 Others have done this with the tridems. The  
9 tridems for Northwest Territories were specifically designed  
10 for that, and they didn't run into great issues of the type  
11 you're discussing in the process of doing it.

12 I think the bigger risks are not so much the  
13 cost of fabrication; it's just making sure it does all the  
14 things you want it to do and that the regulatory framework of  
15 governments and everything else, which is evolving, that  
16 you're up to speed with it. At the moment, that's been the  
17 bigger practical problem for Northwest Territories.

18 Q. So the answer at this point in time is it's an undefined  
19 risk.

20 A. MR. OSLER: It's an undefined risk that is  
21 not expected to have a big impact cost-wise. These units  
22 would be amortized over five years, if they're operated  
23 intensively, and if they're operated less intensively, they  
24 will be amortized over a longer time period.

25 Q. I'd like to change subjects now, and I'd like to discuss

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Austin

1 the Tilbury LNG facility. Is it fair to say that the Tilbury  
2 LNG facility is currently the only LNG facility in Alberta  
3 and British Columbia that sells LNG to third parties?

4 A. MR. OSLER: I'm not sure that's technically  
5 correct, but from the point of view of being a practical  
6 supply option, it is correct. There may be some ability to  
7 pick up LNG from a couple of other sources, but they wouldn't  
8 be material for the purpose of this conversation.

9 Grande Prairie, Ferris, EnCana will start  
10 operating very, very soon, but again, I'm not sure we would  
11 view them as an option, but they have a material supply  
12 capability and they are selling to third parties -- they will  
13 be selling to third parties as part of their business plan.

14 Q. They will be, but currently they're not because they're  
15 not in operation.

16 A. MR. OSLER: They're commissioning right  
17 now, yes.

18 Q. Okay. Now, for the purposes of Tilbury, there was  
19 material filed -- and it's Exhibit B-13, and it's the YEC  
20 update of March 27th, 2014. And in that update -- and  
21 correct me if I'm wrong -- you're planning to purchase the  
22 LNG that you think you require from FortisBC. Is that  
23 correct?

24 A. MR. MORRISON: That's correct.

25 Q. And you're proposing to purchase that LNG pursuant to

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Austin

1 what's called Tariff 46. Is that correct?

2 A. MR. MORRISON: That's correct.

3 Q. Do you happen to have copies of Tariff 46 available to  
4 you?

5 A. MR. MORRISON: Yes.

6 Q. The questions I'm going to ask are for the purposes of  
7 just trying to probe what sort of contractual relationship  
8 that you're going to have with FortisBC, and I'd like to  
9 refer you to the definition section of the tariff and, in  
10 particular, the definition of "delivery charge." Do you see  
11 that?

12 A. MR. OSLER: Yes.

13 Q. And the delivery charge consists of an LNG facility  
14 charge and an electricity surcharge. Do you see that?

15 A. MR. OSLER: Yes.

16 Q. And can you tell me what the LNG facility charge is,  
17 just in lay terms?

18 A. MR. OSLER: Do you mean, what does it  
19 cover, or what's the --

20 Q. What does it cover --

21 A. MR. OSLER: Okay.

22 Q. -- because to try and speed this up a bit, when you go  
23 further into the definitions, you've got something called  
24 "LNG service" -- there's a definition of "LNG service,"  
25 there's an LNG spot charge, there's a long-term LNG service

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Austin

1 and a minimum monthly charge and a short-term LNG service and  
2 a spot LNG service.

3 So what I'm trying to find out is; for the  
4 purposes of YEC's LNG needs, what service is it going to be  
5 signing up for? What does YEC think it's going to get for  
6 this type of service, and how much it thinks it's going to  
7 have to pay for this service.

8 A. MR. OSLER: Right. And if you go to the  
9 exhibit that was filed, Exhibit B-13, if you go to page A-3,  
10 there is a set of numbers provided as to the delivered cost  
11 estimates from Fortis versus Calgary. And the footnote to  
12 the Fortis Tilbury estimate for 2015, there is a sentence  
13 that says how the number was devised and includes, among  
14 other things, the Fortis spot rate is estimated at \$5.05 per  
15 million Btu, and it's said that that is an approved rate of  
16 4.60 per gigajoule plus inflation, plus conversion to  
17 millions of Btu's. And the inflation was assumed at  
18 2 percent a year. These rates getting inflated, according to  
19 our understanding of this schedule, as of January 1 of each  
20 year, and the rate was formally -- that's in the schedule --  
21 is formally a 2013 rate.

22 Q. I appreciate that, but what I'm trying to get at is;  
23 what service or what level of service is YEC expecting to  
24 sign up for?

25 A. MR. OSLER: I think I just told you, sir.

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Austin

1 That rated is based on what is called in this rate schedule  
2 the spot rate.

3 Q. So the spot rate.

4 A. MR. OSLER: Right.

5 Q. Do you know what the terms and conditions are for the  
6 spot rate? Is it is assured? If you phone them up and say,  
7 I need LNG Fortis at Tilbury Island, will you get it?

8 A. MR. OSLER: It is exactly what the  
9 terminology suggests. It is not a contract demand rate. It  
10 is not something you contract at a minimum per year or  
11 longer. It is a rate that is available as long as there's  
12 supply available. So that's why Mr. Morrison has talked to  
13 Fortis and why NT Energy talks to Fortis to find out whether  
14 there's a need to go beyond the spot rate at this time for  
15 the coming winter.

16 Mr. Morrison can elaborate on that, but the  
17 terms and conditions of that rate are as the terminology  
18 suggests; not a contract demand rate.

19 Q. Could you please explain what a contract demand rate is  
20 and what level of assurance that, if you're on the spot rate  
21 versus the short-term rate versus the long term rate, that  
22 you will get the product that you need in terms of this rate  
23 schedule 46, not what somebody in the telephone tells you?

24 A. MR. MORRISON: Sorry. So, Mr. Chair, I'll  
25 tell you at a pretty high level, I have not read this rate

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Austin

1 schedule, and I'm not sure I'm capable of reading something  
2 that dense.

3 But the spot rate essentially is, we can go to  
4 the Fortis facility under arrangement with Fortis, pick up a  
5 load, two loads, three loads, ten loads. We can show up  
6 every day, we cannot show up for a week, and we can buy fuel  
7 from them at a published rate. And that published rate is a  
8 rate that is fixed and set by order in -- well, the BCUC was  
9 directed by Order in Council to set this rate. They have now  
10 set this rate tariff schedule for gas -- for fuel from the  
11 Fortis facility. And I don't know if it applies to other  
12 facilities that may get built in the province or not.

13 In addition to setting the rate, BCUC was also  
14 directed to include in rate base going forward all of the  
15 costs that Fortis will incur in expanding this facility. And  
16 I can't tell you the numbers off the top of my head, so maybe  
17 Mr. Campbell will, but it's going from what to what --

18 A. MR. OSLER: 6,000 gigajoules a day to over  
19 30,000 gigajoules a day, and we can translate that, if  
20 needed, into other units.

21 A. MR. MORRISON: But at the same site. So  
22 that's all been taken care of. They've broken ground.  
23 They're starting, and that's 2016.

24 We will start on a spot rate, as has NT Energy  
25 started on the spot rate. The spot rate does not give us any



H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Austin

1 assurance, but they have about 60 percent of their capacity  
2 at Tilbury unused today. Our requirements are very, very  
3 small compared to the availability of LNG at Tilbury.

4 Q. Can I just interrupt there. Tilbury, as expanded, or  
5 Tilbury, as it exists today?

6 A. MR. MORRISON: As it exists today, sir.

7 The amount of gas that we may use in terms of  
8 going into this winter 2014-2015 doesn't look to be very  
9 significant and, therefore, we don't have big -- large  
10 requirements that would push us out of the Tilbury plant.

11 Now, going forward, we will not stay on the  
12 spot rate. The spot rate is a very attractive rate in  
13 comparison to the prices we were paying before, but we are  
14 also in the middle of receiving from FortisBC some proposals  
15 that would move us to a contractual rate.

16 The contractual rate -- and these are my  
17 terms, so if they're not quite correct as to whatever terms  
18 in this published rate schedule, forgive me. The contractual  
19 rate will set out whether we go on an annual yearly rate, we  
20 go on a longer term than that, and what the terms and  
21 conditions of the supply are, but it will guarantee a supply  
22 for us.

23 Now, I don't want to rush into that. First of  
24 all, they don't have -- they don't have enough options for us  
25 yet. They are giving us some options. They're giving us

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Austin

1 some calculations based on the load profiles that we've given  
2 them. And we'll work through that, but suffice it to say  
3 that we certainly have the opportunity right now to have a  
4 significant amount of supply available to us.

5 A. MR. OSLER: But I would just -- there's two  
6 or three other considerations that are given in the update  
7 including the discussions that Yukon Energy's having with  
8 others such as AltaGas and Ferus.

9 So before one -- if one had to nail down a  
10 contract, as Mr. Morrison said, he could do it tomorrow  
11 morning, but it's not deemed to be prudent at the moment  
12 given some of the options and discussions that are going on  
13 and there may be opportunities to get lower cost sources  
14 supply even closer to Yukon.

15 The volumes that we're talking about are all  
16 on the first page of the update B-13. Current Fortis  
17 operating capacity is, as I just said, 6,000 gigajoules a day  
18 or translated about 216 cubic metres a day or about 65,000  
19 U.S. gallons a day because some people measure everything  
20 that way.

21 Our requirement forecast forward for the year  
22 coming up, winter 2014, 2015, particularly '15, we're talking  
23 about maybe 15 cubic metres a day with a peak month use of 44  
24 cubic metres a day. So that's what is meant by their  
25 capability relative to our requirement.

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Austin

1                   And their capacity is noted in the next  
2 paragraph, next bullet. They're talking -- they are allowed  
3 to and proceeding to expand to about 30,000 gigajoules a day  
4 or 1300 cubic metres a day presumably in 2016.

5                   But I repeat, they are not the only party that  
6 Yukon Energy is talking to either, so...

7 Q.   But would it be fair to say that for the purposes of the  
8 spot rate, there is no such thing as reliability of supply?

9 A.   MR. MORRISON:                   There's only reliability in the  
10 sense that they have far more supply than they have  
11 customers.

12 Q.   Let's keep going with Schedule 46, and I'd like to refer  
13 you to conditions of LNG service, and this is paragraph 3.  
14 It says: (as read)

15                   "3.1. Availability of LNG Service.  
16 FortisBC will only provide LNG service  
17 to a customer if adequate capacity  
18 exists on Fortis' energy system; (b)  
19 there is available LNG capacity that is  
20 not already subject to contract demand  
21 under LNG agreements for long term LNG  
22 service or short-term LNG service; and  
23 the customer has entered into a LNG  
24 agreement."

25   So would that confirm what I've just said, that there is no

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Austin

1 contractual reliability of supply if you're on the spot rate?

2 A. MR. OSLER: Well, the statement actually  
3 applies to availability of LNG service, period. I mean, most  
4 of these types of detailed documents do not make the supplier  
5 very vulnerable if they have a reason for interruption  
6 because, in this case, the FortisBC Energy system capability  
7 for some reason became inadequate. That would be a matter  
8 for their regulator to discuss, but even when you have a  
9 contract demand, there are certain conditions that give the  
10 supplier some rights.

11 So I'm not sure that that particular provision  
12 3.1 even gets close to discussing spot versus contract  
13 demand.

14 Q. Did you ever enter into a contract with Shell for the  
15 supply of LNG from the Jumping Pound facility?

16 A. MR. MORRISON: Yes, we did.

17 Q. And in terms of the Shell contract, just to sort of get  
18 some context for what goes on in the industry, did Shell have  
19 similar type conditions of LNG supply?

20 A. MR. OSLER: They had provisions in the  
21 detailed provisions of the contract that if they had an  
22 interruption, they had complete discretion as to how they  
23 dealt with it in terms of priorities to different people in  
24 the legal sense of the word.

25 Q. And would it be fair to say that you would expect the

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Austin

1 same type of terms and conditions if you entered into a  
2 contract for LNG with Ferus and/or AltaGas?

3 A. MR. OSLER: I think you will find that  
4 these contracts will tend to follow some of those key  
5 provisions.

6 Q. For the purposes of supply of diesel generation --  
7 diesel fuel, do you see similar terms and conditions in your  
8 diesel supply contract?

9 A. MR. MORRISON: I couldn't tell you.

10 A. MR. OSLER: I think the difference in the  
11 diesel market versus the LNG market is such that it's a  
12 radically different situation in terms of the ability to pick  
13 up supply elsewhere.

14 The ultimate point is, does the person who's  
15 committing to supply you, what level of liability do they  
16 have if they don't supply you? The practical point is can  
17 you get some diesel from somewhere else very easily?

18 And I think we all know that this market is  
19 totally different than diesel at this stage in development.  
20 So it's not so much do you have a contract with Shell or  
21 Fortis or somebody else, but do you have some options? And  
22 at the moment, you've started your questions by pointing out  
23 that Fortis is the only party supplying LNG and material  
24 volumes to third parties right today and there's a few more  
25 coming on. But we'll all feel a lot better when there's

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Austin

1 several of them in B.C. and Alberta supplying LNG and  
2 mutually supporting each other in the case of problems.

3 Q. So would it be fair to say that the diesel supply market  
4 is what's called a liquid market, no pun intended, and the  
5 LNG supply market is an illiquid market, no pun intended?

6 A. MR. OSLER: I think it's fair to say that  
7 there are certain issues with the natural gas LNG market that  
8 limit your options if you have a problem from the supplier  
9 you pick up compared to the diesel market.

10 Q. And for the purposes of when Fortis's expansion comes  
11 into being, 2016 is used as the reference date. What time in  
12 2016 is Fortis expected to bring its expanded LNG facility  
13 into operation?

14 A. MR. MORRISON: Mr. Chair, I don't know what  
15 time in 2016, but our requirements by 2016 aren't sufficient  
16 to us be concerned about needing the expanded plant size. We  
17 can still draw supply from the existing plant.

18 Q. As long as nobody else enters into a short-term or a  
19 long-term contract between now and the time that you need  
20 LNG; is that correct?

21 A. MR. MORRISON: Or we enter into one.

22 Q. Right. And what's the difference in cost between the  
23 spot LNG rate and, say, for example, a short-term rate or a  
24 long-term rate?

25 A. MR. OSLER: Well, right now looking at rate

1 schedule 46, they list them, and there is essentially a  
2 slight discount for going to a contract demand rate. There  
3 isn't a distinction that we can notice between short and long  
4 term at the moment, but there will be when they go to an  
5 expansion.

6 So the contract schedule lists out rates not  
7 just for today but the rates that would apply when they get  
8 to a certain level of expansion. I think it lays it out in  
9 two or three stages.

10 So you can read the schedule and you can see  
11 the rates and you can read the clause that says they will be  
12 inflated by inflation each year and the electricity portion  
13 of the rate will be adjusted based on B.C. Hydro's actual  
14 rates and their actual usage.

15 The key thing that you don't know from reading  
16 that is exactly what options you might have under a contract  
17 demand to meet YEC's particular load requirements and that's  
18 what Fortis is busy examining to make some propositions to  
19 YECL.

20 Q. Perhaps while we're in this area, maybe we can talk a  
21 bit about your LNG potential, LNG load profile demand. Would  
22 it be fair to say that it's a function of the weather?

23 A. MR. OSLER: It's a function of the weather  
24 meaning is it affected by the weather? Yes. Is that the  
25 main thing that's driving it? I don't think so.

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Austin

1 Q. Well, let's put it this way. If I have above average  
2 water conditions, will I need a lot of LNG?

3 A. MR. OSLER: If -- water conditions as  
4 distinct from whether it's warm or not warm? I wasn't sure  
5 which --

6 Q. My apologies, but let's deal with this in terms of water  
7 conditions.

8 A. MR. OSLER: Okay. Let's talk about water  
9 conditions in two contexts. One, variability from year to  
10 year; and the other one, variability from different times of  
11 the year. In both cases it's very, very important to the  
12 requirement. And I'll leave it at that for the moment.

13 Q. Well, let's take it the next step further because if you  
14 have somebody who's cross-examining you when you leave that  
15 hanging, well, of course, I'm going to move into that area.

16 So let's look at it from the concept of water  
17 conditions and variability from year to year. If I have  
18 above-average water conditions, I will not -- is it fair to  
19 say I will not need a lot of LNG?

20 A. MR. OSLER: It is fair to say that, under  
21 the current loads that we're talking about.

22 A. MR. MORRISON: Depending on weather.

23 Q. Depending on weather in relation to?

24 A. MR. MORRISON: Well, it's really, really,  
25 really above-average cold for above-average long periods of



H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Austin

1 time, you might need more LNG.

2 Q. And that's the concept of degree days. Is that correct?

3 A. MR. MORRISON: Sure. It's weather and water  
4 together.

5 A. MR. OSLER: But when we looked earlier  
6 together the 31 water years, you can see the variability from  
7 year to year in the diesel that you could displace by using  
8 LNG. And it varies a great deal, particularly -- it varies a  
9 great deal no matter what the load is, but from the point of  
10 view of an LNG supplier, it has zeros along a number of years  
11 at the moment that don't inspire confidence if you're the guy  
12 trying to sell it.

13 Q. That's correct. From an LNG supplier, you could come  
14 knocking on the door fairly promptly if you have low water  
15 conditions, but then if the water conditions go on a run of  
16 above average for three years, they might not see you for  
17 three years. Is that correct?

18 A. MR. OSLER: That's what the information  
19 could tell you unless the load gross a bit more. And we're  
20 at a very sensitive spot on the load. A little bit of growth  
21 would mean we probably need LNG every single year, but it  
22 would still vary a great deal between the water condition  
23 extremes.

24 Q. So from a supplier's perspective, you're not what they  
25 would call the ideal customer.

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Austin

1 A. MR. OSLER: That would probably be a good  
2 summary, yes.

3 Q. And typically when you're not the ideal customer, they  
4 will want to see some sort of annual payment so that when you  
5 come knocking on the door they will have the ability to serve  
6 you. Is that correct?

7 A. MR. OSLER: If you want a firm supply in a  
8 context where they've got lots of other people shopping at  
9 their door, the way in which suppliers deal with that is:  
10 Give me a firm minimum amount you'll pay, and I'll give you a  
11 firm minimum amount I'll supply.

12 If you have the conditions that exist right  
13 now, that's not the top of their mind. And there are various  
14 strategies that people can look at to deal with that,  
15 including aggregating other loads and all those other things  
16 that are talked about.

17 The other thing that you have to keep in mind  
18 is that although the load varies a great deal, we have two  
19 engines -- or we have three engines in this project. So we  
20 have a maximum amount that we can actually consume at any one  
21 time, which limits how much diesel you can displace, but also  
22 puts a top on how much LNG you need no matter what the water  
23 conditions are. It's around 80 cubic metres a day, round  
24 numbers, with two engines.

25 Q. I'd like to move to another area of cross-examination.

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Austin

1 This is in relation to the existing diesel units MD1 and MD2.  
2 And before I give you the reference in the information  
3 request I'd like you to go to, I'd like to actually check it  
4 myself. And I'd like to refer you to YECL-YEC-1-7, and just  
5 let me know when you're there.

6 Is the panel there in terms of the...  
7 YECL-YEC-1-7?

8 A. MR. OSLER: Yeah.

9 Q. So what we have in this is Table 1, operating hours for  
10 WD1 and WD2 end of 2013. You see that WD1 has 41,804 hours  
11 on it, and WD2 has got 38,202?

12 A. MR. OSLER: Yes.

13 Q. Now I'd like to refer you to YECL-YEC-1-1, page 3 of 3.  
14 Have you got that?

15 And there's -- it's line 10, (e). It says  
16 "Maintenance schedules for Yukon Energy's diesel fleet are as  
17 follows..." And at the very bottom of it, it says Mirrlees  
18 engines. Are the Mirrlees engines MD1 and MD2 -- WD1 and  
19 WD2?

20 A. MR. OSLER: Yes.

21 Q. And it says minor overhauls at 2, 4, 6, 12,000 hours;  
22 major overhauls at 24,000 hours?

23 A. MR. CAMPBELL: Correct.

24 Q. So if we go back to YECL-YEC-1-7, am I correct in  
25 assuming that WD1 and WD2 are not up for a major overhaul

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Austin

1 until they get to the 48,000 hour level?

2 A. MR. CAMPBELL: Well, that would be for the  
3 second major overhaul.

4 Q. Yeah. Second major overhaul.

5 A. MR. CAMPBELL: Yes.

6 Q. Okay. And if I flip the page on YECL-YEC-1-7 and I look  
7 at Table 2, and it says; operational hours, 2010, 2011, 2012,  
8 2013. So in the last four years, the total number of  
9 operating hours for WD1 is 108.3 and WD2 is 77.30. Is that  
10 correct?

11 A. MR. CAMPBELL: Correct.

12 Q. So they're not used a lot.

13 A. MR. CAMPBELL: Correct.

14 Q. How often do you test WD1 and WD2?

15 A. MR. MORRISON: We test all our engines every  
16 month.

17 Q. Every month. In the period from 2010 to 2013, in terms  
18 of the monthly tests, has there ever been a major failure  
19 with respect to WD1 or WD2?

20 A. MR. MORRISON: I can't tell you off the top of  
21 my head, Mr. Chairman.

22 Q. Is that something that you could ask your plant manager?

23 A. MR. MORRISON: We can do that.

24 Q. Okay. I'd like to move to another area of  
25 cross-examination, and I noticed in your application that

**H. CAMPBELL, C. OSLER, D. MORRISON****Cross-examined by Mr. Austin**

1 there is nothing about an LNG revaporization costs. Do you  
2 know what revaporization of LNG refers to?

3 **A. MR. MORRISON:** I'm not sure what you're  
4 referring to. Go ahead. Explain it.

5 Q. I've got LNG in liquid form. I have to get it back to  
6 natural gas in short order if I'm going to put it into an  
7 engine. So presumably -- and not presumably -- that's a  
8 misstatement, it's just straight wrong -- I will need to  
9 somehow get my LNG warmed up so that it goes back into a gas.

10 **A. MR. CAMPBELL:** Yes.

11 Q. For the purposes of your LNG engines, how much natural  
12 gas is going to be required to do that?

13 **A. MR. CAMPBELL:** None.

14 Q. None. So are you assuming that the heat from the  
15 operation of the natural gas engines is going to provide you  
16 with the energy that's required to revaporize the LNG?

17 **A. MR. CAMPBELL:** That's correct. And in order  
18 to start these natural gas engines, there's a small electric  
19 heater that will provide enough heat to vaporize enough  
20 liquefied natural gas to start the engines up.

21 Q. So your evidence is, is that using the glycol cooling  
22 loop, as I understand it, there will be sufficient heat when  
23 the engines, natural gas engines are in operation, to  
24 revaporize all the natural gas that's required for those  
25 engines so that they can produce electricity.

H. CAMPBELL, C. OSLER, D. MORRISON

Cross-examined by Mr. Austin

1 A. MR. CAMPBELL: I'm not sure you quite got it  
2 right. There would be enough heat in the glycol loop to  
3 vaporize the LNG when the natural gas engines are not  
4 running. When they are running, they will actually be  
5 capable of generating more heat than they can generate power.  
6 So there is a lot of heat available both for vaporizing and  
7 for heating some of the balance of plant activities, yeah.

8 Q. So there's not going to be any additional use of natural  
9 gas other than what's being used in the natural gas engines  
10 for the purposes of providing the heat that's required for  
11 revaporization.

12 A. MR. CAMPBELL: Correct.

13 THE CHAIR: Mr. Austin, I'm just going to  
14 mention that it's 4:22, so we'd like to try to get out of  
15 here so we can move on to the evening session at 4:30. But  
16 I'll leave it in your hands in terms of when you'd like to  
17 cut off or how much in terms of the next line of questioning.

18 MR. AUSTIN: I think it would be convenient  
19 to cut off now because I don't want to start an area that  
20 extends beyond 4:30, and I've got no control over how long  
21 it's going to be --

22 THE CHAIR: Right.

23 MR. AUSTIN: -- because I'm not the one that  
24 answers the question.

25 THE CHAIR: Exactly. Okay. So with that,

1 we'll recess until -- well, we have the community meeting  
2 this evening starting at 7:00. So again, you're all welcome  
3 to come to that. And then the regular hearing will begin  
4 tomorrow at 9 a.m. Thanks very much.

5

6 (Proceedings concluded at 4:23 p.m.)

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10 PROCEEDINGS ADJOURNED TO 9:00 A.M. APRIL 1, 2014

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1 Certificate of Transcript

2

3 We, the undersigned, hereby certify that the foregoing pages  
4 1 to 192 are a complete and accurate transcript of the  
5 proceedings taken down by us in shorthand and transcribed  
6 from our shorthand notes to the best of our skill and  
7 ability.

8 Dated at the City of Whitehorse, Yukon  
9 Territory, on March 31, 2014.

10

11

12 "A. Jones"

13 A. Jones, CSR(A)

14 Official Court Reporter

15

16

17

18 "D. Gerbrandt"

19 D. Gerbrandt, CSR(A)

20 Official Court Reporter

21

22

23

24

25







## YUB - YEC LNG Project, Volume 1, March 31, 2014

17:20, 69:22, 140:4 <b>73</b> [1] - 126:10 <b>76</b> [1] - 145:18 <b>77</b> [1] - 193:14 <b>77.30</b> [1] - 188:9 <b>7:00</b> [1] - 191:2	13:7, 25:21 <b>accordance</b> [3] - 3:14, 7:9, 23:8 <b>according</b> [4] - 40:25, 57:14, 80:25, 174:18 <b>accordingly</b> [2] - 3:18, 71:17 <b>account</b> [11] - 31:14, 38:3, 38:15, 105:10, 106:6, 113:19, 113:24, 153:5, 153:10, 153:11, 166:14 <b>accounting</b> [3] - 37:1, 37:24, 38:17 <b>accurate</b> [1] - 192:4 <b>accurately</b> [1] - 127:14 <b>accused</b> [1] - 47:23 <b>achieve</b> [2] - 127:13, 139:8 <b>acknowledge</b> [1] - 127:22 <b>acknowledged</b> [1] - 104:5 <b>acquire</b> [2] - 13:8, 63:12 <b>acquisition</b> [3] - 31:14, 35:7, 95:22 <b>Act</b> [5] - 3:12, 3:18, 4:17, 4:18, 12:15 <b>acting</b> [1] - 10:14 <b>active</b> [2] - 27:14, 84:25 <b>actively</b> [1] - 73:6 <b>activities</b> [3] - 15:7, 126:21, 190:7 <b>actual</b> [15] - 6:17, 49:7, 59:7, 73:16, 95:5, 97:3, 98:8, 99:8, 138:24, 149:13, 155:20, 169:20, 170:3, 183:13, 183:14 <b>add</b> [3] - 45:1, 84:22, 129:4 <b>added</b> [6] - 24:22, 27:25, 28:18, 58:18, 91:8, 123:20 <b>adder</b> [1] - 66:11 <b>addition</b> [5] - 21:8, 44:14, 143:22, 162:4, 176:13 <b>additional</b> [12] - 27:23, 28:16, 64:2, 65:14, 124:1, 126:25, 128:3, 130:3, 144:6, 148:11, 152:6, 190:8 <b>ationals</b> [1] - 113:9 <b>address</b> [5] - 7:25, 14:22, 15:7, 16:18, 147:23 <b>addressed</b> [3] - 104:21, 112:14, 146:8 <b>addresses</b> [2] - 97:24, 108:15 <b>addressing</b> [1] - 117:14 <b>adds</b> [1] - 53:21 <b>adequate</b> [1] - 179:17 <b>adequately</b> [1] - 78:4 <b>adjacent</b> [3] - 13:2, 13:12, 126:21 <b>adjourn</b> [2] - 92:24, 93:11 <b>adjourned</b> [1] - 59:15 <b>ADJOURNED</b> [2] -	93:13, 191:10 <b>ADJOURNMENT</b> [1] - 56:1 <b>ADJOURNMENT</b> [1] - 140:23 <b>adjusted</b> [1] - 183:13 <b>adjustment</b> [10] - 25:23, 103:22, 104:14, 104:23, 105:2, 105:9, 106:5, 106:10, 106:15, 106:25 <b>adjustments</b> [1] - 113:13 <b>Administration</b> [1] - 27:12 <b>administrative</b> [1] - 6:13 <b>adopted</b> [1] - 59:6 <b>adoption</b> [2] - 15:4, 16:3 <b>advantage</b> [2] - 87:8, 87:9 <b>adverse</b> [1] - 127:24 <b>advisable</b> [3] - 5:19, 6:3, 41:10 <b>ADVISE</b> [2] - 96:22, 193:21 <b>advise</b> [1] - 59:12 <b>advised</b> [1] - 52:16 <b>AECO</b> [4] - 27:1, 27:3, 107:5, 108:7 <b>affect</b> [3] - 32:13, 37:7, 159:16 <b>affected</b> [3] - 113:23, 139:21, 183:24 <b>afford</b> [1] - 86:24 <b>affordability</b> [1] - 16:5 <b>affordable</b> [1] - 44:17 <b>afraid</b> [1] - 92:19 <b>aftermarket</b> [1] - 20:9 <b>afternoon</b> [3] - 7:2, 94:6, 158:25 <b>afterwards</b> [1] - 92:8 <b>age</b> [2] - 53:10, 54:17 <b>agencies</b> [2] - 108:22, 108:23 <b>aggregating</b> [1] - 186:15 <b>aging</b> [1] - 99:17 <b>ago</b> [7] - 80:24, 110:18, 119:1, 119:3, 127:12, 132:25, 163:3 <b>agree</b> [10] - 62:6, 87:5, 107:15, 107:21, 122:7, 122:11, 126:4, 127:5, 154:25, 167:15 <b>agreed</b> [1] - 67:24 <b>agreement</b> [10] - 21:23, 24:4, 117:14, 118:9, 118:16, 118:19, 118:21, 118:24, 120:17, 179:24 <b>agreements</b> [2] - 118:4, 179:21 <b>ahead</b> [5] - 35:25, 75:9, 114:18, 140:21, 189:4 <b>aid</b> [12] - 8:11, 8:13, 8:16, 8:19, 8:20, 8:21, 9:1, 9:7, 9:9, 9:10, 72:23, 78:8 <b>aids</b> [3] - 8:9, 9:3, 70:3 <b>air</b> [3] - 67:8, 122:5, 170:21	<b>Aishihik</b> [18] - 15:18, 17:16, 47:19, 47:21, 132:24, 133:10, 153:13, 153:14, 155:18, 155:21, 155:23, 156:7, 156:22, 157:2, 157:8, 158:14, 158:15 <b>alarm</b> [2] - 62:1, 62:2 <b>Alberta</b> [7] - 12:22, 21:11, 23:24, 83:8, 164:20, 172:2, 182:1 <b>Alexco</b> [14] - 28:8, 80:23, 115:14, 115:18, 115:24, 116:2, 116:9, 140:6, 144:25, 145:3, 163:25 <b>Alexco's</b> [1] - 115:20 <b>allocation</b> [1] - 149:1 <b>allow</b> [7] - 7:4, 50:23, 51:1, 51:14, 52:18, 118:16, 140:17 <b>allowed</b> [4] - 7:12, 25:12, 39:9, 179:2 <b>allowing</b> [1] - 10:17 <b>allows</b> [3] - 8:22, 33:15, 143:23 <b>almost</b> [3] - 61:1, 132:1 <b>alone</b> [1] - 28:13 <b>AltaGas</b> [3] - 23:20, 178:8, 181:2 <b>alternative</b> [32] - 20:23, 22:15, 24:6, 27:25, 28:17, 31:21, 32:15, 32:19, 33:17, 33:19, 33:20, 41:16, 44:10, 45:7, 46:5, 46:23, 48:11, 64:20, 75:24, 83:14, 87:11, 101:4, 123:17, 125:3, 127:10, 127:13, 148:20, 148:21, 161:4, 161:9 <b>alternatives</b> [13] - 5:18, 14:15, 19:2, 24:12, 24:24, 33:9, 41:8, 41:13, 42:2, 43:2, 46:3, 127:6, 150:5 <b>amend</b> [3] - 59:12, 106:11, 106:22 <b>amended</b> [2] - 105:19, 106:20 <b>America</b> [5] - 27:10, 107:24, 109:14, 109:16, 109:19 <b>American</b> [3] - 27:19, 108:22, 109:8 <b>Amicus</b> [1] - 6:18 <b>amortization</b> [2] - 149:2, 149:11 <b>amortized</b> [2] - 171:22, 171:24 <b>amount</b> [15] - 35:10, 42:1, 81:13, 101:22, 124:8, 133:6, 136:3, 150:25, 165:8, 166:9, 177:7, 178:4, 186:10, 186:11, 186:20 <b>amounts</b> [2] - 130:5, 144:22 <b>ample</b> [1] - 22:25 <b>analyses</b> [1] - 31:4 <b>analysis</b> [25] - 30:20, 30:24, 32:9, 33:22, 49:25, 52:22, 65:18, 85:18, 90:14, 99:10, 99:13, 99:21, 99:25, 107:3, 107:12, 108:5,	112:6, 113:8, 114:3, 116:7, 116:12, 134:14, 134:17, 142:22, 148:24 <b>Andre</b> [1] - 3:5 <b>animals</b> [1] - 112:8 <b>Anne</b> [1] - 141:18 <b>announced</b> [1] - 21:15 <b>annual</b> [8] - 28:3, 58:12, 95:11, 123:7, 130:4, 149:1, 177:19, 186:4 <b>answer</b> [27] - 34:19, 42:24, 51:4, 60:14, 62:14, 64:16, 64:17, 70:10, 70:15, 71:17, 76:19, 76:21, 87:3, 92:7, 94:9, 105:11, 108:4, 108:5, 108:8, 124:10, 142:18, 146:24, 147:21, 147:25, 164:6, 171:6, 171:18 <b>answered</b> [2] - 158:13, 169:17 <b>answering</b> [1] - 159:5 <b>answers</b> [9] - 7:21, 30:7, 31:23, 32:17, 46:1, 57:23, 68:16, 72:12, 190:24 <b>anti</b> [1] - 83:14 <b>anti-energy</b> [1] - 83:14 <b>anticipated</b> [2] - 95:16, 147:22 <b>anticipates</b> [1] - 83:6 <b>anyway</b> [3] - 89:2, 114:14, 128:18 <b>apart</b> [2] - 32:7, 142:17 <b>apologies</b> [1] - 184:6 <b>appear</b> [1] - 79:12 <b>appearance</b> [1] - 10:16 <b>appeared</b> [2] - 11:14, 114:6 <b>appearing</b> [1] - 10:11 <b>Appendix</b> [6] - 48:20, 48:25, 49:13, 58:7, 97:7, 138:16 <b>appendix</b> [2] - 49:2, 49:21 <b>applicant</b> [4] - 7:23, 7:25, 8:2, 56:6 <b>APPLICATION</b> [4] - 96:24, 97:1, 193:22, 193:24 <b>Application</b> [1] - 95:2 <b>application</b> [44] - 3:7, 4:2, 7:14, 12:13, 14:20, 20:24, 21:1, 21:23, 24:14, 25:4, 27:13, 27:22, 28:20, 30:22, 33:5, 48:20, 60:8, 89:19, 95:22, 95:23, 95:24, 96:3, 96:4, 96:5, 97:7, 97:18, 97:24, 98:15, 98:19, 99:21, 105:8, 107:2, 138:19, 139:20, 143:6, 144:18, 152:16, 159:19, 160:25, 164:9, 167:3, 168:15, 169:14, 188:25 <b>applied</b> [6] - 3:11, 3:16, 39:3, 49:24,
--	---	--	--	--

## YUB - YEC LNG Project, Volume 1, March 31, 2014

<p>51:9, 159:22  <b>applies</b> [4] - 139:20, 144:19, 176:11, 180:3  <b>apply</b> [6] - 4:25, 50:16, 144:19, 150:10, 160:15, 183:7  <b>appreciate</b> [8] - 6:6, 29:24, 50:2, 141:20, 161:4, 161:10, 166:17, 174:22  <b>approach</b> [1] - 52:2  <b>appropriate</b> [5] - 8:9, 55:19, 73:1, 73:8, 102:9  <b>Approval</b> [1] - 95:3  <b>APPROVAL</b> [2] - 96:25, 193:23  <b>approval</b> [7] - 23:4, 36:13, 39:19, 40:18, 164:25, 168:20, 169:4  <b>approvals</b> [3] - 117:5, 121:13, 170:19  <b>approve</b> [1] - 165:2  <b>approved</b> [6] - 23:7, 23:8, 40:19, 49:4, 104:16, 174:15  <b>approximate</b> [1] - 28:7  <b>APRIL</b> [1] - 191:10  <b>April</b> [4] - 3:23, 25:25, 26:2, 34:24  <b>ARE</b> [2] - 96:23, 193:22  <b>area</b> [15] - 30:8, 40:23, 67:17, 142:19, 157:9, 157:12, 167:5, 167:8, 167:11, 167:20, 183:20, 184:15, 186:25, 188:24, 190:19  <b>areas</b> [1] - 29:19  <b>argue</b> [3] - 79:6, 126:7, 170:8  <b>argument</b> [3] - 6:5, 8:6, 151:6  <b>arguments</b> [1] - 6:7  <b>arise</b> [1] - 84:4  <b>arose</b> [1] - 114:1  <b>arrangement</b> [3] - 120:15, 120:17, 176:4  <b>Asia</b> [1] - 27:15  <b>aside</b> [2] - 78:18, 128:16  <b>Aside</b> [1] - 27:11  <b>assertion</b> [1] - 87:5  <b>assess</b> [2] - 16:4, 20:24  <b>assessment</b> [8] - 33:8, 34:4, 34:19, 53:18, 100:24, 102:3, 115:16, 135:1  <b>assessments</b> [3] - 5:20, 41:12, 100:18  <b>assets</b> [3] - 86:25, 88:19, 88:23  <b>assist</b> [3] - 8:11, 43:4, 141:18  <b>assistance</b> [3] - 72:23, 118:7, 155:18  <b>assisted</b> [1] - 56:6  <b>assisting</b> [1] - 6:12  <b>assists</b> [1] - 8:14  <b>associated</b> [12] - 32:8, 32:14, 32:22, 38:5, 81:3, 81:15, 91:6, 91:21, 109:4, 126:20, 128:3, 130:24  <b>assume</b> [4] - 70:3, 102:7, 135:9, 166:11  <b>assumed</b> [14] -</p>	<p>24:24, 27:1, 28:16, 49:8, 58:11, 58:17, 58:23, 80:23, 101:5, 107:3, 115:9, 116:12, 138:17, 174:17  <b>assumes</b> [2] - 97:19, 152:7  <b>assuming</b> [3] - 100:1, 187:25, 189:14  <b>assumption</b> [8] - 27:3, 59:5, 65:9, 97:21, 99:22, 102:9, 107:6, 107:9  <b>assumptions</b> [6] - 5:20, 14:16, 41:11, 58:9, 58:14, 138:16  <b>assurance</b> [2] - 175:20, 177:1  <b>assurances</b> [1] - 61:3  <b>assure</b> [1] - 38:6  <b>assured</b> [1] - 175:6  <b>AT</b> [2] - 77:18, 193:19  <b>attached</b> [1] - 66:18  <b>attaches</b> [1] - 64:11  <b>attachment</b> [1] - 93:8  <b>attachments</b> [3] - 65:23, 93:7, 94:14  <b>attempt</b> [2] - 119:6, 119:13  <b>attempted</b> [1] - 99:14  <b>attempting</b> [1] - 72:2  <b>attend</b> [2] - 7:8, 7:9  <b>attendance</b> [1] - 74:19  <b>attention</b> [2] - 6:10, 84:16  <b>attractive</b> [2] - 55:3, 177:12  <b>attractiveness</b> [1] - 54:20  <b>attribution</b> [1] - 39:16  <b>August</b> [1] - 95:3  <b>AUGUST</b> [2] - 96:25, 193:23  <b>AUSTIN</b> [8] - 10:13, 10:19, 141:2, 141:14, 141:15, 190:18, 190:23, 193:8  <b>Austin</b> [6] - 10:14, 140:18, 140:25, 141:12, 141:17, 190:13  <b>authority</b> [3] - 75:9, 125:25, 127:21  <b>auxiliary</b> [1] - 53:9  <b>availability</b> [6] - 20:1, 55:13, 95:15, 177:3, 179:15, 180:3  <b>available</b> [25] - 6:15, 16:23, 18:12, 20:8, 22:23, 22:25, 29:10, 29:16, 45:25, 46:10, 51:8, 51:12, 52:16, 63:17, 86:21, 131:15, 131:18, 143:5, 162:5, 173:3, 175:11, 175:12, 178:4, 179:19, 190:6  <b>average</b> [22] - 16:25, 17:8, 19:6, 20:22, 26:22, 27:3, 28:5, 33:24, 33:25, 37:18, 39:12, 95:14, 97:8, 98:16, 99:3, 99:5, 154:13, 184:1, 184:18, 184:25, 185:16</p>	<p><b>averaged</b> [1] - 27:4  <b>averred</b> [1] - 33:4  <b>awaiting</b> [1] - 48:13  <b>awarded</b> [1] - 25:9  <b>aware</b> [7] - 88:20, 100:12, 112:6, 113:11, 120:11, 123:22, 128:8</p> <p style="text-align: center;"><b>B</b></p> <p><b>B-11</b> [4] - 79:2, 91:10, 93:6, 116:18  <b>B-13</b> [4] - 148:17, 172:19, 174:9, 178:16  <b>B-14</b> [2] - 29:6  <b>B-train</b> [5] - 165:14, 165:16, 165:24, 166:12, 166:20  <b>B-trains</b> [2] - 165:12, 166:8  <b>B.C</b> [7] - 22:22, 23:24, 27:18, 114:7, 115:9, 182:1, 183:13  <b>backdrop</b> [1] - 69:16  <b>backed</b> [2] - 37:8, 37:11  <b>background</b> [3] - 3:21, 70:19, 76:2  <b>backup</b> [17] - 15:23, 19:14, 19:18, 43:8, 43:12, 44:7, 46:4, 54:6, 85:24, 86:20, 103:17, 129:11, 129:14, 129:19, 130:12, 132:17, 156:3  <b>bad</b> [1] - 53:13  <b>balance</b> [16] - 13:23, 53:7, 53:8, 54:15, 55:10, 59:16, 66:23, 67:13, 86:14, 86:17, 133:6, 133:8, 150:10, 151:16, 151:19, 190:7  <b>balanced</b> [3] - 133:3, 133:5  <b>bandy</b> [1] - 166:4  <b>banks</b> [1] - 145:13  <b>barely</b> [1] - 133:19  <b>base</b> [21] - 28:8, 32:13, 36:2, 36:6, 36:14, 36:22, 37:18, 37:21, 38:8, 38:16, 38:19, 58:10, 102:8, 115:23, 116:9, 144:20, 145:16, 150:25, 176:14  <b>Base</b> [2] - 115:14, 115:18  <b>based</b> [35] - 15:24, 16:25, 17:8, 19:5, 23:6, 23:7, 27:3, 28:4, 44:19, 49:20, 60:1, 64:20, 72:4, 75:11, 95:14, 99:4, 99:21, 108:2, 109:23, 109:25, 115:20, 119:17, 124:14, 130:21, 130:22, 134:14, 134:16, 137:2, 143:16, 148:17, 163:18, 165:18, 175:1, 178:1, 183:13  <b>basic</b> [1] - 100:24  <b>basics</b> [1] - 138:9  <b>basis</b> [26] - 25:25, 35:9, 43:7, 43:14, 43:18, 59:11, 61:14, 62:25, 63:4, 65:17, 66:1, 71:6, 71:25,</p>	<p>72:7, 73:12, 89:3, 101:3, 102:13, 110:14, 116:3, 121:11, 129:3, 130:4, 131:1, 138:5, 144:8  <b>bay</b> [1] - 65:5  <b>bays</b> [8] - 20:19, 64:14, 65:2, 65:5, 65:9, 67:2, 67:6, 67:16  <b>BBA</b> [3] - 65:22, 66:17, 66:24  <b>BC</b> [3] - 21:10, 23:3, 23:9  <b>BCUC</b> [4] - 23:7, 23:9, 176:8, 176:13  <b>BE</b> [2] - 77:18, 193:18  <b>bear</b> [1] - 64:6  <b>begin</b> [2] - 94:6, 191:3  <b>beginning</b> [5] - 31:8, 37:18, 58:23, 72:22, 95:9  <b>behalf</b> [2] - 10:11, 10:14  <b>behind</b> [1] - 99:16  <b>below</b> [2] - 132:22, 149:9  <b>beneficial</b> [1] - 110:13  <b>benefit</b> [12] - 14:4, 30:20, 31:5, 47:10, 52:9, 95:8, 99:21, 107:3, 113:8, 114:3, 151:10, 151:24  <b>benefits</b> [4] - 4:22, 49:7, 66:5, 81:22  <b>benefitting</b> [1] - 18:5  <b>BENTIVEGNA</b> [6] - 10:3, 10:7, 10:12, 10:22, 11:3, 77:1  <b>Bentivegna</b> [3] - 2:9, 6:11, 10:1  <b>beside</b> [1] - 132:2  <b>best</b> [9] - 39:21, 43:23, 62:8, 73:16, 111:8, 125:3, 136:2, 155:12, 192:6  <b>better</b> [8] - 63:21, 87:10, 113:23, 140:9, 151:7, 152:5, 164:10, 181:25  <b>between</b> [26] - 24:11, 27:19, 32:18, 40:11, 46:14, 81:7, 90:8, 107:12, 108:11, 123:4, 123:6, 123:9, 123:11, 149:3, 150:18, 150:20, 151:13, 152:18, 154:20, 164:7, 171:1, 182:19, 182:22, 183:3, 185:22  <b>BETWEEN</b> [2] - 96:23, 193:22  <b>beyond</b> [5] - 18:18, 22:4, 32:20, 175:14, 190:20  <b>bi</b> [3] - 50:23, 51:1, 51:8  <b>bi-fuel</b> [3] - 50:23, 51:1, 51:8  <b>big</b> [15] - 46:2, 48:2, 61:10, 80:22, 84:16, 108:14, 135:19, 135:20, 157:17, 159:1, 159:2, 160:24, 171:21, 177:9  <b>bigger</b> [3] - 116:12,</p>	<p>171:12, 171:17  <b>biggest</b> [2] - 62:15, 156:19  <b>bill</b> [2] - 122:17, 122:24  <b>biofuel</b> [1] - 142:8  <b>biomass</b> [4] - 46:17, 46:22, 84:23, 85:23  <b>bit</b> [17] - 29:21, 30:2, 34:13, 60:14, 66:15, 69:16, 70:19, 107:20, 140:16, 141:19, 147:9, 164:10, 169:1, 173:22, 183:21, 185:19, 185:20  <b>blackout</b> [1] - 161:16  <b>BOARD</b> [1] - 1:1  <b>Board</b> [70] - 2:7, 2:8, 2:8, 2:9, 2:10, 2:11, 2:12, 3:1, 3:2, 3:3, 3:13, 3:24, 4:24, 5:1, 5:23, 6:6, 6:11, 6:12, 6:13, 6:23, 7:11, 7:14, 7:15, 7:18, 7:22, 8:6, 8:7, 9:1, 9:5, 9:6, 9:9, 9:10, 9:13, 9:14, 9:17, 9:21, 10:2, 10:16, 11:14, 12:12, 14:21, 16:12, 22:13, 30:9, 31:19, 36:20, 36:25, 39:19, 39:23, 40:11, 40:15, 40:17, 40:19, 40:20, 43:15, 43:17, 56:18, 69:6, 69:12, 70:11, 76:9, 79:3, 89:19, 125:7, 139:14, 146:2, 156:14, 162:23, 163:16  <b>Board's</b> [5] - 14:7, 34:20, 36:5, 36:12, 49:4  <b>Bob</b> [2] - 3:3, 6:12  <b>body</b> [1] - 25:12  <b>boiler</b> [1] - 111:17  <b>Boisvert</b> [2] - 2:8, 3:4  <b>book</b> [22] - 56:10, 56:14, 56:19, 56:25, 67:18, 67:20, 68:5, 68:21, 68:25, 77:20, 78:21, 82:11, 91:1, 93:2, 95:1, 103:24, 116:14, 123:24, 125:11, 126:10, 126:17, 128:1  <b>books</b> [2] - 37:5, 155:11  <b>borrow</b> [1] - 121:10  <b>borrowing</b> [1] - 39:6  <b>borrowings</b> [2] - 39:1, 39:3  <b>bothered</b> [1] - 47:24  <b>bottle</b> [1] - 167:1  <b>bottom</b> [1] - 187:17  <b>bought</b> [1] - 88:19  <b>box</b> [1] - 29:24  <b>brand</b> [1] - 146:20  <b>brand-new</b> [1] - 146:20  <b>break</b> [20] - 7:1, 7:2, 29:22, 29:23, 30:2, 30:7, 53:24, 55:19, 55:21, 92:13, 92:22, 131:25, 132:18, 132:23, 134:3, 137:18, 140:15, 140:22, 159:17  <b>breakdown</b> [1] - 134:5  <b>breaking</b> [1] - 62:10</p>
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## YUB - YEC LNG Project, Volume 1, March 31, 2014

<p><b>bridge</b> [2] - 86:23, 87:1</p> <p><b>brief</b> [2] - 56:21, 107:18</p> <p><b>briefly</b> [1] - 29:20</p> <p><b>bring</b> [2] - 73:4, 182:12</p> <p><b>bringing</b> [1] - 36:17</p> <p><b>brings</b> [1] - 9:3</p> <p><b>British</b> [6] - 12:22, 27:15, 83:8, 164:20, 168:20, 172:3</p> <p><b>broad</b> [1] - 91:17</p> <p><b>broke</b> [1] - 132:21</p> <p><b>broken</b> [5] - 34:22, 34:24, 85:21, 133:24, 176:22</p> <p><b>broken-down</b> [1] - 133:24</p> <p><b>brought</b> [4] - 36:18, 77:8, 77:9, 112:2</p> <p><b>BROUGHT</b> [4] - 77:16, 77:18, 193:17, 193:18</p> <p><b>Bruce</b> [3] - 2:25, 10:23, 10:24</p> <p><b>BTU</b> [1] - 107:4</p> <p><b>Btu</b> [2] - 108:3, 174:15</p> <p><b>Btu's</b> [3] - 27:2, 27:5, 174:17</p> <p><b>BTUs</b> [1] - 165:23</p> <p><b>budget</b> [2] - 40:17, 40:19</p> <p><b>build</b> [5] - 5:21, 14:19, 88:22, 157:23, 157:24</p> <p><b>building</b> [7] - 16:13, 61:14, 65:10, 87:19, 87:20, 89:21, 110:20</p> <p><b>built</b> [3] - 49:13, 129:22, 176:12</p> <p><b>bulk</b> [1] - 66:6</p> <p><b>bullet</b> [2] - 58:8, 179:2</p> <p><b>bunch</b> [2] - 102:19, 150:5</p> <p><b>burden</b> [1] - 88:10</p> <p><b>burning</b> [6] - 12:20, 18:4, 21:5, 91:4, 91:22, 92:5</p> <p><b>business</b> [8] - 143:15, 148:7, 156:17, 162:10, 162:17, 162:18, 162:21, 172:13</p> <p><b>busy</b> [2] - 121:1, 183:18</p> <p><b>but..</b> [1] - 94:25</p> <p><b>buy</b> [5] - 53:16, 53:19, 115:10, 176:6</p> <p><b>buying</b> [3] - 51:24, 53:3, 53:11</p>	<p>21:21, 22:4, 174:11</p> <p><b>Cam</b> [1] - 59:21</p> <p><b>Cameron</b> [1] - 11:12</p> <p><b>Campbell</b> [19] - 11:15, 43:4, 50:4, 51:3, 52:13, 55:4, 59:6, 59:19, 63:21, 64:21, 65:13, 65:15, 65:20, 66:14, 111:14, 161:9, 166:4, 166:16, 176:17</p> <p><b>CAMPBELL</b> [39] - 12:4, 50:7, 51:4, 51:7, 52:14, 59:21, 60:7, 66:1, 66:19, 66:24, 111:20, 130:20, 139:2, 142:1, 142:6, 142:12, 142:18, 143:2, 159:18, 160:3, 161:12, 162:19, 165:10, 165:16, 166:1, 166:22, 167:2, 168:9, 187:23, 188:2, 188:5, 188:11, 188:13, 189:10, 189:13, 189:17, 190:1, 190:12, 193:5</p> <p><b>Campbell's</b> [2] - 60:14, 143:9</p> <p><b>can't..</b> [1] - 150:1</p> <p><b>Canada</b> [6] - 21:15, 21:19, 21:22, 27:17, 88:20, 88:24</p> <p><b>Canadian</b> [1] - 108:22</p> <p><b>cancellation</b> [1] - 35:14</p> <p><b>cancelled</b> [1] - 35:1</p> <p><b>cannot</b> [6] - 60:25, 86:24, 133:18, 153:13, 160:5, 176:6</p> <p><b>capabilities</b> [2] - 16:21, 88:5</p> <p><b>capability</b> [16] - 5:10, 5:15, 14:11, 15:19, 17:16, 24:16, 52:10, 69:13, 109:13, 152:24, 153:1, 153:7, 153:12, 172:12, 178:25, 180:6</p> <p><b>capable</b> [3] - 38:5, 176:1, 190:5</p> <p><b>capacities</b> [1] - 88:4</p> <p><b>capacity</b> [143] - 4:10, 4:12, 5:14, 6:13, 13:15, 13:16, 13:19, 14:1, 14:2, 14:14, 15:3, 15:5, 15:24, 17:4, 17:10, 17:13, 17:15, 17:16, 17:19, 17:20, 17:23, 17:25, 18:15, 19:9, 19:14, 19:19, 19:22, 20:5, 20:17, 20:21, 21:5, 21:8, 24:17, 42:8, 42:9, 43:7, 43:16, 44:14, 45:21, 47:17, 47:22, 48:17, 48:24, 49:7, 49:9, 49:11, 49:16, 50:10, 50:19, 50:22, 51:19, 51:20, 51:23, 54:7, 59:1, 59:2, 59:3, 59:8, 59:10, 61:13, 67:7, 75:19, 76:3, 80:21, 81:1, 81:3, 85:24, 86:19, 87:13, 87:17, 87:20, 89:21, 90:15, 101:21, 102:25, 103:4, 117:19,</p>	<p>121:22, 121:24, 122:9, 122:10, 122:12, 125:4, 127:3, 129:23, 138:21, 139:13, 139:22, 140:6, 143:13, 143:21, 143:22, 145:23, 146:2, 146:5, 146:7, 146:10, 146:19, 146:20, 147:1, 147:5, 147:13, 147:15, 147:19, 147:22, 152:19, 152:24, 153:1, 153:4, 153:25, 154:2, 154:12, 154:17, 154:20, 155:4, 155:6, 155:7, 155:10, 156:6, 156:9, 156:12, 159:11, 159:16, 159:19, 160:7, 160:11, 160:16, 161:6, 162:3, 162:8, 162:10, 162:12, 162:14, 163:9, 164:17, 164:18, 177:1, 178:17, 179:1, 179:17, 179:19</p> <p><b>capacity-only</b> [1] - 155:10</p> <p><b>capital</b> [67] - 13:21, 21:3, 24:7, 24:11, 24:19, 25:1, 26:8, 27:23, 28:10, 28:16, 28:18, 28:24, 32:12, 34:6, 34:10, 36:4, 36:17, 37:16, 37:23, 38:11, 38:18, 38:25, 39:5, 39:11, 39:14, 44:2, 44:4, 44:16, 44:23, 45:5, 45:8, 46:21, 66:13, 80:5, 81:3, 81:15, 98:23, 99:22, 100:6, 100:8, 110:9, 110:11, 113:12, 119:21, 121:24, 123:3, 123:11, 123:15, 148:13, 148:18, 148:25, 149:1, 149:5, 149:15, 149:17, 149:18, 150:4, 150:5, 150:9, 150:10, 150:18, 150:19, 151:13, 151:16, 151:19, 154:1, 154:7</p> <p><b>capital-intensive</b> [2] - 80:5, 154:7</p> <p><b>capitalized</b> [2] - 36:2, 36:5</p> <p><b>Capstone</b> [14] - 138:7, 138:15, 158:20, 158:24, 159:1, 159:25, 161:6, 161:24, 162:7, 162:10, 162:11, 162:14, 162:15, 162:21</p> <p><b>capture</b> [1] - 99:17</p> <p><b>cards</b> [1] - 74:12</p> <p><b>care</b> [1] - 176:22</p> <p><b>career</b> [1] - 110:17</p> <p><b>careful</b> [2] - 36:24, 46:18</p> <p><b>Carmacks</b> [1] - 15:16</p> <p><b>Carmacks-Stewart</b> [1] - 15:16</p> <p><b>carried</b> [3] - 21:18, 25:6, 133:12</p>	<p><b>carry</b> [1] - 166:9</p> <p><b>carrying</b> [2] - 170:10, 170:13</p> <p><b>Case</b> [2] - 115:14, 115:18</p> <p><b>case</b> [28] - 25:12, 28:8, 41:7, 46:12, 47:2, 47:22, 52:1, 66:8, 67:11, 67:18, 72:25, 83:24, 86:22, 88:14, 88:15, 102:8, 115:23, 116:9, 135:25, 136:18, 144:20, 145:16, 150:25, 153:12, 166:10, 180:6, 182:2</p> <p><b>cases</b> [3] - 63:7, 164:4, 184:11</p> <p><b>cash</b> [2] - 38:24, 39:1</p> <p><b>Cat</b> [1] - 52:12</p> <p><b>Caterpillar</b> [1] - 52:15</p> <p><b>Cats</b> [1] - 63:20</p> <p><b>causing</b> [1] - 123:15</p> <p><b>caution</b> [1] - 75:18</p> <p><b>cell</b> [1] - 9:23</p> <p><b>Center</b> [1] - 2:2</p> <p><b>centre</b> [3] - 18:24, 48:8, 146:12</p> <p><b>centres</b> [1] - 48:7</p> <p><b>cents</b> [5] - 26:16, 26:17, 34:2, 34:7, 88:9</p> <p><b>CEO</b> [3] - 11:12, 133:25</p> <p><b>certain</b> [7] - 87:5, 116:5, 139:15, 140:1, 180:9, 182:7, 183:8</p> <p><b>certainly</b> [22] - 42:4, 47:1, 47:16, 48:15, 50:6, 73:14, 96:17, 116:10, 122:24, 127:20, 130:20, 139:9, 142:7, 142:12, 154:21, 155:10, 155:18, 156:13, 157:4, 157:8, 161:4, 178:3</p> <p><b>Certificate</b> [1] - 192:1</p> <p><b>certificate</b> [3] - 3:8, 5:25</p> <p><b>certificates</b> [4] - 3:11, 3:17, 6:1, 12:15</p> <p><b>certify</b> [1] - 192:3</p> <p><b>Chair</b> [39] - 2:6, 10:3, 10:13, 11:4, 11:8, 12:6, 12:9, 12:10, 29:14, 38:10, 39:22, 40:14, 41:22, 53:5, 54:12, 60:13, 62:13, 64:6, 67:21, 69:1, 70:23, 72:15, 75:17, 76:18, 84:22, 85:19, 90:22, 112:9, 118:1, 122:11, 124:10, 138:4, 140:12, 143:20, 152:12, 156:6, 167:22, 175:24, 182:14</p> <p><b>CHAIR</b> [54] - 2:22, 10:18, 10:21, 11:2, 11:6, 12:2, 12:8, 29:3, 29:7, 29:11, 29:25, 55:16, 55:22, 56:2, 56:8, 56:20, 57:3, 57:6, 57:12, 57:18, 57:25, 64:9, 67:23, 68:1, 68:6, 70:22, 71:19, 72:16, 73:11,</p>	<p>77:4, 77:21, 77:25, 78:17, 92:14, 92:21, 92:25, 94:5, 94:10, 94:22, 103:25, 104:9, 116:21, 136:22, 137:7, 137:12, 137:17, 140:14, 140:24, 141:3, 141:8, 141:11, 190:13, 190:22, 190:25</p> <p><b>chair</b> [4] - 2:7, 2:25, 3:4, 11:12</p> <p><b>Chairman</b> [17] - 10:5, 29:1, 29:4, 29:9, 57:9, 57:22, 69:5, 69:17, 72:18, 80:12, 90:17, 94:7, 116:18, 129:21, 162:20, 163:21, 188:21</p> <p><b>chance</b> [2] - 73:18, 134:1</p> <p><b>change</b> [16] - 27:7, 30:7, 36:20, 87:24, 105:8, 107:24, 108:1, 109:13, 109:21, 120:4, 120:7, 120:10, 121:9, 122:17, 156:6, 171:25</p> <p><b>changed</b> [4] - 106:5, 109:11, 120:20</p> <p><b>changes</b> [8] - 28:25, 36:25, 40:16, 53:4, 108:6, 122:24, 128:9</p> <p><b>changing</b> [3] - 16:18, 53:6, 77:22</p> <p><b>charge</b> [7] - 37:3, 173:10, 173:13, 173:14, 173:16, 173:25, 174:1</p> <p><b>charged</b> [4] - 37:14, 39:13, 113:5, 150:9</p> <p><b>charges</b> [5] - 28:10, 38:14, 38:15, 123:8, 123:9</p> <p><b>Charrette</b> [19] - 15:25, 16:1, 16:2, 16:7, 16:13, 68:9, 68:14, 72:6, 73:3, 73:4, 73:6, 73:16, 73:22, 74:20, 74:22, 75:2, 75:21, 78:2, 78:13</p> <p><b>chart</b> [2] - 74:10, 75:15</p> <p><b>cheap</b> [1] - 47:12</p> <p><b>cheaper</b> [5] - 12:20, 14:3, 18:4, 21:6, 86:5</p> <p><b>CHECK</b> [2] - 77:12, 193:14</p> <p><b>check</b> [17] - 37:24, 37:25, 68:19, 76:19, 77:7, 77:10, 79:4, 111:8, 143:2, 143:3, 147:3, 147:4, 147:24, 148:2, 148:4, 167:15, 187:3</p> <p><b>checked</b> [2] - 68:18, 100:13</p> <p><b>checking</b> [1] - 143:10</p> <p><b>chief</b> [1] - 120:11</p> <p><b>choice</b> [2] - 74:25, 75:22</p> <p><b>choices</b> [3] - 15:23, 68:12, 74:16</p> <p><b>choosing</b> [1] - 151:24</p> <p><b>choppy</b> [1] - 29:21</p> <p><b>chosen</b> [2] - 87:10, 151:23</p>
<b>C</b>				
<p><b>C-1</b> [3] - 58:8, 58:16, 138:19</p> <p><b>C-2</b> [4] - 97:7, 98:10, 98:11, 98:21</p> <p><b>C-3</b> [1] - 58:16</p> <p><b>C-4</b> [3] - 59:3, 146:17, 159:19</p> <p><b>C-6</b> [1] - 144:18</p> <p><b>C-8</b> [1] - 160:25</p> <p><b>cable</b> [4] - 155:22, 155:25, 156:2, 156:3</p> <p><b>calculations</b> [2] - 129:23, 178:1</p> <p><b>Calgary</b> [4] - 21:15,</p>				

## YUB - YEC LNG Project, Volume 1, March 31, 2014

<p><b>circulated</b> [2] - 9:17, 123:3</p> <p><b>circumstances</b> [1] - 6:4</p> <p><b>citizens</b> [1] - 132:21</p> <p><b>City</b> [1] - 192:8</p> <p><b>civil</b> [2] - 26:13, 67:14</p> <p><b>claim</b> [3] - 90:7, 90:11, 91:7</p> <p><b>claims</b> [1] - 91:2</p> <p><b>clarified</b> [3] - 169:21, 169:22, 169:24</p> <p><b>clarify</b> [3] - 7:20, 77:21, 78:1</p> <p><b>clarity</b> [1] - 123:13</p> <p><b>Clark</b> [1] - 6:12</p> <p><b>Clarke</b> [1] - 2:12</p> <p><b>clause</b> [1] - 183:11</p> <p><b>cleaner</b> [5] - 12:20, 18:4, 21:5, 91:4, 91:22</p> <p><b>clear</b> [25] - 14:22, 42:15, 46:16, 71:7, 80:13, 93:9, 101:9, 110:22, 116:7, 129:22, 130:8, 132:6, 138:23, 144:2, 147:21, 158:20, 160:10, 162:6, 165:15, 168:14, 168:19, 169:20, 170:5, 170:15, 170:18</p> <p><b>clearly</b> [2] - 86:10, 88:6</p> <p><b>close</b> [3] - 25:25, 88:21, 180:12</p> <p><b>closed</b> [3] - 36:14, 36:22, 145:12</p> <p><b>closely</b> [1] - 115:19</p> <p><b>closer</b> [5] - 18:13, 23:19, 66:21, 86:2, 178:14</p> <p><b>closing</b> [2] - 88:17, 88:18</p> <p><b>closure</b> [1] - 18:13</p> <p><b>code</b> [1] - 38:14</p> <p><b>cold</b> [1] - 184:25</p> <p><b>colleague</b> [1] - 159:5</p> <p><b>colleagues</b> [2] - 163:5, 163:21</p> <p><b>collect</b> [1] - 134:22</p> <p><b>collected</b> [1] - 46:20</p> <p><b>collection</b> [1] - 35:25</p> <p><b>Colleen</b> [2] - 6:14, 6:17</p> <p><b>Columbia</b> [6] - 12:22, 27:15, 83:8, 164:20, 168:21, 172:3</p> <p><b>column</b> [3] - 34:25, 58:18, 58:19</p> <p><b>combination</b> [3] - 15:6, 87:3, 89:20</p> <p><b>comfort</b> [1] - 62:23</p> <p><b>comfortable</b> [2] - 37:1, 108:10</p> <p><b>coming</b> [9] - 47:19, 75:14, 85:10, 107:19, 110:16, 157:20, 175:15, 178:22, 181:25</p> <p><b>commence</b> [2] - 2:21, 7:6</p> <p><b>commenced</b> [1] - 22:8</p> <p><b>commencing</b> [1] - 15:11</p> <p><b>comment</b> [9] - 9:20, 25:24, 72:17, 91:21, 100:22, 111:14,</p>	<p>113:20, 125:12, 128:13</p> <p><b>comments</b> [7] - 125:15, 125:20, 125:23, 125:24, 126:4, 128:6, 128:13</p> <p><b>commissioning</b> [1] - 172:16</p> <p><b>commitment</b> [1] - 125:2</p> <p><b>commitments</b> [4] - 25:18, 124:7, 124:13, 163:11</p> <p><b>committed</b> [6] - 5:11, 14:12, 17:17, 22:15, 34:16, 123:25</p> <p><b>Committee</b> [1] - 25:16</p> <p><b>Committee</b> [4] - 125:15, 125:19, 126:1, 126:11</p> <p><b>committing</b> [1] - 181:15</p> <p><b>common</b> [2] - 74:1, 129:3</p> <p><b>communities</b> [3] - 47:4, 47:11, 47:14</p> <p><b>community</b> [2] - 7:9, 191:1</p> <p><b>companies</b> [2] - 48:21, 163:8</p> <p><b>company</b> [8] - 37:2, 37:7, 39:11, 39:13, 59:23, 65:4, 106:16, 163:17</p> <p><b>comparatively</b> [1] - 164:14</p> <p><b>compare</b> [3] - 86:8, 127:11</p> <p><b>compared</b> [13] - 21:4, 24:23, 27:24, 28:11, 28:16, 32:15, 33:20, 91:4, 108:14, 150:8, 166:23, 177:3, 182:9</p> <p><b>comparison</b> [6] - 92:4, 123:21, 143:8, 151:3, 166:2, 177:13</p> <p><b>comparisons</b> [2] - 24:6, 92:3</p> <p><b>compelling</b> [1] - 136:18</p> <p><b>compendium</b> [3] - 29:15, 29:18, 29:20</p> <p><b>competently</b> [1] - 74:23</p> <p><b>competition</b> [1] - 87:14</p> <p><b>competitive</b> [1] - 89:11</p> <p><b>competitor</b> [1] - 87:23</p> <p><b>compilation</b> [1] - 56:13</p> <p><b>compile</b> [1] - 96:18</p> <p><b>compiled</b> [2] - 96:13, 96:14</p> <p><b>complement</b> [1] - 60:14</p> <p><b>complete</b> [5] - 7:20, 63:6, 134:5, 180:22, 192:4</p> <p><b>completed</b> [3] - 13:22, 24:24, 110:19</p> <p><b>completely</b> [6] - 38:11, 61:12, 78:11, 142:16, 150:17, 170:21</p> <p><b>completeness</b> [1] - 38:6</p>	<p><b>completion</b> [3] - 15:16, 15:17, 26:6</p> <p><b>complex</b> [1] - 74:4</p> <p><b>complexity</b> [1] - 102:19</p> <p><b>compliment</b> [1] - 10:20</p> <p><b>comply</b> [2] - 56:12, 128:22</p> <p><b>component</b> [1] - 20:12</p> <p><b>components</b> [3] - 32:4, 40:11, 40:12</p> <p><b>comprehensively</b> [1] - 112:23</p> <p><b>comprehensiveness</b> [1] - 25:18</p> <p><b>compression</b> [1] - 81:7</p> <p><b>concept</b> [5] - 101:18, 105:14, 164:11, 184:16, 185:2</p> <p><b>concern</b> [1] - 43:11</p> <p><b>concerned</b> [7] - 48:4, 72:19, 73:9, 92:1, 103:13, 132:14, 182:16</p> <p><b>concerning</b> [2] - 38:2, 120:14</p> <p><b>concerns</b> [5] - 11:1, 80:6, 112:13, 125:24, 157:12</p> <p><b>conclude</b> [1] - 8:8</p> <p><b>concluded</b> [3] - 115:7, 122:3, 191:6</p> <p><b>conclusion</b> [3] - 52:23, 102:17, 108:6</p> <p><b>conclusive</b> [1] - 112:19</p> <p><b>condition</b> [7] - 18:18, 133:1, 133:20, 133:21, 145:7, 162:3, 185:22</p> <p><b>conditions</b> [27] - 4:24, 6:2, 16:18, 25:14, 124:17, 128:2, 128:4, 140:9, 145:10, 175:5, 175:17, 177:21, 179:13, 180:9, 180:19, 181:1, 181:7, 184:2, 184:3, 184:7, 184:9, 184:17, 184:18, 185:15, 186:12, 186:23</p> <p><b>conducted</b> [1] - 99:25</p> <p><b>conducting</b> [1] - 126:2</p> <p><b>Conference</b> [1] - 2:2</p> <p><b>confidence</b> [2] - 108:2, 185:11</p> <p><b>confident</b> [2] - 109:23, 110:5</p> <p><b>configuration</b> [3] - 165:3, 166:10, 168:24</p> <p><b>configured</b> [1] - 168:12</p> <p><b>confirm</b> [9] - 30:21, 73:3, 75:20, 123:2, 123:7, 129:13, 129:18, 137:18, 179:25</p> <p><b>confirmed</b> [2] - 20:4, 22:24</p> <p><b>confirming</b> [1] - 28:22</p> <p><b>confused</b> [1] - 49:13</p> <p><b>connected</b> [3] - 15:17, 16:22, 80:22</p> <p><b>connecting</b> [1] -</p>	<p>111:24</p> <p><b>connections</b> [1] - 111:19</p> <p><b>consciously</b> [1] - 62:6</p> <p><b>consensus</b> [2] - 73:23, 109:10</p> <p><b>consequential</b> [1] - 133:17</p> <p><b>conservation</b> [2] - 50:9, 50:11</p> <p><b>Conservation</b> [2] - 2:15, 10:15</p> <p><b>conservative</b> [3] - 27:3, 28:8, 115:15</p> <p><b>consider</b> [13] - 32:3, 41:24, 42:15, 42:18, 43:22, 48:11, 50:23, 51:1, 53:3, 55:21, 74:21, 115:23, 126:2</p> <p><b>considerably</b> [2] - 23:23, 54:22</p> <p><b>consideration</b> [6] - 27:14, 42:7, 54:4, 55:14, 157:23, 158:10</p> <p><b>considerations</b> [2] - 102:3, 178:6</p> <p><b>considered</b> [16] - 19:11, 19:20, 19:23, 27:2, 41:14, 41:16, 41:19, 41:21, 42:10, 42:11, 48:12, 48:23, 105:6, 118:15, 125:22, 155:13</p> <p><b>considering</b> [1] - 63:25</p> <p><b>considers</b> [2] - 4:24, 6:3</p> <p><b>consistent</b> [2] - 81:25, 82:1</p> <p><b>consists</b> [1] - 173:13</p> <p><b>consolidated</b> [4] - 134:20, 135:10, 135:18, 136:10</p> <p><b>constant</b> [1] - 125:2</p> <p><b>constrained</b> [1] - 153:6</p> <p><b>constraints</b> [1] - 65:3</p> <p><b>construction</b> [11] - 22:1, 22:2, 22:8, 25:9, 26:5, 26:9, 26:11, 26:13, 126:12, 126:19</p> <p><b>consult</b> [1] - 141:20</p> <p><b>consultant</b> [1] - 11:13</p> <p><b>consultants</b> [2] - 76:11, 76:13</p> <p><b>CONSULTANTS</b> [2] - 77:15, 193:16</p> <p><b>consultations</b> [1] - 75:2</p> <p><b>Consulting</b> [1] - 10:15</p> <p><b>consume</b> [1] - 186:20</p> <p><b>Consumers</b> [1] - 69:10</p> <p><b>Consumers'</b> [1] - 2:16</p> <p><b>contact</b> [1] - 6:21</p> <p><b>contain</b> [1] - 70:25</p> <p><b>contemplates</b> [1] - 83:6</p> <p><b>content</b> [1] - 71:24</p> <p><b>contents</b> [2] - 69:4, 69:17</p> <p><b>context</b> [11] - 33:5, 45:5, 46:19, 51:24, 86:1, 137:5, 146:11,</p>	<p>153:21, 155:8, 180:18, 186:8</p> <p><b>contexts</b> [1] - 184:9</p> <p><b>contingency</b> [9] - 22:3, 22:11, 24:22, 25:8, 27:25, 105:16, 105:18, 148:22, 148:24</p> <p><b>continue</b> [9] - 42:5, 55:7, 81:21, 92:17, 95:17, 103:3, 103:18, 103:19, 110:13</p> <p><b>continued</b> [8] - 15:21, 15:24, 16:8, 19:22, 19:24, 20:1, 22:13, 109:1</p> <p><b>continues</b> [1] - 26:9</p> <p><b>continuing</b> [2] - 43:18, 135:8</p> <p><b>contract</b> [24] - 22:5, 115:5, 170:9, 170:12, 171:2, 171:6, 175:9, 175:10, 175:18, 175:19, 178:10, 179:20, 180:9, 180:12, 180:14, 180:17, 180:21, 181:2, 181:8, 181:20, 182:19, 183:2, 183:6, 183:16</p> <p><b>contracted</b> [1] - 76:13</p> <p><b>contracting</b> [3] - 117:15, 170:7, 170:24</p> <p><b>contractor</b> [1] - 169:19</p> <p><b>contracts</b> [3] - 25:9, 26:14, 181:4</p> <p><b>contractual</b> [5] - 173:7, 177:15, 177:16, 177:18, 180:1</p> <p><b>contrast</b> [4] - 34:11, 45:7, 130:12, 153:15</p> <p><b>contribute</b> [1] - 39:14</p> <p><b>control</b> [2] - 20:11, 190:20</p> <p><b>controlled</b> [1] - 139:9</p> <p><b>convenient</b> [1] - 190:18</p> <p><b>conventional</b> [2] - 165:12, 165:16</p> <p><b>conversation</b> [5] - 155:7, 157:16, 163:4, 166:12, 172:8</p> <p><b>CONVERSION</b> [1] - 1:8</p> <p><b>Conversion</b> [8] - 3:9, 4:5, 4:16, 12:13, 30:14, 30:17, 41:5, 41:10</p> <p><b>conversion</b> [6] - 12:19, 50:23, 51:1, 52:16, 90:20, 174:16</p> <p><b>converted</b> [1] - 142:25</p> <p><b>convertible</b> [1] - 55:4</p> <p><b>convince</b> [1] - 129:3</p> <p><b>cooling</b> [2] - 67:9, 189:21</p> <p><b>cooperatively</b> [1] - 26:9</p> <p><b>coordinating</b> [1] - 23:10</p> <p><b>copies</b> [4] - 6:20, 9:5, 11:22, 173:3</p> <p><b>Copper</b> [1] - 21:17</p> <p><b>copy</b> [4] - 8:19, 11:20, 11:22, 64:2</p>
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## YUB - YEC LNG Project, Volume 1, March 31, 2014

<p><b>Corp</b> [1] - 167:24  <b>corporation</b> [5] - 39:7, 90:7, 124:15, 132:7, 132:13  <b>CORPORATION</b> [1] - 1:6  <b>Corporation</b> [7] - 2:13, 3:23, 12:5, 23:17, 90:1, 104:2, 193:6  <b>Corporation's</b> [2] - 3:7, 90:15  <b>correct</b> [60] - 33:13, 38:9, 40:22, 46:6, 46:15, 49:15, 52:14, 57:1, 63:8, 67:3, 76:11, 83:20, 83:22, 99:18, 113:7, 114:8, 121:14, 128:20, 129:12, 129:17, 137:1, 143:3, 143:14, 143:17, 143:19, 144:4, 148:5, 149:24, 150:21, 152:11, 156:1, 156:5, 164:8, 164:21, 165:10, 167:2, 167:5, 167:6, 168:2, 168:3, 172:5, 172:6, 172:21, 172:23, 172:24, 173:1, 173:2, 177:17, 182:20, 185:2, 185:13, 185:17, 186:6, 187:23, 187:24, 188:10, 188:11, 188:13, 189:17, 190:12  <b>correctly</b> [2] - 68:17, 143:13  <b>cost</b> [148] - 4:22, 13:16, 13:21, 19:21, 20:21, 20:25, 21:3, 21:7, 22:22, 23:7, 23:14, 23:18, 24:11, 24:19, 25:23, 26:8, 26:16, 26:20, 27:6, 27:9, 27:25, 28:3, 28:6, 28:9, 28:10, 28:14, 28:16, 28:21, 28:22, 28:24, 30:20, 31:4, 32:14, 33:25, 34:5, 34:12, 35:8, 37:14, 37:22, 39:3, 39:6, 39:7, 44:3, 44:16, 50:17, 51:16, 52:2, 53:21, 55:9, 55:12, 59:22, 60:3, 60:6, 60:7, 60:12, 60:16, 60:19, 64:20, 65:17, 65:24, 66:10, 66:12, 66:15, 66:17, 66:21, 67:3, 67:5, 80:3, 81:3, 81:15, 84:20, 86:16, 88:9, 89:6, 89:18, 95:7, 95:13, 95:21, 95:22, 99:21, 102:12, 107:3, 107:4, 110:8, 110:10, 110:21, 111:3, 111:4, 111:9, 111:11, 113:4, 113:8, 113:12, 113:14, 113:22, 114:3, 116:11, 119:6, 119:13, 119:16, 121:25, 122:4, 122:13, 123:3, 123:11, 123:15, 123:21, 127:18, 128:9, 128:18, 128:22, 129:4,</p>	<p>130:13, 130:22, 131:1, 131:2, 131:8, 131:12, 135:3, 148:13, 149:5, 149:8, 149:14, 149:15, 149:17, 149:18, 149:19, 150:5, 150:8, 150:18, 150:19, 150:20, 151:13, 151:16, 151:19, 153:16, 157:24, 169:15, 170:3, 170:19, 170:22, 171:13, 171:21, 174:10, 178:13, 182:22  <b>cost-based</b> [1] - 23:7  <b>cost-benefit</b> [5] - 30:20, 99:21, 107:3, 113:8, 114:3  <b>cost-effective</b> [5] - 20:21, 21:7, 52:2, 131:1, 131:2  <b>cost-effectiveness</b> [1] - 20:25  <b>cost-efficient</b> [1] - 89:6  <b>cost-wise</b> [1] - 171:21  <b>costing</b> [1] - 154:9  <b>costly</b> [1] - 127:13  <b>COSTS</b> [2] - 77:15, 193:16  <b>costs</b> [93] - 17:7, 24:7, 24:10, 25:1, 26:8, 26:22, 26:25, 27:23, 28:18, 31:23, 32:12, 32:17, 32:19, 33:4, 34:10, 34:20, 34:22, 34:23, 34:25, 35:4, 35:15, 35:19, 36:1, 36:4, 36:7, 36:10, 36:11, 36:20, 36:22, 37:2, 37:5, 37:6, 37:16, 38:5, 38:7, 38:12, 39:8, 39:11, 39:13, 39:15, 40:11, 40:12, 44:4, 44:20, 44:21, 44:23, 45:9, 45:22, 58:2, 58:3, 60:20, 66:7, 66:13, 66:25, 76:16, 77:7, 81:4, 97:11, 99:22, 100:1, 100:5, 100:7, 100:8, 101:3, 101:17, 102:16, 110:20, 111:1, 111:8, 111:10, 111:18, 113:15, 113:16, 113:19, 113:21, 125:9, 128:3, 130:24, 148:12, 148:18, 148:25, 149:1, 150:4, 150:9, 150:10, 176:15, 189:1  <b>Council</b> [7] - 105:23, 106:9, 106:16, 117:2, 117:9, 117:24, 176:9  <b>counsel</b> [7] - 6:11, 8:20, 8:22, 9:2, 10:1, 56:21, 141:17  <b>Counsel</b> [1] - 2:9  <b>counting</b> [1] - 145:20  <b>couple</b> [7] - 41:23, 51:17, 57:23, 60:15, 137:10, 138:3, 172:7  <b>course</b> [9] - 8:1, 31:20, 83:10, 107:19, 108:17, 109:21, 111:23, 125:16,</p>	<p>184:15  <b>court</b> [2] - 6:18, 6:21  <b>Court</b> [4] - 2:18, 2:18, 192:14, 192:20  <b>cover</b> [7] - 29:19, 44:15, 81:14, 125:8, 149:15, 173:19, 173:20  <b>covered</b> [4] - 28:18, 31:25, 98:21, 98:25  <b>covering</b> [1] - 99:1  <b>covers</b> [2] - 106:10, 148:10  <b>crank</b> [1] - 62:18  <b>crazy</b> [1] - 132:3  <b>create</b> [1] - 13:10  <b>credited</b> [1] - 37:22  <b>Creek</b> [2] - 23:25, 86:7  <b>criteria</b> [15] - 5:14, 14:14, 15:5, 16:3, 43:17, 139:13, 146:5, 153:4, 156:7, 156:13, 156:15, 159:16, 159:22, 160:11, 163:15  <b>critical</b> [3] - 16:16, 144:10, 156:11  <b>criticality</b> [1] - 156:7  <b>CROSS</b> [4] - 30:5, 141:15, 193:7, 193:8  <b>cross</b> [36] - 7:16, 7:21, 8:10, 8:11, 8:13, 8:17, 8:19, 8:21, 9:1, 9:4, 9:7, 9:9, 9:11, 29:10, 29:12, 29:15, 29:19, 29:21, 56:11, 67:19, 70:3, 71:2, 71:7, 71:10, 72:7, 72:11, 72:24, 78:11, 78:15, 92:24, 155:16, 158:19, 184:14, 186:25, 188:25  <b>cross-examination</b> [27] - 7:21, 8:10, 8:13, 8:17, 8:19, 8:21, 9:1, 9:4, 9:9, 29:10, 29:12, 29:15, 56:11, 67:19, 71:2, 71:7, 71:10, 72:7, 72:11, 72:15, 155:16, 158:19, 186:25, 188:25  <b>cross-examine</b> [1] - 7:16  <b>CROSS-EXAMINES</b> [4] - 30:5, 141:15, 193:7, 193:8  <b>cross-examining</b> [1] - 184:14  <b>crossings</b> [1] - 13:10  <b>crucial</b> [1] - 120:17  <b>crude</b> [2] - 27:12, 27:19  <b>CSR(A)</b> [4] - 2:18, 2:18, 192:13, 192:19  <b>cubic</b> [5] - 178:18, 178:23, 178:24, 179:4, 186:23  <b>current</b> [18] - 14:6, 17:1, 17:4, 18:18, 20:16, 20:21, 25:21, 31:9, 62:11, 91:18, 95:15, 104:23, 105:2, 109:10, 128:11, 146:11, 178:16, 184:21  <b>customer</b> [12] - 4:22, 138:10, 158:21, 158:22, 158:23,</p>	<p>158:24, 159:22, 179:17, 179:23, 185:25, 186:3  <b>customers</b> [12] - 5:9, 5:17, 14:10, 14:18, 30:18, 95:9, 137:25, 159:21, 160:5, 160:8, 161:14, 179:11  <b>cut</b> [3] - 55:19, 190:17, 190:19  <b>CW-YEC-1-1</b> [1] - 94:13  <b>CW10</b> [1] - 45:17</p>	<p>26:6, 33:7, 39:23, 40:1, 48:13, 74:3, 134:13, 135:19, 135:20, 169:20  <b>decision-making</b> [2] - 16:4, 33:7  <b>decisions</b> [5] - 134:19, 135:2, 135:21, 136:3, 163:18  <b>decommissioned</b> [1] - 113:1  <b>decommissioning</b> [3] - 111:9, 113:4, 127:2  <b>decreased</b> [1] - 95:12  <b>decreases</b> [2] - 107:18, 107:20  <b>deemed</b> [2] - 116:3, 178:11  <b>default</b> [8] - 17:4, 20:22, 75:24, 80:2, 80:18, 98:13, 124:5, 144:23  <b>deferral</b> [1] - 38:3  <b>deferred</b> [5] - 18:11, 20:3, 103:23, 104:14, 105:9  <b>deficit</b> [2] - 130:7, 144:9  <b>definitely</b> [2] - 109:16, 110:3  <b>definition</b> [5] - 16:3, 32:23, 173:9, 173:10, 173:24  <b>definitions</b> [1] - 173:23  <b>degree</b> [3] - 108:1, 160:6, 185:2  <b>delay</b> [1] - 22:3  <b>delayed</b> [1] - 18:17  <b>delays</b> [3] - 20:10, 22:1, 26:8  <b>deliver</b> [1] - 76:14  <b>delivered</b> [2] - 12:21, 174:10  <b>delivery</b> [3] - 47:15, 173:10, 173:13  <b>delta</b> [1] - 151:12  <b>Delta</b> [3] - 22:22, 167:9, 167:10  <b>demand</b> [16] - 107:21, 130:19, 138:1, 159:20, 159:23, 159:25, 161:7, 175:9, 175:18, 175:19, 179:20, 180:9, 180:13, 183:2, 183:17, 183:21  <b>demands</b> [1] - 159:21  <b>demolition</b> [2] - 113:13, 113:16  <b>demonstrate</b> [1] - 14:22  <b>demonstrated</b> [1] - 20:7  <b>demonstrates</b> [2] - 28:20, 74:11  <b>Dempster</b> [1] - 83:16  <b>denied</b> [1] - 39:9  <b>dense</b> [1] - 176:2  <b>densely</b> [1] - 167:20  <b>density</b> [3] - 164:14, 165:5, 166:15  <b>department</b> [1] - 37:2  <b>dependent</b> [1] - 108:7  <b>depleted</b> [1] - 16:23</p>
---	--	---	--	---

## YUB - YEC LNG Project, Volume 1, March 31, 2014

<p><b>depreciated</b> [4] - 99:22, 100:2, 100:9, 101:5</p> <p><b>depreciation</b> [8] - 32:6, 32:7, 32:13, 37:16, 37:22, 100:6, 123:8, 150:6</p> <p><b>derated</b> [1] - 17:19</p> <p><b>derives</b> [1] - 96:3</p> <p><b>describe</b> [1] - 82:18</p> <p><b>described</b> [3] - 64:16, 101:5, 162:24</p> <p><b>describes</b> [1] - 58:14</p> <p><b>description</b> [1] - 58:8</p> <p><b>design</b> [9] - 5:3, 25:23, 30:15, 35:18, 41:6, 47:21, 156:12, 169:19, 169:25</p> <p><b>designated</b> [1] - 4:16</p> <p><b>designed</b> [3] - 142:7, 168:13, 171:9</p> <p><b>desirability</b> [1] - 33:9</p> <p><b>detail</b> [4] - 62:14, 64:2, 68:19, 112:23</p> <p><b>detailed</b> [6] - 49:12, 105:13, 112:10, 118:10, 180:4, 180:21</p> <p><b>details</b> [2] - 98:2, 104:20</p> <p><b>deteriorated</b> [1] - 135:7</p> <p><b>determine</b> [3] - 70:14, 130:18, 145:23</p> <p><b>determined</b> [6] - 20:20, 74:16, 135:12, 135:14, 140:7</p> <p><b>develop</b> [7] - 65:24, 74:24, 80:3, 81:23, 82:21, 89:6, 89:15</p> <p><b>developed</b> [9] - 76:6, 76:7, 88:13, 89:12, 89:13, 90:24, 102:5, 117:3, 117:23</p> <p><b>developing</b> [3] - 82:21, 88:4, 124:1</p> <p><b>development</b> [19] - 4:4, 19:11, 21:16, 23:23, 27:16, 46:21, 75:5, 79:16, 79:19, 79:22, 84:7, 84:19, 89:10, 101:20, 102:21, 109:1, 109:7, 181:19</p> <p><b>Development</b> [2] - 90:1, 90:15</p> <p><b>developments</b> [8] - 19:13, 21:14, 76:8, 83:9, 84:15, 85:5, 85:9, 85:16</p> <p><b>devised</b> [1] - 174:13</p> <p><b>dialogue</b> [1] - 82:19</p> <p><b>dickens</b> [1] - 61:7</p> <p><b>Diesel</b> [8] - 3:9, 4:5, 4:15, 12:13, 30:14, 30:16, 41:4, 41:9</p> <p><b>diesel</b> [182] - 4:9, 12:19, 12:24, 13:1, 13:4, 14:4, 15:9, 15:19, 17:3, 17:7, 18:3, 18:5, 18:16, 18:21, 19:21, 20:18, 20:20, 20:22, 21:2, 21:3, 24:7, 24:8, 24:10, 24:23, 26:17, 26:18, 26:22, 26:23, 27:10, 27:24, 28:11, 28:17, 28:25, 31:21, 31:22, 32:15, 32:19, 33:17, 33:24, 34:1,</p>	<p>34:2, 34:5, 42:22, 43:6, 44:19, 46:25, 47:11, 50:24, 51:2, 51:11, 51:15, 51:25, 52:9, 52:19, 53:3, 53:19, 54:8, 54:21, 54:22, 55:7, 60:3, 62:1, 63:11, 64:3, 64:20, 65:8, 65:25, 66:2, 66:6, 66:10, 66:11, 67:2, 75:20, 75:24, 76:7, 80:1, 80:18, 81:7, 81:16, 81:21, 87:15, 87:25, 88:1, 90:20, 91:4, 91:16, 91:22, 95:13, 95:19, 97:4, 97:8, 97:11, 97:22, 98:1, 98:8, 98:13, 98:16, 98:20, 99:3, 99:8, 99:12, 99:17, 100:15, 100:16, 101:4, 101:23, 102:8, 105:16, 105:18, 105:21, 106:10, 108:12, 108:14, 110:20, 110:23, 111:10, 111:16, 111:21, 111:23, 113:1, 121:21, 121:25, 122:3, 122:8, 122:12, 122:16, 122:18, 123:4, 123:9, 124:3, 124:5, 124:8, 124:21, 124:25, 127:2, 127:10, 129:10, 129:13, 130:6, 130:17, 131:6, 133:12, 142:15, 143:1, 143:5, 143:8, 143:24, 144:24, 145:3, 148:19, 148:20, 149:3, 149:7, 150:2, 151:1, 151:9, 151:13, 151:17, 151:23, 152:2, 152:8, 152:9, 155:9, 165:5, 165:6, 165:7, 165:17, 166:1, 166:21, 181:6, 181:7, 181:8, 181:11, 181:17, 181:19, 182:3, 182:9, 185:7, 186:21, 187:1, 187:16</p> <p><b>DIESEL</b> [1] - 1:7</p> <p><b>Diesel-Natural</b> [5] - 12:13, 30:14, 30:16, 41:4, 41:9</p> <p><b>diesel-only</b> [1] - 66:2</p> <p><b>diesel..</b> [1] - 164:15</p> <p><b>diesels</b> [10] - 55:6, 55:7, 55:8, 62:18, 76:1, 76:5, 92:5, 130:3, 138:7, 138:8</p> <p><b>differ</b> [1] - 166:6</p> <p><b>difference</b> [27] - 24:9, 24:11, 32:18, 40:10, 81:7, 98:4, 123:4, 123:8, 123:11, 123:15, 130:14, 147:11, 148:24, 149:2, 149:4, 149:15, 149:17, 150:16, 150:18, 150:19, 152:18, 154:20, 160:2, 166:14, 166:15, 181:10, 182:22</p> <p><b>differences</b> [2] - 33:3, 128:9</p> <p><b>DIFFERENT</b> [2] -</p>	<p>96:23, 193:22</p> <p><b>different</b> [28] - 24:3, 31:16, 42:1, 46:14, 54:9, 54:13, 63:18, 75:13, 82:15, 86:18, 96:15, 96:20, 97:9, 112:22, 125:4, 134:25, 135:22, 137:3, 144:21, 144:22, 154:8, 180:23, 181:12, 181:19, 184:10</p> <p><b>differential</b> [3] - 108:11, 110:8, 110:11</p> <p><b>differs</b> [1] - 166:6</p> <p><b>difficult</b> [8] - 46:24, 54:2, 62:8, 72:10, 89:14, 131:22, 132:5</p> <p><b>difficulties</b> [2] - 131:17, 169:2</p> <p><b>difficulty</b> [3] - 88:7, 94:25, 107:25</p> <p><b>digest</b> [1] - 134:22</p> <p><b>digested</b> [1] - 134:24</p> <p><b>dimensions</b> [1] - 61:13</p> <p><b>diminished</b> [1] - 83:19</p> <p><b>direct</b> [1] - 7:20</p> <p><b>directed</b> [4] - 6:23, 90:25, 176:9, 176:14</p> <p><b>direction</b> [4] - 23:8, 79:3, 124:15, 127:23</p> <p><b>directions</b> [1] - 106:16</p> <p><b>Directive</b> [1] - 105:22</p> <p><b>directive</b> [2] - 106:2, 106:9</p> <p><b>directly</b> [4] - 8:16, 42:25, 78:12, 95:12</p> <p><b>director</b> [1] - 11:16</p> <p><b>directors</b> [4] - 39:19, 39:24, 40:12, 40:20</p> <p><b>disadvantages</b> [1] - 51:9</p> <p><b>disagreement</b> [1] - 140:20</p> <p><b>discernible</b> [1] - 25:22</p> <p><b>discount</b> [1] - 183:2</p> <p><b>discourse</b> [1] - 38:1</p> <p><b>discretion</b> [1] - 180:22</p> <p><b>discuss</b> [5] - 25:20, 83:25, 130:20, 171:25, 180:8</p> <p><b>discussed</b> [11] - 59:17, 97:22, 98:18, 98:25, 101:11, 152:15, 153:21, 153:22, 163:14, 163:15</p> <p><b>discussing</b> [5] - 80:4, 88:16, 94:12, 171:11, 180:12</p> <p><b>discussion</b> [14] - 56:21, 68:25, 79:25, 80:13, 88:7, 134:2, 146:1, 146:12, 152:21, 153:22, 155:4, 155:17, 156:14, 158:25</p> <p><b>discussions</b> [10] - 15:22, 31:20, 52:15, 117:11, 117:25, 118:11, 163:2, 164:6, 178:7, 178:12</p> <p><b>dispatch</b> [2] - 130:21, 130:22</p> <p><b>dispatchability</b> [3] -</p>	<p>46:13, 46:25, 47:12</p> <p><b>dispatchable</b> [4] - 44:9, 46:9, 85:25, 86:21</p> <p><b>displace</b> [10] - 51:15, 97:22, 101:22, 102:11, 102:23, 102:25, 105:21, 155:8, 185:7, 186:21</p> <p><b>displaced</b> [3] - 24:8, 52:9, 98:18</p> <p><b>displacement</b> [1] - 95:20</p> <p><b>displacing</b> [1] - 103:6</p> <p><b>disposal</b> [1] - 113:3</p> <p><b>disrespectful</b> [2] - 158:1, 158:11</p> <p><b>disseminate</b> [1] - 134:22</p> <p><b>dissent</b> [1] - 40:4</p> <p><b>dissenting</b> [1] - 40:1</p> <p><b>distances</b> [1] - 164:13</p> <p><b>distinct</b> [2] - 143:8, 184:4</p> <p><b>distinction</b> [2] - 98:3, 183:3</p> <p><b>distribute</b> [1] - 9:5</p> <p><b>distributed</b> [2] - 7:11, 11:21</p> <p><b>distribution</b> [2] - 25:20, 144:21</p> <p><b>divided</b> [1] - 150:4</p> <p><b>do-nothing</b> [1] - 41:15</p> <p><b>document</b> [21] - 4:3, 8:23, 9:12, 9:13, 26:6, 70:16, 72:3, 72:4, 72:5, 72:19, 73:19, 95:2, 95:4, 95:5, 96:8, 96:11, 96:13, 104:1, 104:2, 116:19</p> <p><b>documented</b> [1] - 84:19</p> <p><b>documents</b> [14] - 57:9, 69:11, 69:24, 70:2, 70:5, 70:7, 70:8, 70:14, 71:22, 93:1, 93:5, 104:7, 137:10, 180:4</p> <p><b>dollar</b> [1] - 60:12</p> <p><b>dollars</b> [5] - 59:25, 60:9, 128:25, 129:1</p> <p><b>domestic</b> [2] - 23:23, 27:17</p> <p><b>dominant</b> [1] - 160:23</p> <p><b>Donald</b> [2] - 10:22, 10:23</p> <p><b>done</b> [11] - 39:6, 41:25, 53:20, 60:17, 67:15, 73:10, 90:14, 128:18, 136:15, 137:14, 171:8</p> <p><b>door</b> [3] - 185:14, 186:5, 186:9</p> <p><b>double</b> [2] - 145:4, 164:16</p> <p><b>doubt</b> [3] - 45:16, 70:9, 136:6</p> <p><b>down</b> [35] - 34:23, 34:24, 35:22, 43:21, 44:22, 47:20, 48:3, 53:24, 62:10, 97:6, 107:6, 121:18, 123:19, 132:18, 132:21, 132:24, 133:24, 134:3, 141:19, 145:19,</p>	<p>148:18, 157:7, 157:12, 157:19, 158:6, 160:1, 161:2, 161:9, 161:17, 162:12, 162:13, 163:13, 163:25, 178:9, 192:5</p> <p><b>draft</b> [12] - 25:10, 25:24, 26:3, 94:16, 94:18, 116:15, 121:17, 123:23, 125:10, 126:9, 127:5, 128:1</p> <p><b>drastically</b> [1] - 83:12</p> <p><b>draw</b> [1] - 182:17</p> <p><b>driven</b> [3] - 17:9, 107:21, 148:10</p> <p><b>driver</b> [2] - 143:21</p> <p><b>drives</b> [2] - 17:19, 166:7</p> <p><b>driving</b> [5] - 99:15, 109:20, 129:15, 140:7, 183:25</p> <p><b>drought</b> [10] - 44:15, 44:18, 45:24, 86:23, 129:25, 144:6, 144:11, 144:15, 145:7</p> <p><b>dry</b> [3] - 143:17, 144:2, 144:8</p> <p><b>DSM</b> [22] - 48:11, 48:12, 48:14, 48:15, 48:21, 48:24, 49:12, 49:13, 49:16, 50:1, 50:8, 50:13, 58:6, 58:9, 58:13, 58:17, 58:20, 58:21, 58:22, 59:4, 59:8, 59:10</p> <p><b>DSR</b> [1] - 25:22</p> <p><b>dual</b> [6] - 55:5, 64:14, 66:3, 66:6, 66:11, 143:8</p> <p><b>due</b> [2] - 18:11, 122:18</p> <p><b>Dun</b> [12] - 117:1, 117:11, 118:4, 118:7, 118:8, 118:10, 118:11, 118:14, 118:17, 119:4, 120:12, 120:21</p> <p><b>Dun's</b> [1] - 121:4</p> <p><b>duration</b> [1] - 35:13</p> <p><b>during</b> [25] - 4:1, 6:13, 7:21, 8:10, 9:4, 9:24, 13:17, 16:11, 21:25, 23:2, 28:18, 31:20, 44:5, 83:10, 104:22, 108:17, 125:16, 140:19, 146:17, 149:14, 150:9, 150:14, 150:16, 153:6, 153:17</p> <p><b>Dwayne</b> [1] - 6:12</p>
<b>E</b>				
<p><b>e</b> [1] - 187:15</p> <p><b>E-13</b> [2] - 31:7, 32:2</p> <p><b>Eagle</b> [5] - 79:18, 82:11, 82:22, 83:20, 90:15</p> <p><b>earliest</b> [1] - 147:21</p> <p><b>early</b> [6] - 21:18, 21:22, 87:9, 115:21, 140:16, 146:3</p> <p><b>easily</b> [2] - 97:14, 181:17</p> <p><b>economic</b> [12] - 14:25, 17:6, 44:6, 46:5, 53:14, 80:8,</p>				



## YUB - YEC LNG Project, Volume 1, March 31, 2014

85:6, 102:2, 116:7, 127:20, 130:22, 131:1 <b>economically</b> [1] - 85:15 <b>economics</b> [6] - 14:23, 24:5, 28:21, 47:12, 60:21, 81:10 <b>Edge</b> [2] - 2:14, 10:15 <b>Edmonton</b> [1] - 23:25 <b>effect</b> [11] - 5:8, 5:14, 14:9, 32:5, 32:11, 32:21, 33:3, 33:7, 33:19, 127:16 <b>effective</b> [10] - 19:22, 20:21, 21:7, 52:2, 58:13, 58:24, 131:1, 131:2, 153:16, 157:24 <b>effectively</b> [11] - 26:7, 37:9, 37:12, 46:4, 59:3, 70:1, 71:6, 80:3, 82:5, 98:8, 103:16 <b>effectiveness</b> [1] - 20:25 <b>effects</b> [2] - 127:17, 127:24 <b>efficiency</b> [11] - 20:18, 42:22, 121:21, 121:25, 122:8, 122:12, 122:16, 122:18, 123:4, 127:10, 154:16 <b>efficient</b> [6] - 8:24, 9:16, 21:2, 55:8, 89:6, 89:18 <b>efficiently</b> [1] - 154:8 <b>efforts</b> [3] - 48:13, 124:15, 133:21 <b>eight</b> [5] - 25:14, 80:19, 108:1, 128:4, 166:24 <b>either</b> [15] - 38:23, 38:24, 39:8, 40:18, 57:13, 67:6, 83:8, 84:15, 87:6, 120:2, 120:10, 121:8, 151:8, 151:22, 179:6 <b>elaborate</b> [6] - 59:19, 64:22, 65:21, 66:15, 111:18, 175:16 <b>elected</b> [2] - 20:2, 120:12 <b>electric</b> [4] - 5:12, 14:9, 14:13, 189:18 <b>electrical</b> [7] - 5:6, 16:10, 67:14, 127:1, 134:17, 136:4, 152:22 <b>electricity</b> [7] - 28:4, 95:9, 111:19, 127:19, 173:14, 183:12, 189:25 <b>electronic</b> [1] - 9:15 <b>elements</b> [5] - 24:15, 32:10, 39:14, 110:3, 123:11 <b>elevator</b> [1] - 157:20 <b>elsewhere</b> [2] - 47:14, 181:13 <b>EMD</b> [1] - 52:15 <b>EMDs</b> [1] - 52:11 <b>emerged</b> [1] - 74:2 <b>emergencies</b> [3] - 98:24, 129:14, 129:24 <b>emergency</b> [9] - 45:24, 86:22, 103:17, 129:19, 130:11, 132:17, 140:9, 140:10, 160:4	<b>emerging</b> [4] - 146:21, 147:1, 147:5, 147:13 <b>emission</b> [1] - 94:15 <b>emissions</b> [18] - 91:5, 91:14, 91:16, 91:23, 92:1, 92:4, 92:11, 94:18, 112:6, 112:9, 112:12, 112:14, 112:22, 122:5, 122:18, 122:21, 122:24 <b>emphasis</b> [1] - 148:11 <b>emphasize</b> [1] - 65:1 <b>employee</b> [2] - 11:15, 56:6 <b>enables</b> [1] - 43:12 <b>EnCana</b> [1] - 172:9 <b>encouraged</b> [11] - 39:8, 8:5, 12:24, 13:4, 13:16, 13:23, 15:15, 17:18, 18:8, 18:18, 19:16, 19:21, 22:12, 24:21, 26:1, 37:18, 52:24, 52:25, 56:22, 61:8, 61:10, 67:6, 71:13, 71:15, 77:2, 78:14, 94:12, 100:20, 103:11, 117:24, 131:23, 132:11, 132:12, 146:7, 146:21, 169:22, 170:6, 170:10, 170:13, 187:10 <b>end-of-life</b> [7] - 12:24, 13:4, 17:18, 19:21, 67:6, 146:7, 146:21 <b>ended</b> [1] - 75:10 <b>ending</b> [1] - 110:16 <b>ends</b> [1] - 111:21 <b>Engroup</b> [1] - 11:13 <b>ENERGY</b> [1] - 1:6 <b>energy</b> [68] - 3:7, 3:8, 5:24, 12:15, 15:23, 17:2, 17:4, 19:6, 19:12, 21:22, 34:1, 34:2, 47:21, 49:7, 49:9, 49:12, 49:24, 50:9, 50:11, 50:12, 50:15, 58:25, 59:4, 59:7, 68:12, 74:12, 74:16, 74:25, 75:11, 75:18, 75:22, 76:4, 80:1, 80:14, 80:15, 83:14, 84:23, 86:10, 87:19, 87:20, 90:9, 99:5, 101:23, 102:4, 102:22, 102:24, 124:16, 125:3, 131:15, 143:17, 144:4, 152:19, 152:24, 153:16, 153:17, 153:25, 154:4, 154:6, 154:20, 155:4, 155:6, 165:9, 166:6, 166:14, 179:18, 189:16 <b>Energy</b> [67] - 2:13, 3:7, 3:23, 10:6, 11:12, 11:13, 11:16, 11:18, 11:20, 12:4, 12:11, 12:14, 13:8, 15:3, 15:7, 15:14, 15:21, 15:25, 16:7, 19:20, 21:18, 21:25, 22:7, 22:11, 22:18, 22:20,	23:10, 23:11, 23:14, 23:17, 23:18, 24:2, 26:9, 27:11, 45:11, 52:5, 68:9, 69:1, 69:6, 70:8, 70:9, 75:21, 81:23, 82:2, 84:11, 86:9, 88:19, 90:24, 104:2, 146:9, 146:15, 152:23, 155:12, 160:11, 161:13, 162:8, 162:23, 167:24, 168:18, 169:12, 170:7, 175:13, 176:24, 179:6, 180:6, 193:6 <b>Energy's</b> [18] - 12:16, 14:1, 15:18, 21:12, 23:12, 25:2, 25:18, 25:21, 26:4, 46:20, 70:8, 99:4, 100:25, 106:22, 139:13, 162:9, 178:7, 187:16 <b>energy-focused</b> [1] - 102:22 <b>engine</b> [20] - 24:22, 28:1, 52:12, 60:16, 60:20, 60:22, 62:3, 63:15, 63:20, 65:25, 66:3, 66:16, 67:9, 67:15, 142:11, 142:13, 148:23, 169:22, 189:7 <b>engineer</b> [1] - 134:15 <b>engineer's</b> [1] - 135:23 <b>engineering</b> [1] - 25:6 <b>engineers</b> [4] - 134:17, 136:5, 143:3 <b>engines</b> [108] - 19:25, 20:13, 35:7, 35:12, 42:22, 43:19, 51:10, 51:11, 51:13, 52:3, 52:7, 52:19, 53:11, 53:12, 53:15, 53:22, 54:1, 54:13, 54:14, 54:17, 55:3, 55:4, 55:5, 55:6, 55:13, 55:14, 60:18, 61:14, 61:17, 62:6, 62:8, 62:22, 62:23, 62:25, 63:19, 63:22, 63:24, 63:25, 64:12, 64:15, 64:18, 65:2, 65:4, 66:2, 66:4, 67:2, 67:3, 67:7, 67:10, 97:19, 97:20, 97:22, 98:18, 100:15, 100:16, 103:4, 111:10, 111:13, 114:20, 114:25, 123:16, 130:12, 130:16, 130:17, 132:8, 133:18, 133:22, 133:24, 135:1, 136:1, 136:2, 136:14, 141:22, 141:23, 142:23, 143:7, 143:9, 144:4, 148:10, 148:13, 148:21, 149:19, 151:20, 151:25, 152:11, 154:15, 162:24, 163:6, 186:19, 186:24, 187:18, 188:15, 189:11, 189:15, 189:18, 189:20, 189:23, 189:25,	190:3, 190:9 <b>enhance</b> [1] - 52:7 <b>enhanced</b> [1] - 48:11 <b>enhancement</b> [8] - 15:15, 19:3, 19:7, 41:20, 42:4, 42:9, 75:20, 76:1 <b>ensure</b> [3] - 19:22, 26:11, 56:11 <b>ensuring</b> [1] - 38:7 <b>enter</b> [2] - 180:14, 182:21 <b>entered</b> [2] - 179:23, 181:1 <b>enters</b> [1] - 182:18 <b>entertain</b> [3] - 163:3, 163:5, 163:23 <b>entire</b> [3] - 67:20, 79:24, 133:13 <b>entirely</b> [2] - 83:7, 140:7 <b>entitled</b> [1] - 95:2 <b>environment</b> [2] - 14:5, 18:5 <b>environmental</b> [7] - 16:6, 109:2, 109:6, 109:12, 112:13, 122:25, 127:16 <b>envisage</b> [1] - 157:19 <b>envisaged</b> [1] - 80:12 <b>equally</b> [1] - 48:3 <b>equipment</b> [9] - 22:9, 24:10, 25:7, 25:8, 100:14, 100:23, 101:1, 132:18, 159:8 <b>equity</b> [12] - 119:4, 119:5, 119:11, 119:17, 119:18, 119:21, 119:22, 120:2, 120:3, 120:5, 120:6, 121:7 <b>equivalent</b> [1] - 165:23 <b>essence</b> [4] - 39:10, 52:4, 101:14, 101:16 <b>essentially</b> [14] - 58:11, 72:2, 80:15, 100:3, 100:12, 103:20, 130:16, 140:9, 142:10, 142:16, 143:6, 143:16, 176:3, 183:1 <b>Essentially</b> [1] - 167:1 <b>establish</b> [2] - 24:12, 102:19 <b>established</b> [2] - 43:16, 70:11 <b>esthetics</b> [1] - 129:6 <b>estimate</b> [17] - 25:1, 25:3, 32:24, 33:5, 34:22, 34:23, 35:13, 64:20, 110:21, 111:3, 111:5, 111:9, 113:12, 113:14, 128:24, 170:20, 174:12 <b>estimated</b> [12] - 13:20, 19:4, 26:4, 26:15, 35:10, 58:3, 113:25, 122:4, 143:16, 149:8, 159:9, 174:14 <b>estimates</b> [12] - 24:19, 25:5, 59:23, 60:6, 60:7, 65:24, 66:17, 108:2, 128:9, 128:19, 171:4, 174:11 <b>estimating</b> [1] -	144:14 <b>etcetera</b> [7] - 33:25, 34:8, 65:6, 97:6, 150:6, 153:2 <b>eternally</b> [1] - 56:7 <b>evaluated</b> [1] - 68:13 <b>evaluating</b> [1] - 85:6 <b>evaluation</b> [1] - 16:3 <b>evening</b> [3] - 7:5, 190:15, 191:2 <b>event</b> [11] - 35:24, 47:22, 98:9, 114:1, 134:5, 140:10, 153:11, 153:12, 160:18, 161:15, 162:5 <b>eventually</b> [2] - 64:17, 89:3 <b>everywhere</b> [1] - 132:3 <b>evidence</b> [37] - 7:24, 8:2, 8:3, 8:12, 30:19, 57:17, 57:18, 59:15, 69:14, 69:15, 70:4, 70:25, 71:3, 71:5, 71:14, 71:15, 71:18, 72:6, 72:9, 72:14, 73:2, 78:25, 79:1, 81:12, 91:6, 91:12, 99:15, 108:20, 110:7, 137:11, 143:12, 144:17, 145:21, 163:2, 189:21 <b>evidentiary</b> [1] - 8:5 <b>evolves</b> [3] - 82:23, 82:24 <b>evolving</b> [1] - 171:15 <b>exact</b> [2] - 118:25, 145:2 <b>exactly</b> [10] - 47:18, 65:19, 73:18, 82:7, 124:7, 125:6, 147:7, 175:8, 183:16, 190:25 <b>examination</b> [28] - 7:21, 8:10, 8:13, 8:17, 8:19, 8:21, 9:1, 9:4, 9:9, 29:10, 29:12, 29:15, 56:11, 67:19, 71:2, 71:7, 71:10, 72:7, 72:11, 72:24, 78:11, 78:15, 85:1, 155:16, 158:19, 186:25, 188:25 <b>examine</b> [2] - 7:16, 85:1 <b>examined</b> [2] - 16:1, 116:10 <b>EXAMINES</b> [4] - 30:5, 141:15, 193:7, 193:8 <b>examining</b> [2] - 183:18, 184:14 <b>example</b> [11] - 33:3, 33:23, 47:25, 48:5, 50:14, 82:13, 82:14, 83:21, 144:23, 170:23, 182:23 <b>examples</b> [1] - 61:23 <b>exceed</b> [1] - 50:17 <b>exceeding</b> [1] - 28:12 <b>except</b> [2] - 25:19, 45:22 <b>exception</b> [3] - 69:23, 128:6, 128:12 <b>excerpts</b> [2] - 137:2, 137:5 <b>excess</b> [2] - 28:9, 28:15 <b>exclude</b> [1] - 159:20 <b>excludes</b> [1] -
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## YUB - YEC LNG Project, Volume 1, March 31, 2014

<p>159:22  <b>excuse</b> [1] - 64:6  <b>Executive</b> [5] - 2:10, 125:14, 125:19, 126:1, 126:11  <b>executive</b> [3] - 9:15, 9:17, 25:16  <b>exercise</b> [3] - 75:13, 75:18, 102:22  <b>exhaustively</b> [1] - 45:12  <b>exhibit</b> [19] - 9:10, 9:11, 9:13, 30:11, 56:23, 57:14, 68:3, 70:4, 70:13, 71:14, 78:3, 78:7, 78:9, 78:15, 78:18, 104:2, 104:6, 137:14, 174:9  <b>Exhibit</b> [17] - 9:21, 29:6, 31:7, 32:2, 40:25, 57:1, 69:7, 70:2, 70:6, 79:2, 81:11, 91:10, 94:16, 116:18, 148:17, 172:19, 174:9  <b>exhibits</b> [4] - 9:16, 9:18, 67:25, 136:24  <b>exist</b> [3] - 88:4, 88:5, 186:12  <b>existed</b> [1] - 147:15  <b>existing</b> [25] - 4:6, 5:10, 13:1, 13:12, 14:11, 17:17, 18:3, 23:2, 26:18, 27:8, 34:1, 34:5, 38:24, 51:20, 52:3, 52:7, 52:11, 66:6, 75:20, 92:4, 126:21, 129:13, 131:5, 182:17, 187:1  <b>exists</b> [4] - 71:18, 177:5, 177:6, 179:18  <b>expand</b> [3] - 79:12, 80:17, 179:3  <b>expanded</b> [4] - 15:18, 177:4, 182:12, 182:16  <b>expanding</b> [1] - 176:15  <b>expansion</b> [4] - 23:3, 182:10, 183:5, 183:8  <b>expect</b> [7] - 32:10, 32:17, 33:6, 35:11, 109:13, 120:23, 180:25  <b>expectation</b> [4] - 18:14, 142:23, 144:3, 144:7  <b>expectations</b> [2] - 27:18, 109:20  <b>expected</b> [11] - 14:25, 17:24, 25:25, 26:1, 33:16, 102:10, 112:25, 154:12, 154:16, 171:21, 182:12  <b>expecting</b> [2] - 154:15, 174:23  <b>expenditure</b> [2] - 34:6, 34:10  <b>expenditures</b> [1] - 20:3  <b>expensive</b> [1] - 85:25  <b>experience</b> [8] - 20:3, 20:6, 60:1, 83:11, 135:25, 136:16, 143:25, 161:12  <b>experiencing</b> [1] - 143:24</p>	<p><b>explain</b> [5] - 110:19, 119:9, 152:18, 175:19, 189:4  <b>explained</b> [4] - 104:10, 121:20, 159:17, 160:12  <b>explains</b> [3] - 22:16, 35:4, 35:7  <b>explored</b> [1] - 162:18  <b>exploring</b> [2] - 23:14, 123:25  <b>export</b> [2] - 21:14, 27:14  <b>exposed</b> [1] - 47:7  <b>exposure</b> [3] - 156:18, 156:19  <b>expression</b> [1] - 34:21  <b>extended</b> [5] - 29:23, 43:13, 62:12, 62:16, 62:19  <b>extends</b> [1] - 190:20  <b>extension</b> [1] - 42:19  <b>extensive</b> [3] - 17:1, 42:1, 84:19  <b>extent</b> [10] - 35:5, 48:22, 49:9, 52:8, 59:9, 81:22, 84:18, 108:10, 113:2, 131:15  <b>extra</b> [4] - 11:22, 81:15, 149:5, 160:15  <b>extract</b> [1] - 78:4  <b>extreme</b> [1] - 132:25  <b>extremes</b> [1] - 185:23</p>	<p>162:5  <b>fails</b> [2] - 156:3  <b>failure</b> [5] - 155:21, 155:25, 156:11, 157:19, 188:18  <b>fair</b> [15] - 85:4, 112:2, 141:3, 142:15, 154:23, 165:6, 169:14, 172:1, 179:7, 180:25, 182:3, 182:6, 183:22, 184:18, 184:20  <b>fairly</b> [4] - 60:21, 66:24, 146:15, 185:14  <b>faith</b> [1] - 67:22  <b>fall</b> [2] - 22:2, 22:5  <b>familiar</b> [6] - 8:23, 11:11, 71:23, 73:5, 104:17, 104:21  <b>far</b> [13] - 9:18, 11:10, 11:14, 18:10, 21:7, 134:6, 157:24, 164:2, 167:10, 167:13, 167:15, 168:25, 179:10  <b>Faro</b> [13] - 15:9, 16:24, 18:13, 62:1, 62:17, 88:14, 88:17, 145:11, 145:12, 157:3, 157:9, 157:14  <b>fashion</b> [1] - 49:17  <b>faster</b> [1] - 83:13  <b>FD1</b> [7] - 15:9, 18:14, 20:2, 20:7, 60:2, 61:2, 62:20  <b>feasibility</b> [2] - 85:7, 89:25  <b>feasible</b> [6] - 19:1, 20:13, 20:20, 35:13, 46:23, 66:8  <b>features</b> [1] - 45:6  <b>February</b> [3] - 22:6, 22:12, 34:24  <b>feet</b> [3] - 166:23, 166:24  <b>follow</b> [1] - 3:3  <b>Ferries</b> [2] - 114:7, 115:9  <b>Ferris</b> [1] - 172:9  <b>Ferus</b> [3] - 23:20, 178:3, 181:2  <b>few</b> [12] - 25:17, 29:21, 51:7, 57:9, 81:10, 87:9, 89:4, 127:12, 132:25, 143:25, 157:8, 181:24  <b>fewer</b> [2] - 91:5, 91:22  <b>figure</b> [2] - 43:5, 65:8  <b>figures</b> [1] - 151:1  <b>filed</b> [16] - 3:24, 9:11, 9:21, 11:19, 12:14, 22:12, 65:22, 76:10, 79:3, 91:12, 96:6, 116:19, 168:17, 168:19, 172:19, 174:9  <b>filing</b> [4] - 24:20, 26:15, 94:15, 108:15  <b>filings</b> [1] - 105:17  <b>final</b> [4] - 26:1, 34:25, 58:17, 59:14  <b>finalize</b> [1] - 21:22  <b>finalized</b> [1] - 118:4  <b>finance</b> [2] - 39:6, 89:17  <b>financed</b> [3] - 38:19, 38:20, 39:12  <b>financial</b> [2] - 32:6, 121:11  <b>financially</b> [1] -</p>	<p>117:21  <b>financing</b> [3] - 39:11, 39:12, 39:15  <b>fine</b> [17] - 30:1, 57:2, 57:5, 57:8, 57:10, 68:4, 68:6, 77:11, 78:10, 78:16, 78:17, 92:23, 96:20, 137:20, 141:8, 141:14  <b>finished</b> [1] - 89:17  <b>fire</b> [3] - 157:12, 158:6, 158:9  <b>fired</b> [10] - 4:11, 12:20, 13:2, 13:14, 13:24, 17:22, 17:24, 18:3, 21:4, 21:6  <b>fires</b> [3] - 98:23, 157:9, 158:2  <b>firm</b> [8] - 17:16, 155:7, 158:21, 158:22, 158:24, 186:7, 186:10, 186:11  <b>firmly</b> [1] - 153:8  <b>first</b> [43] - 7:15, 10:16, 13:14, 28:2, 28:15, 30:8, 30:21, 32:1, 34:8, 34:12, 40:24, 41:14, 41:15, 43:23, 58:1, 58:19, 60:1, 60:4, 60:5, 60:15, 70:20, 81:14, 86:22, 87:9, 88:15, 88:20, 90:11, 91:23, 97:20, 98:8, 103:8, 117:24, 124:11, 130:13, 131:2, 141:10, 141:21, 146:1, 156:16, 161:23, 165:4, 177:23, 178:16  <b>First</b> [7] - 90:1, 117:1, 117:4, 117:11, 118:5, 118:13, 120:12  <b>first-on</b> [1] - 130:13  <b>fit</b> [6] - 45:2, 61:13, 63:22, 65:4, 67:1, 85:24  <b>fitting</b> [1] - 61:12  <b>five</b> [15] - 5:4, 18:21, 49:3, 50:15, 50:16, 61:24, 89:4, 89:15, 102:2, 102:16, 110:6, 145:10, 152:2, 170:11, 170:12  <b>fives</b> [1] - 171:22  <b>fix</b> [1] - 133:22  <b>fixed</b> [2] - 108:2, 176:8  <b>fixing</b> [1] - 133:24  <b>fleet</b> [1] - 187:16  <b>flexibility</b> [2] - 16:6, 54:6  <b>flexible</b> [11] - 4:8, 12:18, 16:17, 19:8, 19:14, 24:6, 44:8, 45:20, 76:3, 86:21, 103:1  <b>flip</b> [3] - 75:15, 121:16, 188:6  <b>flow</b> [2] - 38:24, 109:7  <b>focus</b> [11] - 20:2, 24:5, 50:13, 64:15, 65:1, 65:6, 80:17, 82:22, 84:16, 124:15, 155:3  <b>focused</b> [5] - 59:7, 80:21, 98:1, 102:22, 146:5  <b>focuses</b> [1] - 32:9</p>	<p><b>focusing</b> [2] - 26:20, 145:6  <b>follow</b> [5] - 59:13, 94:22, 155:15, 170:17, 181:4  <b>follow-up</b> [3] - 59:13, 94:22, 155:15  <b>following</b> [5] - 3:20, 5:4, 16:7, 22:18, 26:21  <b>follows</b> [3] - 7:15, 52:22, 81:13  <b>follows..</b> [1] - 187:17  <b>footnote</b> [2] - 160:25, 174:11  <b>FOR</b> [2] - 96:24, 193:22  <b>force</b> [1] - 99:15  <b>forecast</b> [37] - 5:13, 14:13, 17:10, 17:13, 17:14, 18:1, 20:5, 20:22, 27:10, 28:1, 28:8, 28:25, 33:11, 33:23, 48:22, 58:7, 58:11, 58:25, 59:1, 59:3, 97:9, 97:11, 97:16, 98:11, 98:16, 99:8, 99:9, 99:11, 144:20, 144:23, 146:16, 147:4, 147:8, 148:23, 159:21, 161:8, 178:21  <b>forecasted</b> [2] - 121:23, 122:9  <b>forecasting</b> [4] - 49:8, 49:10, 99:2, 102:13  <b>forecasts</b> [11] - 5:6, 14:9, 27:13, 48:20, 48:23, 58:9, 59:2, 59:9, 97:8, 98:25, 146:15  <b>foregoing</b> [1] - 192:3  <b>forest</b> [4] - 157:9, 158:2, 158:6, 158:9  <b>forgive</b> [1] - 177:18  <b>forgotten</b> [3] - 76:24, 92:19, 141:16  <b>form</b> [9] - 43:7, 71:6, 83:6, 83:18, 135:21, 135:23, 136:24, 161:24, 189:5  <b>formal</b> [2] - 22:5, 26:5  <b>formalities</b> [1] - 157:17  <b>formally</b> [2] - 174:20, 174:21  <b>format</b> [1] - 9:15  <b>form</b> [5] - 21:16, 23:25, 84:6, 86:6  <b>Fortin</b> [2] - 2:8, 3:5  <b>Fortis</b> [20] - 23:1, 23:6, 23:11, 31:14, 83:15, 174:11, 174:12, 174:14, 175:7, 175:13, 176:4, 176:11, 176:15, 178:16, 181:21, 181:23, 182:12, 183:18  <b>Fortis'</b> [1] - 179:18  <b>Fortis's</b> [1] - 182:10  <b>FortisBC</b> [8] - 22:20, 22:24, 27:8, 172:22, 173:8, 177:14, 179:16, 180:6  <b>FortisBC's</b> [1] - 22:21  <b>forward</b> [20] - 8:1,</p>
---	---	---	--	---

## YUB - YEC LNG Project, Volume 1, March 31, 2014

9:3, 33:20, 43:25, 56:19, 80:9, 81:4, 86:11, 87:15, 112:2, 118:18, 120:18, 144:1, 151:10, 151:25, 154:11, 163:18, 176:14, 177:11, 178:21 <b>fossil</b> [1] - 81:24 <b>foundation</b> [2] - 15:14, 43:7 <b>foundational</b> [1] - 70:13 <b>four</b> [25] - 16:3, 28:2, 28:6, 28:15, 28:19, 52:19, 61:24, 81:14, 102:1, 102:16, 110:9, 123:10, 145:9, 149:4, 149:6, 149:9, 149:11, 150:2, 150:3, 150:21, 151:2, 151:7, 151:12, 152:1, 188:8 <b>fr</b> [1] - 43:8 <b>frame</b> [1] - 71:19 <b>framework</b> [3] - 33:14, 170:25, 171:14 <b>frankly</b> [2] - 133:25, 163:17 <b>Fraser</b> [1] - 167:21 <b>frequency</b> [1] - 130:18 <b>frequently</b> [1] - 146:16 <b>friend</b> [1] - 70:18 <b>FROM</b> [2] - 77:13, 193:15 <b>front</b> [9] - 12:11, 43:15, 78:5, 96:1, 96:2, 146:12, 156:14, 169:5, 169:13 <b>front-and-centre</b> [1] - 146:12 <b>fruit</b> [1] - 50:11 <b>fuel</b> [77] - 13:16, 24:7, 26:16, 26:20, 26:22, 27:6, 28:3, 28:6, 28:9, 28:14, 28:24, 32:14, 32:16, 32:18, 33:3, 48:7, 50:23, 50:24, 51:1, 51:2, 51:8, 51:15, 51:16, 52:18, 55:5, 64:14, 66:3, 66:6, 66:11, 81:4, 81:7, 81:13, 91:4, 91:22, 98:1, 99:18, 100:7, 103:22, 103:23, 104:14, 104:23, 105:2, 105:9, 106:4, 106:9, 106:10, 106:15, 106:25, 110:11, 113:1, 116:11, 122:4, 123:5, 127:14, 129:18, 130:13, 130:22, 131:4, 142:13, 142:15, 142:25, 143:8, 149:8, 149:14, 150:8, 150:14, 150:20, 154:6, 165:17, 165:19, 166:14, 176:6, 176:10, 181:7 <b>fueled</b> [1] - 112:7 <b>fuels</b> [6] - 81:25, 83:14, 105:15, 105:20, 142:8, 142:21 <b>full</b> [5] - 73:23, 139:8, 149:15, 149:17, 166:1	<b>fully</b> [8] - 22:14, 28:1, 28:18, 58:13, 58:24, 117:12, 144:7, 161:10 <b>function</b> [3] - 42:8, 183:22, 183:23 <b>fund</b> [4] - 105:16, 105:18, 105:19, 113:24 <b>fundamental</b> [3] - 51:22, 76:2, 79:24 <b>fundamentally</b> [2] - 87:4, 120:4 <b>future</b> [27] - 18:20, 19:8, 19:11, 21:16, 24:17, 27:21, 46:21, 52:9, 52:17, 52:18, 74:8, 77:9, 79:14, 81:6, 81:8, 81:24, 82:9, 83:3, 102:22, 103:14, 111:12, 112:1, 113:6, 113:9, 113:24, 125:5, 153:17 <b>FUTURE</b> [2] - 77:19, 193:19	149:19, 149:22, 151:20, 151:23, 151:25, 152:2, 152:8, 152:9, 152:11, 154:15, 165:19, 176:10, 177:7, 182:7, 189:6, 189:9, 189:12, 189:15, 189:18, 189:20, 189:23, 189:24, 190:3, 190:9 <b>gas-fired</b> [10] - 4:11, 12:20, 13:2, 13:14, 13:24, 17:22, 17:24, 18:3, 21:4, 21:6 <b>gas-only</b> [2] - 142:11, 143:7 <b>gas-related</b> [1] - 24:16 <b>gaseous</b> [2] - 142:12, 142:20 <b>gather</b> [1] - 103:16 <b>gathered</b> [1] - 134:25 <b>general</b> [9] - 4:2, 4:20, 44:2, 45:17, 45:19, 49:8, 81:23, 90:16, 118:22 <b>generalization</b> [1] - 49:25 <b>generally</b> [3] - 78:6, 104:18, 155:5 <b>generate</b> [5] - 153:16, 153:20, 154:6, 159:7, 190:5 <b>generated</b> [2] - 59:23, 101:23 <b>generating</b> [30] - 4:7, 4:8, 4:9, 4:11, 12:17, 12:21, 12:24, 13:2, 13:13, 15:19, 18:4, 45:10, 45:20, 46:17, 48:9, 53:21, 98:12, 113:1, 113:3, 126:13, 126:20, 126:22, 133:16, 139:4, 154:4, 155:22, 155:25, 156:2, 190:5 <b>generation</b> [70] - 4:4, 5:11, 5:12, 5:13, 12:18, 12:19, 13:4, 13:5, 14:12, 14:13, 15:20, 16:10, 16:21, 16:25, 17:3, 17:6, 17:7, 17:8, 17:17, 17:22, 18:12, 19:21, 20:18, 20:23, 24:10, 24:17, 24:18, 26:17, 28:5, 28:25, 43:1, 44:19, 45:13, 45:23, 45:25, 46:3, 48:6, 50:17, 52:21, 86:21, 97:4, 97:8, 97:11, 98:9, 99:6, 99:8, 99:12, 103:17, 105:20, 121:22, 122:8, 124:2, 124:6, 124:18, 129:10, 129:11, 130:18, 130:21, 133:3, 133:6, 133:7, 143:24, 153:2, 153:6, 156:17, 157:18, 160:4, 161:15, 181:6 <b>generator</b> [1] - 161:5 <b>generators</b> [24] - 48:10, 50:24, 51:2, 53:3, 54:9, 54:22, 62:12, 63:6, 63:11, 75:21, 90:20, 99:17, 103:18, 112:7, 123:5, 127:3, 129:14,	129:19, 131:4, 131:6, 131:13, 131:14, 131:18, 138:1 <b>gentle</b> [1] - 10:18 <b>geographically</b> [1] - 47:4 <b>Gerbrandt</b> [3] - 2:18, 192:18, 192:19 <b>gid</b> [1] - 47:8 <b>gigajoule</b> [1] - 174:16 <b>gigajoules</b> [4] - 176:18, 176:19, 178:17, 179:3 <b>gigawatt</b> [15] - 19:5, 33:24, 50:16, 50:17, 80:18, 97:5, 124:23, 138:17, 144:24, 144:25, 145:2, 145:17, 145:19, 153:19 <b>Giuseppa</b> [1] - 6:11 <b>GIVEN</b> [1] - 193:12 <b>given</b> [30] - 5:19, 7:21, 9:11, 14:15, 14:24, 28:4, 41:11, 54:20, 56:12, 56:23, 66:22, 72:25, 74:24, 78:8, 97:20, 107:25, 118:3, 127:25, 137:4, 137:5, 148:1, 148:19, 149:1, 149:11, 157:23, 169:3, 171:4, 178:1, 178:6, 178:12 <b>glycol</b> [2] - 189:21, 190:2 <b>goals</b> [1] - 82:2 <b>Gold</b> [2] - 21:17, 80:16 <b>governing</b> [1] - 165:18 <b>Government</b> [3] - 23:3, 23:9, 25:11 <b>government</b> [8] - 13:9, 26:10, 27:18, 88:11, 90:19, 106:8, 108:22, 108:23 <b>governments</b> [1] - 171:15 <b>GRA</b> [4] - 16:12, 104:22, 105:17, 146:17 <b>grab</b> [1] - 35:23 <b>Grande</b> [2] - 23:25, 172:9 <b>granted</b> [1] - 5:25 <b>grateful</b> [1] - 56:7 <b>great</b> [8] - 112:23, 154:18, 164:3, 171:10, 185:8, 185:9, 185:22, 186:18 <b>Greater</b> [2] - 167:7, 167:20 <b>greatest</b> [1] - 156:8 <b>greatly</b> [1] - 56:6 <b>greenfield</b> [1] - 84:15 <b>Greenfield</b> [1] - 19:10 <b>grid</b> [50] - 4:8, 12:18, 13:19, 14:2, 15:4, 15:15, 16:15, 16:19, 16:22, 16:23, 17:5, 17:10, 17:13, 18:12, 18:15, 19:6, 19:12, 19:23, 20:22, 21:9, 26:19, 34:2, 43:9, 43:10, 45:21, 47:6, 47:15, 50:17, 76:3, 80:22, 88:13, 90:9, 97:21, 97:23, 98:12,	98:17, 98:21, 99:13, 127:1, 129:10, 146:6, 152:22, 159:20, 161:16, 161:18, 162:4, 163:9 <b>grid's</b> [3] - 19:14, 21:5, 97:25 <b>grids</b> [2] - 15:17, 76:8 <b>gross</b> [1] - 185:19 <b>ground</b> [2] - 157:19, 176:22 <b>Group</b> [2] - 2:16, 69:10 <b>group</b> [2] - 73:25, 79:19 <b>groups</b> [2] - 73:24, 75:13 <b>growing</b> [3] - 4:7, 103:3, 103:4 <b>grown</b> [2] - 23:23, 139:7 <b>grows</b> [1] - 49:5 <b>growth</b> [5] - 15:6, 16:22, 58:12, 95:16, 185:20 <b>guarantee</b> [3] - 61:15, 160:6, 177:21 <b>guarantees</b> [1] - 19:24 <b>guess</b> [13] - 49:13, 69:18, 77:25, 78:22, 79:7, 80:6, 87:7, 91:19, 99:7, 107:25, 121:4, 136:22, 170:8 <b>guidance</b> [1] - 56:12 <b>guidelines</b> [1] - 7:10 <b>guilty</b> [1] - 71:9 <b>guy</b> [2] - 132:20, 185:11
<b>G</b>			<b>H</b>	
	<b>gain</b> [1] - 20:3 <b>gained</b> [1] - 60:1 <b>gallons</b> [1] - 178:19 <b>game</b> [4] - 74:2, 74:16, 75:12, 147:16 <b>gap</b> [3] - 27:19, 86:23, 87:1 <b>GAS</b> [1] - 1:7 <b>Gas</b> [9] - 3:9, 4:5, 4:15, 12:13, 30:14, 30:16, 41:4, 41:9, 107:5 <b>gas</b> [132] - 4:11, 12:20, 12:21, 13:2, 13:4, 13:14, 13:24, 14:3, 17:22, 17:24, 18:3, 21:4, 21:6, 24:10, 24:16, 26:17, 26:18, 27:1, 27:9, 27:13, 27:19, 28:1, 31:14, 54:21, 55:2, 64:15, 64:18, 66:10, 67:2, 79:14, 81:7, 81:20, 82:9, 82:13, 82:22, 83:6, 83:8, 83:9, 83:12, 83:14, 83:17, 83:21, 85:10, 85:16, 86:2, 86:3, 86:5, 87:11, 87:16, 87:24, 89:11, 89:20, 90:8, 90:21, 90:22, 91:4, 91:16, 91:21, 92:5, 95:19, 97:19, 97:20, 97:21, 98:18, 105:20, 106:10, 107:1, 107:15, 107:19, 107:24, 108:12, 108:13, 108:14, 109:1, 109:5, 109:6, 109:7, 109:14, 109:16, 109:19, 110:12, 110:16, 111:19, 117:22, 122:2, 122:6, 122:14, 122:15, 123:17, 124:3, 124:21, 126:12, 126:19, 130:12, 130:16, 141:22, 141:23, 142:5, 142:8, 142:9, 142:11, 142:24, 143:7, 148:9, 148:13,		<b>half</b> [8] - 37:15, 59:24, 60:2, 60:19, 66:21, 124:11, 156:10, 163:6 <b>half-year</b> [1] - 37:15 <b>hand</b> [2] - 145:9, 145:16 <b>handle</b> [4] - 67:7, 67:9, 67:10, 165:22 <b>handled</b> [1] - 133:15 <b>handling</b> [1] - 67:8 <b>hands</b> [1] - 190:16 <b>handwritten</b> [1] - 69:19 <b>hang</b> [2] - 64:5, 141:25 <b>hanging</b> [2] - 50:11, 184:15 <b>hard</b> [4] - 9:5, 53:24, 74:7, 74:9 <b>hardly</b> [1] - 49:3 <b>haul</b> [2] - 26:25, 168:13 <b>hauler</b> [1] - 165:17 <b>hauling</b> [1] - 165:17 <b>hauls</b> [1] - 166:20 <b>head</b> [6] - 96:10, 138:14, 167:23, 168:10, 176:16, 188:21 <b>headings</b> [1] - 112:22 <b>health</b> [6] - 91:5, 91:23, 91:25, 112:13, 112:22, 123:1 <b>health-related</b> [1] - 91:5	

## YUB - YEC LNG Project, Volume 1, March 31, 2014

<p>hear<sup>[4]</sup> - 7:14, 7:15, 40:4, 143:13  <b>heard</b> <sup>[6]</sup> - 30:6, 89:25, 90:3, 110:15, 121:2, 143:12  <b>Hearing</b> <sup>[1]</sup> - 2:11  <b>hearing</b> <sup>[2]</sup> - 2:25, 3:6, 3:13, 3:20, 4:20, 6:13, 6:17, 6:21, 6:24, 8:1, 8:6, 8:10, 8:24, 14:7, 44:1, 45:15, 58:3, 108:17, 116:20, 146:13, 191:3  <b>hearings</b> <sup>[3]</sup> - 39:8, 104:22, 146:12  <b>hearsay</b> <sup>[1]</sup> - 72:10  <b>heat</b> <sup>[7]</sup> - 189:14, 189:19, 189:22, 190:2, 190:5, 190:6, 190:10  <b>heater</b> <sup>[1]</sup> - 189:19  <b>heating</b> <sup>[1]</sup> - 190:7  <b>heck</b> <sup>[2]</sup> - 88:10, 171:1  <b>hectares</b> <sup>[2]</sup> - 13:9, 13:11  <b>Hector</b> <sup>[2]</sup> - 11:15, 111:8  <b>height</b> <sup>[1]</sup> - 168:7  <b>held</b> <sup>[2]</sup> - 13:11, 146:14  <b>help</b> <sup>[8]</sup> - 48:16, 57:11, 66:15, 82:24, 96:10, 98:5, 138:13, 161:10  <b>helpful</b> <sup>[3]</sup> - 35:21, 49:22, 72:14  <b>helps</b> <sup>[1]</sup> - 89:11  <b>hence</b> <sup>[1]</sup> - 72:7  <b>Henry</b> <sup>[2]</sup> - 2:11, 6:14  <b>heresy</b> <sup>[1]</sup> - 192:3  <b>high</b> <sup>[2]</sup> - 42:21, 44:2, 44:4, 44:16, 63:2, 86:25, 100:16, 110:5, 111:7, 121:20, 121:25, 122:7, 122:12, 122:15, 122:18, 123:4, 127:10, 138:2, 139:16, 154:16, 175:25  <b>high-priced</b> <sup>[1]</sup> - 86:25  <b>higher</b> <sup>[12]</sup> - 19:12, 20:18, 110:12, 122:4, 122:14, 122:18, 122:25, 143:25, 147:9, 152:9, 161:7, 166:19  <b>Highway</b> <sup>[1]</sup> - 83:16  <b>Highways</b> <sup>[1]</sup> - 168:23  <b>highways</b> <sup>[1]</sup> - 165:2  <b>Hill</b> <sup>[2]</sup> - 88:14, 88:21  <b>history</b> <sup>[4]</sup> - 76:5, 89:2, 130:10, 136:15  <b>history's</b> <sup>[1]</sup> - 145:21  <b>hold</b> <sup>[1]</sup> - 165:22  <b>home</b> <sup>[2]</sup> - 48:1, 133:13  <b>hope</b> <sup>[2]</sup> - 48:16, 102:22  <b>hopefully</b> <sup>[1]</sup> - 141:9  <b>hoping</b> <sup>[3]</sup> - 10:25, 11:1, 129:3  <b>host</b> <sup>[1]</sup> - 16:8  <b>Hotel</b> <sup>[1]</sup> - 2:1  <b>hour</b> <sup>[8]</sup> - 24:7, 26:18, 26:21, 27:7, 34:3, 88:9, 133:4,</p>	<p>188:1  <b>hours</b> <sup>[26]</sup> - 8:20, 19:5, 26:16, 33:24, 50:16, 50:18, 80:19, 97:5, 124:23, 134:10, 138:17, 144:24, 144:25, 145:2, 145:17, 145:19, 153:19, 156:14, 187:9, 187:10, 187:21, 187:22, 188:7, 188:9  <b>HOW</b> <sup>[2]</sup> - 96:22, 193:21  <b>human</b> <sup>[3]</sup> - 91:5, 91:22, 91:25  <b>humorous</b> <sup>[1]</sup> - 158:2  <b>hydro</b> <sup>[41]</sup> - 15:19, 15:24, 16:20, 16:23, 16:25, 17:8, 18:12, 19:3, 19:7, 19:11, 28:5, 41:20, 42:4, 42:8, 44:10, 44:21, 45:5, 46:22, 46:24, 62:21, 80:5, 84:15, 84:17, 84:20, 88:5, 88:8, 88:13, 88:23, 89:7, 89:16, 101:20, 124:14, 124:20, 125:5, 130:7, 131:14, 131:16, 133:11, 144:9, 153:5, 154:7  <b>Hydro's</b> <sup>[1]</sup> - 183:13  <b>hydro-based</b> <sup>[2]</sup> - 15:24, 124:14  <b>hyperlink</b> <sup>[1]</sup> - 69:10</p>	<p>44:12, 87:4, 108:9, 164:4, 166:5, 184:11  <b>importantly</b> <sup>[1]</sup> - 60:23  <b>impossible</b> <sup>[2]</sup> - 61:1, 132:5  <b>IN</b> <sup>[8]</sup> - 77:13, 77:16, 77:17, 97:1, 193:14, 193:17, 193:18, 193:24  <b>inability</b> <sup>[1]</sup> - 43:19  <b>inadequate</b> <sup>[1]</sup> - 180:7  <b>Inc</b> <sup>[1]</sup> - 2:14  <b>include</b> <sup>[12]</sup> - 25:8, 32:11, 36:7, 36:9, 36:11, 60:16, 111:22, 111:23, 113:22, 127:18, 149:18, 176:14  <b>included</b> <sup>[16]</sup> - 17:7, 24:19, 25:4, 40:12, 58:9, 63:13, 76:16, 84:23, 93:5, 110:20, 111:3, 111:4, 111:9, 113:9, 113:17, 114:3  <b>includes</b> <sup>[7]</sup> - 34:25, 40:21, 79:13, 94:16, 138:24, 148:22, 174:13  <b>including</b> <sup>[26]</sup> - 4:9, 5:6, 5:11, 15:8, 15:23, 16:8, 19:25, 23:2, 23:19, 23:24, 24:22, 27:18, 27:25, 28:13, 28:23, 34:15, 36:10, 65:22, 75:6, 84:12, 142:8, 148:13, 148:21, 155:1, 178:7, 186:15  <b>inclusive</b> <sup>[1]</sup> - 148:25  <b>income</b> <sup>[3]</sup> - 37:7, 37:14, 113:3  <b>incorporate</b> <sup>[1]</sup> - 48:21  <b>incorporated</b> <sup>[2]</sup> - 128:10, 128:18  <b>increase</b> <sup>[7]</sup> - 25:3, 52:9, 52:10, 66:12, 66:13, 67:7, 95:17  <b>increased</b> <sup>[1]</sup> - 16:20  <b>increases</b> <sup>[6]</sup> - 28:24, 74:10, 95:20, 109:5, 116:11, 124:6  <b>increasing</b> <sup>[2]</sup> - 95:10, 161:1  <b>incremental</b> <sup>[7]</sup> - 14:4, 19:6, 62:25, 66:9, 124:25, 130:5, 143:24  <b>incrementally</b> <sup>[2]</sup> - 21:3, 86:24  <b>increments</b> <sup>[2]</sup> - 152:4, 152:6  <b>incur</b> <sup>[4]</sup> - 34:9, 45:9, 45:22, 176:15  <b>incurred</b> <sup>[13]</sup> - 34:22, 34:24, 35:1, 35:15, 36:8, 36:10, 100:1, 100:5, 100:9, 111:1, 111:12, 148:12, 151:17  <b>incurring</b> <sup>[1]</sup> - 37:5  <b>indicated</b> <sup>[9]</sup> - 8:7, 15:2, 55:4, 99:20, 124:19, 134:3, 135:3, 136:13, 143:20  <b>indicates</b> <sup>[7]</sup> - 30:12, 73:21, 97:3, 108:5,</p>	<p>117:7, 121:19, 123:3  <b>indication</b> <sup>[2]</sup> - 34:9, 169:9  <b>indicative</b> <sup>[1]</sup> - 25:17  <b>individual</b> <sup>[1]</sup> - 56:15  <b>individually</b> <sup>[1]</sup> - 38:12  <b>individuals</b> <sup>[2]</sup> - 73:25, 74:22  <b>indulgence</b> <sup>[1]</sup> - 141:20  <b>industrial</b> <sup>[15]</sup> - 5:7, 17:14, 58:17, 58:19, 129:15, 139:20, 139:21, 140:8, 147:10, 159:21, 159:22, 160:5, 160:14, 160:16, 161:13  <b>industry</b> <sup>[1]</sup> - 180:18  <b>inflated</b> <sup>[2]</sup> - 174:18, 183:12  <b>inflation</b> <sup>[3]</sup> - 174:16, 174:17, 183:12  <b>influence</b> <sup>[1]</sup> - 4:23  <b>information</b> <sup>[34]</sup> - 3:21, 6:3, 14:21, 31:21, 40:16, 45:14, 46:20, 49:1, 49:20, 64:8, 64:11, 64:13, 64:19, 64:21, 64:24, 65:14, 65:21, 71:21, 71:23, 71:24, 78:4, 91:15, 94:15, 97:10, 97:14, 116:10, 134:23, 135:2, 135:22, 161:3, 168:16, 169:1, 185:18, 187:2  <b>Information</b> <sup>[1]</sup> - 27:12  <b>informed</b> <sup>[4]</sup> - 21:25, 22:7, 70:18, 116:1  <b>infrastructure</b> <sup>[6]</sup> - 4:14, 13:6, 100:24, 123:16, 123:17, 148:12  <b>initial</b> <sup>[5]</sup> - 13:22, 17:21, 28:7, 28:19, 162:22  <b>initiated</b> <sup>[1]</sup> - 15:7  <b>initiative</b> <sup>[5]</sup> - 43:5, 90:23, 90:25  <b>input</b> <sup>[3]</sup> - 7:4, 7:6, 136:3  <b>inside</b> <sup>[3]</sup> - 52:7, 52:12, 83:7  <b>inspire</b> <sup>[1]</sup> - 185:11  <b>install</b> <sup>[1]</sup> - 25:19  <b>installation</b> <sup>[2]</sup> - 4:13, 13:5  <b>installed</b> <sup>[6]</sup> - 13:19, 13:24, 20:19, 52:8, 103:8, 129:22  <b>installing</b> <sup>[2]</sup> - 121:20, 122:7  <b>instead</b> <sup>[2]</sup> - 122:15, 133:23  <b>instructed</b> <sup>[1]</sup> - 90:25  <b>intend</b> <sup>[2]</sup> - 6:24, 105:8  <b>intended</b> <sup>[4]</sup> - 83:23, 115:15, 182:4, 182:5  <b>intends</b> <sup>[2]</sup> - 7:14, 127:4  <b>intensive</b> <sup>[5]</sup> - 45:5, 46:21, 66:25, 80:5, 154:7  <b>intensively</b> <sup>[3]</sup> -</p>	<p>100:19, 171:23  <b>interest</b> <sup>[4]</sup> - 21:18, 23:22, 114:25, 163:8  <b>interested</b> <sup>[7]</sup> - 33:22, 35:20, 72:13, 110:25, 120:7, 161:3  <b>interject</b> <sup>[1]</sup> - 70:23  <b>intermittent</b> <sup>[1]</sup> - 44:5  <b>internal</b> <sup>[3]</sup> - 38:20, 38:22, 121:8  <b>internally</b> <sup>[2]</sup> - 134:14, 135:2  <b>interrog</b> <sup>[1]</sup> - 115:13  <b>interrogatories</b> <sup>[2]</sup> - 38:2, 68:17  <b>interrogatory</b> <sup>[3]</sup> - 3:25, 30:25, 68:8  <b>interrupt</b> <sup>[4]</sup> - 92:15, 136:22, 141:12, 177:4  <b>interrupted</b> <sup>[2]</sup> - 138:6, 140:19  <b>interruptible</b> <sup>[3]</sup> - 138:4, 158:21, 158:22  <b>interruption</b> <sup>[2]</sup> - 180:5, 180:22  <b>intervener</b> <sup>[1]</sup> - 72:8  <b>interveners</b> <sup>[6]</sup> - 4:1, 7:7, 7:16, 7:17, 14:21, 69:6  <b>INTO</b> <sup>[4]</sup> - 77:16, 77:18, 193:17, 193:19  <b>introduce</b> <sup>[3]</sup> - 3:1, 6:11, 8:3  <b>introduced</b> <sup>[1]</sup> - 123:16  <b>inundated</b> <sup>[1]</sup> - 64:1  <b>Inuvik</b> <sup>[4]</sup> - 23:12, 83:11, 83:15, 167:25  <b>inventory</b> <sup>[1]</sup> - 117:20  <b>investigated</b> <sup>[1]</sup> - 84:24  <b>investigation</b> <sup>[1]</sup> - 32:25  <b>investing</b> <sup>[2]</sup> - 89:9, 161:5  <b>investment</b> <sup>[7]</sup> - 117:17, 118:12, 118:15, 118:17, 118:23, 119:16, 152:11  <b>investments</b> <sup>[2]</sup> - 17:2, 119:11  <b>invited</b> <sup>[1]</sup> - 7:8  <b>involved</b> <sup>[9]</sup> - 68:13, 74:15, 74:22, 90:4, 90:5, 100:14, 134:19, 143:3, 163:11  <b>involves</b> <sup>[2]</sup> - 12:23, 74:4  <b>involving</b> <sup>[1]</sup> - 89:25  <b>IR</b> <sup>[8]</sup> - 22:12, 26:24, 27:5, 35:18, 58:2, 84:13, 94:14, 98:19  <b>IRs</b> <sup>[7]</sup> - 24:15, 27:14, 32:17, 45:15, 94:12, 170:5, 170:16  <b>Island</b> <sup>[4]</sup> - 167:4, 167:7, 167:18, 175:7  <b>isolated</b> <sup>[4]</sup> - 15:24, 16:19, 43:9, 76:3  <b>issue</b> <sup>[22]</sup> - 44:14, 47:2, 55:15, 69:7, 70:10, 70:11, 71:9, 72:20, 85:24, 92:10, 108:12, 112:9, 112:18, 121:9, 129:4, 129:6, 132:11, 146:12, 147:15,</p>
---	--	---	--	---

## YUB - YEC LNG Project, Volume 1, March 31, 2014

164:7, 170:25 <b>issued</b> [4] - 25:11, 26:14, 135:16, 135:18 <b>issues</b> [12] - 8:1, 20:11, 45:17, 46:8, 54:18, 133:18, 146:10, 154:8, 162:3, 163:1, 171:10, 182:7 <b>item</b> [4] - 30:15, 41:7, 94:14, 137:19 <b>items</b> [6] - 35:5, 56:16, 69:17, 70:17, 73:13, 123:20 <b>iterative</b> [1] - 40:15 <b>itself</b> [6] - 33:18, 47:5, 71:14, 72:5, 81:19, 118:13	<b>justly</b> [1] - 149:20	177:9 <b>largely</b> [2] - 76:7, 107:21 <b>larger</b> [9] - 55:6, 60:11, 67:7, 67:9, 67:10, 137:25, 155:9, 165:12, 165:20 <b>largest</b> [5] - 18:24, 48:8, 48:9, 156:9, 156:19 <b>last</b> [22] - 11:19, 17:2, 23:24, 27:4, 42:25, 45:11, 61:25, 76:4, 95:4, 105:17, 107:21, 108:1, 124:11, 131:2, 134:11, 143:25, 146:17, 146:23, 157:8, 157:10, 168:22, 188:8 <b>lasts</b> [2] - 60:19, 60:20 <b>late</b> [3] - 13:20, 22:2, 145:8 <b>latest</b> [1] - 26:23 <b>latter</b> [1] - 155:24 <b>lay</b> [1] - 173:17 <b>layman</b> [1] - 10:25 <b>lays</b> [1] - 183:8 <b>lead</b> [5] - 12:7, 88:23, 98:20, 109:13, 145:7 <b>Leading</b> [2] - 2:14, 10:15 <b>leading</b> [1] - 108:22 <b>leak</b> [1] - 132:3 <b>learn</b> [1] - 10:25 <b>learned</b> [1] - 88:12 <b>lease</b> [1] - 170:11 <b>least</b> [11] - 8:20, 27:11, 46:2, 71:22, 101:2, 103:15, 108:24, 124:12, 131:2, 145:1, 156:10 <b>leave</b> [5] - 55:18, 128:16, 184:12, 184:14, 190:16 <b>leaving</b> [1] - 131:5 <b>led</b> [4] - 16:2, 21:19, 64:17, 83:14 <b>left</b> [5] - 3:2, 141:7, 145:9, 145:16, 150:6 <b>left-hand</b> [2] - 145:9, 145:16 <b>legal</b> [2] - 106:12, 180:24 <b>legislative</b> [1] - 125:25 <b>Lemke</b> [2] - 2:10, 6:14 <b>length</b> [6] - 144:15, 163:16, 164:4, 166:22, 168:7, 168:10 <b>Les</b> [2] - 2:8, 3:4 <b>less</b> [13] - 34:13, 45:8, 50:18, 50:19, 54:13, 54:23, 81:21, 100:10, 122:1, 138:25, 145:19, 165:21, 171:23 <b>letter</b> [2] - 3:15, 69:5 <b>letters</b> [1] - 9:20 <b>level</b> [16] - 24:3, 39:16, 84:24, 100:16, 105:13, 110:5, 111:7, 139:16, 153:24, 154:16, 174:23, 175:20, 175:25, 181:15, 183:8, 188:1 <b>levelized</b> [1] - 88:9 <b>levels</b> [2] - 40:18,	130:2 <b>liability</b> [1] - 181:15 <b>license</b> [1] - 170:19 <b>lies</b> [1] - 116:24 <b>life</b> [35] - 12:24, 13:4, 15:1, 17:18, 18:8, 19:16, 19:21, 42:19, 52:19, 52:24, 52:25, 53:14, 54:3, 62:12, 62:16, 62:20, 67:6, 81:11, 95:18, 100:17, 100:21, 101:1, 103:5, 103:11, 103:15, 110:6, 115:10, 131:24, 132:12, 132:13, 142:23, 146:7, 146:21, 151:17, 151:21 <b>likely</b> [10] - 13:20, 27:20, 35:8, 52:17, 83:19, 98:3, 103:19, 110:6, 115:24, 116:4 <b>limit</b> [1] - 182:8 <b>limited</b> [1] - 7:25 <b>limits</b> [1] - 186:21 <b>line</b> [32] - 6:7, 17:16, 47:5, 47:19, 111:24, 132:25, 133:2, 133:9, 153:13, 155:17, 155:20, 156:7, 156:9, 156:11, 156:20, 156:21, 156:25, 157:2, 157:3, 157:7, 157:8, 157:9, 157:13, 157:18, 157:22, 157:25, 158:13, 158:14, 158:15, 187:15, 190:17 <b>lines</b> [5] - 25:20, 48:3, 119:12, 157:11, 158:6 <b>link</b> [1] - 43:9 <b>LIQUEFIED</b> [1] - 1:7 <b>Liquefied</b> [3] - 3:9, 4:5, 4:15 <b>liquefied</b> [5] - 12:21, 54:20, 90:21, 124:3, 189:20 <b>liquid</b> [4] - 142:15, 142:25, 182:4, 189:5 <b>list</b> [13] - 9:17, 9:18, 29:11, 30:11, 32:5, 42:16, 68:14, 74:16, 75:10, 84:23, 85:2, 86:1, 183:1 <b>listed</b> [5] - 84:13, 95:22, 95:23, 97:5, 106:1 <b>listen</b> [1] - 7:12 <b>lists</b> [2] - 128:2, 183:6 <b>litre</b> [2] - 164:17, 164:18 <b>litres</b> [4] - 165:22, 168:13, 168:15, 168:16 <b>live</b> [2] - 103:5, 103:7 <b>lived</b> [2] - 88:24, 103:6 <b>living</b> [1] - 112:8 <b>LNG</b> [173] - 1:8, 3:10, 4:4, 4:12, 4:13, 4:23, 5:3, 5:15, 5:16, 5:19, 5:22, 5:25, 13:5, 16:1, 16:9, 21:10, 21:12, 21:13, 21:14, 21:15, 21:16, 21:20, 22:15, 22:17, 22:19, 22:20, 22:21, 22:23, 22:25, 23:11, 23:18, 23:22,	24:3, 24:13, 24:15, 25:7, 26:25, 27:7, 27:14, 27:16, 35:7, 39:20, 46:25, 52:8, 68:10, 68:14, 69:21, 74:24, 75:10, 76:10, 76:14, 77:14, 79:8, 79:25, 80:8, 80:17, 81:4, 81:15, 81:16, 85:5, 85:7, 90:23, 91:2, 100:2, 101:4, 101:23, 102:9, 104:24, 105:4, 105:10, 105:19, 106:6, 107:3, 107:11, 109:25, 110:1, 111:16, 111:21, 112:3, 112:5, 112:7, 114:5, 117:13, 117:19, 119:5, 121:5, 123:5, 123:9, 123:16, 124:4, 124:8, 126:6, 129:8, 129:18, 130:3, 131:4, 148:12, 148:19, 148:20, 149:3, 149:6, 151:3, 151:9, 151:13, 154:19, 155:5, 164:14, 165:5, 165:8, 166:9, 166:18, 167:4, 167:18, 167:24, 172:1, 172:2, 172:3, 172:7, 172:22, 172:25, 173:13, 173:16, 173:24, 173:25, 174:1, 174:2, 174:4, 175:7, 177:3, 179:13, 179:15, 179:16, 179:19, 179:21, 179:22, 179:23, 180:3, 180:15, 180:19, 181:2, 181:11, 181:23, 182:1, 182:5, 182:7, 182:12, 182:20, 182:23, 183:21, 184:2, 184:19, 185:1, 185:8, 185:10, 185:13, 185:21, 186:22, 189:1, 189:2, 189:5, 189:9, 189:11, 189:16, 190:3, 193:15 <b>LNG-fueled</b> [1] - 112:7 <b>load</b> [66] - 5:6, 5:13, 5:19, 14:9, 14:13, 14:16, 15:6, 16:15, 16:18, 16:22, 17:14, 18:24, 28:8, 41:11, 48:7, 48:8, 58:12, 58:19, 86:13, 88:6, 88:10, 89:3, 89:9, 95:15, 99:5, 115:16, 125:4, 130:3, 133:6, 133:12, 133:15, 134:8, 138:8, 138:11, 138:15, 138:16, 138:23, 139:16, 139:24, 140:2, 140:8, 147:8, 153:3, 153:5, 158:7, 158:8, 159:1, 159:2, 159:8, 159:9, 160:14, 160:15, 160:17, 160:20, 160:22, 160:25, 176:5, 178:1, 183:17, 183:21, 185:9, 185:19, 185:20, 186:18
<b>Janigan</b> [27] - 2:16, 10:11, 29:12, 53:7, 55:16, 55:23, 56:3, 57:20, 58:4, 65:12, 70:21, 73:1, 76:21, 77:21, 78:24, 87:22, 92:14, 94:23, 103:25, 104:8, 105:24, 112:15, 120:3, 122:20, 136:12, 140:14, 159:5 <b>JANIGAN</b> [39] - 10:10, 29:14, 30:4, 30:5, 55:20, 56:5, 56:9, 57:2, 57:5, 67:20, 67:25, 68:4, 68:7, 69:20, 70:23, 72:1, 73:14, 76:23, 77:3, 77:11, 77:20, 77:23, 78:10, 78:19, 78:20, 79:1, 92:19, 92:23, 94:20, 94:24, 97:2, 104:3, 104:11, 104:13, 116:22, 137:1, 137:20, 140:11, 193:7 <b>Janigan's</b> [3] - 42:17, 87:5, 118:6 <b>JANUARY</b> [2] - 77:14, 193:15 <b>January</b> [13] - 16:9, 21:12, 34:22, 42:3, 64:12, 76:10, 82:1, 88:3, 91:2, 104:15, 125:14, 154:19, 174:19 <b>Jenbacher</b> [4] - 141:22, 141:24, 142:3, 142:4 <b>job</b> [4] - 86:13, 86:17, 106:21, 121:1 <b>jobbers</b> [1] - 61:15 <b>John</b> [3] - 10:6, 86:7, 141:18 <b>joint</b> [1] - 23:14 <b>Jones</b> [3] - 2:18, 192:12, 192:13 <b>July</b> [2] - 16:11, 96:9 <b>jump</b> [2] - 85:20, 161:21 <b>Jumping</b> [5] - 21:20, 22:1, 22:10, 22:17, 180:15 <b>junction</b> [1] - 41:24 <b>Justice</b> [2] - 3:15, 12:14 <b>justifies</b> [2] - 85:15, 89:9 <b>justify</b> [2] - 19:12, 125:7	<b>K</b> <b>KDFN</b> [2] - 117:1, 117:23 <b>keen</b> [1] - 65:3 <b>keep</b> [9] - 45:21, 77:1, 102:8, 102:24, 103:9, 131:22, 133:7, 179:12, 186:17 <b>keeping</b> [1] - 9:12 <b>Keno</b> [2] - 88:14, 88:21 <b>key</b> [13] - 18:23, 24:6, 27:17, 45:4, 80:17, 88:2, 100:18, 102:16, 108:6, 109:15, 166:16, 181:4, 183:15 <b>kicks</b> [1] - 101:6 <b>kilowatt</b> [8] - 24:7, 26:16, 26:18, 26:21, 27:6, 34:3, 88:9, 153:18 <b>kind</b> [2] - 61:5, 135:19 <b>kinds</b> [4] - 63:23, 63:24, 63:25, 114:23 <b>kit</b> [1] - 51:25 <b>Kitimat</b> [1] - 21:14 <b>kits</b> [6] - 50:23, 51:1, 51:8, 52:2, 52:6, 52:16 <b>knocked</b> [1] - 133:13 <b>knocking</b> [2] - 185:14, 186:5 <b>knowing</b> [2] - 62:7, 111:1 <b>knowledge</b> [10] - 62:21, 62:22, 72:5, 86:4, 86:7, 100:11, 105:5, 111:8, 136:16, 155:12 <b>known</b> [3] - 3:10, 113:2, 148:2 <b>knows</b> [1] - 89:16 <b>Kwach'an</b> [3] - 117:2, 117:9, 117:24 <b>Kwanlin</b> [13] - 116:25, 117:11, 118:4, 118:7, 118:8, 118:10, 118:11, 118:14, 118:17, 119:4, 120:12, 120:21, 121:4	<b>L</b> <b>lack</b> [2] - 20:11, 55:8 <b>Lake</b> [4] - 19:4, 124:22 <b>Laking</b> [2] - 2:7, 3:3 <b>Land</b> [1] - 95:3 <b>LAND</b> [2] - 96:24, 193:23 <b>land</b> [1] - 95:22 <b>LANDRY</b> [17] - 10:5, 11:8, 12:6, 29:4, 29:9, 57:8, 57:17, 57:22, 68:24, 69:21, 72:18, 94:7, 104:4, 137:9, 137:13, 141:6, 141:9 <b>Landry</b> [7] - 2:13, 10:6, 11:7, 57:6, 71:21, 72:16, 73:12 <b>lands</b> [1] - 13:9 <b>large</b> [8] - 44:3, 44:23, 51:11, 67:1, 76:8, 88:8, 168:11,		

## YUB - YEC LNG Project, Volume 1, March 31, 2014

<p><b>loads</b> [30] - 5:8, 16:21, 17:1, 17:5, 19:12, 62:25, 80:3, 86:23, 89:12, 97:9, 102:5, 116:8, 124:19, 125:8, 129:15, 139:7, 139:21, 140:1, 140:6, 144:22, 147:10, 160:16, 165:6, 176:5, 184:21, 186:15</p> <p><b>local</b> [4] - 79:14, 82:9, 86:4, 89:20</p> <p><b>localized</b> [1] - 47:11</p> <p><b>located</b> [4] - 13:2, 23:19, 47:4, 130:23</p> <p><b>location</b> [2] - 47:2, 133:6</p> <p><b>locations</b> [2] - 13:10, 84:21</p> <p><b>lockstep</b> [1] - 52:23</p> <p><b>long-term</b> [18] - 16:25, 17:5, 17:8, 19:6, 20:22, 27:12, 28:5, 44:15, 54:16, 55:11, 63:4, 80:1, 98:16, 99:3, 125:5, 173:25, 182:19, 182:24</p> <p><b>long-time</b> [1] - 11:13</p> <p><b>longer-term</b> [1] - 16:15</p> <p><b>longtime</b> [1] - 11:15</p> <p><b>look</b> [37] - 31:17, 33:6, 33:10, 38:24, 40:24, 43:1, 43:18, 46:22, 49:19, 50:14, 54:5, 56:4, 67:1, 68:20, 69:17, 81:9, 85:23, 87:2, 95:4, 99:8, 103:6, 112:14, 114:21, 114:24, 127:20, 134:4, 135:1, 136:18, 137:22, 140:9, 142:24, 145:15, 163:9, 177:8, 184:16, 186:14, 188:6</p> <p><b>looked</b> [13] - 43:17, 43:18, 51:8, 51:12, 63:19, 75:1, 85:22, 130:5, 142:19, 157:21, 161:23, 185:5</p> <p><b>looking</b> [38] - 29:11, 47:19, 51:13, 52:6, 52:13, 53:17, 63:23, 64:14, 65:7, 65:13, 65:16, 65:17, 66:2, 72:2, 72:3, 73:21, 80:9, 80:15, 80:16, 80:21, 81:1, 84:9, 84:11, 91:17, 92:12, 92:14, 95:24, 96:1, 100:13, 100:25, 103:10, 104:1, 125:2, 133:13, 145:8, 160:22, 168:4, 182:25</p> <p><b>looks</b> [1] - 145:15</p> <p><b>loop</b> [2] - 189:22, 190:2</p> <p><b>lose</b> [7] - 43:10, 44:10, 62:2, 130:1, 133:2, 152:10, 153:12</p> <p><b>losing</b> [4] - 47:6, 83:12, 133:2</p> <p><b>loss</b> [9] - 17:15, 139:16, 139:24, 153:13, 155:17, 155:21, 160:15, 160:17, 160:22</p> <p><b>loss-of-load-probability</b> [3] -</p>	<p>160:15, 160:17, 160:22</p> <p><b>losses</b> [1] - 138:24</p> <p><b>lost</b> [11] - 132:24, 133:9, 133:10, 136:19, 155:19, 156:20, 156:25, 158:12, 158:14, 158:15</p> <p><b>low</b> [10] - 44:3, 44:20, 50:11, 87:24, 130:9, 145:10, 145:21, 163:10, 164:14, 185:14</p> <p><b>low-hanging</b> [1] - 50:11</p> <p><b>lower</b> [12] - 21:3, 22:22, 23:18, 62:1, 62:2, 88:23, 131:5, 131:8, 131:9, 152:8, 167:20, 178:13</p> <p><b>lowest</b> [2] - 131:12, 154:5</p> <p><b>lube</b> [3] - 62:1, 62:2, 132:1</p> <p><b>lunch</b> [2] - 7:1, 137:18</p>	<p><b>margin</b> [1] - 152:2</p> <p><b>margins</b> [1] - 124:21</p> <p><b>mark</b> [2] - 67:24, 68:2</p> <p><b>marked</b> [6] - 9:21, 29:5, 29:7, 56:14, 57:14, 67:20</p> <p><b>market</b> [12] - 54:8, 54:22, 107:24, 181:11, 181:18, 182:3, 182:4, 182:5, 182:7, 182:9</p> <p><b>markets</b> [2] - 27:17, 110:6</p> <p><b>marking</b> [1] - 9:16</p> <p><b>Marsh</b> [2] - 19:4, 124:22</p> <p><b>material</b> [27] - 14:24, 18:11, 20:11, 22:8, 24:9, 27:9, 28:24, 29:15, 32:11, 32:18, 32:23, 35:9, 55:24, 59:11, 64:1, 91:15, 107:23, 123:20, 124:24, 128:9, 129:6, 168:17, 170:9, 172:8, 172:11, 172:19, 181:23</p> <p><b>materialize</b> [1] - 61:6</p> <p><b>materially</b> [2] - 24:3, 27:7</p> <p><b>materials</b> [11] - 29:24, 56:11, 56:13, 67:19, 70:24, 71:4, 71:5, 71:9, 77:24, 94:13, 113:21</p> <p><b>math</b> [1] - 149:22</p> <p><b>matter</b> [10] - 3:19, 59:13, 59:20, 108:18, 113:15, 119:20, 170:8, 180:7, 185:9, 186:22</p> <p><b>matter's</b> [1] - 112:16</p> <p><b>matters</b> [3] - 14:22, 94:6, 141:5</p> <p><b>maximum</b> [1] - 186:20</p> <p><b>Mayo</b> [4] - 15:17, 15:18, 19:4, 124:22</p> <p><b>McCallum</b> [3] - 91:2, 91:9, 91:17</p> <p><b>McLennan</b> [2] - 2:6, 2:25</p> <p><b>MD1</b> [2] - 187:1, 187:18</p> <p><b>MD2</b> [2] - 187:1, 187:18</p> <p><b>mean</b> [29] - 21:6, 29:20, 31:24, 37:17, 40:9, 46:9, 52:5, 85:9, 88:22, 96:4, 96:5, 99:25, 101:8, 105:12, 114:19, 115:25, 120:1, 121:6, 133:2, 138:15, 141:12, 144:17, 146:9, 146:17, 163:23, 164:3, 173:18, 180:3, 185:21</p> <p><b>meaning</b> [3] - 156:20, 166:18, 183:24</p> <p><b>means</b> [11] - 20:12, 26:4, 28:17, 33:1, 59:5, 60:9, 74:13, 80:7, 140:8, 149:22, 153:1</p> <p><b>meant</b> [1] - 178:24</p> <p><b>measure</b> [1] - 178:19</p> <p><b>measured</b> [1] -</p>	<p>153:17</p> <p><b>measurement</b> [1] - 153:19</p> <p><b>measures</b> [1] - 48:21</p> <p><b>mechanical</b> [6] - 67:14, 134:14, 134:17, 136:4, 136:15, 161:25</p> <p><b>mechanics</b> [2] - 134:18, 136:3</p> <p><b>medium</b> [1] - 74:7</p> <p><b>meet</b> [40] - 4:7, 5:13, 13:19, 14:1, 14:13, 17:4, 17:15, 17:23, 17:25, 18:15, 19:7, 19:14, 20:4, 20:16, 20:21, 21:4, 22:25, 60:18, 62:25, 98:13, 121:23, 122:9, 124:25, 126:13, 129:23, 130:6, 130:19, 132:8, 134:8, 143:23, 153:2, 153:4, 154:1, 154:12, 158:7, 158:8, 160:4, 161:24, 169:11, 183:17</p> <p><b>meeting</b> [10] - 34:1, 34:5, 40:6, 74:13, 114:5, 114:11, 129:9, 135:13, 136:21, 191:1</p> <p><b>meetings</b> [2] - 135:15, 168:22</p> <p><b>megawatt</b> [11] - 4:10, 13:3, 13:15, 13:18, 17:24, 59:25, 60:1, 60:9, 60:11, 66:21, 139:5</p> <p><b>megawatts</b> [25] - 4:12, 15:11, 17:10, 17:11, 17:12, 17:19, 17:20, 17:21, 24:16, 47:20, 90:9, 133:15, 139:4, 140:3, 147:18, 153:9, 153:14, 156:11, 159:10, 159:13, 159:14, 160:20, 160:21, 161:1</p> <p><b>Member</b> [3] - 2:7, 2:8, 2:8</p> <p><b>members</b> [3] - 3:2, 3:3, 12:10</p> <p><b>memoir</b> [1] - 78:8</p> <p><b>memory</b> [7] - 40:5, 63:10, 74:18, 74:19, 76:19, 145:13, 158:17</p> <p><b>mention</b> [2] - 7:7, 190:14</p> <p><b>mentioned</b> [5] - 19:17, 31:12, 31:18, 46:8, 121:15</p> <p><b>met</b> [7] - 22:24, 26:11, 99:6, 124:17, 132:14, 169:7, 169:12</p> <p><b>metres</b> [5] - 178:18, 178:23, 178:24, 179:4, 186:23</p> <p><b>Metro</b> [1] - 167:8</p> <p><b>Michael</b> [1] - 10:10</p> <p><b>mid</b> [2] - 26:4, 26:11</p> <p><b>mid-May</b> [2] - 26:4, 26:11</p> <p><b>middle</b> [11] - 84:10, 84:11, 92:16, 104:19, 104:20, 158:2, 158:7, 158:8, 158:14, 158:15, 177:14</p> <p><b>Middler</b> [2] - 2:15, 141:18</p> <p><b>midmorning</b> [1] - 7:1</p> <p><b>might</b> [25] - 5:19,</p>	<p>30:25, 33:3, 33:12, 41:10, 54:21, 61:21, 73:13, 78:12, 81:17, 85:24, 86:3, 86:5, 86:7, 86:11, 102:7, 109:1, 109:10, 111:17, 166:9, 170:13, 183:16, 185:1, 185:16</p> <p><b>mill</b> [4] - 139:8, 139:9, 139:11, 161:17</p> <p><b>million</b> [69] - 13:21, 13:22, 13:23, 24:20, 24:21, 24:23, 25:3, 25:4, 25:8, 27:2, 27:4, 27:24, 27:25, 28:7, 28:11, 28:12, 28:13, 28:14, 28:15, 34:8, 34:23, 34:25, 35:2, 35:4, 35:6, 35:12, 35:16, 59:24, 59:25, 60:9, 60:10, 60:12, 66:21, 95:10, 95:11, 97:6, 107:4, 108:3, 123:5, 123:10, 123:12, 128:25, 129:1, 148:9, 148:11, 148:20, 148:22, 148:25, 149:4, 149:6, 149:10, 149:12, 149:16, 149:17, 149:20, 149:21, 149:23, 150:7, 150:14, 151:1, 151:4, 151:5, 151:8, 174:15</p> <p><b>millions</b> [2] - 153:18, 174:17</p> <p><b>millisecond</b> [1] - 163:6</p> <p><b>milliseconds</b> [1] - 163:4</p> <p><b>mind</b> [7] - 53:12, 118:25, 124:12, 165:15, 170:18, 186:13, 186:17</p> <p><b>mine</b> [23] - 16:21, 16:24, 18:13, 62:18, 76:8, 88:14, 88:15, 88:17, 88:21, 139:1, 139:25, 140:2, 140:5, 145:12, 154:14, 158:20, 158:24, 159:1, 160:4, 161:14, 162:25, 163:12</p> <p><b>Mine</b> [1] - 138:7</p> <p><b>mines</b> [2] - 80:22, 89:5</p> <p><b>minimum</b> [4] - 174:1, 175:10, 186:10, 186:11</p> <p><b>mining</b> [1] - 163:8</p> <p><b>Minister</b> [8] - 3:15, 3:17, 3:19, 3:20, 4:19, 12:14, 14:7, 21:24</p> <p><b>minister</b> [1] - 96:6</p> <p><b>minister's</b> [2] - 41:1, 127:23</p> <p><b>Minister's</b> [1] - 6:8</p> <p><b>ministry</b> [1] - 168:23</p> <p><b>minor</b> [1] - 187:21</p> <p><b>Minto</b> [5] - 138:16, 140:6, 140:8, 160:25, 161:1</p> <p><b>minus</b> [10] - 17:15, 47:17, 139:17, 139:19, 149:11, 153:11, 160:1, 160:18, 160:23, 161:7</p> <p><b>minute</b> [2] - 64:5, 162:7</p>
--	--	---	---	--

## YUB - YEC LNG Project, Volume 1, March 31, 2014

<p><b>minutes</b> [3] - 7:1, 55:23, 127:12</p> <p><b>Mirrlees</b> [28] - 15:9, 15:10, 20:4, 42:19, 42:21, 53:23, 54:1, 55:13, 55:14, 59:16, 59:24, 60:8, 64:14, 65:2, 65:10, 66:5, 67:2, 67:6, 67:16, 111:10, 114:7, 114:25, 130:9, 134:11, 146:7, 147:16, 187:17, 187:18</p> <p><b>mirror</b> [1] - 49:11</p> <p><b>misstatement</b> [1] - 189:8</p> <p><b>misstating</b> [1] - 46:19</p> <p><b>mistaken</b> [1] - 78:24</p> <p><b>mitigate</b> [1] - 124:21</p> <p><b>mitigates</b> [1] - 26:7</p> <p><b>mixture</b> [1] - 91:15</p> <p><b>model</b> [2] - 142:2, 143:5</p> <p><b>models</b> [2] - 54:23, 99:4</p> <p><b>modernization</b> [1] - 18:23</p> <p><b>modernize</b> [3] - 4:6, 12:16, 18:3</p> <p><b>modifications</b> [1] - 142:7</p> <p><b>modified</b> [1] - 148:1</p> <p><b>modify</b> [2] - 51:25, 52:2</p> <p><b>modifying</b> [1] - 52:6</p> <p><b>modular</b> [3] - 4:11, 13:1, 64:18</p> <p><b>moment</b> [15] - 35:23, 38:16, 96:10, 109:21, 128:17, 130:9, 152:25, 163:17, 170:25, 171:16, 178:11, 181:22, 183:4, 184:12, 185:11</p> <p><b>money</b> [15] - 34:16, 39:6, 53:13, 89:9, 121:10, 150:25, 151:2, 152:10, 154:3, 160:1, 161:5, 161:8, 161:17, 163:12, 170:14</p> <p><b>month</b> [5] - 37:22, 118:25, 178:23, 188:16, 188:17</p> <p><b>monthly</b> [3] - 122:17, 174:1, 188:18</p> <p><b>months</b> [5] - 23:24, 26:23, 27:4, 61:8, 155:13</p> <p><b>morning</b> [9] - 2:22, 2:24, 6:11, 6:25, 10:13, 141:10, 143:12, 148:15, 178:11</p> <p><b>morning's</b> [2] - 6:16, 148:5</p> <p><b>mornings</b> [1] - 6:16</p> <p><b>MORRISON</b> [175] - 12:4, 12:9, 38:10, 38:20, 38:23, 39:5, 39:18, 39:21, 39:25, 40:3, 40:7, 40:14, 40:22, 41:17, 41:19, 41:22, 42:11, 42:14, 42:20, 42:23, 43:3, 46:6, 46:15, 47:1, 48:12, 53:5, 54:12, 54:24, 55:2, 60:13,</p>	<p>62:13, 63:9, 63:14, 64:4, 68:18, 68:22, 74:18, 75:1, 75:12, 75:17, 76:12, 76:15, 76:18, 84:22, 85:8, 85:12, 85:19, 87:12, 89:22, 90:3, 90:6, 90:11, 90:17, 90:22, 96:14, 96:17, 96:21, 101:8, 106:3, 112:4, 112:9, 112:20, 113:7, 114:9, 114:12, 114:14, 114:17, 114:19, 115:4, 115:6, 115:11, 117:6, 118:1, 118:6, 118:9, 118:21, 119:3, 119:8, 119:10, 119:15, 119:20, 120:1, 120:9, 120:13, 120:16, 120:19, 120:22, 120:25, 121:3, 121:6, 121:14, 122:11, 122:20, 122:23, 124:10, 126:7, 128:20, 128:23, 129:2, 129:12, 129:17, 129:21, 131:19, 131:25, 132:19, 134:7, 134:12, 134:16, 134:21, 134:24, 135:11, 135:14, 135:17, 135:20, 136:9, 136:12, 138:3, 138:12, 138:20, 141:25, 143:14, 143:18, 144:5, 144:12, 145:25, 150:23, 151:24, 152:12, 154:21, 154:24, 155:24, 156:1, 156:5, 156:23, 157:1, 157:6, 158:3, 158:11, 158:17, 159:3, 159:12, 161:20, 163:20, 164:22, 164:24, 165:1, 167:6, 167:9, 167:12, 167:17, 167:22, 168:3, 168:22, 169:5, 169:8, 169:11, 172:24, 173:2, 173:5, 175:24, 176:21, 177:6, 179:9, 180:16, 181:9, 182:14, 182:21, 184:22, 184:24, 185:3, 188:15, 188:20, 188:23, 189:3, 193:5</p> <p><b>Morrison</b> [18] - 11:11, 12:6, 12:8, 29:3, 45:6, 47:18, 51:21, 53:2, 80:14, 87:7, 114:6, 123:14, 128:5, 149:13, 162:24, 175:12, 175:16, 178:10</p> <p><b>Morrison's</b> [1] - 128:13</p> <p><b>most</b> [15] - 21:7, 31:8, 31:25, 41:25, 45:20, 69:22, 69:24, 100:17, 115:24, 131:1, 153:16, 154:23, 156:8, 168:17, 180:3</p> <p><b>mostly</b> [1] - 143:18</p> <p><b>move</b> [16] - 10:8,</p>	<p>37:13, 38:16, 48:7, 67:17, 124:17, 140:18, 163:17, 164:9, 166:13, 167:19, 177:15, 184:15, 186:25, 188:24, 190:15</p> <p><b>moved</b> [1] - 38:19</p> <p><b>moving</b> [2] - 118:15, 167:24</p> <p><b>multiply</b> [1] - 34:6</p> <p><b>must</b> [2] - 9:5, 20:13</p> <p><b>mutually</b> [1] - 182:2</p> <p><b>MW</b> [3] - 126:24, 126:25, 127:3</p>	<p>13:25, 14:8, 14:22, 15:23, 16:16, 17:9, 17:20, 17:23, 18:1, 18:2, 19:8, 20:4, 29:19, 30:2, 39:1, 43:11, 44:7, 44:8, 44:9, 45:9, 45:19, 51:18, 55:5, 62:22, 64:22, 76:3, 78:3, 78:15, 86:14, 86:22, 87:23, 99:16, 102:19, 102:23, 102:25, 103:3, 103:16, 103:18, 106:11, 106:17, 111:1, 117:4, 127:13, 131:21, 132:1, 132:8, 132:22, 133:23, 136:13, 137:15, 140:7, 145:2, 145:4, 146:5, 155:18, 158:7, 158:8, 161:5, 162:14, 165:7, 175:7, 175:14, 175:22, 182:19, 184:2, 184:19, 185:1, 185:21, 186:22, 189:8</p> <p><b>needed</b> [11] - 14:1, 17:15, 18:15, 18:24, 21:8, 24:13, 45:21, 45:22, 46:10, 110:19, 176:20</p> <p><b>needing</b> [2] - 145:1, 182:16</p> <p><b>needs</b> [8] - 9:14, 78:8, 101:23, 104:4, 124:25, 143:23, 148:1, 174:4</p> <p><b>negotiations</b> [1] - 115:3</p> <p><b>neighbourhood</b> [2] - 159:12, 159:15</p> <p><b>Nelson</b> [4] - 21:16, 24:1, 84:6, 86:6</p> <p><b>net</b> [2] - 35:13, 113:5</p> <p><b>never</b> [3] - 61:24, 71:11, 88:7</p> <p><b>new</b> [91] - 4:11, 7:25, 8:3, 13:1, 13:4, 13:7, 15:4, 16:21, 17:20, 17:21, 19:8, 20:18, 21:2, 21:5, 24:6, 24:10, 24:11, 24:12, 24:23, 26:17, 27:16, 27:24, 28:11, 28:17, 32:15, 32:19, 33:17, 33:19, 34:6, 34:10, 42:21, 51:20, 51:22, 51:25, 53:15, 53:19, 60:3, 60:20, 60:22, 61:14, 63:11, 64:3, 64:20, 65:7, 65:10, 65:25, 67:15, 79:15, 79:23, 80:22, 81:3, 81:5, 82:8, 84:7, 87:11, 87:15, 87:25, 89:1, 92:4, 97:19, 101:3, 102:10, 103:4, 103:8, 109:2, 109:6, 111:13, 120:11, 121:1, 121:20, 121:25, 122:3, 122:7, 122:12, 123:4, 123:9, 126:19, 127:10, 130:12, 146:20, 146:25, 148:18, 148:19, 149:3, 149:7, 150:2, 151:13, 161:5</p> <p><b>next</b> [20] - 18:23, 23:3, 27:11, 27:20, 31:2, 38:25, 41:20,</p>	<p>49:3, 79:10, 81:10, 110:6, 124:18, 125:1, 144:1, 149:24, 150:21, 179:1, 179:2, 184:13, 190:17</p> <p><b>night</b> [3] - 11:19, 60:25, 62:7</p> <p><b>nilly</b> [1] - 169:23</p> <p><b>nine</b> [2] - 56:16, 73:24</p> <p><b>nobody</b> [2] - 89:16, 182:18</p> <p><b>nobody's</b> [1] - 135:7</p> <p><b>non</b> [9] - 17:14, 32:16, 32:18, 33:3, 58:17, 58:19, 139:20, 140:8, 147:10</p> <p><b>non-fuel</b> [3] - 32:16, 32:18, 33:3</p> <p><b>non-industrial</b> [6] - 17:14, 58:17, 58:19, 139:20, 140:8, 147:10</p> <p><b>noncontroversial</b> [1] - 91:24</p> <p><b>none</b> [3] - 11:4, 189:13, 189:14</p> <p><b>nonindustrial</b> [2] - 5:8, 160:8</p> <p><b>nonrenewables</b> [1] - 87:11</p> <p><b>noon</b> [1] - 7:2</p> <p><b>normal</b> [2] - 38:10, 140:17</p> <p><b>normally</b> [2] - 38:17, 166:20</p> <p><b>North</b> [7] - 27:10, 27:19, 107:24, 109:8, 109:14, 109:16, 109:19</p> <p><b>north</b> [2] - 48:2, 157:13</p> <p><b>Northern</b> [1] - 88:24</p> <p><b>Northwest</b> [3] - 167:24, 171:9, 171:17</p> <p><b>note</b> [2] - 9:20, 55:17</p> <p><b>noted</b> [9] - 23:20, 25:16, 26:21, 93:3, 128:12, 155:6, 168:4, 179:1</p> <p><b>notes</b> [2] - 137:23, 192:6</p> <p><b>nothing</b> [7] - 41:15, 98:12, 106:18, 106:24, 124:11, 152:13, 189:1</p> <p><b>notice</b> [2] - 165:1, 183:3</p> <p><b>noticed</b> [1] - 188:25</p> <p><b>notwithstanding</b> [3] - 16:20, 17:1, 22:7</p> <p><b>November</b> [1] - 125:13</p> <p><b>NT</b> [8] - 23:11, 23:12, 23:14, 23:17, 168:18, 170:7, 175:13, 176:24</p> <p><b>number</b> [36] - 9:10, 9:11, 9:14, 14:24, 16:15, 30:15, 30:19, 31:18, 34:18, 41:7, 49:5, 56:24, 57:14, 63:14, 67:13, 69:22, 70:17, 72:9, 74:4, 74:21, 76:24, 76:25, 78:3, 78:9, 78:18, 82:14, 86:15, 104:2, 108:6, 155:1, 160:14, 161:1, 170:20, 174:13, 185:10, 188:8</p> <p><b>numbers</b> [24] - 31:6, 31:9, 31:10, 34:7,</p>
--	--	---	---	--

## YUB - YEC LNG Project, Volume 1, March 31, 2014

58:22, 60:15, 60:16, 60:24, 66:22, 69:18, 95:25, 96:15, 96:20, 97:5, 98:16, 109:23, 148:9, 149:4, 159:4, 159:20, 174:10, 176:16, 186:24 <b>NUMBERS</b> [4] - 77:13, 96:23, 193:14, 193:21 <b>numerous</b> [4] - 43:16, 61:23, 156:14, 157:11	32:1, 36:17, 36:19, 37:8, 37:11, 37:20, 37:21, 38:25, 39:14, 41:15, 41:20, 42:3, 46:8, 48:9, 50:24, 51:2, 51:9, 51:18, 51:19, 54:3, 54:21, 59:14, 61:25, 65:23, 70:20, 72:9, 73:9, 78:13, 79:4, 79:6, 81:2, 83:20, 83:24, 86:1, 87:13, 88:14, 89:24, 94:7, 94:8, 101:24, 104:7, 108:25, 109:4, 109:11, 128:12, 128:15, 130:2, 130:8, 134:3, 135:10, 135:17, 136:24, 137:17, 137:22, 137:24, 139:16, 139:17, 139:19, 141:7, 142:6, 144:16, 150:4, 150:12, 150:24, 156:3, 158:17, 160:23, 163:20, 166:2, 168:11, 178:9, 182:21, 184:9, 184:10, 186:20, 190:23 <b>one-to-one</b> [1] - 166:2 <b>ones</b> [9] - 31:18, 45:18, 54:10, 78:1, 84:12, 103:6, 103:8, 142:9 <b>ongoing</b> [6] - 15:6, 15:19, 16:22, 18:23, 27:14, 110:14 <b>onstream</b> [2] - 85:11, 107:19 <b>onward</b> [1] - 99:9 <b>open</b> [1] - 145:12 <b>openable</b> [1] - 159:6 <b>opened</b> [1] - 21:21 <b>opening</b> [11] - 11:20, 11:23, 11:24, 12:7, 29:1, 29:5, 88:18, 123:14, 128:6, 128:13 <b>operate</b> [10] - 37:15, 62:9, 100:16, 102:1, 130:15, 133:19, 133:23, 138:7, 139:10, 154:15 <b>operated</b> [6] - 152:1, 154:7, 154:13, 154:17, 171:22, 171:23 <b>operating</b> [18] - 21:6, 23:1, 28:19, 38:12, 44:3, 44:20, 45:9, 80:23, 80:24, 122:13, 133:22, 135:2, 136:15, 172:10, 178:17, 187:9, 188:9 <b>operation</b> [18] - 3:8, 23:4, 28:2, 97:19, 97:21, 98:1, 98:21, 100:18, 115:21, 115:24, 129:7, 130:13, 133:4, 152:21, 172:15, 182:13, 189:15, 189:23 <b>operational</b> [2] - 37:4, 188:7 <b>operations</b> [5] - 5:24, 83:9, 84:5, 97:25, 116:3	<b>operator</b> [1] - 103:1 <b>operators</b> [3] - 46:10, 133:5, 136:17 <b>opinion</b> [1] - 62:5 <b>opinions</b> [2] - 134:20, 136:7 <b>opportunities</b> [7] - 27:15, 79:16, 82:9, 82:15, 84:8, 117:16, 178:13 <b>opportunity</b> [18] - 7:20, 7:24, 7:25, 8:2, 8:23, 12:11, 14:3, 18:2, 21:4, 33:9, 44:17, 89:6, 117:18, 162:11, 162:17, 162:18, 162:21, 178:3 <b>opposed</b> [4] - 125:21, 126:5, 140:17, 168:11 <b>option</b> [33] - 4:3, 17:4, 18:19, 19:2, 19:22, 19:23, 20:16, 20:21, 21:7, 45:20, 51:21, 51:24, 52:12, 52:18, 53:1, 54:19, 55:11, 63:12, 65:25, 66:8, 76:1, 79:8, 79:13, 80:1, 80:2, 80:21, 89:21, 101:6, 137:25, 155:6, 172:6, 172:11 <b>options</b> [34] - 16:1, 16:4, 16:15, 16:17, 19:7, 19:10, 19:13, 23:19, 23:20, 43:22, 43:25, 45:12, 63:15, 63:16, 63:17, 65:7, 75:11, 75:14, 80:15, 80:17, 84:12, 86:5, 87:13, 87:15, 88:1, 124:2, 157:21, 163:15, 177:24, 177:25, 178:12, 181:21, 182:8, 183:16 <b>OR</b> [2] - 77:17, 139:17 <b>oral</b> [4] - 6:5, 7:12, 8:6 <b>order</b> [29] - 2:25, 7:4, 7:17, 16:18, 20:2, 26:12, 60:17, 65:24, 67:1, 67:15, 86:20, 86:25, 104:16, 114:24, 115:10, 117:5, 124:17, 130:10, 130:12, 130:25, 131:11, 131:13, 140:3, 160:8, 161:25, 176:8, 189:6, 189:17 <b>Order</b> [6] - 8:7, 76:9, 105:23, 106:9, 106:16, 176:9 <b>ordering</b> [2] - 20:10, 61:23 <b>orders</b> [2] - 50:16, 136:16 <b>organization</b> [2] - 133:25, 134:19 <b>organize</b> [2] - 6:6, 46:1 <b>original</b> [2] - 84:13, 118:11 <b>originally</b> [2] - 25:3, 139:3 <b>OSLER</b> [173] - 12:4, 31:6, 32:9, 32:24, 33:2, 33:14, 34:18, 35:22, 36:4, 36:9,	36:12, 36:16, 36:24, 37:10, 37:13, 37:17, 37:24, 39:10, 45:4, 46:16, 47:16, 48:19, 49:15, 49:19, 49:23, 50:4, 50:25, 51:3, 51:17, 52:25, 58:1, 64:10, 65:16, 65:20, 66:14, 66:20, 75:23, 77:6, 78:23, 79:2, 79:11, 79:17, 80:11, 82:7, 82:12, 82:16, 83:23, 84:2, 84:9, 87:22, 91:8, 91:12, 91:25, 92:11, 94:11, 94:21, 95:24, 96:5, 96:8, 97:13, 97:15, 97:18, 98:5, 98:11, 98:15, 98:23, 99:11, 99:19, 99:24, 100:3, 100:5, 100:11, 101:7, 101:9, 101:13, 101:18, 103:20, 104:18, 104:25, 105:5, 105:11, 105:24, 106:7, 106:14, 106:21, 106:24, 107:5, 107:9, 107:13, 107:17, 107:23, 108:4, 109:3, 109:9, 110:2, 110:22, 110:25, 111:4, 111:7, 112:21, 113:11, 115:25, 116:17, 123:7, 123:22, 127:8, 127:20, 128:5, 130:8, 131:7, 131:12, 132:6, 138:14, 138:23, 139:12, 143:6, 144:17, 145:15, 146:4, 146:25, 147:14, 147:24, 148:4, 148:14, 149:25, 150:22, 151:15, 151:22, 152:15, 152:20, 155:3, 157:15, 159:15, 160:10, 162:20, 163:21, 164:8, 166:3, 168:14, 169:17, 170:5, 170:24, 171:20, 172:4, 172:16, 173:12, 173:15, 173:18, 173:21, 174:8, 174:25, 175:4, 175:8, 176:18, 178:5, 180:2, 180:20, 181:3, 181:10, 182:6, 182:25, 183:23, 184:3, 184:8, 184:20, 185:5, 185:18, 186:1, 186:7, 187:8, 187:12, 187:20, 193:5 <b>Osler</b> [17] - 11:12, 43:3, 45:1, 52:22, 55:3, 67:3, 78:21, 85:2, 85:20, 96:15, 96:17, 112:12, 116:21, 137:10, 145:25, 159:3, 161:21 <b>otherwise</b> [3] - 109:12, 121:10, 147:17 <b>outage</b> [1] - 157:1 <b>outages</b> [3] - 156:23, 157:2, 157:4 <b>outcome</b> [1] - 43:24 <b>outcomes</b> [1] - 25:5 <b>outlie</b> [1] - 82:14	<b>outlier</b> [2] - 82:18, 128:21 <b>outline</b> [1] - 169:18 <b>outlined</b> [4] - 4:3, 21:23, 86:11, 126:14 <b>outlining</b> [1] - 118:22 <b>output</b> [1] - 55:8 <b>outside</b> [2] - 102:1, 125:25 <b>outsourced</b> [1] - 61:15 <b>outweigh</b> [1] - 66:7 <b>Overall</b> [1] - 23:22 <b>overall</b> [15] - 13:3, 13:21, 21:1, 26:12, 28:12, 33:7, 33:11, 33:19, 39:12, 50:17, 57:15, 108:5, 121:5, 122:25, 149:10 <b>overhaul</b> [3] - 187:25, 188:3, 188:4 <b>overhauls</b> [2] - 187:21, 187:22 <b>overly</b> [2] - 72:19, 73:9 <b>overrun</b> [1] - 170:22 <b>overstate</b> [1] - 59:10 <b>overview</b> [1] - 16:10 <b>overwhelming</b> [1] - 87:8 <b>own</b> [12] - 2:17, 37:3, 38:14, 73:19, 126:8, 159:8, 160:3, 160:4, 161:15, 170:14, 171:1 <b>owned</b> [1] - 170:6 <b>owner</b> [1] - 138:1 <b>owning</b> [1] - 169:22 <b>owns</b> [2] - 170:8, 170:9
<b>O</b>				
<b>O&amp;M</b> [4] - 32:16, 32:18, 33:4, 44:22 <b>object</b> [1] - 65:15 <b>objecting</b> [3] - 57:10, 70:17, 73:12 <b>objections</b> [1] - 56:17 <b>objective</b> [1] - 165:21 <b>objectives</b> [1] - 82:2 <b>obligation</b> [1] - 162:9 <b>obligations</b> [1] - 132:14 <b>obscuring</b> [1] - 71:9 <b>observation</b> [1] - 106:19 <b>obsolete</b> [2] - 101:14, 101:19 <b>obtain</b> [1] - 4:21 <b>obviously</b> [11] - 9:12, 57:9, 69:23, 69:24, 70:7, 70:14, 70:15, 84:1, 100:6, 130:4, 139:3 <b>occasions</b> [1] - 43:16 <b>occur</b> [4] - 36:23, 99:13, 116:5, 134:5 <b>occurred</b> [1] - 22:6 <b>occurs</b> [1] - 101:16 <b>OF</b> [4] - 77:15, 77:17, 193:16, 193:18 <b>offered</b> [1] - 70:24 <b>Officer</b> [1] - 2:11 <b>Official</b> [4] - 2:18, 2:18, 192:14, 192:20 <b>officials</b> [2] - 22:7, 26:10 <b>offloading</b> [2] - 4:13, 13:5 <b>offset</b> [3] - 48:17, 113:4, 144:9 <b>often</b> [3] - 153:20, 154:2, 188:14 <b>OIC</b> [2] - 4:16, 23:9 <b>oil</b> [12] - 27:12, 27:20, 82:23, 108:11, 109:16, 110:12, 110:17, 132:1, 132:2, 132:3 <b>old</b> [13] - 19:17, 21:2, 52:2, 52:7, 53:11, 53:12, 53:21, 53:22, 54:14, 55:7, 67:12, 114:7 <b>older</b> [1] - 26:18 <b>omissions</b> [1] - 94:13 <b>on-site</b> [1] - 161:14 <b>once</b> [7] - 17:3, 17:7, 23:15, 37:20, 40:23, 55:24, 110:10 <b>one</b> [83] - 6:21, 10:7, 11:9, 15:25, 26:7,				
<b>P</b>				
			<b>P.M</b> [2] - 93:13, 94:3 <b>p.m</b> [5] - 6:25, 7:2, 7:5, 7:6, 191:6 <b>package</b> [3] - 35:15, 35:18, 128:11 <b>page</b> [55] - 31:8, 56:22, 58:8, 58:16, 68:2, 68:20, 70:21, 73:21, 73:22, 74:11, 77:20, 79:7, 79:12, 82:11, 91:1, 91:3, 95:1, 95:4, 95:5, 103:24, 104:13, 105:3, 105:25, 106:2, 125:10, 125:11, 125:18, 126:10, 126:16, 128:1, 129:9, 138:19, 144:18, 145:16, 148:18, 148:19, 160:25, 164:9, 164:11, 174:9, 178:16, 187:13, 188:6 <b>pages</b> [4] - 6:7, 57:1, 108:16, 192:3 <b>paginated</b> [1] - 95:6 <b>paid</b> [6] - 28:1, 150:3, 150:17, 151:8, 151:17, 151:20 <b>panel</b> [25] - 7:18, 11:9, 11:17, 29:9, 30:6, 30:7, 67:5, 68:7, 70:15, 71:3, 71:11, 71:16, 71:22, 72:12, 73:17, 74:15, 76:22, 78:5, 95:1, 140:13,	



## YUB - YEC LNG Project, Volume 1, March 31, 2014

141:21, 152:18,  
159:2, 187:6  
**PANEL** [4] - 30:5,  
141:15, 193:7, 193:8  
**Panel** [3] - 3:2,  
12:10, 141:16  
**paragraph** [2] -  
179:2, 179:13  
**paraphrase** [1] -  
87:7  
**parsing** [1] - 42:16  
**part** [24] - 3:20,  
15:25, 20:9, 42:16,  
57:15, 57:17, 57:18,  
60:4, 61:10, 62:2,  
62:19, 73:6, 77:7,  
77:8, 91:10, 91:23,  
95:2, 117:3, 117:20,  
146:23, 162:23,  
165:4, 168:4, 172:13  
**Part** [5] - 3:12, 3:17,  
4:17, 12:15, 89:18  
**PART** [4] - 77:15,  
77:17, 193:16, 193:18  
**partial** [1] - 51:16  
**participants** [3] -  
68:15, 154:19, 155:5  
**participants'** [1] -  
7:12  
**participating** [1] -  
117:10  
**particular** [16] - 5:3,  
30:15, 31:12, 41:6,  
72:3, 78:23, 79:17,  
79:20, 91:7, 104:20,  
120:14, 146:13,  
146:16, 173:10,  
180:11, 183:17  
**particularly** [6] -  
35:6, 82:25, 84:17,  
92:11, 178:22, 185:8  
**particulates** [1] -  
92:2  
**Parties** [1] - 6:20  
**parties** [12] - 8:9,  
8:12, 10:2, 11:5,  
11:21, 22:13, 69:13,  
69:14, 172:3, 172:12,  
172:13, 181:24  
**partner** [2] - 119:18,  
119:24  
**partners** [1] - 48:14  
**partnership** [3] -  
90:1, 117:10, 117:25  
**parts** [21] - 20:1,  
20:11, 43:19, 53:24,  
55:13, 61:1, 61:4,  
61:6, 61:7, 61:11,  
61:12, 61:14, 61:21,  
61:23, 62:9, 62:14,  
63:5, 87:4, 132:4,  
135:4, 135:6  
**party** [11] - 6:6, 7:11,  
8:18, 8:25, 9:3, 9:5,  
9:8, 9:23, 115:8,  
179:5, 181:23  
**past** [6] - 15:14,  
18:11, 42:2, 76:7,  
91:16, 161:14  
**pathway** [1] - 32:21  
**patience** [1] - 140:13  
**pay** [8] - 82:5, 88:11,  
151:8, 160:1, 161:8,  
162:12, 174:7, 186:10  
**pay-off** [1] - 82:5  
**paying** [4] - 150:14,  
150:16, 150:19,  
177:13  
**payment** [1] - 186:4  
**payoff** [3] - 85:5,

85:15, 87:9  
**pays** [1] - 81:18  
**peak** [13] - 17:14,  
103:17, 140:8,  
152:25, 153:2, 153:5,  
153:7, 154:1, 158:7,  
158:8, 159:25, 161:7,  
178:23  
**penalty** [1] - 151:22  
**pending** [2] - 15:3,  
129:15  
**people** [44] - 11:22,  
37:25, 41:25, 47:23,  
49:6, 53:23, 61:21,  
74:19, 75:4, 75:8,  
79:21, 82:21, 83:2,  
83:11, 83:24, 92:1,  
100:12, 100:25,  
104:19, 105:12,  
109:9, 109:13, 110:4,  
110:18, 112:8,  
113:18, 114:24,  
116:4, 116:7, 134:18,  
136:1, 145:11,  
148:15, 152:17,  
155:1, 155:2, 166:7,  
170:6, 171:3, 178:19,  
180:23, 186:8, 186:14  
**people's** [2] -  
100:17, 133:24  
**per** [20] - 24:7, 26:16,  
26:17, 26:20, 27:1,  
27:4, 27:6, 34:2, 60:9,  
71:6, 72:9, 107:4,  
108:3, 113:20,  
165:22, 165:23,  
168:13, 174:14,  
174:16, 175:10  
**percent** [19] - 50:19,  
58:11, 66:11, 66:12,  
118:12, 118:15,  
118:17, 119:22,  
133:22, 133:23,  
145:1, 145:2, 154:14,  
164:15, 165:5,  
174:18, 177:1  
**percentage** [8] -  
48:24, 49:17, 49:24,  
51:15, 119:6, 138:11,  
159:7, 167:19  
**percentages** [1] -  
49:1  
**perfect** [1] - 47:24  
**performing** [1] - 44:5  
**perhaps** [4] - 59:9,  
89:7, 100:22, 183:20  
**Perhaps** [1] - 118:6  
**period** [34] - 15:11,  
18:25, 28:13, 43:13,  
49:18, 53:13, 62:17,  
92:22, 97:9, 97:12,  
97:16, 124:9, 124:12,  
125:12, 133:11,  
134:25, 135:15,  
143:17, 144:6, 144:8,  
144:10, 144:15,  
149:9, 149:14, 150:8,  
150:9, 150:11,  
150:15, 150:16,  
153:6, 153:20,  
171:24, 180:3, 188:17  
**periods** [5] - 44:12,  
100:9, 144:3, 153:23,  
184:25  
**peripheral** [1] - 86:6  
**permit** [3] - 26:7,  
166:7, 168:23  
**permits** [1] - 170:19  
**permitted** [3] -  
23:13, 23:16, 164:20

**permitting** [1] -  
169:21  
**person** [2] - 11:3,  
181:14  
**personally** [1] - 61:2  
**perspective** [5] -  
63:22, 94:8, 109:19,  
112:10, 185:24  
**phase** [3] - 3:6,  
13:22, 110:18  
**phases** [1] - 49:3  
**phasing** [1] - 58:15  
**phone** [3] - 9:23,  
164:1, 175:6  
**phrases** [1] - 72:3  
**physically** [1] -  
117:21  
**pick** [5] - 139:1,  
172:7, 176:4, 181:12,  
182:9  
**picking** [1] - 167:18  
**picture** [2] - 58:20  
**piece** [1] - 77:24  
**pieces** [3] - 93:8,  
100:14, 101:1  
**pipelines** [1] -  
111:15  
**pipes** [1] - 111:16  
**piping** [1] - 111:22  
**place** [11] - 18:10,  
22:15, 43:12, 45:21,  
81:2, 81:16, 86:16,  
131:6, 137:17, 139:6,  
170:25  
**places** [3] - 30:19,  
31:22, 99:20  
**Plain** [3] - 82:11,  
82:22, 83:20  
**Plains** [1] - 79:19  
**Plains'** [1] - 90:15  
**plan** [31] - 3:25, 6:25,  
15:2, 15:13, 16:5,  
16:11, 16:14, 18:10,  
45:11, 45:12, 48:14,  
49:7, 49:12, 84:18,  
86:10, 139:14,  
139:24, 140:2, 140:4,  
143:15, 146:4,  
146:13, 147:4,  
147:16, 147:25,  
148:7, 152:23,  
153:15, 157:16,  
172:13  
**planned** [8] - 13:19,  
15:5, 18:22, 21:14,  
21:15, 22:1, 23:4,  
112:1  
**planning** [43] - 5:14,  
11:16, 13:20, 14:14,  
15:5, 15:9, 15:22,  
16:2, 18:20, 20:5,  
22:3, 35:15, 36:7,  
36:10, 36:11, 41:24,  
42:1, 43:16, 58:3,  
75:5, 84:10, 89:15,  
102:8, 116:2, 139:13,  
144:14, 146:2, 146:5,  
146:7, 146:10,  
152:21, 153:4,  
153:24, 154:9, 156:7,  
156:12, 156:15,  
159:16, 159:19,  
160:7, 160:11,  
170:14, 172:21  
**plans** [8] - 18:9,  
22:12, 22:18, 23:10,  
25:21, 90:15, 90:18,  
115:21  
**plant** [39] - 13:1,  
13:3, 18:3, 18:22,

20:20, 21:15, 21:20,  
22:3, 22:17, 24:18,  
25:7, 27:8, 51:11,  
52:7, 52:20, 53:6,  
53:8, 53:9, 54:15,  
55:10, 59:16, 60:17,  
65:11, 66:23, 67:5,  
67:13, 103:10,  
110:23, 111:1,  
111:16, 111:21,  
111:23, 112:8, 129:7,  
177:10, 182:16,  
182:17, 188:22, 190:7  
**play** [2] - 102:14,  
139:25  
**please** [14] - 2:22,  
9:20, 12:8, 56:2, 56:8,  
57:25, 68:23, 94:5,  
94:10, 104:3, 140:24,  
152:18, 164:1, 175:19  
**plus** [5] - 60:21,  
61:9, 61:18, 174:16  
**pocketed** [1] -  
150:17  
**point** [45] - 36:2,  
37:21, 38:16, 43:11,  
43:25, 45:19, 52:4,  
55:20, 71:11, 81:18,  
88:2, 92:24, 98:19,  
102:10, 102:18,  
102:20, 102:23,  
105:18, 106:11,  
106:17, 108:9,  
110:10, 135:7, 135:9,  
136:6, 140:5, 150:7,  
150:11, 150:12,  
151:11, 151:23,  
156:8, 156:11, 157:6,  
158:3, 158:5, 159:18,  
159:24, 166:16,  
170:15, 171:18,  
172:5, 181:14,  
181:16, 185:9  
**pointed** [1] - 146:6  
**pointing** [2] - 99:7,  
181:22  
**points** [5] - 5:4, 45:4,  
51:18, 92:5, 134:25  
**policies** [1] - 82:2  
**policy** [9] - 103:23,  
104:15, 104:17,  
104:21, 104:23,  
105:2, 105:10,  
105:16, 106:1  
**Policy** [1] - 105:22  
**poor** [2] - 60:21,  
162:2  
**populated** [1] -  
167:20  
**population** [1] -  
74:23  
**portion** [8] - 8:5,  
35:9, 35:12, 36:7,  
113:13, 113:16,  
123:21, 183:12  
**posed** [1] - 4:1  
**position** [5] - 38:4,  
69:1, 119:4, 119:18,  
120:21  
**positive** [2] - 26:3,  
168:25  
**possibility** [8] - 38:2,  
47:16, 47:19, 80:16,  
85:10, 85:23, 114:23,  
155:14  
**possible** [9] - 19:23,  
28:23, 35:21, 49:17,  
68:12, 114:16, 124:4,  
154:1, 163:11  
**post** [1] - 62:17

**posted** [2] - 7:10,  
9:22  
**potential** [32] - 4:22,  
5:17, 14:17, 15:8,  
16:9, 19:3, 19:21,  
21:16, 23:18, 23:20,  
23:24, 30:17, 79:9,  
79:14, 79:15, 79:20,  
79:21, 80:7, 81:5,  
83:21, 84:3, 84:19,  
85:16, 101:12,  
108:23, 109:11,  
110:1, 115:16,  
117:20, 118:23,  
169:4, 183:21  
**potentially** [3] -  
81:17, 83:19, 84:21  
**Pound** [5] - 21:20,  
22:1, 22:10, 22:17,  
180:15  
**power** [13] - 5:13,  
14:13, 25:19, 43:13,  
44:11, 47:9, 90:9,  
111:25, 126:22,  
133:24, 157:13,  
161:18, 190:5  
**practical** [5] - 53:1,  
163:23, 171:17,  
172:5, 181:16  
**practice** [2] - 38:10,  
168:18  
**Prairie** [2] - 23:25,  
172:9  
**Prasad** [2] - 2:7, 3:3  
**pre** [1] - 70:2  
**pre-identified** [1] -  
70:2  
**precedent** [1] - 72:21  
**precision** [1] - 73:15  
**precursors** [1] -  
146:17  
**predict** [1] - 74:9  
**predictions** [1] -  
109:24  
**predominant** [1] -  
74:1  
**predominantly** [1] -  
126:5  
**preface** [2] - 116:16,  
116:22  
**preferable** [1] - 57:3  
**preference** [1] -  
104:9  
**prejudiced** [1] -  
73:19  
**preliminary** [3] -  
68:25, 94:6, 141:5  
**preoccupation** [1] -  
88:16  
**prepare** [1] - 76:13  
**prepared** [6] - 31:4,  
63:3, 92:24, 105:7,  
134:1, 135:7  
**prerequisite** [1] -  
21:9  
**prescribed** [1] - 3:14  
**present** [3] - 6:18,  
7:24, 83:24  
**presentation** [7] -  
69:22, 75:25, 76:14,  
78:21, 78:24, 91:1,  
129:8  
**PRESENTATIONS**  
[2] - 77:13, 193:15  
**presentations** [3] -  
7:13, 76:10, 93:8  
**presented** [3] - 8:4,  
91:9, 139:13  
**presenting** [2] -  
11:9, 11:18

## YUB - YEC LNG Project, Volume 1, March 31, 2014

<p><b>president</b> [1] - 11:11  <b>presumably</b> [6] - 73:5, 136:6, 155:20, 179:4, 189:7  <b>presumes</b> [1] - 143:7  <b>pretty</b> [2] - 91:17, 175:25  <b>previous</b> [2] - 74:11, 146:18  <b>previously</b> [1] - 31:11  <b>price</b> [37] - 23:7, 24:3, 26:23, 27:1, 27:13, 54:20, 55:2, 60:10, 60:16, 67:4, 81:20, 81:21, 87:8, 87:24, 103:23, 104:14, 105:2, 105:9, 106:4, 106:9, 106:15, 107:5, 107:11, 107:13, 107:20, 108:3, 108:7, 108:11, 108:12, 108:23, 109:17, 110:12, 110:16, 110:17, 152:7, 152:9  <b>priced</b> [1] - 86:25  <b>prices</b> [10] - 27:3, 27:19, 27:20, 63:12, 63:15, 81:8, 107:16, 109:5, 110:1, 177:13  <b>pricing</b> [2] - 66:2, 86:4  <b>primarily</b> [1] - 44:25  <b>primary</b> [7] - 13:25, 24:11, 42:7, 43:4, 45:2, 126:22, 143:21  <b>prime</b> [2] - 88:16, 123:14  <b>principle</b> [4] - 105:13, 105:21, 106:14, 106:17  <b>principles</b> [1] - 54:5  <b>printed</b> [1] - 29:16  <b>priorities</b> [1] - 180:23  <b>priority</b> [1] - 98:8  <b>privately</b> [1] - 13:11  <b>privilege</b> [1] - 162:13  <b>privy</b> [1] - 118:2  <b>probability</b> [4] - 139:17, 160:15, 160:17, 160:22  <b>probe</b> [1] - 173:7  <b>problem</b> [18] - 46:2, 48:2, 53:17, 54:16, 62:19, 88:25, 103:12, 104:11, 132:9, 145:24, 146:8, 147:13, 147:15, 147:17, 159:4, 162:12, 171:17, 182:8  <b>problems</b> [6] - 20:10, 46:24, 53:23, 112:7, 132:12, 182:2  <b>procedure</b> [1] - 57:11  <b>procedures</b> [1] - 6:23  <b>proceed</b> [21] - 4:23, 8:6, 10:2, 11:6, 12:8, 22:10, 22:17, 25:13, 29:8, 29:13, 56:8, 57:25, 71:24, 73:12, 94:10, 94:23, 117:5, 141:1, 141:2, 163:17  <b>proceeded</b> [1] - 61:4  <b>proceeding</b> [2] - 125:21, 179:3  <b>proceedings</b> [2] -</p>	<p>9:24, 192:5  <b>Proceedings</b> [3] - 2:1, 2:21, 191:6  <b>PROCEEDINGS</b> [2] - 93:13, 191:10  <b>proceeds</b> [1] - 113:3  <b>process</b> [28] - 6:23, 15:22, 16:2, 16:13, 21:19, 26:6, 30:1, 35:14, 35:17, 35:24, 35:25, 36:20, 40:15, 44:1, 58:14, 64:17, 65:22, 66:3, 70:11, 72:8, 72:20, 73:13, 84:10, 89:7, 91:13, 126:5, 168:20, 171:11  <b>processes</b> [2] - 26:7, 35:20  <b>processing</b> [2] - 84:5, 139:10  <b>produce</b> [4] - 122:5, 126:24, 144:4, 189:25  <b>product</b> [2] - 53:16, 175:22  <b>production</b> [3] - 27:16, 139:8, 143:17  <b>profile</b> [2] - 63:2, 183:21  <b>profiles</b> [1] - 178:1  <b>program</b> [3] - 49:11, 59:7, 169:18  <b>programs</b> [3] - 50:8, 50:12, 50:13  <b>progress</b> [4] - 37:7, 37:14, 38:15, 77:9  <b>PROGRESS</b> [2] - 77:18, 193:18  <b>project</b> [139] - 3:8, 4:6, 4:17, 5:5, 5:8, 12:16, 12:23, 13:8, 13:21, 13:25, 14:8, 14:10, 14:15, 14:17, 14:19, 14:23, 17:9, 19:2, 20:25, 21:6, 21:9, 21:23, 22:19, 22:25, 24:5, 24:8, 24:21, 25:6, 25:12, 26:12, 27:24, 28:2, 28:6, 28:11, 28:16, 32:8, 32:11, 32:12, 32:15, 32:19, 32:22, 33:8, 33:12, 33:16, 33:19, 34:11, 34:17, 35:1, 35:25, 36:3, 36:15, 36:17, 38:5, 38:7, 38:12, 38:14, 38:15, 38:18, 39:2, 39:4, 39:13, 40:10, 40:11, 40:12, 40:17, 41:14, 42:4, 42:8, 42:15, 80:11, 81:18, 81:21, 82:17, 83:5, 85:15, 85:18, 86:15, 86:18, 87:7, 87:10, 87:13, 87:23, 88:8, 89:16, 94:19, 99:12, 99:16, 100:9, 100:15, 101:14, 101:19, 102:15, 110:8, 110:13, 110:21, 111:3, 113:16, 117:5, 117:13, 117:16, 117:18, 118:9, 118:13, 118:16, 118:17, 118:21, 118:24, 119:6, 119:13, 119:16, 119:17, 119:21, 119:22, 121:2, 121:5, 121:13, 125:6,</p>	<p>126:23, 127:11, 127:17, 127:22, 128:10, 129:5, 129:16, 140:7, 143:11, 143:12, 143:22, 143:23, 149:19, 150:3, 150:13, 150:15, 154:11, 155:10, 155:11, 186:19  <b>PROJECT</b> [2] - 1:8  <b>Project</b> [35] - 3:10, 4:5, 4:16, 4:23, 5:3, 5:15, 5:16, 5:19, 5:22, 5:25, 12:13, 15:16, 30:14, 30:17, 39:20, 41:5, 41:10, 80:8, 85:5, 95:8, 100:2, 101:4, 109:25, 111:21, 112:3, 112:5, 116:24, 119:5, 121:5, 125:13, 125:21, 126:6, 126:14, 126:18  <b>project's</b> [6] - 14:25, 17:21, 28:17, 28:21, 82:3, 102:18  <b>projected</b> [4] - 28:5, 28:10, 28:14, 28:18  <b>projecting</b> [2] - 80:8, 148:8  <b>projection</b> [1] - 101:25  <b>projections</b> [2] - 95:16, 108:21  <b>projects</b> [22] - 5:24, 15:15, 17:2, 19:3, 38:11, 41:21, 42:6, 42:9, 75:6, 84:24, 84:25, 85:2, 85:22, 86:12, 87:17, 87:18, 98:24, 124:21, 150:18, 150:20  <b>Projects</b> [1] - 2:14  <b>prominently</b> [1] - 145:13  <b>promised</b> [1] - 20:8  <b>prompt</b> [1] - 169:9  <b>promptly</b> [1] - 185:14  <b>properly</b> [1] - 73:10  <b>proportionately</b> [1] - 59:4  <b>proposal</b> [5] - 21:19, 118:20, 122:15, 126:15  <b>proposals</b> [1] - 177:14  <b>propose</b> [2] - 140:15, 140:21  <b>proposed</b> [26] - 4:23, 5:2, 33:12, 34:17, 39:20, 41:14, 48:21, 68:15, 100:1, 117:13, 119:5, 122:1, 122:6, 123:5, 125:22, 126:6, 126:23, 127:17, 129:16, 129:18, 131:4, 147:16, 150:3, 160:11, 168:8  <b>proposing</b> [3] - 8:18, 143:11, 172:25  <b>proposition</b> [2] - 44:6, 132:16  <b>propositions</b> [1] - 183:18  <b>protect</b> [2] - 26:12, 48:4  <b>protecting</b> [1] - 160:19  <b>protocol</b> [1] - 76:24</p>	<p><b>prove</b> [1] - 43:24  <b>proved</b> [1] - 66:7  <b>provide</b> [29] - 5:12, 5:23, 6:3, 12:17, 13:16, 14:7, 14:12, 19:13, 39:1, 43:12, 47:11, 50:2, 51:19, 52:20, 64:13, 64:23, 78:5, 90:8, 117:4, 121:21, 122:8, 126:24, 129:22, 130:3, 130:5, 179:16, 189:15, 189:19  <b>provided</b> [17] - 3:20, 3:22, 9:14, 15:13, 30:24, 31:7, 31:11, 40:17, 42:9, 59:2, 64:19, 64:21, 66:17, 68:9, 76:11, 112:11, 174:10  <b>PROVIDED</b> [2] - 77:14, 193:16  <b>provides</b> [5] - 70:19, 97:8, 144:18, 144:21, 155:7  <b>providing</b> [2] - 8:21, 190:10  <b>province</b> [2] - 48:1, 176:12  <b>provision</b> [1] - 180:11  <b>provisions</b> [4] - 117:17, 180:20, 180:21, 181:5  <b>prudence</b> [3] - 20:24, 33:8, 36:6  <b>prudent</b> [3] - 5:21, 14:18, 178:11  <b>public</b> [16] - 3:6, 5:5, 7:4, 7:5, 13:9, 14:8, 15:22, 16:9, 16:11, 25:24, 114:5, 125:12, 125:16, 126:4, 129:9, 136:21  <b>Public</b> [4] - 3:12, 3:17, 4:17, 12:15  <b>published</b> [3] - 176:7, 177:18  <b>pull</b> [1] - 118:14  <b>pulled</b> [1] - 170:20  <b>pulling</b> [1] - 121:4  <b>pumping</b> [1] - 132:2  <b>pun</b> [2] - 182:4, 182:5  <b>purchase</b> [4] - 141:24, 162:1, 172:21, 172:25  <b>purchased</b> [4] - 141:24, 142:6, 142:9, 162:24  <b>purchases</b> [2] - 22:9, 138:24  <b>purchasing</b> [1] - 142:23  <b>purpose</b> [23] - 4:20, 8:11, 9:12, 14:6, 43:5, 57:13, 70:24, 71:1, 71:2, 71:10, 72:11, 73:15, 87:13, 111:2, 126:14, 126:18, 127:7, 143:7, 147:20, 148:24, 153:14, 170:11, 172:8  <b>purposes</b> [31] - 32:25, 35:21, 39:17, 49:10, 56:15, 67:21, 70:20, 116:6, 124:16, 129:20, 130:17, 132:17, 142:22, 143:15, 144:2,</p>	<p>144:14, 148:7, 152:17, 152:20, 154:17, 161:15, 167:3, 167:18, 172:18, 173:6, 174:4, 179:7, 181:6, 182:10, 189:11, 190:10  <b>pursuant</b> [2] - 4:18, 172:25  <b>pursue</b> [4] - 15:14, 75:22, 90:20, 90:25  <b>pursuing</b> [2] - 84:25, 165:21  <b>push</b> [1] - 177:10  <b>put</b> [45] - 8:15, 9:24, 30:20, 36:2, 36:6, 37:2, 37:8, 37:11, 37:21, 45:21, 48:6, 54:4, 55:12, 57:23, 63:16, 64:13, 65:8, 65:9, 65:14, 66:4, 67:15, 69:13, 69:15, 70:25, 72:6, 72:21, 72:22, 72:24, 78:13, 78:17, 81:2, 96:1, 96:2, 97:10, 104:6, 111:13, 112:17, 122:15, 125:4, 137:3, 142:14, 154:11, 162:22, 184:1, 189:6  <b>puts</b> [2] - 65:3, 186:22  <b>putting</b> [6] - 72:8, 81:15, 111:15, 120:2, 154:14</p>
<b>Q</b>				
<p><b>quality</b> [2] - 20:11, 61:15  <b>quantum</b> [2] - 32:23, 121:7  <b>Quarter</b> [1] - 22:4  <b>quarters</b> [3] - 59:25, 60:9, 107:6  <b>questioning</b> [9] - 8:12, 8:14, 8:25, 9:4, 9:8, 30:8, 92:16, 140:19, 190:17  <b>questions</b> [23] - 4:1, 6:22, 7:19, 7:22, 8:15, 9:6, 29:21, 31:16, 32:16, 45:15, 70:10, 70:15, 71:17, 72:4, 78:6, 79:4, 81:9, 104:10, 108:16, 137:23, 140:12, 173:6, 181:22  <b>quick</b> [3] - 85:5, 137:22, 149:22  <b>quickly</b> [1] - 81:19  <b>quite</b> [8] - 33:1, 73:5, 130:14, 133:25, 143:18, 154:8, 177:17, 190:1  <b>quo</b> [1] - 41:15  <b>quotations</b> [1] - 64:2  <b>quote</b> [2] - 35:11, 104:5  <b>quoted</b> [1] - 127:9</p>				
<b>R</b>				
<p><b>radically</b> [2] - 109:18, 181:12  <b>railway</b> [1] - 13:11  <b>raise</b> [2] - 73:13, 109:11  <b>raised</b> [3] - 56:17, 75:21, 125:24</p>				

## YUB - YEC LNG Project, Volume 1, March 31, 2014

<p><b>range</b> [5] - 16:14, 28:23, 102:3, 109:24, 109:25</p> <p><b>ranges</b> [1] - 84:20</p> <p><b>ranking</b> [2] - 75:14, 97:20</p> <p><b>Rate</b> [2] - 23:8, 105:22</p> <p><b>rate</b> [66] - 4:2, 23:6, 32:13, 36:2, 36:6, 36:14, 36:19, 36:22, 37:18, 37:21, 38:7, 38:8, 38:16, 38:19, 39:8, 44:17, 88:17, 105:15, 106:1, 138:5, 174:14, 174:15, 174:20, 174:21, 175:1, 175:2, 175:3, 175:6, 175:9, 175:11, 175:14, 175:17, 175:18, 175:19, 175:20, 175:21, 175:22, 175:25, 176:3, 176:7, 176:8, 176:9, 176:10, 176:13, 176:14, 176:24, 176:25, 177:12, 177:15, 177:16, 177:18, 177:19, 179:8, 180:1, 182:23, 182:24, 182:25, 183:2, 183:13</p> <p><b>rated</b> [1] - 175:1</p> <p><b>ratepayer</b> [5] - 28:6, 28:12, 28:21, 28:22, 151:10</p> <p><b>ratepayers</b> [18] - 14:5, 14:25, 18:6, 44:18, 44:24, 86:25, 88:11, 110:14, 122:17, 125:3, 127:19, 127:25, 132:15, 132:20, 149:5, 150:13, 151:7, 152:5</p> <p><b>rates</b> [31] - 5:9, 5:17, 14:10, 14:18, 17:7, 28:4, 28:5, 30:17, 33:12, 36:1, 36:17, 36:20, 36:25, 37:4, 44:1, 55:8, 76:17, 77:8, 77:9, 88:23, 119:7, 119:14, 120:8, 143:25, 163:10, 174:18, 183:6, 183:7, 183:11, 183:14</p> <p><b>RATES</b> [4] - 77:16, 77:18, 193:17, 193:19</p> <p><b>rather</b> [7] - 31:14, 35:22, 58:25, 65:10, 81:16, 160:22, 163:18</p> <p><b>ratio</b> [2] - 119:11, 119:17</p> <p><b>raw</b> [1] - 60:15</p> <p><b>re</b> [1] - 7:20</p> <p><b>re-direct</b> [1] - 7:20</p> <p><b>reached</b> [1] - 132:11</p> <p><b>read</b> [9] - 104:5, 117:8, 121:19, 137:6, 164:12, 175:25, 179:14, 183:10, 183:11</p> <p><b>reading</b> [3] - 93:4, 176:1, 183:15</p> <p><b>ready</b> [4] - 29:13, 86:12, 141:1, 141:2</p> <p><b>realistic</b> [1] - 87:15</p> <p><b>realization</b> [1] - 74:3</p> <p><b>realize</b> [2] - 43:22, 162:16</p>	<p><b>really</b> [24] - 31:13, 53:11, 53:12, 54:1, 54:2, 58:23, 87:6, 87:14, 87:18, 102:10, 102:13, 111:10, 112:21, 119:20, 129:5, 145:11, 156:18, 166:5, 166:7, 166:13, 184:24, 184:25</p> <p><b>reason</b> [7] - 51:14, 61:10, 82:4, 122:14, 131:18, 180:5, 180:7</p> <p><b>reasonable</b> [7] - 5:6, 5:19, 14:9, 14:15, 19:1, 41:11, 109:24</p> <p><b>reasonably</b> [1] - 110:4</p> <p><b>reasons</b> [8] - 44:25, 45:2, 51:7, 53:2, 118:2, 118:3, 163:22, 163:24</p> <p><b>rebuild</b> [3] - 60:8, 60:10, 60:11</p> <p><b>rebuilt</b> [1] - 60:2</p> <p><b>rebuttal</b> [3] - 7:24, 8:2</p> <p><b>receipts</b> [1] - 35:13</p> <p><b>receive</b> [1] - 127:25</p> <p><b>received</b> [7] - 9:18, 64:3, 64:24, 125:15, 125:20, 164:25, 165:1</p> <p><b>receiving</b> [3] - 19:24, 61:24, 177:14</p> <p><b>recent</b> [3] - 63:9, 146:2, 168:17</p> <p><b>recently</b> [1] - 110:16</p> <p><b>recess</b> [4] - 7:5, 55:22, 140:21, 191:1</p> <p><b>recessing</b> [1] - 140:16</p> <p><b>recharge</b> [1] - 109:19</p> <p><b>recognize</b> [2] - 18:21, 147:12</p> <p><b>recognizes</b> [1] - 125:19</p> <p><b>recollection</b> [5] - 39:21, 40:2, 49:23, 114:9, 114:14</p> <p><b>recommend</b> [1] - 162:22</p> <p><b>recommendation</b> [7] - 5:23, 25:19, 26:1, 128:3, 128:7, 128:15, 128:16</p> <p><b>recommendations</b> [9] - 4:21, 5:2, 6:2, 14:8, 25:17, 30:13, 41:3, 128:8, 163:16</p> <p><b>recommended</b> [3] - 25:14, 25:22, 135:10</p> <p><b>recommending</b> [1] - 25:11</p> <p><b>recommissioning</b> [2] - 15:8, 18:13</p> <p><b>reconcile</b> [1] - 95:21</p> <p><b>record</b> [32] - 29:5, 48:20, 56:18, 57:13, 57:16, 57:24, 59:19, 64:23, 69:8, 69:14, 69:22, 85:21, 92:7, 92:25, 93:3, 93:9, 97:11, 104:6, 104:7, 116:17, 116:20, 123:14, 137:9, 137:15, 137:19, 139:12, 141:7, 144:10, 157:15, 168:14</p>	<p><b>record's</b> [1] - 168:19</p> <p><b>records</b> [1] - 144:19</p> <p><b>recover</b> [4] - 35:11, 110:8, 119:6, 119:14</p> <p><b>recovered</b> [8] - 35:8, 35:9, 76:17, 110:10, 113:21, 120:7, 149:23, 150:6</p> <p><b>recovering</b> [1] - 102:16</p> <p><b>recovery</b> [1] - 113:19</p> <p><b>reduce</b> [3] - 59:3, 81:24, 124:2</p> <p><b>reduced</b> [5] - 49:9, 58:12, 59:4, 83:12, 139:11</p> <p><b>reducing</b> [3] - 49:16, 49:18, 59:7</p> <p><b>reduction</b> [4] - 50:9, 50:10, 50:19, 50:22</p> <p><b>reductions</b> [3] - 15:19, 28:24, 50:15</p> <p><b>redundancy</b> [1] - 157:23</p> <p><b>refer</b> [8] - 45:16, 53:8, 69:5, 73:16, 173:9, 179:12, 187:4, 187:13</p> <p><b>reference</b> [26] - 3:14, 3:21, 4:19, 6:8, 30:9, 30:10, 40:24, 40:25, 69:11, 71:20, 73:18, 92:13, 93:2, 94:12, 94:14, 94:16, 104:24, 105:3, 105:22, 112:15, 137:14, 137:15, 158:20, 164:17, 182:11, 187:2</p> <p><b>referenced</b> [6] - 32:1, 82:20, 83:1, 84:13, 97:14, 112:12</p> <p><b>referencing</b> [2] - 77:4, 115:13</p> <p><b>referral</b> [1] - 41:1</p> <p><b>referred</b> [11] - 3:12, 3:19, 12:24, 31:7, 47:18, 59:17, 59:18, 78:1, 82:10, 82:11, 85:2</p> <p><b>referring</b> [9] - 53:7, 70:20, 79:20, 84:8, 91:20, 93:1, 96:15, 107:7, 189:4</p> <p><b>refers</b> [2] - 129:10, 189:2</p> <p><b>refined</b> [1] - 49:25</p> <p><b>reflect</b> [9] - 17:14, 25:5, 26:22, 26:25, 27:17, 35:5, 36:20, 113:14, 148:15</p> <p><b>reflected</b> [4] - 48:23, 58:7, 108:12, 127:14</p> <p><b>reflecting</b> [1] - 98:6</p> <p><b>reflects</b> [1] - 25:1</p> <p><b>refurbish</b> [3] - 53:1, 55:13, 67:5</p> <p><b>refurbished</b> [3] - 19:25, 60:18, 134:11</p> <p><b>refurbishing</b> [4] - 53:11, 60:17, 62:6, 147:16</p> <p><b>refurbishment</b> [14] - 15:10, 15:12, 18:14, 19:18, 19:20, 20:7, 20:12, 20:15, 51:20, 59:16, 59:24, 60:19, 62:20, 135:4</p> <p><b>refurbishments</b> [2] - 61:8, 63:7</p> <p><b>regard</b> [3] - 5:3,</p>	<p>30:15, 41:6</p> <p><b>regarding</b> [2] - 69:10, 156:14</p> <p><b>register</b> [3] - 10:2, 11:4, 145:11</p> <p><b>registered</b> [3] - 7:7, 7:12, 7:17</p> <p><b>regular</b> [1] - 191:3</p> <p><b>regulated</b> [2] - 4:17, 119:10</p> <p><b>regulator</b> [1] - 180:8</p> <p><b>regulatory</b> [7] - 23:4, 23:7, 35:17, 35:19, 43:25, 75:7, 171:14</p> <p><b>rejected</b> [3] - 42:10, 42:11, 51:6</p> <p><b>relate</b> [4] - 32:14, 87:18, 111:9, 119:15</p> <p><b>related</b> [21] - 4:14, 5:7, 13:6, 13:25, 15:4, 24:16, 32:12, 35:7, 39:2, 55:9, 76:8, 91:5, 91:25, 95:12, 97:11, 100:1, 112:13, 117:16, 122:24, 128:2, 129:6</p> <p><b>relates</b> [1] - 69:7</p> <p><b>relation</b> [24] - 9:6, 29:18, 30:9, 31:4, 37:15, 38:3, 38:6, 47:2, 55:12, 56:13, 56:18, 60:5, 69:9, 71:3, 82:8, 84:7, 85:6, 85:17, 165:4, 167:7, 168:6, 168:20, 184:23, 187:1</p> <p><b>relationship</b> [1] - 173:7</p> <p><b>relative</b> [3] - 33:16, 109:16, 178:25</p> <p><b>relatively</b> [3] - 25:17, 45:8, 85:4</p> <p><b>release</b> [1] - 26:3</p> <p><b>relevance</b> [2] - 65:3, 70:13</p> <p><b>relevant</b> [8] - 18:20, 26:10, 42:7, 84:21, 100:22, 139:25, 166:12, 166:13</p> <p><b>reliability</b> [11] - 16:5, 48:4, 53:16, 54:6, 62:10, 132:7, 132:9, 160:6, 179:8, 179:9, 180:1</p> <p><b>reliable</b> [21] - 4:8, 5:12, 12:17, 14:13, 16:17, 19:9, 19:13, 19:22, 44:8, 45:20, 45:22, 52:20, 63:3, 76:3, 83:8, 83:9, 101:21, 102:25, 121:22, 122:8, 162:2</p> <p><b>reliably</b> [1] - 103:1</p> <p><b>reliance</b> [1] - 81:24</p> <p><b>reliant</b> [1] - 83:7</p> <p><b>relied</b> [1] - 19:18</p> <p><b>relies</b> [1] - 83:6</p> <p><b>relieved</b> [1] - 48:24</p> <p><b>rely</b> [7] - 83:17, 103:14, 116:8, 135:5, 153:8, 153:13, 164:2</p> <p><b>relying</b> [1] - 102:24</p> <p><b>remain</b> [1] - 108:11</p> <p><b>remaining</b> [8] - 18:21, 26:7, 52:6, 52:19, 115:10, 149:18, 151:17, 151:21</p> <p><b>remains</b> [1] - 117:12</p> <p><b>remarks</b> [1] - 29:2</p>	<p><b>remember</b> [4] - 75:23, 78:11, 114:22, 157:10</p> <p><b>remembering</b> [2] - 47:3, 94:25</p> <p><b>remind</b> [3] - 8:8, 49:2, 146:1</p> <p><b>removal</b> [2] - 113:6, 113:10</p> <p><b>remove</b> [1] - 56:19</p> <p><b>removed</b> [2] - 65:10, 69:20</p> <p><b>removes</b> [1] - 17:18</p> <p><b>render</b> [2] - 101:14, 101:19</p> <p><b>renewable</b> [30] - 15:15, 17:2, 17:6, 19:1, 43:1, 46:3, 46:7, 46:11, 47:7, 47:21, 76:6, 79:15, 79:23, 80:4, 81:23, 82:8, 84:7, 84:12, 85:9, 85:10, 85:22, 85:23, 86:9, 87:18, 87:22, 89:13, 101:22, 102:4, 102:11, 124:1</p> <p><b>renewables</b> [19] - 44:2, 44:3, 44:4, 44:16, 45:2, 45:5, 45:14, 46:14, 46:17, 46:20, 47:13, 48:2, 81:6, 85:17, 86:9, 102:21, 124:14, 124:18, 144:7</p> <p><b>renewal</b> [1] - 19:10</p> <p><b>repeat</b> [5] - 60:4, 109:3, 146:23, 160:12, 179:5</p> <p><b>replace</b> [5] - 14:3, 48:17, 87:19, 99:17, 127:4</p> <p><b>replaced</b> [5] - 20:14, 43:6, 62:15, 63:5, 67:11</p> <p><b>replacement</b> [5] - 4:9, 42:21, 43:6, 60:3, 134:6</p> <p><b>replacements</b> [1] - 132:5</p> <p><b>replacing</b> [6] - 12:23, 13:3, 21:2, 54:10, 76:7, 132:18</p> <p><b>reply</b> [3] - 6:5, 6:7, 8:6</p> <p><b>report</b> [46] - 4:21, 5:1, 14:7, 25:11, 25:15, 25:17, 25:24, 26:4, 30:13, 41:2, 55:12, 72:6, 73:3, 73:4, 73:6, 73:16, 73:22, 78:13, 91:13, 91:21, 94:17, 94:18, 108:15, 112:15, 112:18, 116:15, 121:17, 121:18, 123:23, 125:10, 126:8, 126:9, 126:16, 127:5, 127:8, 127:11, 127:15, 128:2, 134:20, 135:10, 135:16, 135:18, 135:24, 136:7, 136:10, 136:14</p> <p><b>Reporter</b> [4] - 2:18, 2:18, 192:14, 192:20</p> <p><b>reporters</b> [2] - 6:18, 6:21</p> <p><b>Reporting</b> [1] - 6:19</p> <p><b>reports</b> [3] - 59:15, 136:11, 137:3</p>
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## YUB - YEC LNG Project, Volume 1, March 31, 2014

<p><b>represent</b> [1] - 10:6  <b>representation</b> [1] - 74:23  <b>representative</b> [3] - 63:24, 79:18, 90:7  <b>representatives</b> [1] - 82:16  <b>represented</b> [1] - 74:17  <b>representing</b> [2] - 10:4, 10:14  <b>represents</b> [1] - 98:8  <b>request</b> [5] - 21:18, 64:11, 69:10, 118:14, 187:3  <b>requests</b> [1] - 14:21  <b>require</b> [9] - 11:22, 53:4, 53:6, 54:15, 55:9, 61:6, 67:7, 121:7, 172:22  <b>required</b> [26] - 13:7, 13:19, 36:21, 38:21, 80:3, 86:19, 89:15, 101:20, 103:2, 121:11, 121:13, 122:13, 124:25, 130:4, 130:6, 133:7, 133:20, 145:17, 152:25, 153:16, 157:25, 160:15, 189:12, 189:16, 189:24, 190:10  <b>requirement</b> [29] - 24:12, 32:4, 32:8, 32:10, 33:11, 34:1, 34:5, 42:16, 51:22, 59:4, 81:1, 86:19, 98:13, 99:3, 123:20, 124:5, 131:5, 131:9, 138:8, 139:22, 144:24, 152:4, 152:6, 153:3, 154:1, 154:12, 178:21, 178:25, 184:12  <b>requirements</b> [38] - 4:7, 5:7, 5:13, 13:20, 14:2, 14:4, 14:14, 17:5, 19:15, 20:23, 23:1, 32:14, 32:21, 36:16, 38:25, 39:15, 43:8, 48:17, 48:18, 70:13, 76:16, 80:18, 88:3, 98:17, 115:17, 121:24, 122:10, 124:4, 129:23, 130:6, 134:9, 143:23, 160:4, 161:25, 177:2, 177:10, 182:15, 183:17  <b>requires</b> [2] - 39:11, 47:8  <b>research</b> [2] - 68:10, 84:2  <b>resemble</b> [1] - 115:19  <b>reserve</b> [5] - 17:14, 113:6, 113:9, 159:22, 160:7  <b>resisted</b> [1] - 101:24  <b>resort</b> [1] - 76:4  <b>resource</b> [32] - 3:25, 11:16, 15:2, 15:13, 15:21, 16:5, 16:11, 16:14, 16:16, 18:10, 45:11, 45:12, 46:12, 79:15, 82:8, 82:22, 84:7, 84:10, 84:12, 84:18, 84:19, 86:10, 89:10, 102:7, 139:14, 139:24, 140:1, 140:4,</p>	<p>146:4, 146:13, 147:4, 157:16  <b>resources</b> [15] - 76:6, 79:10, 79:24, 80:4, 80:5, 80:7, 80:10, 81:24, 88:5, 88:13, 89:7, 89:13, 101:12, 102:11, 102:12  <b>respect</b> [21] - 6:22, 40:5, 50:8, 52:11, 63:11, 79:3, 84:20, 85:16, 90:14, 101:16, 105:15, 105:16, 105:18, 106:9, 128:7, 129:8, 149:18, 151:20, 155:17, 160:24, 188:19  <b>respectably</b> [1] - 124:23  <b>respecting</b> [1] - 35:19  <b>respectively</b> [1] - 19:5  <b>respiratory</b> [1] - 112:7  <b>respond</b> [1] - 78:6  <b>responded</b> [1] - 137:4  <b>response</b> [24] - 3:25, 25:2, 30:24, 31:11, 34:19, 46:10, 47:12, 55:17, 58:4, 64:10, 65:23, 68:7, 71:3, 71:7, 76:9, 79:3, 88:14, 90:10, 90:12, 97:2, 112:24, 115:12, 116:19, 117:7  <b>responses</b> [7] - 14:20, 22:12, 24:14, 26:24, 27:5, 71:2, 137:5  <b>responsibility</b> [1] - 16:6  <b>responsible</b> [2] - 119:25, 152:22  <b>responsive</b> [1] - 47:5  <b>rest</b> [2] - 128:17, 150:11  <b>restoration</b> [2] - 113:6, 113:10  <b>restricting</b> [1] - 109:7  <b>restrictions</b> [2] - 109:2, 109:6  <b>result</b> [2] - 22:3, 33:12  <b>resulting</b> [4] - 28:12, 91:5, 91:22, 95:7  <b>results</b> [3] - 8:24, 18:2, 68:8  <b>resume</b> [3] - 55:24, 93:11, 115:21  <b>retail</b> [1] - 117:22  <b>retained</b> [2] - 27:2, 107:10  <b>rethink</b> [1] - 121:7  <b>retire</b> [2] - 134:13, 147:18  <b>retired</b> [2] - 18:22, 103:11  <b>retirement</b> [8] - 4:10, 12:20, 12:25, 15:5, 18:9, 18:11, 18:16, 147:8  <b>retreat</b> [1] - 107:20  <b>retrieve</b> [1] - 29:17  <b>retrieving</b> [1] - 56:10  <b>retrospectively</b> [1] - 33:6</p>	<p><b>return</b> [6] - 6:16, 10:19, 32:6, 32:7, 32:13, 123:8  <b>returns</b> [1] - 141:4  <b>revaporization</b> [3] - 189:1, 189:2, 190:11  <b>revaporize</b> [2] - 189:16, 189:24  <b>revenue</b> [9] - 32:4, 32:7, 32:10, 32:21, 33:11, 76:16, 123:20, 131:5, 131:9  <b>revenues</b> [1] - 37:3  <b>review</b> [24] - 3:13, 3:19, 4:1, 4:20, 12:12, 14:6, 16:12, 25:13, 34:15, 36:5, 36:13, 36:19, 40:18, 45:17, 58:6, 75:6, 75:7, 113:14, 125:17, 127:23, 127:25, 144:18  <b>reviewed</b> [8] - 16:14, 22:11, 24:14, 26:24, 27:5, 27:13, 127:16, 139:14  <b>reviewing</b> [3] - 83:5, 127:18, 128:14  <b>revised</b> [2] - 22:18, 25:21  <b>revision</b> [1] - 128:15  <b>revisit</b> [1] - 163:19  <b>revolves</b> [1] - 108:25  <b>RFI</b> [1] - 66:3  <b>RFPs</b> [1] - 25:6  <b>rid</b> [1] - 151:12  <b>rider</b> [6] - 103:23, 104:14, 104:23, 105:2, 105:9, 106:25  <b>Rider</b> [1] - 105:15  <b>right-of-way</b> [1] - 13:11  <b>rights</b> [1] - 180:10  <b>risen</b> [1] - 59:24  <b>risk</b> [21] - 4:22, 5:20, 17:15, 41:12, 43:11, 63:2, 74:10, 109:6, 152:14, 156:8, 158:6, 158:9, 169:15, 169:24, 170:4, 170:10, 170:13, 170:22, 171:19, 171:20  <b>risks</b> [9] - 5:16, 14:17, 26:8, 30:16, 44:15, 108:25, 109:4, 109:11, 171:12  <b>risky</b> [1] - 83:18  <b>road</b> [1] - 123:19  <b>Roberts</b> [3] - 2:17, 10:22, 10:23  <b>ROBERTS</b> [1] - 10:23  <b>robust</b> [2] - 28:22, 108:6  <b>robustness</b> [1] - 14:23  <b>role</b> [1] - 90:19  <b>rolling</b> [1] - 95:14  <b>room</b> [5] - 11:22, 40:3, 41:25, 152:17, 155:2  <b>rough</b> [1] - 148:8  <b>roughly</b> [4] - 107:6, 144:25, 147:6, 149:21  <b>round</b> [3] - 43:14, 166:25, 186:23  <b>route</b> [1] - 169:2  <b>routing</b> [1] - 167:23  <b>rule</b> [1] - 37:15</p>	<p><b>rules</b> [1] - 131:16  <b>ruling</b> [1] - 69:12  <b>run</b> [34] - 18:4, 45:10, 50:24, 51:2, 54:2, 55:5, 55:7, 56:4, 62:16, 62:22, 62:23, 62:24, 63:1, 63:4, 111:17, 131:1, 131:2, 131:17, 142:4, 142:8, 142:9, 142:15, 142:20, 142:24, 142:25, 143:5, 154:2, 160:3, 162:25, 163:12, 171:10, 185:15  <b>running</b> [4] - 44:20, 44:21, 190:4  <b>rush</b> [1] - 177:23</p>	<p>12:19, 12:25, 26:11  <b>schedules</b> [1] - 187:16  <b>Schmitz</b> [1] - 2:13  <b>scope</b> [2] - 12:23, 111:20  <b>screening</b> [12] - 25:10, 25:24, 26:3, 94:17, 94:18, 116:15, 121:17, 123:23, 125:10, 126:3, 126:9, 128:1  <b>se</b> [3] - 71:6, 72:9, 113:20  <b>seals</b> [1] - 132:4  <b>seasons</b> [1] - 153:23  <b>seated</b> [4] - 2:23, 56:2, 94:5, 140:24  <b>second</b> [13] - 21:9, 36:19, 51:14, 58:8, 74:5, 79:7, 86:22, 91:24, 95:4, 141:25, 163:20, 188:3, 188:4  <b>second-last</b> [1] - 95:4  <b>secondhand</b> [3] - 53:3, 53:5, 54:8  <b>secondly</b> [3] - 58:6, 72:10, 103:4  <b>secretary</b> [2] - 9:15, 9:17  <b>Secretary</b> [1] - 2:10  <b>Section</b> [2] - 105:22, 106:4  <b>section</b> [4] - 4:18, 6:7, 95:6, 173:9  <b>sections</b> [2] - 58:5, 94:17  <b>secure</b> [5] - 21:9, 22:18, 22:21, 24:2, 130:12  <b>secured</b> [1] - 23:15  <b>securing</b> [2] - 23:11, 168:18  <b>security</b> [1] - 160:17  <b>see</b> [30] - 11:9, 33:15, 34:7, 34:12, 49:19, 58:20, 62:10, 80:6, 91:18, 106:17, 108:21, 108:23, 114:24, 122:17, 122:23, 124:24, 130:10, 144:21, 145:8, 146:16, 147:1, 147:25, 173:10, 173:14, 181:7, 183:10, 185:6, 185:16, 186:4, 187:10  <b>seeing</b> [2] - 83:12, 169:1  <b>Seeing</b> [1] - 11:4  <b>seek</b> [1] - 25:20  <b>seeking</b> [2] - 75:3, 128:14  <b>seem</b> [1] - 159:10  <b>segment</b> [1] - 73:16  <b>segregated</b> [2] - 38:11, 39:16  <b>seize</b> [1] - 62:3  <b>selected</b> [1] - 74:12  <b>selecting</b> [3] - 74:6, 74:7, 81:15  <b>selection</b> [1] - 64:18  <b>self</b> [2] - 104:10, 139:4  <b>self-explained</b> [1] - 104:10  <b>sell</b> [1] - 185:12  <b>selling</b> [3] - 161:17, 172:12, 172:13</p>
<b>S</b>				
<p><b>S150</b> [1] - 111:24  <b>safety</b> [3] - 91:14, 112:13, 112:23  <b>sake</b> [2] - 123:13, 166:3  <b>sale</b> [5] - 114:7, 114:13, 114:20, 114:25, 115:5  <b>salvage</b> [3] - 112:25, 113:22, 113:24  <b>sat</b> [1] - 43:21  <b>satisfied</b> [3] - 112:17, 126:11, 127:24  <b>satisfy</b> [1] - 127:6  <b>satisfying</b> [1] - 143:22  <b>save</b> [3] - 44:20, 44:21, 81:4  <b>saved</b> [2] - 150:7, 150:15  <b>saving</b> [2] - 50:12, 108:14  <b>savings</b> [41] - 13:16, 14:25, 23:15, 26:16, 26:20, 27:6, 27:9, 28:3, 28:6, 28:9, 28:12, 28:14, 28:21, 28:22, 28:25, 48:15, 48:25, 49:14, 49:16, 51:16, 52:10, 81:13, 95:7, 95:11, 95:13, 95:17, 95:21, 95:23, 99:18, 110:11, 116:11, 130:13, 143:16, 148:9, 149:8, 149:10, 149:14, 149:21, 150:8, 150:20, 151:9  <b>saw</b> [1] - 83:3  <b>scales</b> [1] - 84:20  <b>scarcely</b> [1] - 73:19  <b>scavenge</b> [1] - 61:21  <b>scenario</b> [8] - 45:3, 74:13, 80:16, 115:19, 115:24, 116:4, 116:5, 144:20  <b>scenarios</b> [4] - 16:16, 28:23, 81:17, 86:13  <b>Schedule</b> [2] - 23:8, 179:12  <b>schedule</b> [14] - 26:5, 26:13, 92:20, 121:1, 174:19, 174:20, 175:1, 175:23, 176:1, 176:10, 177:18, 183:1, 183:6, 183:10  <b>scheduled</b> [4] - 4:10,</p>				

<p><b>sells</b> [1] - 172:3  <b>seminar</b> [2] - 82:1, 88:3  <b>sends</b> [1] - 9:2  <b>senior</b> [3] - 22:6, 70:9, 134:18  <b>sense</b> [11] - 54:5, 69:4, 87:18, 90:16, 97:24, 106:7, 115:25, 129:3, 131:7, 179:10, 180:24  <b>sensitive</b> [1] - 185:20  <b>sensitivity</b> [1] - 14:24  <b>sentence</b> [3] - 60:5, 165:4, 174:12  <b>sentences</b> [1] - 72:3  <b>separate</b> [5] - 41:23, 99:10, 99:13, 117:21, 127:22  <b>sequence</b> [2] - 144:11, 145:6  <b>series</b> [2] - 15:7, 145:9  <b>serious</b> [3] - 52:12, 132:9, 157:22  <b>seriously</b> [1] - 52:6  <b>serve</b> [1] - 186:5  <b>service</b> [29] - 13:15, 17:22, 17:25, 18:7, 18:18, 20:19, 36:18, 37:6, 61:5, 82:13, 117:15, 134:9, 138:6, 139:3, 173:24, 173:25, 174:1, 174:2, 174:4, 174:6, 174:7, 174:23, 179:13, 179:16, 179:22, 180:3  <b>Service</b> [1] - 179:15  <b>servicing</b> [1] - 61:6  <b>Session</b> [1] - 94:3  <b>session</b> [5] - 6:16, 7:8, 7:9, 7:10, 190:15  <b>sessions</b> [1] - 68:13  <b>set</b> [15] - 22:18, 23:9, 30:10, 31:9, 56:16, 97:3, 104:20, 140:18, 142:9, 156:15, 174:10, 176:8, 176:9, 176:10, 177:19  <b>setting</b> [1] - 176:13  <b>seven</b> [2] - 80:19, 145:20  <b>seventh</b> [2] - 68:14, 75:10  <b>several</b> [7] - 42:2, 125:1, 135:15, 144:1, 148:2, 148:3, 182:1  <b>severe</b> [1] - 145:7  <b>SF</b> [2] - 94:15, 94:17  <b>shale</b> [5] - 107:19, 109:1, 109:6, 109:7, 109:14  <b>shall</b> [2] - 30:13, 41:2  <b>shape</b> [3] - 83:5, 83:18, 161:24  <b>shaped</b> [1] - 110:3  <b>share</b> [2] - 119:24, 119:25  <b>shareholder</b> [1] - 121:8  <b>shelf</b> [1] - 86:12  <b>shelf-ready</b> [1] - 86:12  <b>Shell</b> [15] - 21:15, 21:19, 21:22, 22:1, 22:3, 22:6, 22:9, 22:14, 24:4, 31:15, 180:14, 180:17,</p>	<p>180:18, 181:20  <b>Shell's</b> [1] - 22:16  <b>shifted</b> [1] - 81:17  <b>shipped</b> [1] - 84:4  <b>shipping</b> [3] - 83:14, 113:21, 113:22  <b>shopping</b> [1] - 186:8  <b>shore</b> [2] - 8:3, 86:19  <b>short</b> [30] - 20:15, 24:2, 44:12, 50:21, 51:4, 53:13, 54:17, 55:11, 68:12, 74:6, 75:22, 82:5, 82:6, 85:14, 89:5, 98:24, 108:4, 108:7, 124:12, 130:1, 140:5, 144:8, 147:18, 174:1, 175:21, 179:22, 182:18, 182:23, 183:3, 189:6  <b>short-term</b> [16] - 54:17, 55:11, 68:12, 74:6, 75:22, 82:6, 85:14, 89:5, 98:24, 130:1, 144:8, 174:1, 175:21, 179:22, 182:18, 182:23  <b>shortfall</b> [12] - 17:10, 17:23, 17:25, 20:5, 20:17, 20:21, 21:5, 146:20, 147:1, 147:13, 147:15, 147:22  <b>shortfalls</b> [5] - 15:4, 15:8, 17:13, 146:19, 147:5  <b>shorthand</b> [2] - 192:5, 192:6  <b>show</b> [9] - 24:20, 33:18, 37:5, 48:25, 58:22, 81:10, 114:15, 176:5, 176:6  <b>showed</b> [4] - 25:2, 146:19, 147:5, 147:25  <b>showing</b> [1] - 101:25  <b>shown</b> [7] - 35:16, 102:15, 107:16, 131:8, 149:2, 149:3, 149:9  <b>shows</b> [7] - 21:1, 26:15, 33:23, 34:22, 34:23, 58:16, 81:13  <b>shut</b> [12] - 140:10, 157:7, 157:11, 158:6, 160:1, 161:2, 161:8, 161:17, 162:12, 162:13, 163:13, 163:25  <b>shutdown</b> [3] - 16:24, 62:18, 139:9  <b>side</b> [6] - 61:19, 78:14, 145:9, 145:16, 155:22, 156:21  <b>sign</b> [2] - 63:3, 174:24  <b>signed</b> [2] - 118:22, 118:24  <b>significant</b> [17] - 15:3, 20:10, 50:20, 50:21, 54:15, 55:9, 66:13, 67:4, 67:5, 85:6, 85:17, 128:24, 130:14, 136:3, 164:13, 177:9, 178:4  <b>significantly</b> [1] - 122:14  <b>signing</b> [1] - 174:5  <b>similar</b> [3] - 114:10, 180:19, 181:7  <b>simple</b> [3] - 139:17,</p>	<p>153:24, 164:4  <b>simplifying</b> [1] - 59:5  <b>simply</b> [12] - 34:6, 56:19, 87:25, 99:17, 102:8, 113:25, 116:11, 130:11, 132:17, 135:12, 151:6, 151:13  <b>single</b> [5] - 66:10, 66:11, 135:18, 185:21  <b>sit</b> [2] - 6:24, 99:2  <b>site</b> [10] - 13:3, 13:13, 22:8, 113:6, 113:10, 139:1, 159:6, 161:14, 161:24, 176:21  <b>sitting</b> [5] - 3:2, 44:4, 44:16, 86:25, 132:2  <b>situate</b> [2] - 47:13, 47:14  <b>situation</b> [10] - 22:14, 42:7, 47:7, 70:1, 129:25, 130:1, 144:5, 160:1, 161:7, 181:12  <b>six</b> [9] - 26:23, 27:4, 37:22, 145:20, 152:1, 152:3, 155:13, 165:6, 165:7  <b>six-month</b> [1] - 37:22  <b>size</b> [5] - 51:12, 63:22, 65:3, 165:11, 182:16  <b>sizes</b> [2] - 63:16, 63:17  <b>skill</b> [1] - 192:6  <b>skip</b> [1] - 40:23  <b>sky</b> [1] - 63:2  <b>sleep</b> [2] - 60:25, 62:7  <b>slide</b> [5] - 78:21, 78:22, 79:7, 82:10, 91:2  <b>Slide</b> [1] - 82:10  <b>slight</b> [1] - 183:2  <b>slightly</b> [2] - 65:5, 166:24  <b>slowed</b> [1] - 141:19  <b>small</b> [11] - 44:22, 51:10, 61:25, 75:13, 86:24, 124:20, 130:5, 152:4, 152:6, 177:3, 189:18  <b>smaller</b> [3] - 65:5, 168:7, 168:11  <b>so..</b> [2] - 96:3, 179:6  <b>Society</b> [2] - 2:15, 10:15  <b>socioeconomic</b> [1] - 127:17  <b>solar</b> [1] - 125:6  <b>solely</b> [2] - 154:11, 170:11  <b>solution</b> [4] - 43:5, 54:16, 54:17, 55:11  <b>solutions</b> [2] - 74:6, 74:8  <b>SOME</b> [2] - 77:19, 193:19  <b>someone</b> [1] - 88:8  <b>sometime</b> [1] - 29:16  <b>somewhat</b> [2] - 138:25, 153:6  <b>somewhere</b> [3] - 78:12, 89:7, 181:17  <b>soon</b> [2] - 37:3, 172:10  <b>sorry</b> [15] - 11:7, 60:4, 85:12, 104:25, 109:3, 109:4, 114:18,</p>	<p>114:19, 120:3, 122:20, 140:22, 141:12, 144:12, 165:15, 175:24  <b>sort</b> [8] - 69:16, 138:11, 158:25, 163:10, 169:3, 173:7, 180:17, 186:4  <b>sorts</b> [1] - 163:22  <b>sound</b> [2] - 61:25, 85:21  <b>source</b> [8] - 21:13, 22:22, 58:10, 83:21, 84:5, 85:16, 86:3, 167:4  <b>sources</b> [9] - 38:21, 38:22, 121:8, 130:19, 134:4, 134:8, 135:22, 172:7, 178:13  <b>south</b> [2] - 13:12, 84:5  <b>space</b> [1] - 66:5  <b>spare</b> [1] - 20:1  <b>speaking</b> [4] - 10:7, 45:8, 139:16, 155:5  <b>species</b> [1] - 44:22  <b>specific</b> [11] - 16:8, 42:18, 45:18, 49:6, 49:10, 65:6, 91:19, 91:20, 100:25, 112:3, 112:4  <b>specifically</b> [9] - 35:19, 50:10, 56:25, 69:11, 72:19, 76:1, 77:6, 131:17, 171:9  <b>spectacular</b> [1] - 107:18  <b>Spectra</b> [1] - 84:5  <b>spectrum</b> [1] - 91:17  <b>speed</b> [3] - 89:12, 171:16, 173:22  <b>spend</b> [6] - 45:7, 150:24, 151:2, 153:25, 154:3, 170:14  <b>spending</b> [2] - 151:3, 151:4  <b>spent</b> [3] - 34:16, 35:12  <b>spew</b> [1] - 132:3  <b>spoken</b> [1] - 120:14  <b>sporadically</b> [1] - 100:20  <b>spot</b> [19] - 173:25, 174:2, 174:14, 175:2, 175:3, 175:6, 175:14, 175:20, 176:3, 176:24, 176:25, 177:12, 179:8, 180:1, 180:12, 182:23, 185:20  <b>St</b> [1] - 86:6  <b>stacking</b> [4] - 130:9, 130:25, 131:11, 131:13  <b>Staff</b> [2] - 2:11, 2:12  <b>staff</b> [5] - 6:12, 6:23, 7:18, 7:22, 9:6  <b>stage</b> [1] - 181:19  <b>staged</b> [1] - 15:9  <b>stages</b> [3] - 24:24, 75:6, 183:9  <b>stakeholders</b> [5] - 15:22, 27:17, 68:13, 74:15, 74:17  <b>standards</b> [1] - 60:18  <b>standpoint</b> [1] - 72:10  <b>Staples</b> [5] - 29:17, 29:23, 55:23, 56:4, 56:7</p>	<p><b>start</b> [23] - 17:10, 17:11, 17:12, 17:20, 17:22, 17:25, 23:4, 43:3, 56:10, 69:3, 85:19, 100:15, 104:25, 116:2, 146:21, 152:10, 160:22, 164:1, 172:9, 176:24, 189:18, 189:20, 190:19  <b>started</b> [7] - 66:2, 132:12, 139:3, 155:13, 156:16, 176:25, 181:22  <b>starting</b> [6] - 58:13, 82:22, 106:12, 148:3, 176:23, 191:2  <b>starts</b> [3] - 3:6, 106:2, 145:19  <b>state</b> [3] - 43:19, 59:22, 79:8  <b>statement</b> [9] - 11:21, 11:23, 11:25, 12:7, 29:5, 91:23, 114:10, 162:16, 180:2  <b>states</b> [7] - 107:2, 112:25, 115:13, 116:22, 123:23, 125:10, 126:9  <b>stating</b> [1] - 79:13  <b>station</b> [11] - 4:7, 12:17, 13:13, 53:21, 126:13, 126:20, 126:22, 133:16, 155:25, 156:2, 157:18  <b>stations</b> [1] - 98:13  <b>status</b> [1] - 41:15  <b>statutory</b> [1] - 127:21  <b>stay</b> [1] - 177:11  <b>staying</b> [1] - 56:18  <b>stead</b> [1] - 2:17  <b>stem</b> [1] - 53:18  <b>step</b> [1] - 184:13  <b>steps</b> [4] - 36:21, 36:23, 38:8, 160:12  <b>stern</b> [1] - 53:18  <b>Stewart</b> [1] - 15:16  <b>still</b> [20] - 26:1, 27:2, 37:4, 44:12, 54:15, 87:10, 101:19, 109:25, 115:23, 116:2, 122:7, 139:6, 141:7, 150:5, 150:9, 151:8, 151:16, 152:3, 182:17, 185:22  <b>stop</b> [1] - 165:14  <b>Storage</b> [1] - 19:4  <b>storage</b> [9] - 4:13, 13:6, 24:13, 89:21, 100:23, 123:18, 124:22, 131:16  <b>story</b> [1] - 71:13  <b>straight</b> [1] - 189:8  <b>strategies</b> [1] - 186:14  <b>strategy</b> [2] - 86:10, 86:11  <b>stream</b> [2] - 34:11, 34:13  <b>Street</b> [1] - 2:2  <b>stretch</b> [1] - 118:10  <b>string</b> [3] - 145:10, 145:14, 145:21  <b>strongly</b> [1] - 108:21  <b>structure</b> [3] - 55:9, 120:5, 120:6  <b>studies</b> [1] - 92:10  <b>study</b> [6] - 47:24, 65:22, 66:25, 89:25,</p>
--	---	--	---	---

<p>90:5, 91:20  <b>stuff</b> [3] - 61:16,  66:16, 106:12  <b>stupid</b> [1] - 88:22  <b>SUBDIVISION</b> [2] -  96:25, 193:23  <b>Subdivision</b> [1] -  95:3  <b>subject</b> [19] - 6:1,  25:14, 26:5, 36:5,  36:12, 37:25, 55:23,  67:21, 68:19, 70:12,  73:12, 79:4, 100:6,  113:12, 131:15,  143:2, 143:9, 167:15,  179:20  <b>subjects</b> [1] - 171:25  <b>submission</b> [2] -  73:1, 92:3  <b>submit</b> [2] - 8:19, 9:1  <b>submitted</b> [4] -  21:23, 104:15,  109:24, 126:5  <b>subsections</b> [1] -  93:7  <b>subsequent</b> [1] -  16:10  <b>subsequently</b> [2] -  21:21, 59:2  <b>substantively</b> [1] -  108:9  <b>substation</b> [2] -  111:24, 155:21  <b>successful</b> [1] -  113:2  <b>successfully</b> [1] -  142:20  <b>succinctly</b> [1] -  108:19  <b>suffer</b> [3] - 47:5,  53:22, 53:23  <b>suffice</b> [1] - 178:2  <b>sufficient</b> [10] - 9:5,  17:6, 81:14, 102:17,  121:23, 122:9, 125:8,  134:8, 182:15, 189:22  <b>sufficiently</b> [1] -  48:17  <b>suggesting</b> [3] -  56:14, 146:11, 162:7  <b>suggests</b> [3] -  108:21, 175:9, 175:18  <b>sum</b> [1] - 149:3  <b>summarize</b> [2] -  31:25, 148:16  <b>summarized</b> [2] -  65:24, 68:16  <b>summarizes</b> [1] -  84:18  <b>summary</b> [3] - 81:12,  130:16, 186:2  <b>summer</b> [4] - 22:2,  130:2, 157:10  <b>sunk</b> [1] - 34:20  <b>Super</b> [1] - 165:24  <b>superior</b> [1] - 21:7  <b>supplied</b> [2] - 4:12,  12:21  <b>supplier</b> [5] - 180:4,  180:10, 182:8,  185:10, 185:13  <b>supplier's</b> [1] -  185:24  <b>suppliers</b> [5] - 20:9,  63:15, 64:12, 64:25,  186:9  <b>supplies</b> [4] - 83:8,  84:3, 84:4, 89:20  <b>supply</b> [66] - 15:25,  16:4, 16:15, 16:18,</p>	<p>19:5, 19:6, 21:10,  21:13, 21:20, 21:22,  22:15, 22:19, 22:20,  22:21, 22:25, 23:2,  23:3, 23:6, 23:18,  23:23, 24:3, 27:8,  27:17, 46:4, 61:4,  79:14, 82:9, 82:13,  83:12, 83:17, 83:21,  85:16, 86:2, 86:3,  86:5, 87:11, 103:17,  109:16, 117:15,  124:2, 138:8, 138:24,  152:24, 162:10,  172:6, 172:11,  175:12, 177:21,  178:4, 178:14, 179:8,  179:10, 180:1,  180:15, 180:19,  181:6, 181:8, 181:13,  181:15, 181:16,  182:3, 182:5, 182:17,  186:7, 186:11  <b>supplying</b> [3] -  162:8, 181:23, 182:1  <b>support</b> [9] - 17:6,  19:24, 20:1, 20:8,  20:9, 20:12, 24:16,  135:7, 136:5  <b>supporting</b> [1] -  182:2  <b>supportive</b> [1] -  117:12  <b>supports</b> [1] - 92:5  <b>suppose</b> [1] - 170:18  <b>supposed</b> [1] -  103:11  <b>surcharge</b> [1] -  173:14  <b>surplus</b> [8] - 16:23,  18:12, 62:21, 63:1,  88:25, 117:19  <b>surprised</b> [1] - 147:6  <b>sustained</b> [5] -  27:10, 27:20, 28:23,  56:17, 89:3  <b>swear</b> [1] - 12:1  <b>swearing</b> [1] - 11:6  <b>switch</b> [4] - 44:9,  44:11, 52:18, 138:1  <b>switchgear</b> [1] -  67:11  <b>sworn</b> [2] - 11:25,  12:5  <b>system</b> [48] - 15:24,  34:9, 37:20, 43:8,  43:12, 44:4, 44:7,  44:8, 44:17, 47:3,  47:22, 67:8, 75:11,  86:20, 100:18,  101:21, 102:6,  102:11, 103:4,  103:12, 103:13,  109:8, 125:1, 125:6,  129:24, 130:1,  132:10, 133:3, 133:4,  133:5, 133:7, 133:13,  133:14, 134:4, 134:8,  136:5, 138:1, 140:10,  144:7, 147:18, 152:4,  155:22, 156:9,  156:10, 179:18, 180:6  <b>system's</b> [1] - 130:6  <b>systems</b> [2] - 67:9,  130:2</p>	<p>118:12, 118:13  <b>Table</b> [25] - 24:19,  27:22, 30:22, 31:8,  32:2, 33:10, 33:15,  58:16, 59:3, 63:13,  81:13, 95:23, 95:25,  97:7, 98:10, 98:11,  98:21, 113:17, 123:2,  131:8, 146:17,  148:17, 159:19,  187:9, 188:7  <b>TABLE</b> [2] - 97:1,  193:24  <b>table</b> [23] - 31:10,  31:17, 31:22, 32:1,  32:3, 33:14, 33:18,  33:21, 33:23, 33:25,  58:21, 58:25, 59:1,  69:3, 69:17, 123:12,  141:17, 145:9,  148:18, 149:2, 149:9,  151:6  <b>tables</b> [2] - 31:12,  102:2  <b>tag</b> [1] - 60:10  <b>talks</b> [2] - 113:13,  175:13  <b>taller</b> [1] - 166:24  <b>tame</b> [1] - 145:11  <b>tank</b> [3] - 66:7,  166:25, 168:11  <b>tanks</b> [2] - 100:24,  168:11  <b>tare</b> [1] - 165:20  <b>target</b> [1] - 50:13  <b>targeted</b> [2] - 50:10,  50:14  <b>targeting</b> [1] - 50:8  <b>targets</b> [1] - 74:14  <b>Tariff</b> [2] - 173:1,  173:3  <b>tariff</b> [2] - 173:9,  176:10  <b>task</b> [1] - 30:9  <b>taxing</b> [1] - 74:18  <b>teach</b> [1] - 89:2  <b>team</b> [2] - 161:3,  168:4  <b>tear</b> [1] - 142:16  <b>technical</b> [3] - 20:1,  20:9, 20:12  <b>technically</b> [2] -  84:4, 172:4  <b>technology</b> [1] - 16:8  <b>technology-</b>  <b>specific</b> [1] - 16:8  <b>telephone</b> [1] -  175:23  <b>ten</b> [12] - 17:3, 52:21,  60:19, 60:20, 80:19,  89:4, 89:15, 108:1,  110:7, 152:3, 165:8,  176:5  <b>tend</b> [4] - 46:21,  103:5, 145:7, 181:4  <b>tenders</b> [2] - 25:6,  26:13  <b>tends</b> [1] - 49:9  <b>term</b> [60] - 4:4, 5:7,  16:14, 16:15, 16:17,  16:25, 17:5, 17:8,  19:3, 19:6, 19:12,  20:22, 21:13, 23:18,  23:22, 27:12, 28:5,  33:24, 41:20, 42:4,  44:15, 54:16, 54:17,  55:11, 63:4, 68:12,  74:6, 74:7, 74:8,  75:22, 79:9, 79:13,  79:22, 80:1, 82:6,</p>	<p>84:14, 85:14, 89:5,  98:16, 98:24, 99:3,  107:12, 115:17,  124:24, 125:5, 130:1,  144:8, 173:25, 174:1,  175:21, 177:20,  179:21, 179:22,  182:18, 182:19,  182:23, 182:24, 183:4  <b>termination</b> [1] -  22:5  <b>terminology</b> [2] -  175:9, 175:17  <b>terms</b> [74] - 3:14,  3:21, 4:19, 4:24, 6:1,  6:5, 6:8, 24:9, 25:14,  25:22, 30:9, 30:10,  32:4, 32:23, 34:10,  40:24, 40:25, 45:8,  59:8, 60:20, 63:24,  65:17, 67:22, 73:10,  79:23, 80:8, 81:9,  84:14, 84:17, 93:2,  93:9, 102:9, 110:8,  118:22, 119:21,  127:14, 128:2, 128:4,  138:21, 139:21,  142:22, 144:10,  146:1, 153:21,  153:22, 154:9,  158:19, 159:6,  159:19, 160:6, 166:4,  166:18, 168:6,  170:10, 171:2,  173:17, 175:5,  175:17, 175:22,  177:7, 177:17,  177:20, 180:17,  180:23, 181:1, 181:7,  181:12, 184:6, 187:6,  188:17, 190:16,  190:17  <b>terribly</b> [3] - 20:9,  103:13, 166:12  <b>territories</b> [1] -  116:25  <b>Territories</b> [3] -  167:24, 171:9, 171:17  <b>Territory</b> [1] - 192:9  <b>territory</b> [3] - 132:20,  132:21, 165:18  <b>test</b> [11] - 47:17,  139:17, 139:18,  139:19, 139:24,  160:15, 160:18,  160:22, 160:23,  188:14, 188:15  <b>testified</b> [1] - 59:6  <b>testifies</b> [1] - 8:22  <b>testimony</b> [2] -  71:16, 148:5  <b>tests</b> [4] - 14:24,  139:15, 140:6, 188:18  <b>text</b> [3] - 35:3, 35:4,  35:7  <b>THAT</b> [2] - 77:16,  193:17  <b>the...</b> [1] - 187:6  <b>themes</b> [1] - 74:1  <b>themselves</b> [3] -  67:25, 71:5, 82:18  <b>theory</b> [1] - 71:22  <b>thereafter</b> [3] -  34:14, 59:11, 95:18  <b>therefore</b> [6] - 20:24,  116:8, 127:23, 131:8,  157:12, 177:9  <b>therein</b> [1] - 97:3  <b>thermal</b> [25] - 4:4,  4:6, 4:8, 5:12, 12:17,</p>	<p>12:18, 13:12, 15:23,  24:17, 44:19, 45:7,  46:14, 46:17, 47:3,  47:11, 48:6, 99:6,  102:12, 102:24,  105:14, 121:23,  122:9, 130:21,  131:13, 152:4  <b>thermal-based</b> [1] -  44:19  <b>thermos</b> [1] - 167:1  <b>THEY</b> [2] - 77:17,  193:18  <b>they've</b> [11] - 54:2,  62:14, 118:3, 130:10,  136:24, 162:25,  168:24, 168:25,  176:22, 186:8  <b>thinking</b> [5] - 55:17,  109:20, 110:2, 148:1,  164:5  <b>thinks</b> [2] - 50:4,  174:6  <b>third</b> [12] - 13:18,  13:23, 15:18, 17:23,  24:21, 28:1, 86:23,  148:23, 172:3,  172:12, 172:13,  181:24  <b>thirds</b> [2] - 121:18,  165:19  <b>thorough</b> [2] -  127:22, 127:25  <b>thoroughly</b> [1] -  112:10  <b>thoughts</b> [1] - 66:4  <b>threaten</b> [1] - 82:3  <b>THREE</b> [2] - 77:15,  193:16  <b>three</b> [22] - 4:11,  13:1, 15:10, 15:25,  24:5, 27:11, 59:25,  60:9, 61:24, 76:11,  87:2, 107:6, 108:23,  108:24, 144:16,  163:4, 176:5, 178:6,  183:9, 185:16,  185:17, 186:19  <b>three-day</b> [1] - 15:25  <b>three-quarters</b> [2] -  59:25, 60:9  <b>throughout</b> [2] -  6:17, 107:14  <b>throughput</b> [1] -  139:11  <b>throwing</b> [1] - 53:12  <b>thrust</b> [1] - 79:24  <b>tight</b> [1] - 132:4  <b>Tilbury</b> [18] - 22:22,  23:1, 23:12, 27:8,  167:4, 167:7, 167:18,  167:25, 172:1,  172:18, 174:12,  175:7, 177:2, 177:3,  177:4, 177:5, 177:10  <b>TIME</b> [2] - 77:19,  193:19  <b>timeline</b> [2] - 169:3,  169:10  <b>timely</b> [2] - 135:5,  170:1  <b>timing</b> [4] - 5:3,  30:15, 41:5, 110:3  <b>tiny</b> [2] - 55:5  <b>tiptop</b> [2] - 133:19,  133:21  <b>tire</b> [1] - 166:10  <b>TKC</b> [1] - 117:2  <b>today</b> [25] - 3:6, 7:5,  12:11, 16:20, 19:8,</p>
<b>T</b>				
<p><b>Ta'an</b> [5] - 117:1,  117:9, 117:24,</p>				

## YUB - YEC LNG Project, Volume 1, March 31, 2014

20:16, 20:23, 59:12, 62:24, 80:12, 80:20, 83:5, 88:23, 89:1, 132:12, 140:16, 155:16, 160:16, 165:17, 167:25, 177:2, 177:5, 177:6, 181:24, 183:7 <b>together</b> [7] - 55:12, 55:25, 136:17, 140:6, 162:22, 185:4, 185:6 <b>tomorrow</b> [3] - 141:10, 178:10, 191:4 <b>took</b> [4] - 61:8, 61:9, 65:21, 137:7 <b>top</b> [10] - 96:10, 138:14, 148:19, 153:3, 167:23, 168:10, 176:16, 186:13, 186:22, 188:20 <b>topics</b> [1] - 77:22 <b>total</b> [10] - 4:10, 4:12, 13:15, 38:25, 67:4, 119:16, 127:3, 149:10, 149:19, 188:8 <b>totaling</b> [2] - 15:11, 34:24 <b>totally</b> [1] - 181:19 <b>totals</b> [2] - 123:9, 148:20 <b>touching</b> [1] - 42:24 <b>towards</b> [2] - 50:9, 133:21 <b>track</b> [5] - 9:12, 26:5, 35:22, 77:2, 136:19 <b>tracked</b> [1] - 38:12 <b>tracking</b> [1] - 38:5 <b>tradeoffs</b> [1] - 74:5 <b>traditional</b> [1] - 116:25 <b>trailer</b> [2] - 164:16, 165:20 <b>trailers</b> [1] - 165:11 <b>Train</b> [2] - 23:13, 23:15 <b>train</b> [14] - 165:2, 165:14, 165:16, 165:21, 165:22, 165:24, 166:11, 166:12, 166:18, 166:19, 166:20, 168:1, 169:16, 170:21 <b>trainload</b> [1] - 165:23 <b>trains</b> [9] - 164:11, 164:16, 164:20, 165:12, 166:8, 168:5, 168:8 <b>transcribe</b> [1] - 136:7 <b>transcribed</b> [1] - 192:5 <b>Transcript</b> [1] - 192:1 <b>transcript</b> [1] - 192:4 <b>transcripts</b> [2] - 6:20, 93:5 <b>transformer</b> [3] - 25:7, 155:23, 156:21 <b>transition</b> [14] - 79:8, 79:9, 79:13, 79:14, 79:15, 79:23, 80:7, 80:9, 89:1, 101:6, 101:12, 101:18, 101:22, 102:21 <b>translate</b> [1] - 176:19 <b>translated</b> [1] - 178:18 <b>transmission</b> [14] - 5:11, 14:12, 17:17,	48:3, 111:24, 128:7, 133:9, 153:2, 155:17, 155:20, 156:18, 156:20, 156:21, 157:18 <b>Transmission</b> [1] - 15:16 <b>transmit</b> [1] - 157:13 <b>travel</b> [1] - 164:13 <b>treated</b> [1] - 37:6 <b>treating</b> [1] - 105:14 <b>tribunal</b> [2] - 39:7, 160:9 <b>tricky</b> [1] - 86:16 <b>tridem</b> [3] - 164:18, 168:1, 168:6 <b>Tridem</b> [1] - 23:13 <b>tridems</b> [3] - 168:15, 171:8, 171:9 <b>tried</b> [1] - 162:22 <b>tries</b> [1] - 111:12 <b>truck</b> [6] - 4:13, 12:22, 13:5, 24:13, 132:1, 132:2 <b>trucked</b> [1] - 21:10 <b>trucker</b> [1] - 170:9 <b>truckload</b> [1] - 168:13 <b>truckloads</b> [2] - 165:7, 165:8 <b>true</b> [4] - 50:1, 71:13, 100:8, 151:18 <b>truly</b> [1] - 53:17 <b>truth</b> [1] - 70:25 <b>try</b> [12] - 29:18, 33:11, 46:1, 61:10, 70:4, 71:24, 73:20, 87:12, 150:23, 161:17, 173:22, 190:14 <b>trying</b> [29] - 35:23, 49:11, 54:18, 64:7, 82:21, 87:19, 88:2, 89:8, 89:14, 103:21, 109:9, 113:18, 116:6, 119:15, 133:21, 147:22, 148:15, 158:1, 161:10, 161:11, 162:9, 163:9, 163:17, 164:10, 164:19, 173:7, 174:3, 174:22, 185:12 <b>turbine</b> [1] - 15:18 <b>turn</b> [17] - 6:10, 9:24, 11:7, 30:25, 44:9, 44:10, 56:3, 57:20, 62:18, 63:1, 68:10, 95:1, 103:22, 116:14, 131:19, 138:7, 140:25 <b>turned</b> [2] - 103:1, 133:21 <b>turning</b> [1] - 46:11 <b>turns</b> [1] - 170:22 <b>twenty</b> [1] - 152:3 <b>twin</b> [1] - 157:24 <b>twinned</b> [1] - 156:2 <b>twinning</b> [1] - 157:21 <b>two</b> [42] - 4:9, 12:23, 13:14, 24:24, 27:11, 35:19, 36:16, 36:21, 36:23, 38:8, 46:1, 51:8, 60:1, 63:7, 68:16, 76:8, 87:13, 94:14, 111:10, 119:3, 121:18, 123:11, 127:2, 134:10, 139:15, 144:16, 150:18, 150:20, 152:23, 153:25, 160:12, 160:14,	161:20, 165:19, 166:23, 168:11, 176:5, 178:5, 183:9, 184:9, 186:18, 186:24 <b>two-thirds</b> [2] - 121:18, 165:19 <b>type</b> [14] - 33:22, 49:20, 57:10, 66:16, 67:15, 80:3, 128:10, 163:3, 164:2, 164:7, 171:10, 174:6, 180:19, 181:1 <b>types</b> [3] - 65:4, 87:25, 180:4 <b>typically</b> [2] - 50:12, 186:3	88:20 <b>units</b> [79] - 4:12, 12:19, 12:21, 12:24, 13:2, 13:14, 13:24, 15:10, 18:4, 18:5, 18:9, 18:15, 18:16, 18:17, 18:21, 20:4, 20:16, 21:2, 21:3, 21:4, 21:6, 23:13, 23:15, 24:10, 42:19, 42:21, 43:6, 46:11, 47:3, 47:11, 52:23, 53:6, 53:10, 63:12, 64:3, 64:19, 101:25, 102:24, 103:11, 103:14, 113:1, 113:4, 115:9, 121:21, 122:1, 122:2, 122:3, 122:6, 122:8, 122:12, 122:13, 122:19, 123:4, 130:24, 131:1, 131:2, 131:20, 133:11, 134:13, 139:5, 144:9, 146:21, 147:8, 147:16, 154:13, 154:15, 154:16, 159:6, 161:23, 162:2, 164:18, 168:6, 169:16, 169:22, 170:1, 171:21, 176:20, 187:1 <b>unless</b> [4] - 69:14, 94:22, 140:5, 185:19 <b>unload</b> [2] - 24:13, 123:17 <b>unreliable</b> [2] - 20:10, 132:10 <b>unused</b> [1] - 177:2 <b>unusually</b> [1] - 110:5 <b>up</b> [61] - 4:11, 6:22, 8:3, 10:7, 15:10, 24:16, 29:12, 30:7, 31:1, 31:20, 32:1, 33:21, 34:7, 48:2, 51:22, 52:21, 58:15, 59:13, 68:10, 75:10, 75:14, 80:18, 83:15, 86:19, 94:22, 95:1, 100:20, 110:17, 116:14, 120:2, 120:3, 129:24, 131:11, 139:1, 140:18, 142:9, 145:4, 155:15, 157:20, 164:1, 167:18, 169:22, 170:6, 170:10, 170:13, 170:17, 171:16, 172:7, 173:22, 174:5, 174:24, 175:6, 176:4, 176:5, 176:6, 178:22, 181:13, 182:9, 187:25, 189:9, 189:20 <b>up-to-date</b> [1] - 32:1 <b>update</b> [14] - 3:24, 22:13, 22:16, 23:21, 24:20, 31:7, 40:21, 92:12, 148:17, 168:19, 172:20, 178:6, 178:16 <b>updated</b> [20] - 9:19, 25:1, 25:5, 26:15, 26:20, 26:22, 26:25, 27:6, 27:22, 30:21, 30:22, 30:23, 31:6, 31:13, 32:2, 32:3, 123:2, 123:21, 139:23 <b>updates</b> [2] - 107:10, 146:15	<b>upgraded</b> [2] - 67:9, 67:10 <b>upgrades</b> [1] - 62:11 <b>upgrading</b> [1] - 111:11 <b>US</b> [2] - 27:11, 27:12 <b>usage</b> [1] - 183:14 <b>useful</b> [2] - 36:18, 115:9 <b>usefully</b> [1] - 32:25 <b>utilities</b> [1] - 106:14 <b>UTILITIES</b> [1] - 1:1 <b>Utilities</b> [12] - 2:10, 2:16, 3:1, 3:12, 3:13, 3:18, 3:24, 4:17, 10:16, 12:12, 12:15, 69:10 <b>Utility</b> [1] - 7:10 <b>utility</b> [6] - 13:9, 13:10, 66:25, 124:14, 152:22, 153:15 <b>utilize</b> [2] - 14:3, 23:12 <b>utilized</b> [1] - 65:2	<b>V</b> <b>vagueness</b> [1] - 83:4 <b>Valley</b> [1] - 167:21 <b>value</b> [4] - 53:14, 78:7, 112:25, 113:5 <b>Vancouver</b> [3] - 167:5, 167:8, 167:20 <b>vaporization</b> [5] - 4:13, 13:6, 24:13, 100:23, 123:18 <b>vaporize</b> [2] - 189:19, 190:3 <b>vaporizing</b> [1] - 190:6 <b>variability</b> [4] - 184:9, 184:10, 184:17, 185:6 <b>variables</b> [1] - 102:14 <b>variance</b> [4] - 30:24, 103:23, 104:14, 105:9 <b>variation</b> [1] - 107:16 <b>variations</b> [1] - 31:17 <b>varies</b> [4] - 130:23, 185:8, 186:18 <b>variety</b> [3] - 31:16, 142:8, 142:20 <b>various</b> [23] - 5:6, 13:10, 14:9, 27:14, 31:3, 31:22, 45:12, 45:14, 64:12, 64:24, 81:17, 84:20, 84:21, 93:7, 98:20, 99:20, 146:19, 147:8, 163:15, 170:6, 186:13 <b>vary</b> [2] - 107:13, 185:22 <b>version</b> [1] - 146:18 <b>versus</b> [20] - 26:17, 26:18, 27:9, 49:7, 49:12, 58:20, 87:25, 91:16, 92:5, 148:19, 150:2, 151:23, 155:4, 157:18, 164:17, 174:11, 175:21, 180:12, 181:11 <b>viability</b> [4] - 80:8, 82:3, 85:18, 102:18 <b>viable</b> [3] - 52:18, 75:22, 102:15 <b>vibrate</b> [1] - 9:25 <b>Vice</b> [1] - 2:7 <b>vice</b> [1] - 3:4 <b>Vice-chair</b> [1] - 2:7
--	--	---	--	---	---

## YUB - YEC LNG Project, Volume 1, March 31, 2014

<p><b>vice-chair</b> [1] - 3:4  <b>Victoria</b> [1] - 80:16  <b>vie</b> [2] - 87:14  <b>view</b> [6] - 78:2, 108:2, 108:10, 172:5, 172:11, 185:10  <b>viewed</b> [3] - 79:25, 80:1, 137:8  <b>views</b> [1] - 74:2  <b>vintage</b> [1] - 54:9  <b>virtually</b> [1] - 44:22  <b>volume</b> [1] - 24:8  <b>Volume</b> [3] - 1:20, 2:4, 94:1  <b>VOLUME</b> [1] - 193:3  <b>volumes</b> [3] - 155:9, 178:15, 181:24  <b>voluntarily</b> [1] - 157:11  <b>voting</b> [1] - 75:11  <b>vulnerable</b> [1] - 180:5  <b>Vuntut</b> [2] - 90:1, 90:14</p>	<p>176:6  <b>weeks</b> [1] - 119:3  <b>weighs</b> [1] - 165:19  <b>weight</b> [8] - 165:18, 165:19, 165:20, 166:5, 166:6, 166:7, 166:15  <b>welcome</b> [3] - 10:23, 30:6, 191:2  <b>welcomes</b> [1] - 12:11  <b>WERE</b> [6] - 77:15, 77:16, 77:17, 193:16, 193:17, 193:18  <b>west</b> [3] - 167:10, 167:13, 167:16  <b>Western</b> [2] - 21:17, 27:16  <b>Westmark</b> [1] - 2:1  <b>what-if</b> [1] - 30:23  <b>wheels</b> [1] - 167:1  <b>whereabouts</b> [1] - 168:21  <b>whereas</b> [1] - 48:6  <b>WHETHER</b> [4] - 77:12, 77:17, 193:14, 193:17  <b>WHITEHORSE</b> [1] - 1:7  <b>Whitehorse</b> [48] - 1:22, 2:1, 2:2, 3:9, 4:5, 4:6, 4:15, 12:12, 12:17, 13:1, 13:3, 13:12, 15:10, 17:19, 18:3, 18:16, 18:22, 20:19, 21:10, 24:17, 26:23, 30:14, 30:16, 41:4, 41:9, 48:8, 48:10, 51:10, 52:7, 91:16, 97:4, 97:12, 97:25, 98:9, 98:18, 99:9, 103:10, 111:21, 117:3, 133:11, 133:15, 153:7, 153:8, 156:22, 157:14, 157:25, 192:8  <b>whole</b> [8] - 53:17, 69:7, 85:24, 97:22, 102:19, 103:13, 135:21, 153:17  <b>wholesale</b> [1] - 117:22  <b>WHY</b> [2] - 96:22, 193:21  <b>wide</b> [5] - 16:14, 28:23, 84:17, 166:23, 166:24  <b>wider</b> [2] - 166:20, 166:23  <b>width</b> [2] - 168:7, 168:10  <b>willing</b> [1] - 161:16  <b>willy</b> [1] - 169:23  <b>willy-nilly</b> [1] - 169:23  <b>wind</b> [11] - 19:10, 45:5, 45:18, 46:22, 46:24, 80:5, 84:15, 89:8, 101:20, 125:5, 131:14  <b>winter</b> [17] - 13:17, 14:4, 17:14, 17:16, 43:14, 62:25, 153:3, 153:5, 156:9, 158:2, 158:7, 158:8, 158:14, 158:16, 175:15, 177:8, 178:22  <b>winters</b> [1] - 143:25  <b>wintertime</b> [1] - 153:8</p>	<p><b>wise</b> [1] - 171:21  <b>wish</b> [1] - 104:1  <b>wishes</b> [2] - 11:4, 138:7  <b>wishing</b> [1] - 6:20  <b>withstand</b> [1] - 47:22  <b>witness</b> [13] - 8:12, 8:13, 8:14, 8:15, 8:18, 8:20, 8:22, 8:25, 9:2, 9:4, 72:23, 72:24  <b>witnesses</b> [15] - 7:15, 7:16, 7:19, 7:20, 9:8, 11:9, 11:10, 11:18, 11:25, 12:1, 73:5, 137:3, 137:4, 137:6, 156:13  <b>wonder</b> [4] - 68:20, 95:1, 103:22, 121:16  <b>Wood</b> [1] - 2:2  <b>word</b> [3] - 166:11, 167:13, 180:24  <b>words</b> [6] - 32:5, 42:17, 53:9, 70:5, 113:5, 162:1  <b>WORK</b> [2] - 77:17, 193:18  <b>work-in-progress</b> [1] - 38:15  <b>works</b> [4] - 39:6, 44:6, 138:21  <b>workshop</b> [10] - 16:9, 21:13, 76:11, 76:14, 79:18, 80:13, 82:17, 83:1, 91:2, 154:20  <b>WORKSHOP</b> [2] - 77:14, 193:15  <b>workshops</b> [1] - 16:8  <b>world</b> [4] - 27:12, 27:19, 33:20, 109:16  <b>worn</b> [2] - 56:4, 132:4  <b>worse</b> [1] - 63:6  <b>worst</b> [2] - 47:22, 153:12  <b>worst-case</b> [1] - 47:22  <b>worth</b> [2] - 89:16, 164:5  <b>worthy</b> [1] - 85:1  <b>WRGS</b> [1] - 126:23  <b>written</b> [1] - 135:23</p>	<p>184:11, 184:17, 185:7, 185:21  <b>year-round</b> [1] - 43:14  <b>yearly</b> [1] - 177:19  <b>years</b> [85] - 17:3, 18:7, 18:23, 19:17, 27:20, 28:2, 28:7, 28:15, 28:19, 42:2, 49:3, 49:18, 50:15, 52:21, 60:19, 60:20, 60:21, 61:18, 63:9, 67:12, 79:10, 80:10, 80:19, 81:10, 81:14, 87:10, 89:4, 89:5, 99:5, 99:23, 100:2, 100:10, 101:2, 101:5, 102:2, 102:16, 103:12, 108:1, 110:7, 110:9, 112:1, 123:10, 125:1, 132:25, 136:1, 138:18, 144:1, 144:16, 144:19, 144:22, 145:1, 145:4, 145:6, 145:10, 145:20, 145:21, 146:2, 146:19, 148:2, 148:3, 149:4, 149:6, 149:10, 149:11, 149:24, 150:2, 150:21, 151:7, 151:12, 152:8, 152:10, 153:17, 157:8, 161:14, 163:3, 170:12, 171:22, 185:6, 185:10, 185:16, 185:17, 188:8  <b>years'</b> [1] - 89:16  <b>YEC</b> [93] - 3:7, 3:16, 4:6, 4:24, 7:16, 7:19, 7:23, 10:4, 14:14, 20:2, 20:6, 21:20, 21:21, 22:7, 25:20, 26:23, 31:4, 35:11, 41:13, 43:1, 48:11, 50:23, 51:1, 53:3, 63:12, 68:8, 69:11, 70:14, 70:16, 71:22, 74:21, 74:24, 75:20, 76:10, 76:13, 87:10, 90:4, 90:19, 91:18, 96:6, 96:14, 97:3, 97:8, 99:21, 99:25, 100:12, 104:15, 105:8, 107:2, 110:19, 112:6, 112:17, 112:25, 113:2, 113:9, 114:6, 115:13, 115:23, 117:7, 117:14, 117:25, 118:4, 119:6, 119:13, 120:6, 121:20, 122:2, 123:25, 126:15, 127:4, 128:14, 129:8, 129:10, 130:18, 131:17, 132:17, 134:13, 137:25, 138:25, 145:23, 169:15, 169:18, 169:23, 170:4, 170:7, 171:3, 171:5, 172:19, 174:5, 174:23  <b>YEC's</b> [15] - 5:14, 16:12, 32:4, 32:7, 32:10, 38:4, 39:19, 40:11, 69:25, 116:1, 123:2, 126:21, 162:14, 174:4, 183:17  <b>YEC-LE-5</b> [1] - 64:11  <b>YECL</b> [6] - 10:7,</p>	<p>31:22, 65:25, 104:15, 137:8, 183:19  <b>YECL's</b> [1] - 48:13  <b>YECL-YEC-1-1</b> [1] - 187:13  <b>YECL-YEC-1-7</b> [4] - 187:4, 187:7, 187:24, 188:6  <b>YESAB</b> [24] - 25:10, 25:22, 26:1, 26:3, 26:6, 26:10, 34:16, 58:2, 69:12, 75:6, 91:13, 92:3, 112:11, 112:14, 112:18, 116:15, 126:2, 126:5, 127:5, 127:14, 127:16, 129:4, 129:9, 136:20  <b>YESAB's</b> [1] - 126:7  <b>yield</b> [1] - 81:22  <b>YUB</b> [21] - 3:19, 14:6, 30:12, 31:11, 31:13, 34:15, 34:19, 40:13, 41:1, 41:2, 48:13, 59:17, 65:23, 66:18, 104:16, 105:8, 113:13, 127:23, 146:13, 168:16, 169:18  <b>YUB's</b> [1] - 4:21  <b>YUB-YEC-1(d)</b> [1] - 113:17  <b>YUB-YEC-1-1(d)</b> [1] - 25:2  <b>YUB-YEC-1-12</b> [1] - 31:2  <b>YUB-YEC-1-13</b> [1] - 31:2  <b>YUB-YEC-1-18(d)</b> [1] - 117:7  <b>YUB-YEC-120(b)</b> [2] - 112:24, 112:25  <b>YUKON</b> [4] - 1:1, 1:6, 96:24, 193:22  <b>Yukon</b> [133] - 1:22, 2:2, 2:10, 2:13, 2:15, 3:1, 3:7, 3:13, 3:23, 3:24, 4:8, 7:10, 10:6, 10:15, 10:16, 11:12, 11:13, 11:16, 11:18, 11:20, 12:4, 12:11, 12:12, 12:14, 12:16, 12:18, 13:8, 13:9, 14:1, 14:2, 15:3, 15:7, 15:14, 15:18, 15:21, 16:7, 16:19, 16:22, 17:5, 18:5, 19:20, 21:5, 21:9, 21:12, 21:14, 21:18, 21:25, 22:11, 22:18, 22:20, 22:24, 23:10, 23:14, 23:17, 23:19, 24:2, 25:2, 25:11, 25:18, 25:21, 26:4, 26:9, 26:10, 28:4, 45:11, 46:20, 48:9, 52:5, 69:1, 69:6, 70:8, 70:9, 76:2, 76:7, 79:22, 81:23, 82:2, 82:13, 83:7, 83:21, 84:4, 84:11, 84:17, 84:18, 85:17, 86:2, 86:3, 86:6, 86:9, 88:4, 88:5, 88:13, 88:15, 88:19, 88:23, 89:7, 89:11, 90:19, 90:23, 91:14, 95:3, 99:4, 100:25, 104:2, 106:8, 106:22, 126:25, 127:18, 129:10, 139:13,</p>
<b>W</b>				
<p><b>WAF</b> [3] - 15:4, 15:17, 18:12  <b>wait</b> [1] - 22:13  <b>waiting</b> [1] - 44:18  <b>wall</b> [1] - 111:21  <b>wants</b> [1] - 106:8  <b>Ward</b> [2] - 2:11, 6:12  <b>warehouse</b> [2] - 53:4, 110:20  <b>warm</b> [2] - 184:4  <b>warmed</b> [1] - 189:9  <b>Wartsila</b> [3] - 63:19, 63:20, 64:21  <b>waste</b> [2] - 84:23, 142:8  <b>water</b> [21] - 95:15, 99:5, 130:2, 144:10, 144:19, 144:22, 145:1, 145:10, 145:22, 184:2, 184:3, 184:6, 184:8, 184:16, 184:18, 185:3, 185:6, 185:14, 185:15, 185:22, 186:22  <b>WD</b> [1] - 20:7  <b>WD1</b> [24] - 12:24, 15:6, 17:18, 18:7, 18:14, 19:16, 20:15, 20:19, 42:19, 51:20, 52:23, 60:10, 62:11, 63:5, 65:5, 129:13, 131:18, 187:10, 187:18, 187:25, 188:9, 188:14, 188:19  <b>WD2</b> [23] - 12:25, 17:18, 18:7, 18:15, 19:16, 20:15, 20:19, 42:19, 51:21, 52:23, 60:11, 62:11, 63:6, 65:5, 129:13, 131:18, 187:10, 187:11, 187:19, 187:25, 188:9, 188:14, 188:19  <b>WD3</b> [6] - 15:12, 18:14, 20:2, 60:2, 61:2, 62:20  <b>weather</b> [6] - 183:22, 183:23, 183:24, 184:22, 184:23, 185:3  <b>website</b> [4] - 7:11, 9:22, 69:25, 70:8  <b>websites</b> [1] - 69:12  <b>week</b> [2] - 168:22,</p>	<p><b>WAF</b> [3] - 15:4, 15:17, 18:12  <b>wait</b> [1] - 22:13  <b>waiting</b> [1] - 44:18  <b>wall</b> [1] - 111:21  <b>wants</b> [1] - 106:8  <b>Ward</b> [2] - 2:11, 6:12  <b>warehouse</b> [2] - 53:4, 110:20  <b>warm</b> [2] - 184:4  <b>warmed</b> [1] - 189:9  <b>Wartsila</b> [3] - 63:19, 63:20, 64:21  <b>waste</b> [2] - 84:23, 142:8  <b>water</b> [21] - 95:15, 99:5, 130:2, 144:10, 144:19, 144:22, 145:1, 145:10, 145:22, 184:2, 184:3, 184:6, 184:8, 184:16, 184:18, 185:3, 185:6, 185:14, 185:15, 185:22, 186:22  <b>WD</b> [1] - 20:7  <b>WD1</b> [24] - 12:24, 15:6, 17:18, 18:7, 18:14, 19:16, 20:15, 20:19, 42:19, 51:20, 52:23, 60:10, 62:11, 63:5, 65:5, 129:13, 131:18, 187:10, 187:18, 187:25, 188:9, 188:14, 188:19  <b>WD2</b> [23] - 12:25, 17:18, 18:7, 18:15, 19:16, 20:15, 20:19, 42:19, 51:21, 52:23, 60:11, 62:11, 63:6, 65:5, 129:13, 131:18, 187:10, 187:11, 187:19, 187:25, 188:9, 188:14, 188:19  <b>WD3</b> [6] - 15:12, 18:14, 20:2, 60:2, 61:2, 62:20  <b>weather</b> [6] - 183:22, 183:23, 183:24, 184:22, 184:23, 185:3  <b>website</b> [4] - 7:11, 9:22, 69:25, 70:8  <b>websites</b> [1] - 69:12  <b>week</b> [2] - 168:22,</p>	<p><b>wise</b> [1] - 171:21  <b>wish</b> [1] - 104:1  <b>wishes</b> [2] - 11:4, 138:7  <b>wishing</b> [1] - 6:20  <b>withstand</b> [1] - 47:22  <b>witness</b> [13] - 8:12, 8:13, 8:14, 8:15, 8:18, 8:20, 8:22, 8:25, 9:2, 9:4, 72:23, 72:24  <b>witnesses</b> [15] - 7:15, 7:16, 7:19, 7:20, 9:8, 11:9, 11:10, 11:18, 11:25, 12:1, 73:5, 137:3, 137:4, 137:6, 156:13  <b>wonder</b> [4] - 68:20, 95:1, 103:22, 121:16  <b>Wood</b> [1] - 2:2  <b>word</b> [3] - 166:11, 167:13, 180:24  <b>words</b> [6] - 32:5, 42:17, 53:9, 70:5, 113:5, 162:1  <b>WORK</b> [2] - 77:17, 193:18  <b>work-in-progress</b> [1] - 38:15  <b>works</b> [4] - 39:6, 44:6, 138:21  <b>workshop</b> [10] - 16:9, 21:13, 76:11, 76:14, 79:18, 80:13, 82:17, 83:1, 91:2, 154:20  <b>WORKSHOP</b> [2] - 77:14, 193:15  <b>workshops</b> [1] - 16:8  <b>world</b> [4] - 27:12, 27:19, 33:20, 109:16  <b>worn</b> [2] - 56:4, 132:4  <b>worse</b> [1] - 63:6  <b>worst</b> [2] - 47:22, 153:12  <b>worst-case</b> [1] - 47:22  <b>worth</b> [2] - 89:16, 164:5  <b>worthy</b> [1] - 85:1  <b>WRGS</b> [1] - 126:23  <b>written</b> [1] - 135:23</p>	<p>184:11, 184:17, 185:7, 185:21  <b>year-round</b> [1] - 43:14  <b>yearly</b> [1] - 177:19  <b>years</b> [85] - 17:3, 18:7, 18:23, 19:17, 27:20, 28:2, 28:7, 28:15, 28:19, 42:2, 49:3, 49:18, 50:15, 52:21, 60:19, 60:20, 60:21, 61:18, 63:9, 67:12, 79:10, 80:10, 80:19, 81:10, 81:14, 87:10, 89:4, 89:5, 99:5, 99:23, 100:2, 100:10, 101:2, 101:5, 102:2, 102:16, 103:12, 108:1, 110:7, 110:9, 112:1, 123:10, 125:1, 132:25, 136:1, 138:18, 144:1, 144:16, 144:19, 144:22, 145:1, 145:4, 145:6, 145:10, 145:20, 145:21, 146:2, 146:19, 148:2, 148:3, 149:4, 149:6, 149:10, 149:11, 149:24, 150:2, 150:21, 151:7, 151:12, 152:8, 152:10, 153:17, 157:8, 161:14, 163:3, 170:12, 171:22, 185:6, 185:10, 185:16, 185:17, 188:8  <b>years'</b> [1] - 89:16  <b>YEC</b> [93] - 3:7, 3:16, 4:6, 4:24, 7:16, 7:19, 7:23, 10:4, 14:14, 20:2, 20:6, 21:20, 21:21, 22:7, 25:20, 26:23, 31:4, 35:11, 41:13, 43:1, 48:11, 50:23, 51:1, 53:3, 63:12, 68:8, 69:11, 70:14, 70:16, 71:22, 74:21, 74:24, 75:20, 76:10, 76:13, 87:10, 90:4, 90:19, 91:18, 96:6, 96:14, 97:3, 97:8, 99:21, 99:25, 100:12, 104:15, 105:8, 107:2, 110:19, 112:6, 112:17, 112:25, 113:2, 113:9, 114:6, 115:13, 115:23, 117:7, 117:14, 117:25, 118:4, 119:6, 119:13, 120:6, 121:20, 122:2, 123:25, 126:15, 127:4, 128:14, 129:8, 129:10, 130:18, 131:17, 132:17, 134:13, 137:25, 138:25, 145:23, 169:15, 169:18, 169:23, 170:4, 170:7, 171:3, 171:5, 172:19, 174:5, 174:23  <b>YEC's</b> [15] - 5:14, 16:12, 32:4, 32:7, 32:10, 38:4, 39:19, 40:11, 69:25, 116:1, 123:2, 126:21, 162:14, 174:4, 183:17  <b>YEC-LE-5</b> [1] - 64:11  <b>YECL</b> [6] - 10:7,</p>	<p>31:22, 65:25, 104:15, 137:8, 183:19  <b>YECL's</b> [1] - 48:13  <b>YECL-YEC-1-1</b> [1] - 187:13  <b>YECL-YEC-1-7</b> [4] - 187:4, 187:7, 187:24, 188:6  <b>YESAB</b> [24] - 25:10, 25:22, 26:1, 26:3, 26:6, 26:10, 34:16, 58:2, 69:12, 75:6, 91:13, 92:3, 112:11, 112:14, 112:18, 116:15, 126:2, 126:5, 127:5, 127:14, 127:16, 129:4, 129:9, 136:20  <b>YESAB's</b> [1] - 126:7  <b>yield</b> [1] - 81:22  <b>YUB</b> [21] - 3:19, 14:6, 30:12, 31:11, 31:13, 34:15, 34:19, 40:13, 41:1, 41:2, 48:13, 59:17, 65:23, 66:18, 104:16, 105:8, 113:13, 127:23, 146:13, 168:16, 169:18  <b>YUB's</b> [1] - 4:21  <b>YUB-YEC-1(d)</b> [1] - 113:17  <b>YUB-YEC-1-1(d)</b> [1] - 25:2  <b>YUB-YEC-1-12</b> [1] - 31:2  <b>YUB-YEC-1-13</b> [1] - 31:2  <b>YUB-YEC-1-18(d)</b> [1] - 117:7  <b>YUB-YEC-120(b)</b> [2] - 112:24, 112:25  <b>YUKON</b> [4] - 1:1, 1:6, 96:24, 193:22  <b>Yukon</b> [133] - 1:22, 2:2, 2:10, 2:13, 2:15, 3:1, 3:7, 3:13, 3:23, 3:24, 4:8, 7:10, 10:6, 10:15, 10:16, 11:12, 11:13, 11:16, 11:18, 11:20, 12:4, 12:11, 12:12, 12:14, 12:16, 12:18, 13:8, 13:9, 14:1, 14:2, 15:3, 15:7, 15:14, 15:18, 15:21, 16:7, 16:19, 16:22, 17:5, 18:5, 19:20, 21:5, 21:9, 21:12, 21:14, 21:18, 21:25, 22:11, 22:18, 22:20, 22:24, 23:10, 23:14, 23:17, 23:19, 24:2, 25:2, 25:11, 25:18, 25:21, 26:4, 26:9, 26:10, 28:4, 45:11, 46:20, 48:9, 52:5, 69:1, 69:6, 70:8, 70:9, 76:2, 76:7, 79:22, 81:23, 82:2, 82:13, 83:7, 83:21, 84:4, 84:11, 84:17, 84:18, 85:17, 86:2, 86:3, 86:6, 86:9, 88:4, 88:5, 88:13, 88:15, 88:19, 88:23, 89:7, 89:11, 90:19, 90:23, 91:14, 95:3, 99:4, 100:25, 104:2, 106:8, 106:22, 126:25, 127:18, 129:10, 139:13,</p>
<b>X</b>				
<b>XXX</b> [1] - 57:1				
<b>Y</b>				
<p><b>YCS</b> [4] - 31:18, 31:19, 58:4, 64:17  <b>YCS/LE</b> [1] - 10:12  <b>YCS/LE-YEC-1-42</b> [1] - 30:25  <b>YCS/LE-YEC-121(c)</b> [2] - 68:11  <b>year</b> [43] - 34:8, 34:13, 34:14, 37:15, 37:19, 37:22, 38:25, 43:14, 44:5, 50:16, 50:18, 58:18, 61:9, 80:19, 81:18, 95:14, 95:18, 107:14, 107:21, 124:23, 144:16, 151:2, 152:1, 152:2, 152:3, 153:17, 153:21, 174:18, 174:20, 175:10, 178:21, 183:12, 184:9, 184:10,</p>				



## YUB - YEC LNG Project, Volume 1, March 31, 2014

146:9, 146:15,  
152:23, 155:12,  
160:11, 161:13,  
162:8, 162:9, 162:23,  
163:9, 164:22,  
164:23, 164:24,  
164:25, 165:2,  
169:12, 178:7,  
178:14, 179:6,  
187:16, 192:8, 193:5  
**Yukon's** [6] - 15:24,  
18:24, 46:19, 90:9,  
95:8, 145:21  
**Yukoners** [4] -  
43:13, 74:24, 81:23,  
103:14

**Z**

**zeros** [1] - 185:10  
**zoned** [1] - 13:9