

**YUKON  
ENERGY**



**YUKON ENERGY CORPORATION  
APPLICATION TO REVISE THE DIESEL CONTINGENCY  
FUND ("DCF") & RELATED  
AMENDMENTS TO THE ENERGY  
RECONCILIATION ADJUSTMENT ("ERA")**

**JANUARY 31, 2014**



## **APPLICATION TO REVISE THE DIESEL CONTINGENCY FUND (“DCF”) & RELATED AMENDMENTS TO THE ENERGY RECONCILIATION ADJUSTMENT (“ERA”)**

Yukon Energy Corporation (“Yukon Energy” or “YEC”) was directed on July 16, 2013 to submit a revised DCF application to the Yukon Utilities Board (“Board”) by September 30, 2013 (with the clear implication that a revised ERA application be included). Pursuant to earlier Board directions provided in Orders 2013-1 and 2013-3, the Board noted its preference that Yukon Energy and Yukon Electrical Company Limited (“Yukon Electrical” or “YECL”) provide a joint filing regarding the revised DCF proposal and ERA, noting “if agreement cannot be reached, a filing in which the companies state which aspects they agree upon, and the position of each company on those aspects they disagree upon is acceptable”.

Following two subsequent requests from YEC and YECL (the “Companies”), the Board has granted an extension to January 31, 2014 for YEC and YECL to file their application to revise the DCF and related amendments to the ERA.

### ***Overview of Activities to Date Re: DCF and ERA***

Yukon Energy submitted its initial proposal to revise the DCF and ERA mechanisms as part of its 2012/13 General Rate Application (“GRA”) filed April 27, 2012. This proposal arose because diesel generation on the newly integrated grid was forecast in the GRA to be on the margin under long-term average (“LTA”) hydro generation water conditions. It was subject to interrogatories and examination during the oral hearing, and both utilities set out their positions regarding each mechanism in Argument during the GRA proceeding.

Board Order 2013-1 on the GRA subsequently directed YEC to include (in forecast revenue requirement and approved rates) provision for diesel generation costs forecast at 100% LTA hydro generation for each test year. YEC’s May 1, 2013 Compliance Filing also provided a Revised DCF that included the following changes from the GRA filing:

1. As directed in Order 2013-1, the Revised DCF reflected diesel generation costs at 100% of LTA hydro generation, removed secondary sales impacts on the DCF, incorporated other non-diesel generation facilities (wind, Fish Lake Hydro) forecasts into YEC’s DCF model, incorporated suggestions made by intervenors in argument during the 2012/2013 GRA regarding how DCF transactions are to be reported, and provided an example of approximately five years of transactions to show how the balance of the DCF will change and how those changes will be reported.
2. The revised DCF also recommended increasing the current DCF threshold caps from +/- \$4 million to +/- \$8 million, and included setting DCF determinations based on the Board’s approved diesel fuel costs per kW.h (without any O&M costs).

Board Order 2013-03 did not approve Yukon Energy’s revised DCF as provided in the May 2013 Compliance Filing and re-iterated the Board’s direction in Order 2013-01 for YEC to work with YECL, and for the two utilities to provide a joint recommendation. Board Order 2013-03 also clarified that “YEC may file a future revised DCF proposal and ERA application”, noting that the Board prefers a joint filing from

YEC and YECL, but “if agreement cannot be reached, a filing in which the companies state which aspects they agree upon, and the position of each company on those aspects they disagree upon is acceptable”.

As directed, the Companies have consulted specifically on this matter since May 2013, including exchange of documents setting out their respective positions. As at the end of 2013, however, the Companies had not been able to agree on any specific elements of either the DCF or the ERA. In accordance with the Board’s direction, a submission is now required which sets out the position of each company on those aspects they disagree upon. Yukon Energy’s revised DCF proposal and ERA application as set out below is framed in the context of our understanding of the position of each company as summarized below.

***Summary of YEC and YECL Respective Positions re: DCF and ERA***

Yukon Energy’s understanding of each utility’s respective position as at the end of 2013 is summarized as follows:

1. **Yukon Energy’s position** – The Board’s current and past Orders for both utilities continue to support implementation of DCF and ERA mechanisms in Yukon, and provide no basis for a proposal today to abandon either mechanism (see Appendix A); furthermore, with diesel once again on the margin on the integrated grid, both mechanisms are relevant again today and need to be reactivated as of January 1, 2012. Yukon Energy’s proposed DCF and ERA adjustments address changes to reflect the newly integrated grid and Board directions in Order 2013-1 (including the adoption of LTA hydro generation forecasts when setting diesel generation costs included in approved rates), while remaining consistent with long established precedents and practice in Yukon.
  - The DCF continues to set out how YEC’s annual diesel cost variances due solely to water-related hydro and wind generation variances from YUB approved GRA forecasts are to be addressed on behalf of ratepayers.
  - The ERA continues to set out how YEC’s annual diesel cost variances due solely to variances from YUB approved GRA wholesale forecasts are to be reflected in rates charged to YECL; the recent [September 2013] YEC proposal has further modified the ERA and related mechanisms (a) to reflect net costs to YEC after consideration of all revenue changes due to the wholesale variance, and (b) to provide for YECL recovery through a Rate Rider of any net added YECL cost not otherwise recovered from ratepayers after full consideration of YECL revenue changes related to the wholesale variance.
2. **Yukon Electrical’s position** – The ERA in the past has been a source of significant disagreement between YECL and YEC in how it is to be interpreted and applied even when the two utilities were jointly managed by Yukon Electrical, and YEC’s current proposal creates added complexity and uncertainty reflecting today’s more complex grid system as well as the fact that YEC and YECL are no longer jointly managed and do not file concurrent GRAs with consistent load and generation forecasts. Accordingly, the ERA should be discontinued and YEC’s diesel cost variance, regardless of its cause, should be recovered through a new deferral account to be administered by YEC (with a new rider mechanism to flow through to retail and industrial ratepayers throughout Yukon as appropriate, and with no impacts on YECL).

- As regards the DCF, YECL has in its 2013-15 GRA sought approval for continuance of the DCF (as approved in the 1996/97 GRA).
- In discussions with YEC last September, YECL also proposed a simple new deferral account for YEC that would effectively remove the water-related considerations that form the essential foundation for the DCF (i.e., a fund to protect ratepayers against large variances in rates over the long-term due to fluctuations in hydro generation), and establish a new short-term deferral account mechanism to recover changes in YEC diesel generation (regardless of cause) for approved forecasts.

***Two Options re: YEC Charges to YECL***

In Yukon Energy's view, the core consistent disagreement between the Companies on these matters relates to continuance of the ERA charges by YEC to YECL, i.e., YEC has assumed that it is to continue with modifications as noted, and YECL has proposed that it be discontinued and replaced with a new YEC deferral account mechanism (whereby YEC directly deals with ratepayers and YECL is no longer involved or affected).

As distinct from the DCF, which solely addresses ratepayer interests with regard to thermal generation cost-induced rate fluctuations due to water variability, the ERA directly affects both YEC and YECL costs. In this regard, YEC understand YECL's concerns as stated to relate to the potential complexities, uncertainties and added administrative burdens that an ERA creates for YECL, particularly now that YEC and YECL are no longer jointly managed and do not file concurrent GRAs with consistent load and generation forecasts. YEC understands that these ERA issues for YECL are magnified by the need today for a "formulaic approach" to estimate expected diesel under different load conditions and the difficulties inherent in allocating to YECL a share of YEC's overall incremental thermal generation cost changes arising from load variances relative to approved GRA forecasts.

In order to address these different views regarding YEC charges to YECL, Yukon Energy has examined two options relating to the ERA element (Option A which retains the ERA, and Option B which discontinues the ERA as well as any impacts on YECL). Both options provide for the DCF as proposed by YEC with adjustments essentially as outlined in YEC's May 1, 2013 Compliance Filing (see Appendix 1). Both options also protect YECL from incurring unrecovered costs related to changes in YEC's incremental diesel generation costs arising from changes in YECL power purchases from YEC.

- 1. OPTION A - Proposed Revised DCF Fund and Updated ERA (with adjustments essentially as outlined to YECL in September 2013)** – Option A provides for the DCF as proposed (with adjustments essentially as outlined in the May 1 Compliance Filing), but modifies the ERA (as proposed in the 2012/13 GRA and May 1, 2013 Compliance Filing) to reflect net cost to YEC after all added revenues related to wholesales variances, and provides as well for YECL recovery through its deferral account (and related rate rider) of any net added cost after full consideration of added revenues due to increased sales. [It is noted that flow through to YECL's deferral account of the full ERA, without consideration of the offsets for YECL's added revenues, is not consistent with Option A. If YECL's added revenues are to be ignored, then there is no relevance to including YECL, i.e., the appropriate option becomes Option B].

To implement Option A, Yukon Energy's view is that the Companies would need the following approvals from the Board:

- Approval, effective January 1, 2012, of the Revised DCF proposal as described in the Revised DCF Term Sheet in Appendix 1, Attachment 1.1 to this filing.
- Approval to trigger the ERA provision of Rate Schedule 42 on an ongoing basis effective January 1, 2012, based on the Revised ERA as described in Appendix 2, Attachment 2.1 to this filing.
- Confirmation that all ERA charges or rebates to YECL will go directly to YECL's Purchase Power Flow Through deferral account, net of any related YECL revenue changes associated with the same purchase power variances addressed by the ERA charges or rebates, to flow through to ratepayers at such times and terms as approved by the Board.

- 2. OPTION B - Proposed Revised DCF Fund with a new YEC administered Diesel Deferral Account ("DDA") and no ERA mechanism** – Option B provides for the Revised DCF as proposed in the 2012/13 GRA (with adjustments essentially as outlined in the May 1, 2013 Compliance Filing), but amends Rate Schedule 42 as requested by YECL to remove reference to an ERA mechanism; in place of an ERA, a new YEC Diesel Deferral Account (DDA) would be administered to address YEC's net thermal generation cost changes at LTA related to variances in firm YEC sales from GRA approved forecasts (after consideration of all revenue changes related to such variances in firm YEC sales).

To implement Option B, Yukon Energy's view is that the Companies would need the following approvals from the Board:

- Approval, effective January 1, 2012, of the Revised DCF proposal as described in the Revised DCF Term Sheet in Appendix 1, Attachment 1.1 to this filing.
- Approval, effective January 1, 2012, for amendments to Rate Schedule 42 to remove reference to the ERA and for establishment of a YEC-administered DDA and Rider mechanism as described in Appendix 3 to this filing.
- Approval to discontinue the YECL Purchase Power Deferral Account (as there will no longer be ERA charges to YECL flowing from Rate Schedule 42).

### ***Summary of Option Impacts***

Table 1 provides the DCF determinations which apply to both Options A and B, in accordance with the Revised DCF as proposed in Appendix 1, for actual 2012 and preliminary 2013 results:

- YEC payment required to the DCF of \$3.716 million in 2012 and \$3.506 million in 2013, yielding a projected DCF balance at the end of 2013 of \$8.124 million (i.e., an amount in excess of the proposed \$8 million cap, and therefore requiring a process to rebate \$0.124 million through a rider mechanism).
- These YEC payments to the DCF reflect LTA diesel generation requirement for YEC in each year well in excess of actual YEC diesel generation (net of diesel for capital or RFID accounts) due to

favourable water conditions concurrent with ongoing load growth and the absence of the WHCT load that had been forecast for 2013.

- The DCF payments and assessments reflect Fish Lake and wind actual generation relative to long-term average, e.g., Fish Lake generation in each year was below long-term average for Unit #2 that was the only unit in service.

Tables 2 and 3 provide the ERA (Option A) and DDA (Option B) determinations for actual 2012 and preliminary 2013 results, and allow comparison of impacts for these two options.

Table 2 provides the ERA determination for Option A which demonstrates the relative impact on each utility and on ratepayers based on actual 2012 sales and generation and preliminary actual 2013 sales and generation. Required ERA charges to YECL in 2012 and 2013, and any consequent required charges to ratepayers, are estimated as follows:

- In 2012, as a result of wholesales to YECL being 13,272 MW.h higher than YEC's GRA forecasts (net of Fish Lake variances):
  - The ERA charge by YEC to YECL is \$0.439 million (estimated after considering YEC added revenue of \$1.242 million and YEC added diesel costs of \$1.680 million). After the ERA, the wholesales variance would have no income impact on YEC.
  - YECL's added revenues associated with the 13,272 MW.h wholesales variance (\$1.672 million) more than offset YECL's related added costs for power purchases from YEC (\$1.54 million for all Rater Schedule 42 charges, including the \$0.439 million ERA charge).
  - After the ERA, YECL would retain a net revenue benefit of \$0.132 million as a result of the wholesales variance; accordingly, there would be no impact on YECL deferral account and no new rider charge required for retail and industrial ratepayers.
- In 2013, as a result of wholesales to YECL being 86 MW.h higher than YEC's GRA forecasts (net of Fish Lake variances):
  - The ERA charge by YEC to YECL is \$0.013 million (estimated after considering YEC added revenue of \$0.009 million and YEC added diesel costs of \$0.022 million<sup>1</sup>). After the ERA, the wholesales variance as such would have no income impact on YEC.
  - YECL's added revenues associated with the 86 MW.h wholesales variance (\$0.011 million) do not offset YECL's related added costs for power purchases from YEC (\$0.020 million for all Rate Schedule 42 charges, including the \$0.013 million ERA charge).
  - After the ERA, YECL would retain a net revenue cost impact of \$0.009 million as a result of the wholesales variance; accordingly, there would be a requirement for YECL to charge this to its deferral account and a new rider charge would be required for retail and industrial ratepayers to recover this amount.

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<sup>1</sup> Diesel cost impacts in part reflect the impact of WHCT summer load not being connected (WHCT load was included in the approved YEC GRA 2013 load and as a result diesel generation LTA estimates were modified accordingly for 2013 in the approved GRA).

Table 3 provides the DDA determination for Option B which demonstrates the relative impact on YEC and on ratepayers based on actual 2012 sales and generation and preliminary actual 2013 sales and generation. Impacts from this option include the following:

- YEC's DDA amounts are as follows for the two years:
  - In 2012, a net cost impact of \$0.463 million on YEC from firm sales variances relative to GRA forecasts the DDA (\$0.439 million of which relates to the wholesales variance).
  - In 2013, a net cost impact of \$0.077 million on YEC from firm sales variances relative to GRA forecasts the DDA (\$0.013 million of which relates to the wholesales variance, which is fully offset by the industrial variance – the net cost impact therefore reflects the YEC retail variance).
  - After the DDA, the firm sales variance regarding wholesales, industrial and YEC retail sales in these two years would have no income impact on YEC.
- Industrial and retail firm sales would be required to pay a rate rider for recovery of the above DDA amounts for 2012 and 2013 (total \$0.540 million).
- There would be no new charges to YECL under this option related to any of the wholesales variances from approved GRA forecasts (i.e., the ERA would be discontinued, and YECL net revenue gains from added wholesales of \$0.571 million in 2012 and \$0.004 million in 2013 would be retained)<sup>2</sup>.

In summary, the following comparative impacts are noted for Options A and B as regards impacts from YEC's firm sales variances from approved GRA forecasts (see Table 4):

1. Yukon Energy:
  - a. YEC is held whole under both Options A and B with regard to net added cost from YECL wholesales variances.
  - b. YEC secures added net cost recoveries under Option B of \$0.024 million in 2012 and \$0.064 million (due to inclusion of industrial and YEC retail variances).
2. Yukon Electrical:
  - a. Under Option A, added YECL revenues from increased retail sales variances either equal or exceed any net ERA cost to YECL (due to ability to flow through any net costs to the YECL deferral account).
  - b. Under Option B, YECL is able to retain full revenue gains from growth in sales above YEC GRA forecasts, net only of the Rate Schedule 42 fixed energy rate (8.298 c/kW.h).
  - c. Looking at 2012 and 2013 examples, Option B in total saves YECL \$0.443 million in retained incremental revenues compared to Option A.

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<sup>2</sup> Estimates derived from Table 2.

3. Yukon Firm Industrial and Retail Ratepayers:

- a. Under Option A, ratepayer impacts are reduced relative to Option B due both to YECL revenue offsets and exclusion of net cost impacts from YEC industrial and retail variances.
- b. Under Option B, ratepayer impacts are higher than Option A due both to exclusion of YECL revenue offsets and inclusion of net cost impacts from YEC industrial and retail variances.
- c. Looking at 2012 and 2013 examples, Option A compared to Option B saves ratepayers in total \$0.531 million in deferral account amounts to be recovered through rate riders, with \$0.443 million relating to YEC wholesales (i.e., the exclusion of offsetting YECL revenues related to wholesale variances) and \$0.88 million relating to YEC industrial and retail sales.

***Conclusion***

Analysis of Options A and B confirms that Option A has a lower cost impact on ratepayers than Option B, and protects YECL as well as YEC from incurring unrecovered costs related to changes in YEC's incremental diesel generation costs arising from changes in YECL power purchases from YEC. Option A also is consistent with past Board Orders and the directions in OIC 1995/90.

In contrast, Option B allows YEC to recover additional incremental diesel generation costs arising from changes in YEC's industrial and retail sales - however, this added recovery for YEC is associated with a materially higher cost impact on ratepayers, and YEC's added recovery is also likely to remain small relative to recovery under either option related to wholesales to YECL.

Based on the above, Option A is concluded to be preferable to Option B.

Accordingly, Yukon Energy seeks the following requested approvals from the Board:

1. Approval, effective January 1, 2012, of Yukon Energy's Revised DCF proposal as described in the Revised DCF Term Sheet in Appendix 1, Attachment 1.1 to this filing.
2. Approval to implement Option A to address the updated ERA, including the following specific approvals related to this option:
  - o Option A - Proposed Revised DCF Fund and Updated ERA (with adjustments essentially as outlined to YECL in September 2013):
    - Approval to trigger the ERA provision of Rate Schedule 42 on an ongoing basis effective January 1, 2012, based on the Revised ERA as described in Appendix 2, Attachment 2.1 to this filing.
    - Confirmation that all ERA charges or rebates to YECL will go directly to YECL's Purchase Power Flow Through deferral account, net of any related YECL revenue changes associated with the same purchase power variances addressed by the ERA charges or rebates, to flow through to ratepayers at such times and terms as approved by the Board.
3. Approval of final DCF and ERA amounts for 2012 and, if final numbers are available, for 2013.

**Table 1: Revised DCF Calculation for Actual 2012 and Preliminary Actual 2013**

Variable cost of YEC diesel calculation

Line No				Notes
L1	Fuel Cost per kW.h	28.71	28.71 cents/kW.h	Compliance Filing Average Fuel cost

Calculation of Diesel Cost to Charge (Refund) DCF

2013 Preliminary actuals		2012 actuals	2013 Preliminary actuals	
<i>Assumptions</i>				
L2	YEC Grid load	424,541	419,249 MW.h	Preliminary Actual net of secondary sales (with losses)
L3	Fish Lake	3,388	3,687 MW.h	Fish Lake generation
L4=L2+L3	Total Grid load	427,929	422,936 MW.h	
<i>Assumed Actual Generation Sources</i>				
L5	YECL Fish Lake	3,388	3,687 MW.h	Fish Lake generation
L6	YEC Hydro	421,039	416,986 MW.h	Residual as total generation less diesel and wind
L7	YEC Diesel	3,057	1,986 MW.h	Preliminary diesel
L7a	YEC Diesel charged to capital	373	872	Includes charged to RFID
L7b	YEC Net Diesel	2,683	1,114	
L8	YEC Wind	445	277 MW.h	Preliminary wind
L9	Total Grid load	427,929	422,936 MW.h	
<i>Expected Generation Sources</i>				
L10	YECL Fish Lake (expected)	4,380	4,380 MW.h	Unit #2 at 4.380 GW.h - no Unit #1 generation in 2013.
L11	YEC Wind (expected)	239	239 MW.h	
L12=L9-L10-L11	YEC Grid load net of expected Fish Lake and Wind	423,310	418,317 MW.h	
L13	Expected Base Diesel Generation at 420 GW.h/2012 and 415 GW.h/2013	14,100	11,800 MW.h	Derived from updated Table 4.1-1 for GRA Compliance Filing Proposal (2012 DCF) [Table 1.1-1, Revised DCF Proposal] 46% of Grid Load between 415 GW.h and 425 GW.h is diesel - Derived from updated Table 4.1-1 for GRA Compliance Filing Proposal [Table 1.1-1, Revised DCF Proposal]
L14=(L12-420/415 GW.h)x46%	Expected Incremental Diesel Generation above 420/415 GW.h	1,522	1,526 MW.h	
L15=L13+L14	Total Expected YEC Diesel Generation	15,622	13,326 MW.h	
L16=L15	Expected YEC Diesel Generation in Rates	15,622	13,326 MW.h	100% of long-term average
L17=L7	FYF YEC Diesel Generation	2,683	1,114 MW.h	Net of capital diesel
L18=L17-L16	YEC Diesel Generation to be Included in DCF	- 12,939 -	12,212 MW.h	
L19=L1xL18	Incremental YEC Diesel Generation Cost to Charge (Refund) DCF (\$000s)	(\$3,715)	(\$3,506)	

**Table 2: Option A: Revised ERA Calculation for Actual 2012 and Preliminary Actual 2013**

**ERA forecast for 2012 and 2013**

	2012	2013 Preliminary	
GRA approved wholesales	296,000	307,147 MW.h	A
Actual wholesales	310,264	307,927 MW.h	B
Incremental	14,264	780 MW.h	C=B-A
Less: Fish Lake Impact	992	693 MW.h	D
Incremental net of Fish Lake	13,272	86 MW.h	E=C-D
Total YEC's actual generation net of secondary	424,541	419,249 MW.h	F
GRA approved load forecast	405,553	416,387 MW.h	G
Total YEC incremental generation relative to GRA approved	18,987	2,862 MW.h	H=F-G
Expected diesel generation at actual load	15,622	13,326 MW.h	I
Expected diesel generation at GRA load (approved)	7,926	11,006 MW.h	J
Total YEC expected incremental diesel generation	7,696	2,320 MW.h	K=I-J
Incremental Diesel in Base Rates (see Note 6)	40.5%	81.1%	L=K/H
Generation Variance Charged for Diesel Cost	5,853	76 MW.h	M=E*L*Losses
<b>Impacts on YEC</b>			
ERA Based on All Incremental Wholesale (100%)			
Added Revenue	1,242	9 \$000	N=E*(8.298+average rider)
Added Cost	1,680	22 \$000	O=M*28.71
Net Impact on YEC	- 439 -	13 \$000	P=N-O
ERA charge to YECL	439	13 \$000	Q=(-P)
<b>Impacts on YECL</b>			
Added Revenue	1,672	11 \$000	R=E/1.062*average energy rate
Added Cost	1,540	20 \$000	S=E*8.298 +Q
Impact on YECL	132 -	9 \$000	T=R-S
YECL Deferral Account - Rider charge (Rebate)	-	9 \$000	U=If T>0 then 0; otherwise (-T)
Net Impact on YECL after Deferral Charge (Rebate)	132	- \$000	V=T+U

Notes:

1. YEC's approved wholesale and generation numbers are based on YEC's 2012/13 GRA Revised Compliance Filing (includes WHCT related sales).
2. Fish Lake impact is calculated as the difference between expected hydro generation at 4.38 GW.h (4.38 GW.h Unit #2; no Unit #1 generation) and actual generation.
3. YEC's load on Line F is net of secondary sales and related losses.
4. Added revenue for YEC is calculated at wholesale rates plus estimated rider revenues (at 1.058 cents/kW.h for 2012; at 1.69 cents/kW.h for 2013) estimated based on YEC Compliance Filing for 2012/13 GRA.
5. Added revenue for YECL is calculated based on estimated average retail energy rate (excluding block 1) of 13.38 c/kW.h per kW.h for 2012 and 13.81c/kW.h per kW.h for 2013 ( and assuming a half year impact of 6.5% 2013-15 GRA interim rider) and 6.2% average YECL losses on sales.
6. Change in expected diesel generation reflects no WHCT load in 2013, and resulting need to retain updated Table 4.1-1 for GRA Compliance Filing Proposal (2012 DCF), which has higher expected diesel for load without WHCT than forecast in Table 4.1-2 (2013 GRA with WHCT load).

**Table 3: Option B: DDA Calculation for Actual 2012 and Preliminary Actual 2013**

**Diesel Deferral Account for 2012 and 2013**

	2012	2013 Preliminary	
GRA approved firm sales	373,094	383,061 MW.h	A
<i>wholesales</i>	296,000	307,147	A1
<i>industrial</i>	42,783	40,592	A2
<i>YEC retail</i>	34,312	35,321	A3
Actual firm sales	390,125	384,518 MW.h	B
<i>wholesales</i>	310,264	307,927	B1
<i>industrial</i>	44,030	40,513	B2
<i>YEC retail</i>	35,831	36,078	B3
Less: Fish Lake Impact (affects wholesales)	992	693 MW.h	C
Incremental	16,039	764 MW.h	D=B-A*C
<i>wholesales</i>	13,272	86	D1=B1-A1-C
<i>industrial</i>	1,247	-79	D2=B2-A2
<i>YEC retail</i>	1,520	757	D3=B3-A3
Total YEC's actual generation net of secondary	424,541	419,249 MW.h	E
GRA approved load forecast	405,553	416,387 MW.h	F
Total YEC incremental generation relative to GRA approved	18,987	2,862 MW.h	G=E+F
Expected diesel generation at actual load	15,622	13,326 MW.h	H
Expected diesel generation at GRA load (approved)	7,926	11,006 MW.h	I
Total YEC expected incremental diesel generation	7,696	2,320 MW.h	J=H+I
Incremental Diesel in Base Rates (see Note 6)	40.5%	81.1%	K=J/G
Generation Variance Charged for Diesel Cost	7,075	676 MW.h	L=D*K*Losses [E/B]
<b>Impacts on YEC</b>			
Revenue Impacts	1,568	116 \$000	M
<i>wholesales</i>	1,242	9	M1=D1*(8.298c+average rider)
<i>industrial</i>	106	7	M2=D2*8.08c + average rider
<i>YEC retail</i>	221	115	M3=D3 * average rate+average rider
Cost Impacts	2,031	194 \$000	N=L*28.71
<i>wholesales</i>	1,681	22	
<i>industrial</i>	158	20	
<i>YEC retail</i>	192	192	
Net Impact on YEC (before deferral charge)	- 463	- 77 \$000	O=M-N
<i>wholesales</i>	- 439	- 13	
<i>industrial</i>	- 52	13	
<i>YEC retail</i>	28	77	
YEC Diesel deferral charge-Rider (Rebate)	463	77 \$000	P=(-O)
Net Impact on YEC after Deferral Charge (Rebate)	-	-	

Notes:

1. YEC's approved sales and generation numbers are based on YEC's 2012/13 GRA Revised Compliance Filing (includes WHCT related sales).
2. Actual sales and generation exclude secondary sales and related generation.
3. Added revenue for YEC is calculated: (i) wholesale rates plus estimated rider revenues (at 1.058 cents/kW.h for 2012; at 1.69 cents/kW.h for 2013); (ii) industrial energy rate at 8.08 plus estimated rider revenues (at 0.39 cents/kW.h for 2012; at 0.92 cents/kW.h for 2013); (iii) average retail energy rate (excluding block 1) at 13.43 cents/kW.h plus estimated rider revenues (at 1.09 cents/kW.h for 2012; at 1.76 cents/kW.h for 2013). All rider revenues estimated based on YEC Compliance Filing for 2012/13 GRA.
4. Change in expected diesel generation reflects no WHCT load in 2013, and resulting need to retain updated Table 4.1-1 for GRA Compliance Filing Proposal (2012 DCF), which has higher expected diesel for load without WHCT than forecast in Table 4.1-2 (2013 GRA with WHCT load). [These tables are provided in Appendix 1 of this filing, Tables 1.1-1 and 1.1-2.]

**Table 4: Summary of Impacts of Option A and Option B on YEC, YECL and Ratepayers**

	<b>OPTION A</b> - Proposed Revised DCF Fund and ERA (with adjustments essentially as outlined to YECL in September 2013)	<b>OPTION B</b> - Proposed Revised DCF Fund with a new YEC administered Diesel Deferral Account ("DDA") and no ERA mechanism
<b>Yukon Energy</b>	<ul style="list-style-type: none"> <li>• YEC is held whole through ERA mechanism provided in Rate Schedule 42.                             <ul style="list-style-type: none"> <li>◦ Charges YECL ERA of \$0.439 million in 2012 and ERA of \$0.013 million in 2013.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• YEC held whole through Diesel Deferral Account.                             <ul style="list-style-type: none"> <li>◦ Charges Ratepayers Diesel Deferral Account charge of \$0.463 million in 2012 and \$0.77 million in 2013.</li> </ul> </li> </ul>
<b>Yukon Electrical</b>	<ul style="list-style-type: none"> <li>• YECL says is exposed to potential complexities, uncertainties and added administrative burdens.</li> <li>• YECL is held whole through Deferral Account mechanism for ERA-related incremental costs that exceed 100% of its incremental revenues related to added sales.</li> <li>• YECL revenues are reduced (or increased) each year by YEC ERA Charge (or rebate). Table 2 provides the following for each of 2012 and 2013:                             <ul style="list-style-type: none"> <li>◦ ERA charge of \$0.439 million in 2012 reduces YECL's added net revenue due to added sales from \$0.571 to \$0.132 million.</li> <li>◦ ERA charge of \$0.013 million in 2013 reduces YECL's added net revenue due to added sales from \$0.004 to (\$0.009) million (this \$0.009 million shortfall is recovered from YECL's deferral account).</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• No impact on YECL (no ERA mechanism).</li> <li>• No longer requirement for YECL Purchase Power Flow Through Deferral Account or Rider D collection mechanism.</li> <li>• YECL retains added net revenue related to added sales of \$0.571 million in 2012 and \$0.004 million 2013.</li> </ul>
<b>Yukon Ratepayers</b>	<ul style="list-style-type: none"> <li>• Ratepayers cost impacts offset by added revenues for both YEC and YECL as well as exclusion of YEC industrial and retail sales variances.                             <ul style="list-style-type: none"> <li>◦ No deferral account charge in 2012.</li> <li>◦ Deferral account charge from YECL of \$0.009 million in 2013.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Ratepayers cost impacts exclude YECL revenues &amp; include YEC industrial and retail sales variances.                             <ul style="list-style-type: none"> <li>◦ In 2012, ratepayers have a \$0.463 YEC Diesel Deferral Account charge that they would not otherwise face under Option A.</li> <li>◦ In 2013, ratepayers have an additional \$0.068 million YEC Diesel Deferral Account charge (compared to \$0.009 million under Option A).</li> </ul> </li> </ul>



## APPENDIX A: EXAMPLES OF BOARD ORDERS SUPPORTING IMPLEMENTATION OF DCF/ERA MECHANISMS

Board directions supporting implementation of DCF and ERA mechanisms, and providing the related regulatory and rate setting context for the utilities to work within, include the following:

- **Board decisions support the need for a fund such as the DCF** - Board decisions consistently recognize that ratepayers bear the risks for diesel generation cost variations due to water or wind availability – and that some form of ratepayer fund (DCF or other such fund) is accordingly required to account for diesel generation cost variances due to such risks. More specifically, Board decisions affecting YEC rates have reflected the following:
  - In years when YEC diesel generation is determined to be on the margin, Board decisions confirm that YEC's rates may be set either (1) based on forecast water levels for the test years that reflect current hydro storage and other known water conditions (i.e., accept non-stable rates over multiple years in response to drought or surplus water conditions); or (2) based on LTA water levels for the test years that do not consider current hydro storage and other known water conditions (i.e., seek rate stability over multiple years of varying water conditions).
  - In years when YEC diesel generation is determined to be on the margin, Board decisions starting from the early 1990's confirm that YEC diesel generation cost accounting (i.e., expenses charged against YEC income) must be consistent with how rates were set by the Board in the relevant test years (i.e., with how test year diesel generation was forecast [based either on forecast actual diesel generation or on diesel forecasts based on LTA hydro and wind generation]) and should not be based on diesel generation that is actually required as a result of actual water or wind conditions.
  - Accordingly, Board decisions starting from the early 1990's have confirmed that there is a need for a fund such as the DCF to account (on behalf of ratepayers) for YEC's annual diesel cost variances from such GRA forecasts due solely to water-related hydro and wind generation variances from the YUB approved GRA forecasts. Concurrent with the establishment of such a ratepayer fund, it has been recognized that YEC's water-related diesel generation cost variance impacts on ratepayers will be smoothed out over many years - and, for example, that ratepayers not present at the time of an actual drought would accordingly bear some of the burden of the drought.
  - Order 2013-1 specifically directed that Yukon Energy diesel generation costs for the 2012/2013 test years be based on expected wind, long-term Fish Lake hydro generation, and LTA YEC hydro generation for these years as determined in the GRA (i.e., based on the relevant YEC SIM model and LTA water conditions) – setting the basic accounting context for YEC's diesel cost treatment during these test years, and during any subsequent year prior to another YEC GRA, wherein a DCF or other such fund is required to account (on behalf of ratepayers) for YEC's annual diesel cost variances from such GRA forecasts due solely to water-related hydro and wind generation variances from the YUB approved GRA forecasts.

- **Board decisions support the need for a mechanism such as the ERA** - Board decisions since the 1993/94 GRA recognize that, when diesel is on the margin for YEC, an ERA mechanism is required to set out how YEC's annual diesel cost variances due solely to variances from YUB approved GRA wholesale forecasts are to be reflected in rates charged to YECL. Specific directions in this regard include the following examples:
  - Board Orders since the 1993/94 GRA approving an ERA mechanism within Rate Schedule 42 Primary Wholesale to ensure the following:
    - That YECL receives a full pass through of YEC's incremental costs or savings of diesel generation that result from changes in the volume of YECL wholesale purchases compared to the forecast approved by the Board to establish the then current single energy-only wholesale rate; and
    - That YEC is able to recover its costs from YECL (as required by OIC 1995/90, Section 7(b)) when diesel generation is on the margin in the Hydro zone.
  - As a recent new adjustment related to such ERA charges or rebates, Board Order 2009-2 and Order 2010-13 accepted YECL's proposal for a Purchase Power Flow Through deferral account to flow through to ratepayers any adjustment to YECL's rates associated with Yukon Energy's applied for but not yet approved updated Energy Reconciliation Adjustment (ERA), and directed YECL to propose for Board approval a rider mechanisms to collect these charges from ratepayers at a future date.



## **SUPPORTING APPENDICES**



**APPENDIX 1**  
**REVISED DIESEL CONTINGENCY FUND**  
**(DCF) PROPOSAL**



## **APPENDIX 1: REVISED DIESEL CONTINGENCY FUND (DCF) PROPOSAL**

Yukon Energy has prepared the following revised DCF proposal in response to Order 2013-01.

Order 2013-1 (paragraph 255) directs YEC to provide a revised Diesel Contingency Fund (DCF) proposal which provides for the following specific revisions to the DCF updates filed in the YEC 2012/13 GRA Application (the "Application"), Attachment 3.2 ("DCF Term Sheet: Updates for YEC Grid"):

1. Include diesel generation costs at 100% of long-term average (LTA) hydro generation.
2. Incorporate other non-diesel generation facilities (wind, Fish Lake hydro) forecasts into its model.
3. Remove secondary sales from the DCF.
4. Incorporate suggestions of CW and UCG as to how DCF transactions are to be reported.
  - a. CW requested YEC be directed to report on the DCF on a quarterly basis and the report contain a narrative indicating what action will be required for the DCF (replenish or refund).
  - b. UCG supported the CW view that the DCF filings should include a narrative section and added that the annual DCF filing should include working spreadsheets detailing the calculations and that parties be offered the opportunity to comment on the annual filings.
5. Provide an example of approximately five years of transactions which will show how the balance in the DCF will change and how those changes will be reported.

Each of the above changes has been incorporated into the revised DCF. In addition, the revised DCF provides for increasing the current threshold caps from +/- \$4 million to +/- \$8 million, and including only setting DCF determination based on approved diesel fuel costs per kW.h (without any O&M costs).

### **BACKGROUND**

In Appendix 3.2 of the Application (Attachment 3.2), YEC proposed a formulaic approach to determine expected YEC diesel generation for the YEC grid based on long-term average water-based YEC hydro generation forecast using a formulaic relationship to the integrated YEC grid generation load in each year (including non-test years) rather than a fixed value as historically done.

The following specific measures were proposed in this regard in Attachment 3.2 of the Application:

- Yukon Energy proposed that Table 3.2-1 in Attachment 3.2 be adopted to determine annual expected YEC diesel generation in the test years prior to any new mine or industrial load connections based on long-term average hydro generation at YEC grid loads (net of wind and Fish Lake generation) ranging from 400 to 500 GW.h/year.
- Yukon Energy also proposed that Table 3.2-2 in Attachment 3.2 be adopted to determine annual expected YEC diesel generation in 2013 after such time as the WHCT industrial load is

connected, based on long-term average hydro generation at YEC grid loads (net of wind and Fish Lake generation) ranging from 400 to 500 GW.h/year and the annual load shape forecast with this new industrial customer.

- Yukon Energy also committed to provide the Board with an update to Table 3.2-2 when required in future to address material changes in long-term average hydro system capability due to changes in loads, installed capacity, licensing/permits or other factors.

An updated DCF applicable to YEC activities is an integral element of the YEC revenue requirement approved by Board Order 2013-1, including direction to include YEC diesel generation in this revenue requirement and rates based on 100% long-term average YEC hydro generation.

- The updated DCF as previously filed fully reflects impacts on YEC diesel generation arising from actual variances from long-term average YEC wind and hydro generation that arise due to variances in actual wind or water conditions.
- The revised DCF proposal fully reflects impacts on YEC expected diesel generation arising from actual variances from long-term average YECL Fish Lake hydro generation that arise due to variances in actual water conditions at this YECL facility. The Fish Lake elements of the DCF in the revised proposal modify DCF-related transactions by YEC without involving YECL (other than to provide reporting on actual Fish Lake generation) and these DCF-related changes will not be affected by any future determinations regarding the ERA as provided for in Rate Schedule 42<sup>1</sup>.

Attachment 1.1 to Appendix 1.1 sets out the Revised DCF proposal, amending the DCF Term Sheet initially provided as Attachment 3.2 to the Application to address Board directions provided in paragraph 255 of the Order, and including an example of five years of transactions as required in Board Order 2013-1. Attachment 1.1 also includes revised tables<sup>2</sup> to determine annual expected diesel generation in 2012 and 2013, reflecting changes in the YEC load and generation forecasts for wholesales and industrial loads as included in YEC's Compliance Filing. Appendix 1.1 provides additional background and updated analysis to reflect the revised scope for the DCF Term Sheet.

A summary of the changes to the revised DCF in response to each Board directive is outlined below (this summary excludes the overall directions regarding adoption of 100% LTA generation and exclusion of secondary sales from the revised DCF).

## **1.0 DIRECTION TO INCORPORATE NON-DIESEL GENERATION FACILITIES (WIND, FISH LAKE HYDRO) FORECASTS**

Long-term average YEC hydro generation under any set of assumed YEC grid generation load and grid generation capacity and licence conditions is determined for the 2012/13 GRA based on power benefit model calculations based on 28 years of water record for the interconnected grid. As load

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<sup>1</sup> The Revised DCF will allow Rate Schedule 42 provisions for the ERA, which YEC and YECL are to jointly review and make joint recommendations to the Board, to exclude wholesale changes that are related only to Fish Lake water-related generation variations from long-term averages as approved by the Board.

<sup>2</sup> Tables 1.1-1 and 1.1-2 replace Tables 3.2-1 and 3.2-2 in the original GRA Application.

grows a portion of the load growth is currently served (on average) by increased YEC hydro output and the remainder by increased diesel generation.

Yukon Energy has reviewed direction provided in paragraph 255 of the Order and provides the following information summary of the Revised DCF proposal included as Attachment 1.1:

**1. Wind and Fish Lake, as non-dispatchable generation, affect the quantity of expected diesel generation in a similar manner** - Yukon Energy originally proposed to operate the DCF based off of the total YEC generation, and the expected diesel that would be required given that total generation. Based on the Board Order, YEC has revised the DCF proposal to calculate off of total grid-wide generation (YEC generation plus Fish Lake).

- a. The basic premise for the DCF calculations is that at a given load level, there is a known quantity of diesel generation that should be expected. If diesel generation varies from this expected level due to water or wind variations, the DCF should be used (credit or debit).
- b. In the revised DCF proposal, the total grid-wide load (YEC generation + actual Fish Lake generation) is the total load to be analyzed. From this total load, the long-term average or "expected" non-dispatchable generation is subtracted (wind and Fish Lake at long-term average) to yield the total expected YEC baseload grid generation.
- c. The total expected YEC baseload grid generation is then calculated into expected YEC baseload hydro and expected YEC diesel using the values from Table 1.1-1 and 1.1-2 of Appendix 1.1 (the output of the power benefits model).
- d. All other mechanics of the DCF remain the same as proposed by YEC in the Application. That is, the expected YEC diesel is compared to actual YEC diesel to determine the annual transfer from/to the DCF.

**2. Incorporation of Wind Forecasts into the DCF analysis that supports the determination of annual expected diesel generation** – Wind variation that affects diesel generation is already implicitly accounted for in the updated DCF as provided in the Application, and does not require any changes to the power benefits model:

- a. Tab 3, Appendix 3.2, Attachment 3.2 of the Application notes the last approved long-term average wind on the YEC WAF grid for the DCF was established in the 1996/97 GRA at 0.3 GWh/year.
- b. YEC proposed to update the DCF based on changes to the grid system, including using wind generation as forecast in the last approved GRA. Forecast wind for the test years reflects assumed long-term average capability (0.239 GW.h in 2012 and 0.238 GW.h in 2013). This is not sensitive to grid load, hydro generation or any other factor relevant to the power benefits model. By deducting expected wind generation from any specific grid load, the updated DCF enables the power benefits model to determine expected diesel generation under long-term average wind and hydro conditions.

- c. YUB-YEC-1-30(b) and YECL-YEC-2-1 provided a series of hypothetical scenarios that showed related impacts on the DCF and the ERA. These scenarios provided cases with wind generation at forecast and below forecast levels. In effect, the examples confirmed that the updated approach would fully reflect the impact on YEC diesel generation due to wind variances from long-term average wind generation from existing facilities<sup>3</sup>.

**3. Incorporation of Fish Lake Hydro generation impacts into the power benefits modelling that supports the determination of annual expected diesel generation –** Appendix 3.2 (page 3.2-2 and 3.2-3) of the Application notes imputed diesel generation savings or excess related to the YECL Fish Lake hydro facility were calculated in the past when the DCF was operating<sup>4</sup>. Order 2009-2 following the 2008/2009 GRA determined 8.73 GWh to be a reasonable long-term average hydro generation number for Fish Lake. However, subsequent to Order 2009-2 Unit#1 at Fish Lake was shut down and is now not expected to be operating until December 2, 2013. The original DCF proposal noted that changes in Fish Lake average hydro were beyond Yukon Energy's scope and consequently updates to DCF rules related to YECL's Fish Lake plant were not addressed by Yukon Energy in the Application.

As Yukon Energy has been directed to include Fish Lake in its revised DCF proposal, the revised DCF Term Sheet in Attachment 1.1 includes this Fish Lake hydro component, reflecting the last approved long-term average generation of 8.73 GWh/year for Fish Lake<sup>5</sup>, excluding long-term average generation for Unit #1 until such time as the unit is back in service<sup>6</sup>.

The updated DCF procedures take into account the fact that Fish Lake hydro generation variances from long-term average due to water conditions only affect the expected YEC diesel generation (not YECL diesel generation). For this reason, Fish Lake variances are included in the revised DCF for their impact on YEC diesel.

While Fish Lake variances can also affect YECL wholesale purchases, the underlying diesel-related impact on costs for the utilities and ratepayers is to YEC diesel. The DCF is not

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<sup>3</sup> The updated DCF determines YEC expected hydro and YEC expected diesel generation for any specific actual YEC grid load after deduction of expected YEC wind generation, i.e., expected YEC diesel reflects the diesel required with expected wind generation, and any variance of wind from long-term average will therefore be assumed to directly affect actual diesel generation to the extent that can occur at any give grid load and set of hydro conditions.

<sup>4</sup> Actual Fish Lake generation was compared with the long-term average Fish Lake generation forecast per the 1996/97 GRA filing (10 GWh/year) and imputed diesel cost savings or excess for YECL were calculated assuming the YEC WAF diesel generation standard efficiency and fuel prices.

<sup>5</sup> Order 2009-2 notes "In making a determination on this issue, the Board considered YECL's submission in argument that it is in a new water-licence period and is subject to certain restrictions. Further, the Board accepts YEC's suggestion that the available generation at the Fish Lake hydro plant should be based on all years of available data. Accordingly, the Board finds 8.73 GW.h is reasonable as the base generation for the Fish Lake hydro facility, prior to considering the impact of any downtime due to the Fish Lake hydro rebuilds. Therefore, the Board directs YECL in its refilling to reflect base hydro generation of 8.73 GW.h".

<sup>6</sup> In principle, as reviewed in Revised DCF proposal, the DCF is not intended to address changes in hydro generation due to unit failures, fires, replacement or licence issues.

intended, and has not been used for more than a decade to result in transactions for YECL to recover or refund simple variations in YECL wholesale purchases. For this reason, YEC does not propose any DCF related transactions involving YECL's costs or revenues.

## **2.0 DIRECTION REGARDING CONTENT OF ANNUAL FILINGS**

The Revised DCF Term Sheet in Attachment 1.1 provides for the quarterly and annual reporting as directed in Order 2013-1, as well as other related matters. In addition, the following are noted:

- The DCF account will be managed on a monthly basis to permit financial reporting through use of a simple pre-determined monthly percentage distribution. However, due to imprecision in forecast long-term average hydro monthly distributions it is possible that inappropriate values may arise during monthly estimating but these will not be part of final annual DCF calculations. Monthly calculations will be a placeholder with ultimate final calculations performed only on the annual calendar year values<sup>7</sup>.
- The response to CW-YEC-1-24(a) provided a sample pro-forma DCF monthly report with a hypothetical snapshot of the DCF status as of October 2013. A similar analysis would be re-run each month, to update the projected annual transfer and how it has changed based on each new month of data. A final true up will be done at the end of the calendar year and included in the annual report.
- The quarterly and annual report will include a narrative indicating any action that will be required for the DCF (replenish or refund). The annual DCF filing will also include (among other information) working spreadsheets detailing the DCF calculations, and it is proposed that parties be offered the opportunity to comment on the annual filings.

## **3.0 DIRECTION TO PROVIDE FIVE YEARS OF TRANSACTIONS THAT INDICATE HOW THE BALANCE IN THE DCF WILL CHANGE AND HOW THOSE CHANGES WILL BE REPORTED**

The Revised DCF Term Sheet in Attachment 1.1 provides an example for five years of transactions that indicates how the balance in the DCF will change and how those changes will be reported.

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<sup>7</sup> There are limits to the ability to permit each month to have its own formula or polynomial, and differing monthly distributions may permit occasional odd values that resolve themselves in annual calculations. This same factor applied in the DCF calculations in the past.



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## APPENDIX 1.1: REVISED DIESEL CONTINGENCY FUND (“DCF”) PROPOSAL

### INTRODUCTION

Board Order 2011-15 included the following directive at page 9:

- The Board accepts the commitment of YEC to address all DCF issues in the next GRA and directs YEC to address any changes necessary in the operating rules, administration and revised revenue requirements pertaining to the DCF in its next GRA. Also, the Board requires that YEC provide a specific definition of the term “diesel on the margin”. The Board directs that YEC complete its review and bring the necessary changes before the Board at the earliest of its next GRA or July 1, 2012.

Appendix 3.2 to YEC's 2012-2013 Application responded in full to this Board directive. Attachment 3.2 (“DCF Term Sheet: Updates for YEC Grid”) provided a summary of components of the current Diesel Contingency Fund (DCF or Fund) as per the Negotiated Settlement approved in Order 1996-7; June 2, 1999 letter to the YUB regarding Diesel Contingency Fund Filings - 1996 to 1998; and October 7, 1999 letter to the Yukon Utilities Board regarding Comments on the Diesel Contingency Fund report.

Board Order 2013-1 (paragraph 255) directed YEC to file a revised DCF proposal with the following specific revisions to the DCF updates filed in the Application:

1. Incorporate other non-diesel generation facilities (wind, Fish Lake hydro) forecasts into its model.
2. Incorporate suggestions of CW and UCG as to how DCF transactions are to be reported.
  - a. CW requested YEC be directed to report on the DCF on a quarterly basis and the report contain a narrative indicating what action will be required for the DCF (replenish or refund).
  - b. UCG supported the CW view that the DCF filings should include a narrative section and added that the annual DCF filing should include working spreadsheets detailing the calculations and that parties be offered the opportunity to comment on the annual filings.
3. Provide an example of approximately five years of transactions which will show how the balance in the DCF will change and how those changes will be reported.

### Background

Based on past practice and current rules, the DCF applied only to the Whitehorse-Aishihik-Faro (WAF) grid. As reviewed in the October 28, 2011 response to YUB-YEC/YECL-2-4 during the proceeding of the Board on Rider F, the DCF was established as a result of the Negotiated Settlement at the 1996/97 GRA, and was to operate in the same manner as YEC's earlier Low Water Reserve Fund (LWRF), established by YEC in 1991, except for certain specified changes<sup>8</sup>.

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<sup>8</sup> As noted in Attachment A to YEC's October 7, 1999 to the letter to the Board (attached to YUB-YEC/YECL-2-4 2011 response noted), the most notable adjustment for the DCF relative to the LWRF was the use of long-term average water inflows versus forecast hydro generation based on actual Aishihik water levels at the time of a rate application. The same Attachment A quoted from an April 1997 report to the YUB prepared by the accounting firm Stephen Johnson explained why such a fund is needed on the Yukon grid. YECL Fish Lake generation was not included in the LWRF.

When operative in the past, the DCF account for WAF could be either credited or debited each month for one of two reasons with regard to WAF operations:

- **When diesel is “on the margin”<sup>9</sup>** (defined as diesel being used to meet long-term firm energy requirements of the WAF system, not just periodic peaking requirements), the account stabilizes the diesel costs related to water flow variations. In these situations (i.e., with diesel on the margin), when hydro varies positive or negative from the long-term average forecast, that variance is met effectively one for one with changes in diesel generation compared to what would have occurred had the hydro variance not occurred. This happened, for example, in the periods of 1996-1998 when the Faro mine was operating, and was last triggered for January 1998.
- **When diesel is not on the margin**, the account can in certain circumstances be used to pay for the costs of baseload generation using diesel when such baseload generation arises due to low water conditions. This happened, for example, in a number of months of 1999, when diesel was not considered to be on the margin (due to low grid load levels hydro should have been able to supply all baseload requirements) but extremely low water led to the need for baseload diesel generation. In practice, the distinction between normal peaking operation and true baseload diesel has been set in the past on WAF at 250 MW.h/month for calculation purposes<sup>10</sup>.

Prior to the Yukon Energy 2012-2013 GRA, diesel has not been on the margin since the Faro mine closed in 1998. Diesel was not forecast to be on the margin, for example, in YEC's 2009 GRA. No DCF determinations have been made subsequent to the 2009 GRA.

The Fund was established for the WAF system when the Faro mine was operating and diesel was on the margin for that system, (i.e., diesel was needed to provide baseload grid energy beyond peaking periods, reserve or emergency conditions). The DCF has been generally inactive since the Faro mine closed. More specifically, the Fund has been inactive when hydro generation surplus conditions exist and diesel is not on the margin.

The Fund is to operate outside of rate base but an annual report detailing additions and deletions to the Fund is to be filed with the Board so that the Board may oversee the Fund's activities. The Board will direct the Companies on the additions and deletions to the Fund. The annual report to the Board will also include a forecast of available water for the year.

On March 29, 2010, Yukon Energy filed its 2008 Diesel Contingency Fund Filing and noted the potential need to update methods of operation of the DCF. It was noted that the DCF operating rules would require attention in the future to address a number of new circumstances, including updating long-term average hydro generation values, fund triggers, and potentially a means to address secondary sales. Today, following connection of the WAF and Mayo Dawson grids, it is also necessary to adjust the DCF to deal with more than only WAF hydro generation. Until the necessary changes in operating rules are

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<sup>9</sup> In the Yukon Energy 2008/2009 GRA filing it was noted that the DCF would not be advanced in the “diesel on the margin” mode until such time as the system has firm loads that exceed the long-term average capability of the hydro system over the course of a long period (many months to years). Yukon Energy did not anticipate a requirement for such a Fund to be in operation during 2008 and 2009. Until “diesel is on the margin” the Fund cannot be triggered and amounts cannot be debited or credited to the Fund.

<sup>10</sup> Even in cases where diesel generation exceeded 250 MW.h but the generation was for peaking requirement, the DCF has not been charged – for example, December 2008.

addressed and reviewed and approved by the YUB, Yukon Energy stated that it did not anticipate that it would trigger operation of the DCF fund.

Separate from the YEC WAF grid DCF applications and accounting, starting in 1996 imputed diesel generation savings or excess related to the YECL Fish Lake hydro facility were calculated and accounted for when the DCF was operating<sup>11</sup>. In effect, the DCF paid YECL (at YEC's then approved incremental cost of diesel fuel plus diesel O&M) for shortfall variances in Fish Lake hydro generation from the approved long-term average, and YECL paid the DCF on the same basis for surplus variance in Fish Lake hydro generation. None of these YECL-related DCF transactions affected YEC's income or costs; however, the net effect on YECL of these YECL-related DCF transactions would offset Rate Schedule 42 Energy Reconciliation Adjustment (ERA) impacts on YECL to the extent that YECL wholesale purchases from YEC were fluctuating due to Fish Lake hydro generation variances from long-term average as approved by the Board. The DCF and ERA did not apply to YECL operations when the Faro mine was not operating.

During the 2013 hearing for the YEC 2012-2013 GRA, the response to Undertaking #23 provided a continuity table for the Fund as managed by Yukon Energy. Highlights from this response include:

- The Fund had an opening balance of approximately \$4.04 million in January 1996 (including \$0.5 million balance from the LWRF), a balance of approximately \$0.65 million as at the end of 1999, and a balance of \$901,856.65 at the end of 2011. The only changes to occur in the Fund after 1999 were annual interest fees paid into the Fund.
- During the period to the end of 1999, approximately \$2.8 million of withdrawals from the DCF occurred for non-water related purposes (i.e., general rate relief) pursuant to directions of the Board<sup>12</sup>.
- YEC and YECL related impacts on the Fund are separately accounted for (reflecting separate tables).
  - Prior to the end of 1999, YEC water availability impacts on hydraulic generation capabilities included approximately \$1.1 million of withdrawals during 1996 and 1997, and approximately \$0.5 million of additions in 1998. Impacts related to the fire in 1997 at the facility were charged either to the fire insurance claim or the RFID.
  - Prior to the end of 1999, YECL withdrawals of approximately \$0.5 million from the Fund related to water availability impacts at the Fish Lake hydraulic generation facilities.

### **Updated Long-Term Average YEC Hydro and Wind Generation**

The updated DCF as proposed in YEC's 2012/13 GRA addressed the need to provide adjusted long-term average estimates for YEC hydro generation that reflect current Integrated System grid YEC loads, facilities, licences and water records, including the reality that baseload diesel generation was once again being impacted by grid loads. Board Order 2013-1 subsequently directed that YEC base its hydro and

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<sup>11</sup> Actual Fish Lake generation was compared with the long-term average Fish Lake generation forecast per the 1996/97 GRA filing (10 GW.h/year); and imputed diesel cost savings or excess were calculated assuming the YEC WAF diesel generation standard efficiency and fuel prices.

<sup>12</sup> Board Order 1997-7 directed a drawdown from the DCF to provide a 25% credit to the interim refundable general rider surcharge of 20% approved in Board Order 1997-6 (this action was in response to an OIC direction noted in the Order). Board Order 1998-5, which finalized YEC's 1997 rates, directed that the balance in the DCF be used to make contributions to all eligible customers to offset 100% of the net rider increase over the next 12 months.

diesel energy requirements on 100% long-term average hydro generation for the forecast 2012 and 2013 load in its Compliance Filing (paragraph 60 of Order 2013-1).

Board Order 2013-1 accepted YEC's expected wind generation for the test years at 239 MW.h in 2012 and 238 MW.h in 2013<sup>13</sup>. Expected wind generation is not affected by changes in YEC's grid loads.

In contrast, the Compliance Filing regarding Board Order 2013-1 was required to determine long-term average YEC hydro generation in light of the adjusted sales forecasts approved for the test years, i.e., a key consideration in regard to determination of expected long-term average YEC hydro is that long-term average YEC hydro generation today varies as YEC grid loads vary. The Compliance Filing related to Board Order 2013-1 includes long-term expected YEC hydro generation as follows:

- **2012:** Long-term expected YEC hydro generation at 397.39 GW.h (grid load generation forecast, excluding expected wind generation, of 405.32 GW.h); expected diesel generation is 7.93 GW.h.
- **2013:** Long-term expected YEC hydro generation at 405.14 GW.h (grid load generation forecast, excluding expected wind generation, of 416.15 GW.h); expected diesel generation is 11.01 GW.h.

In order to demonstrate the variance in expected long-term YEC hydro generation at different grid load levels, Figure 1.1-1 provides estimated long-term average YEC hydro generation capability over a range from 400 to 475 GW.h/year of Integrated System grid loads (net of expected YEC wind generation<sup>14</sup>), based on current installed hydro generation and licences/permits and the 2012 GRA load mix with the Minto and Alexco mine loads (as adjusted in the YEC Compliance Filing related to Board Order 2013-1)<sup>15</sup>.



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<sup>13</sup> Expected wind generation is set out in Table 2 of this Order. At paragraph 92 of Board Order 2013-1, the Board did not accept intervenor recommendations for YEC to budget added funds to improve production at Haeckel Hill to 0.8 GW.h/year in 2013.

<sup>14</sup> Excluding expected wind generation in effect assumes that expected wind generation occurs, i.e., any variance in wind generation due to wind fluctuation from the expected level will thereby be treated by the DCF in the same way as any variance in hydro generation due to water availability fluctuation from the expected level.

<sup>15</sup> Also reflects added wholesales due to continued closure of Fish Lake Unit #1 during 2012.

**Figure 1.1-1: YEC Hydro Generation at Different 2012 Load Scenarios**

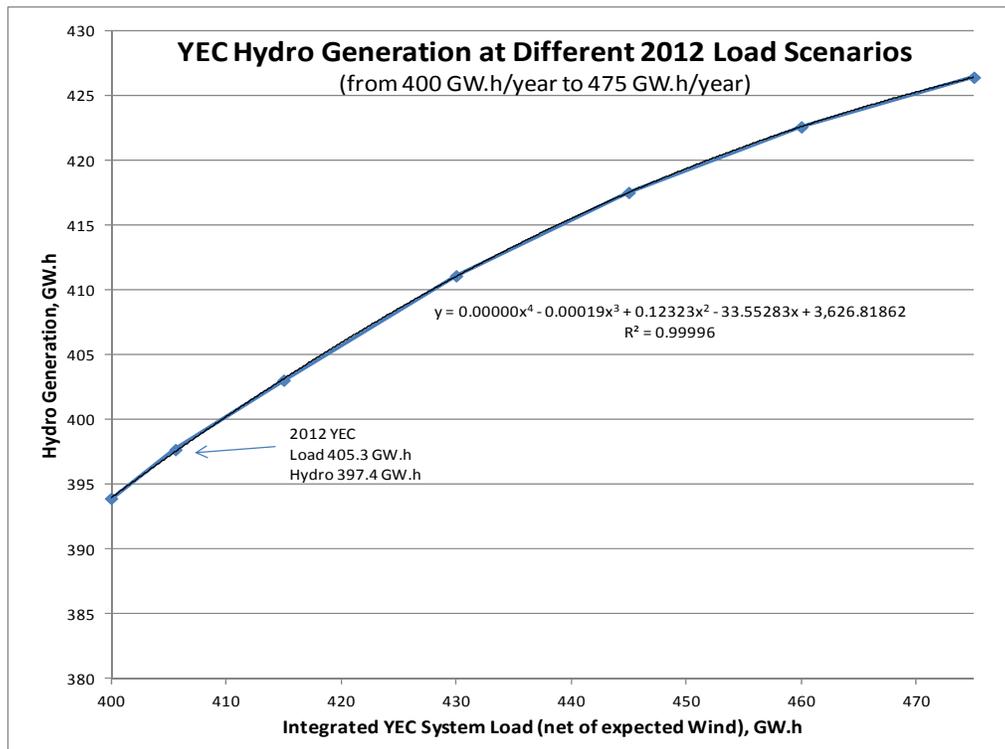


Table 1.1-1 (Attachment 1.1) shows the resulting estimates of 2012 hydro and diesel generation at 5 GW.h/year grid load increments as shown in Figure 1.1-1. Extensions of this model can be provided for higher grid loads and different load mixes - but such extensions would require modified formula to address both the higher load range and any expected shift in annual load shape at such higher grid loads.

Long-term average YEC hydro generation at any specific grid load will vary slightly when new mines are added that modify the annual load shape. Accordingly, adjustments are needed to Table 1.1-1 to reflect material changes in load mix or shape.

By way of example, Table 1.1-2 (Attachment 1.1) shows the slightly modified estimates of long-term average hydro and diesel generation at 5.0 GW.h/year grid load increments with YEC loads as provided in the Compliance Filing for Board Order 2013-1, based on current installed hydro generation and licences/permits and the 2013 GRA loads in the Compliance Filing with the addition of the Whitehorse Copper Tailings (WHCT) mine load (also reflects added wholesales due to continued closure of Fish Lake unit #1 until December 2013). Table 1.1-2 only becomes applicable for 2013 (i.e., replaces Table 1.1-1) if WHCT is connected as assumed in mid 2013.

Hydro generation in any one year can vary a great deal from the long-term average estimated in the above figure. By way of example, Appendix 3.2 of the Application noted that at grid loads as initially forecast for 2013 of 430.4 GW.h/year and based on water year records currently included in the relevant water models:

- Long-term average hydro generation (net of expected wind at 0.2 GW.h) capability approximates 412.0 GW.h, with expected diesel generation (long-term average) approximating 18.2 GW.h.

- In extreme high water years increased hydro generation capability could lead to almost no baseload diesel generation; and
- In extreme low water years reduced hydro generation capability could require diesel generation exceeding 100.0 GW.h/year.

### **Updated Long-Term Average Fish Lake Generation & Related DCF Update**

In contrast to YEC hydro generation, YECL's Fish Lake hydro generation is not affected in any material way by YECL's wholesales load levels or YEC's overall grid loads. Accordingly, updating the DCF for Fish Lake hydro simply involves updating the long-term average Fish Lake hydro generation based on current information, and including variances in actual Fish Lake generation versus the long-term average when assessing YEC diesel generation impacts on the DCF.

In Order 2009-2 following the 2008/2009 YECL GRA, the Board determined 8.73 GW.h to be a reasonable long-term average hydro generation number for Fish Lake; however, subsequent to Order 2009-2, Unit #1 at Fish Lake has been shut down during 2012 and is not currently expected to be replaced until December 2013.

Subsequent to the Compliance Filing for Board Order 2013-1, YEC has consulted with YECL and confirmed that 8.73 GW.h is currently the appropriate long-term average hydro generation for Fish Lake when both units are in operation. In the Compliance Filing this long-term average for 2013 is reduced by 3.85 GW.h to reflect shut down of Unit #1 until December. YEC assumes that the Board will review long-term average Fish Lake generation estimates in its decision on the current YECL GRA proceeding and that any adjustments required for 2013 or subsequent years will be identified in the Board's decision.

In the updated DCF as it relates to Fish Lake hydro, the impacts on YEC diesel generation from variances in Fish Lake hydro generation from long-term average must be determined taking into account the extent to which YEC long-term hydro varies as YEC grid load varies. This assessment is done for any given year based on the impact on expected YEC diesel generation at actual YEC grid generation loads for that year, i.e., any Fish Lake generation variance from long-term average would have reduced or increased YEC's expected generation relative to what was determined based on actual YEC grid loads (including YECL wholesales that had been affected by the Fish Lake generation variance).

- This impact is determined by adjusting the YEC grid load used to determine expected YEC diesel (i.e., the grid load used for Tables 1.1-1 and 1.1-2) for the difference between actual Fish Lake generation and long-term average expected Fish Lake generation (after adjustments as needed for any unit shutdowns).
- In this way, changes to YEC diesel generation costs impacts (positive and negative) related to Fish Lake water variances are directly tracked and YEC's DCF transactions modified as required to comply with Order 2013-1.

### **Revised DCF Term Sheet re: Recommended DCF Updates for YEC Grid & YECL Fish Lake**

Attachment 1.1 to this proposal includes a Revised DCF Term Sheet that sets out the current provisions of the DCF and recommended adjustments to update the DCF for the YEC grid and YECL Fish Lake generation, based on current circumstances on the Integrated Grid and the Board's directions in Order 2013-1.

With regard to Board Order 2013-1, in summary the following are addressed:

- Inclusion of diesel generation costs at 100% of long-term average (LTA) hydro generation.
- Incorporation of non-diesel generation forecasts into DCF determinations:
  - Confirm that YEC wind generation differences from LTA will impact the DCF; and
  - Procedures and assumptions to incorporate Fish Lake generation into DCF determinations.
- Removal of secondary sales from the DCF.
- Quarterly and annual reporting is provided that incorporates suggestions of CW and UCG.
- An example over five years shows how the DCF balance changes and will be reported.





## ATTACHMENT 1.1: REVISED DCF TERM SHEET: YEC GRID & YECL FISH LAKE

### PURPOSE

#### & FUNCTION:

The DCF operates to smooth customer rate changes and changes in forecast diesel costs due to variability in existing grid hydro and wind generation. The Fund is only to be used for these purposes and is not to be accessed for other reasons without prior YUB approval, including government subsidy of rates. Historically, the DCF has operated to offset diesel generation cost changes only for the WAF system<sup>1</sup> caused solely by variances from long-term average levels of WAF system hydro and wind generation.

**UPDATE:** *For the purposes of updating the Fund to address circumstances in 2012, the following additional adjustments are required: (1) the Fund needs to be amended to address the new interconnected system (i.e., not reference only "WAF" system generation and instead reference all interconnected grid hydro operated by YEC); (2) the Fund needs to be amended to address incremental costs for any fossil fuel used to displace diesel fuel (e.g., natural gas as may be supplied by LNG, as well as incremental costs for diesel fuel).*

### LONG-TERM

#### AVERAGE:

The Fund currently assumes that the quantum of YEC diesel generation costs in rates is determined using the long-term average water expected to be available for YEC hydro generation and for YECL's Fish Lake hydro generation.

The last approved long-term average hydro and wind on the YEC WAF grid for the DCF as established in the 1996/97 GRA is set out below<sup>2</sup>:

1. Aishihik Facility - 105 GWh/yr;
2. Whitehorse Rapids - 246 GWh/yr;
3. YEC wind generation - 0.3 GWh/yr; and
4. YECL Fish Lake hydro -10 GW.h/yr.

**UPDATE:** *The above long-term average generation for YEC wind and Fish Lake hydro generation can be updated as required based on latest GRA approvals by the Board, e.g., as at April 2013, expected YEC wind generation is 0.24 GW.h/yr and long-term average Fish Lake hydro generation is 8.73 GW.h less any loss of this generation due to shut down of a unit (in 2013, the long-term average is reduced in the Compliance Filing by 3.85 GW.h due to expected shut down of Unit #1 until December; in 2012, the long-term average is reduced by 4.35 GW.h due to shut down of Unit #1 all year).*

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<sup>1</sup> After UKHM closed prior to 1990, surplus hydro conditions existed in Mayo system.

<sup>2</sup> The 2008/2009 GRA noted Yukon Energy's long-term average hydro generation capability from its Whitehorse and Aishihik plants on the WAF system, as estimated in the 1996/1997 General Rate Application when the Faro mine was assumed to be fully operational and all available hydro generation was expected to be fully utilized, approximated 351 GW.h per year.

*However, the previous approach of setting a single value for the long-term average YEC hydro is not suited to today's system. At the range of grid loads relevant today and current hydro capabilities, it is necessary to recognize that long-term average YEC hydro capability varies with variations in annual grid loads. Additional variation can occur regarding month-by-month estimates of long-term average hydro and wind generation in years when, for at least some months, diesel is not on the margin.*

*The following changes are required as regards the determination of expected YEC hydro generation:*

**1. Updates based on changes to YEC grid system**

- a. Mayo facility long-term average hydro updated to include existing conditions and licences with regards to Mayo A and Mayo B.*
- b. Aishihik facility long-term average hydro based on existing conditions and licences, including Aishihik Third Turbine.*
- c. Long-term average wind generation as forecast in the last approved GRA. As noted below, this expected wind generation is deducted from actual YEC generation (net of any secondary sales related generation) when determining expected YEC hydro and diesel generation.*

**2. Update to include YECL Fish Lake hydro impacts on Expected YEC Generation** – *Long-term average Fish Lake generation forecasts, as described above, are required by Board Order 2013-1 to be incorporated into YEC's model for determining expected YEC hydro and diesel generation.*

*As is the case with wind generation, expected generation from Fish Lake hydro is not affected by overall YEC grid loads and therefore the effects of this generation can best be assessed prior to the determination of expected YEC hydro generation.*

*Accordingly, as is done with wind generation, YECL Fish Lake generation will be incorporated at the outset into the calculation of grid generation loads used to determine expected YEC hydro and diesel generation, i.e., actual YECL Fish Lake generation will be added to actual YEC grid generation (net of secondary sales impacts on YEC generation), and expected (i.e., long-term average) Fish Lake generation will then be deducted. In this manner, grid loads will be determined excluding expected wind and expected Fish Lake hydro.*

**3. Formulaic approach** – *determine expected YEC diesel generation based on long-term average water-based YEC hydro generation that is forecast using a*

*formulaic relationship to load in each year (including non-test years) rather than a fixed value as historically done<sup>3</sup>:*

- a. Table 1.1-1 is adopted at this time to determine annual expected YEC diesel generation prior to any new mine or industrial load connections based on long-term average YEC hydro generation at YEC grid loads (net of expected wind and expected Fish Lake generation) ranging from 400 to 475 GW.h/year.*
- b. The summary below (Example 1.1-1) provides an example of the determination of expected YEC diesel generation at a grid load of 417 GW.h (net of expected wind and expected Fish Lake generation).*

**Example 1.1-1: Expected YEC Diesel Generation Example for the YEC Load at 417 GW.h  
(net of expected YEC Wind and expected Fish Lake)**

- Step 1. Find the closest load from Column A that is less than 417 GW.h = 415 GW.h (Line 4).
- Step 2. Find the diesel generation from Column C = 11.8 GW.h (Line 4).
- Step 3. Find the difference between the given load (417 GW.h) and load from Step 1 (415 GW.h) = 2 GW.h
- Step 4. Apply the percentage from Column F (Line 5, 46%) to the difference from Step 3 (2 GW.h) = 0.92 GW.h
- Step 5. Add numbers from Step 2 (11.8 GW.h) and Step 4 (0.92 GW.h) = 12.72 GW.h

The expected diesel generation at 417 GW.h load is 12.72 GW.h.

Notes:

The load assumed the maximum load at 475 GW.h and the minimum load at 400 GW.h.

- c. Table 1.1-2 is adopted at this time to determine annual expected YEC diesel generation in 2013 after such time as the Whitehorse Copper Tailings industrial load is connected to YECL, based on long-term average hydro generation at grid loads (net of expected YEC wind and expected Fish Lake generation) ranging from 400 to 500 GW.h/year and the annual load shape forecast with this new industrial load.*
- d. Yukon Energy will provide an update to Table 1.1-2 when required in future to address material changes in long-term average YEC hydro*

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<sup>3</sup> Long-term average hydro generation under any set of assumed grid generation load and grid generation capacity and licence conditions is determined in the 2012/13 GRA based on power benefit model calculations based on 28 years of water record for the interconnected grid. As load grows a portion of the load growth is currently served (on average) by increased hydro output and the remainder by increased average diesel. This same analysis would apply to LNG if it replaces diesel on the grid.

*system capability due to changes in loads, installed capacity, licensing/permits or other factors.*

- 4. Monthly and Annual reporting of YEC Hydro Long-Term Average Hydro and Expected YEC Diesel Generation** – *ensure the account can be managed on a monthly basis to permit financial reporting through use of a simple pre-determined monthly percentage distribution. Due to imprecision in forecast long-term average YEC hydro monthly distributions it is possible that inappropriate values may arise during monthly estimating but these will not be part of final annual DCF calculations. Monthly calculations of YEC expected hydro and diesel generation will therefore be a placeholder with ultimate final calculations performed only on the annual values<sup>4</sup>.*

**DCF DIESEL  
SAVINGS  
(COSTS):**

YEC diesel generation savings (excess) for the DCF related to changes in non-diesel generation for YEC or YECL is calculated to remove the effects of YEC hydro-wind or YECL Fish Lake hydro generation variances. Diesel cost savings (excess) are calculated based on the approved forecasts for YEC WAF diesel generation costs per kWh based on GRA approved fuel prices, average diesel unit fuel efficiency, and average diesel unit incremental O&M costs per kWh<sup>5</sup>.

**UPDATE:** *The relevant diesel fuel prices, unit fuel efficiency and incremental O&M costs are updated in each YEC GRA. In principle, the same approach would also apply regarding any other fossil fuel, i.e., these cost parameters are not limited only to diesel. To become operational for a fossil fuel other than diesel, this would require a GRA to approve related non-diesel fuel costs and engine efficiencies.*

*At this time, with 100 % LTA diesel generation being re-applied, the updated DCF will only include diesel fuel prices and unit fuel efficiency, i.e., 28.71 c/kW.h (the average YEC diesel fuel cost in the current test years based on the 2012/13 Compliance Filing). Although an incremental O&M cost of 3 c/kW.h was adopted for some purposes in the 2009 Phase II filings, this number was not based on short-term incremental costs applicable to YEC and no such updated cost information has been developed or reviewed at this time<sup>6</sup>. In order to ensure that the DCF in fact tracks incremental short-term costs for YEC as these change*

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<sup>4</sup> There are limits to the ability to permit each month to have its own formula or polynomial, and differing monthly distributions may permit occasional odd values that resolve themselves in annual calculations. This same factor applied in the DCF calculations in the past.

<sup>5</sup> Forecast from 1996/97 GRA were as follows: standard efficiency at 3.71 kWh/litre of fuel and YEC average WAF diesel fuel price forecast at approximately 29.60 cents/litre. Variable O&M costs per kWh of diesel fuel were assumed at 1.6 cents per litre, as assumed for the approved 1996/97 GRA retail runoff rates calculations for WAF.

<sup>6</sup> For example, see evidence of Mr. Bowman, Vol. 18 of the transcript regarding the Phase II hearing, at page 174 and an explanation as to why the change in O&M from 1.6 cents per kW.h (in YEC's Phase 1 GRA) to 3 cents per kW.h (in the Part II application).

*within a given year, it is important that non-fuel O&M reflect costs that do in fact change in the year due to changes in actual diesel generation - and at this time, YEC has not recently assessed these costs. YEC will review and report on this at its next GRA.*

## **DIESEL**

### **ON THE MARGIN:**

Historically, the DCF was to be used only for offsetting baseload diesel generation changes due to the hydro/wind variances from long-term forecasts reflected in rates set in a GRA, and the DCF was only active when YEC diesel was on the margin. The 1996 evidence presumed YEC diesel generation was not on the margin for the WAF system when the Faro mine was closed.

**UPDATE:** *Under the proposed updated approach, the Fund would be permanently switched "on" through a formulaic approach that, subject to YUB review at each YEC GRA, automatically adjusts forecast long-term YEC hydro generation and related diesel (or other non-diesel fossil fuel) YEC generation to reflect actual YEC grid generation load. Accordingly, there would no longer be a YEC diesel on the margin test for activating the DCF.*

*With the YEC diesel on the margin test discontinued for the DCF, there is need to consider other related items that would be affected (i.e., RS 42 with the related ERA currently requires that diesel on the margin be defined).*

- *Effective the same date that the updated DCF approach becomes effective (i.e., January 1, 2012, as that is the date when YEC diesel generation is to be included in rates at 100% of LTA), for the purpose of any ERA included with RS 42 it is necessary to recognize that diesel is on the margin, and that any required ERA determinations be made based on YEC costs incurred for actual diesel generation and/or DCF-related payments, i.e., based on the DCF as updated, YEC costs related to YEC grid loads (and grid load changes) would be determined as provided for in the updated DCF.<sup>7</sup> As in the past DCF operation, ERA determinations do not affect any of the DCF determinations.*

## **QUANTUM**

### **& CAP:**

The initial Fund was determined based on funds available as at December 31, 1995<sup>8</sup>. The cap on the Fund is currently set at the initial contribution level (\$4,040,046). The "negative cap" is currently (\$-4,040,046). If the Fund accumulates revenues in excess of the cap, the surplus balance at the end of the

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<sup>7</sup> Board Order 2013 directed YEC to re-file a Rate Schedule 42 in cooperation with YECL, and to work with YECL to provide a joint recommendation on how the DCF will affect the ERA in Rate Schedule 42 and any proposed wording changes to that rate schedule with regard to the ERA (paragraph 281 and paragraph 255). As reviewed in Section 1 of YEC's Compliance filing relating to Order 2013-1, Yukon Energy is meeting with YECL to develop a joint recommendation on how the DCF will affect the ERA in Rate Schedule 42 and any proposed wording changes to that rate schedule, and will report to the Board as soon as possible on this matter.

<sup>8</sup> The opening balance as at January 1, 1996 was \$4,040,046.

year is to be refunded by way of a rate-rider rebate to customers over the following two years. If the Fund falls below the equivalent negative cap level, a rate-rider increasing customer bills will occur to maintain the fund within the positive and negative cap levels.

**UPDATE:** *Major adjustments to the cap need to be considered to adequately address the material potential swings related to diesel generation (e.g., potential for greater than +/- \$20 million swings)<sup>9</sup>. However, it is not apparent that an excessively high cap would either (a) be able to be fully financed by YEC in the event it was a negative DCF balance; or (b) would yield the best outcome in terms of rate stability. In this respect, when diesel remains the marginal source of supply, one possibility is that the Fund have a very high cap for positive funding (perhaps up to \$20 to 30 million reflecting the degree of possible drought today; funds which would be externally invested, or available to be "borrowed" by YEC as short-term capital) but a much lower cap in terms of negative balances that must be financed by YEC.*

*Given Board Order 2013-1 set rates at 100% of LTA and fuel costs at this time still require high cost diesel, YEC recommends that the current threshold be doubled to +/- \$8 million. Given that the Fund is ultimately in place to provide rate stability for ratepayers and protect for potential drought conditions as were experienced in the late 1990s, Yukon Energy believes that the recommended threshold is appropriate at this time, but will require ongoing review at each GRA. If the cap is exceeded at the end of any fiscal year, YEC will provide an application to the Board for a rate rider charge or rebate as required to deal with such excess or deficit (including a proposal as to the term for such rider).*

**INTEREST:**

The Fund is to attract interest based upon the short/intermediate term bond rates in which the Companies may invest the Fund and any negative balances would only attract interest at the lowest short-term borrowing rate available to the Companies through a line of credit.

**UPDATE:** *No change is recommended to the current mechanism for interest.*

**QUARTERLY &  
ANNUAL  
REPORTING:**

An annual report is required to be filed with the Board detailing additions and deletions to the Fund, and the Board directs the Companies (YEC and YECL) on the additions and deletions to the Fund. The annual report to the Board is also to include a forecast of available water for the year.

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<sup>9</sup> As noted at page 3.2-4 of the YEC 2012/13 GRA, under the then forecast potential loads in 2013 potential annual diesel generation due to hydro fluctuations could exceed 100 GW,h/year, or over 80 GW.h higher than the applicable annual long-term average, reflecting a potential swing in annual diesel generation costs exceeding \$20 million in extreme conditions. Further, the historical water record indicates that such extreme drought conditions can occur within a series of multiple low water years such as occurred from 1996 through 2000.

**UPDATE:** *Yukon Energy, with the assistance of YECL as regards actual Fish Lake hydro generation, will provide a quarterly report detailing additions and deletions to the Fund as then recorded (which are subject to adjustment as noted earlier at calendar year end), and providing a narrative indicating what, if any, actions are required to replenish or refund monies with regard to the Fund (due to the Fund being expected to approach its positive or negative cap as then defined by the Board). The annual report filed with the Board by YEC will include any updated Table 1.1-1 or Table 1.1-2 that is adopted for determining YEC expected hydro and diesel generation for the year (reflecting actual grid load and other relevant factors as required and feasible) as well working spreadsheets detailing the DCF calculations, and it is proposed that the Board offer parties the opportunity to comment on the annual filing.*

**5-YEAR**

**EXAMPLE:**

*Tables 1.1-3, 1.1-4 and 1.1-5 provide an example of five years of transactions which show how the balance in the DCF would change under assumed conditions going forward from the 2012/13 GRA forecasts and how those changes will be reported.*



**Table 1.1-1: Expected YEC Diesel Generation with LTA YEC Hydro Generation  
 (Assumes Only Minto & Alexco Mine Loads for 2012 (Compliance Filing))**

Line Number	YEC Grid Load (GWh)	YEC Hydro Generation (GWh)	YEC Diesel Generation (GWh)	Increase in		Diesel as % of Increased Load
				Load (GWh)	Diesel Generation (GWh)	
	Column A	Column B	Column C	Column D	Column E	Column F = E/D
1	400	394.0	6.0			
2	405	397.2	7.8	5.0	1.8	36%
3	410	400.2	9.8	5.0	2.0	40%
4	415	403.2	11.8	5.0	2.0	40%
5	420	405.9	14.1	5.0	2.3	46%
6	425	408.6	16.4	5.0	2.3	46%
7	430	411.1	18.9	5.0	2.5	50%
8	435	413.4	21.6	5.0	2.7	54%
9	440	415.5	24.5	5.0	2.9	58%
10	445	417.5	27.5	5.0	3.0	60%
11	450	419.4	30.6	5.0	3.1	62%
12	455	421.1	33.9	5.0	3.3	66%
13	460	422.6	37.4	5.0	3.5	70%
14	465	424.0	41.0	5.0	3.6	72%
15	470	425.3	44.7	5.0	3.7	74%
16	475	426.4	48.6	5.0	3.9	78%

Notes:

- "YEC Grid Load" is annual YEC generation load on the Integrated Grid, excluding expected (GRA forecast) YEC Wind generation and actual less expected Fish Lake hydro generation.
- The diesel generation and increase for the added load are based on polynomial equations derived from "YECSIM" - the simulation model developed for the Integrated Grid by KGS Group.
- The simulation model develops expected hydro plant capabilities for each load scenario. It reviews, by week, 28 "water years" of record (1981-2008) and 20 "load years" (each examines a different hypothetical scenario to reflect different sequences of the recorded water years), of which 13 load years (load years 7-19) are used for the final averaging (this deletes cases where starting or ending year volumes can distort results). "Hydro Generation" is long-term average hydro generation as estimated by YECSIM.
- The simulation model outputs for this table are based on Aishihik operation rule at 10-year rolling average spring elevation no lower than 913.7 m and current Mayo Lake operation rule (no additional storage), Mayo B and Aishihik 3rd turbine are included.
- The simulation model outputs are based on 2012 forecast load distributions [updated based on YUB Order 2013-01], and requires modifications when new mines or industrial loads are connected to the grid.
- This table assumes max load at 475 GW.h and minimum load at 400 GW.h. If the load exceeds these limits then the table needs to be updated.
- Numbers are subject to rounding.

**Example**

**Expected YEC Diesel Generation for the YEC generation at 417 GW.h (net of expected (GRA) Wind)**

- Step 1. Find the closest load from Column A that is less than 417 GW.h = 415 GW.h (Line 4).
- Step 2. Find the diesel generation from Column C = 11.8 GW.h (Line 4).
- Step 3. Find the difference between the given load (417 GW.h) and load from Step 1 (415 GW.h) = 2 GW.h
- Step 4. Apply the percentage from Column F (Line 5, 46%) to the difference from Step 3 (2 GW.h) = 0.92 GW.h
- Step 5. Add numbers from Step 2 (11.8 GW.h) and Step 4 (0.92 GW.h) = 12.72 GW.h

The expected diesel generation at 417 GW.h load is 12.72 GW.h.

Notes:

The load assumed the maximum load at 475 GW.h and the minimum load at 400 GW.h.

**Table 1.1-2: Expected YEC Diesel Generation with LTA YEC Hydro Generation  
 (Assumes WHCT & Other Industrial Loads for 2013 (Compliance Filing))**

Line Number	YEC Grid Load (GWh)	YEC Hydro Generation (GWh)	YEC Diesel Generation (GWh)	Increase in		Diesel as % of Increased Load Column F = E/D
				Load (GWh)	Diesel Generation (GWh)	
	Column A	Column B	Column C	Column D	Column E	
1	400	394.9	5.1			
2	405	398.3	6.7	5.0	1.6	32%
3	410	401.5	8.5	5.0	1.8	36%
4	415	404.5	10.5	5.0	2.0	40%
5	420	407.3	12.7	5.0	2.2	44%
6	425	409.9	15.1	5.0	2.4	48%
7	430	412.3	17.7	5.0	2.6	52%
8	435	414.6	20.4	5.0	2.7	54%
9	440	416.7	23.3	5.0	2.9	58%
10	445	418.7	26.3	5.0	3.0	60%
11	450	420.5	29.5	5.0	3.2	64%
12	455	422.2	32.8	5.0	3.3	66%
13	460	423.9	36.1	5.0	3.3	66%
14	465	425.4	39.6	5.0	3.5	70%
15	470	426.8	43.2	5.0	3.6	72%
16	475	428.1	46.9	5.0	3.7	74%
17	480	429.4	50.6	5.0	3.7	74%
18	485	430.6	54.4	5.0	3.8	76%
19	490	431.8	58.2	5.0	3.8	76%
20	495	432.9	62.1	5.0	3.9	78%
21	500	434.0	66.0	5.0	3.9	78%

Notes:

- "YEC Grid Load" is annual YEC generation load on the Integrated Grid, excluding expected (GRA forecast) YEC Wind generation and actual less expected Fish Lake hydro generation.
- The diesel generation and increase for the added load are based on polynomial equations derived from "YEC SIM" - the simulation model developed for the Integrated Grid by KGS Group.
- The simulation model develops expected hydro plant capabilities for each load scenario. It reviews, by week, 28 "water years" of record (1981-2008) and 20 "load years" (each examines a different hypothetical scenario to reflect different sequences of the recorded water years), of which 13 load years (load years 7-19) are used for the final averaging (this deletes cases where starting or ending year volumes can distort results). "Hydro Generation" is long-term average hydro generation as estimated by YEC SIM.
- The simulation model outputs for this table are based on Aishihik operation rule at 10-year rolling average spring elevation no lower than 913.7 m and current Mayo Lake operation rule (no additional storage), Mayo B and Aishihik 3rd turbine are included.
- The simulation model outputs are based on 2013 forecast load distributions [updated based on YUB Order 2013-01], and requires modifications when new mines or industrial loads are connected to the grid.
- This table assumes max load at 500 GW.h and minimum load at 400 GW.h. If the load exceeds these limits then the table needs to be updated.
- Numbers are subject to rounding.

**Example**

**Expected YEC Diesel Generation for the YEC generation at 447 GW.h (net of expected (GRA) Wind)**

- Step 1. Find the closest load from Column A that is less than 447 GW.h = 445 GW.h (Line 10).
- Step 2. Find the diesel generation from Column C = 26.3 GW.h (Line 10).
- Step 3. Find the difference between the given load (447 GW.h) and load from Step 1 (445 GW.h) = 2 GW.h
- Step 4. Apply the percentage from Column F (Line 11, 64%) to the difference from Step 3 (2 GW.h) = 1.28 GW.h
- Step 5. Add numbers from Step 2 (26.3 GW.h) and Step 4 (1.28 GW.h) = 27.58 GW.h

The expected diesel generation at 447 GW.h load is 27.58 GW.h.

Notes:

The load assumed the maximum load at 500 GW.h and the minimum load at 400 GW.h.

**Table 1.1-3: YEC 2012/13 GRA Compliance Filing: DCF Operation Example for 5 Years**

Line	Activity	Year 1	Year 2	Year 3	Year 4	Year 5
<b>A</b>	<b>DCF Opening Balance<sup>1</sup> (\$000s)</b>	<b>\$902</b>	<b>\$1,731</b>	<b>\$2,300</b>	<b>\$3,285</b>	<b>\$1,100</b>
B	Yukon Grid Generation <sup>2</sup>	409,653	420,987	445,500	455,600	470,200
C	YECL Fish Lake <sup>2</sup>	4,100	4,600	8,900	7,000	9,200
	YEC Grid Generation <sup>2</sup>					
D	Assumed actual YEC Hydro (MW.h)	400,108	407,149	418,362	413,400	425,762
E	Assumed actual YEC Diesel (MW.h)	5,000	9,000	18,000	35,000	35,000
F	Assumed actual actual Wind (MW.h)	445	238	238	200	238
G=D+E+F	Total YEC Generation (MW.h)	405,553	416,387	436,600	448,600	461,000
H	Expected YEC Diesel Generation in Rates <sup>3</sup> (MW.h)	7,814	10,882	21,289	27,344	36,962
I=E-H	YEC Diesel Generation to be Included in DCF (MW.h)	-2,814	-1,882	-3,289	7,656	-1,962
J	YEC Adjustments <sup>4</sup> (MW.h)	0	0	0	0	0
K=H-J	YEC Diesel Generation Included in DCF after Adjustments (MW.h)	-2,814	-1,882	-3,289	7,656	-1,962
L=K*\$0.3168	Incremental Diesel Generation Cost to Charge <sup>5</sup> (Refund) DCF (\$000s)	(\$808)	(\$540)	(\$944)	\$2,198	(\$563)
M=L	Total DCF operation for YEC					
	YEC pays to DCF Fund	\$808	\$540	\$944		\$563
	YEC withdraws from DCF Fund				(\$2,198)	
<b>N=A+M</b>	<b>DCF Ending Balance (\$000s)</b>	<b>\$1,710</b>	<b>\$2,272</b>	<b>\$3,244</b>	<b>\$1,087</b>	<b>\$1,664</b>
<b>O</b>	<b>Interest on DCF Balance<sup>6</sup> (\$000s)</b>	<b>\$21</b>	<b>\$28</b>	<b>\$41</b>	<b>\$14</b>	<b>\$21</b>
<b>P=N+O</b>	<b>DCF Ending Balance<sup>7</sup> after Interest charge (\$000s)</b>	<b>\$1,731</b>	<b>\$2,300</b>	<b>\$3,285</b>	<b>\$1,100</b>	<b>\$1,685</b>

Notes:

- DCF opening balance for Year 1 is 2011 actual ending balance of DCF account.
- Assumed actual generation. Please see detailed calculations in Table 1.1-4.

3. Expected YEC diesel generation is calculated based on Table 1.1-1 and Table 1.1-2. Please see detailed calculations in Table 1.1-4.

4. Adjustments for YEC would include diesel generation not related to load or water variance, e.g., maintenance, fires, construction, etc.

5. Diesel generation cost assumed at 28.71 cents/kW.h (based on 2012/13 GRA Compliance Filing average fuel cost).

6. Per the March 11, 1996 letter recording the settlements [provided as Exhibit B-16 in the 2008/2009 GRA] the DCF fund is to attract interest based upon the short/intermediate term bond rates in which the Companies may invest the fund and any negative balances would only attract interest at the lowest short-term borrowing rate available to the Companies through a line of credit. For this example used 1.25% based on Government of Canada Bond Yields for 3-year and 5-year issues.

7. Positive balances represent amounts to the benefit of ratepayers; negative balances are amounts owing to the Companies.

**Table 1.1-4: DCF Example for 2012-2016 YEC Load Cases**

Line No				Notes
L1	Fuel Cost per kW.h	28.71 cents/kW.h		Compliance Filing Average Fuel cost
<b>Calculation of Diesel Cost to Charge (Refund) DCF - YEC portion of DCF</b>				
<b>Year 1 - 2012 GRA compliance filing load forecast; Actual Wind at Forecast; Actual Diesel Generation Below Expected</b>				
<i>Assumptions</i>				
L2	YEC Grid load	405,553 MW.h		assumed actual
L3	Fish Lake	4,100 MW.h		assumed actual
L4=L2+L3	Total Grid load	409,653 MW.h		
<i>Assumed Actual Generation Sources</i>				
L5	YECL Fish Lake	4,100 MW.h		assumed actual
L6	YEC Hydro	400,108 MW.h		assumed actual
L7	YEC Diesel	5,000 MW.h		assumed actual
L8	YEC Wind	445 MW.h		assumed actual
L9	Total Grid load	409,653 MW.h		
<i>Expected Generation Sources</i>				
L10	YECL Fish Lake (expected)	4,380 MW.h		YECL Fish Lake long term average hydro generation based on YUB Order 2009-2 (page 11) on YECL's 2008/09 GRA at 8.73 GW.h less 4.35 GW.h for Unit #1.
L11	YEC Wind (expected)	239 MW.h		
L12=L9-L10-L11	YEC Grid load net of expected Fish Lake and Wind	405,034 MW.h		
L13	Expected Base Diesel Generation at 405 GW.h	7,800 MW.h		Derived from Table 1.1-1
L14=(L12-405 GW.h)x40%	Expected Incremental Diesel Generation at 34 MW.h above 405 GW.h	14 MW.h		40% of Grid Load between 405 GW.h and 410 GW.h is diesel -
L15=L13+L14	Total Expected YEC Diesel Generation	7,814 MW.h		Derived from updated Table 1.1-1 for GRA Compliance Filing
L16=L15	Expected YEC Diesel Generation in Rates	7,814 MW.h		100% of long-term average
L17=L7	Actual YEC Diesel Generation	5,000 MW.h		assumed actual
L18=L17-L16	YEC Diesel Generation to be Included in DCF	- 2,814 MW.h		
L19=L1xL18	Incremental YEC Diesel Generation Cost to Charge (Refund) DCF (\$000s)	(\$808)		

**Table 1.1-4 (cont): DCF Example for 2012-2016 YEC Load Cases**

**Year 2 - 2013 GRA compliance filing load forecast; Actual Wind at Forecast; Actual Diesel Generation Below Expected**

<i>Assumptions</i>			
L2	YEC Grid load	416,387 MW.h	assumed actual
L3	Fish Lake	<u>4,600</u> MW.h	assumed actual
L4=L2+L3	Total Grid load	420,987 MW.h	
<b>Assumed Actual Generation Sources</b>			
L5	YECL Fish Lake	4,600 MW.h	assumed actual
L6	YEC Hydro	407,149 MW.h	assumed actual
L7	YEC Diesel	9,000 MW.h	assumed actual
L8	YEC Wind	<u>238</u> MW.h	assumed actual
L9	Total Grid load	420,987 MW.h	
<b>Expected Generation Sources</b>			
L10	YECL Fish Lake (expected)	4,880 MW.h	YECL Fish Lake long term average hydro generation based on YUB Order 2009-2 (page 11) on YECL's 2008/09 GRA at 8.73 GW.h less 3.85 GW.h for Unit #1 for Jan-Dec 2013.
L11	YEC Wind (expected)	<u>238</u> MW.h	
L12=L9-L10-L11	YEC Grid load net of expected Fish Lake and Wind	415,869 MW.h	
L13	Expected Base Diesel Generation at 415 GW.h	10,500 MW.h	Derived from updated Table 1.1-2 44% of Grid Load between 415 GW.h and 420 GW.h is diesel - Derived from updated Table 1.1-2
L14=(L12-415 GW.h)x44%	Expected Incremental Diesel Generation at 969 MW.h above 415 GW.h	<u>382</u> MW.h	
L15=L13+L14	Total Expected YEC Diesel Generation	10,882 MW.h	
L16=L15	Expected YEC Diesel Generation in Rates	10,882 MW.h	100% of long-term average
L17=L7	Actual YEC Diesel Generation	9,000 MW.h	Assumed
L18=L17-L16	YEC Diesel Generation to be Included in DCF	- 1,882 MW.h	
L19=L1xL18	Incremental YEC Diesel Generation Cost to Charge (Refund) DCF (\$000s)	(\$540)	

**Table 1.1-4 (cont): DCF Example for 2012-2016 YEC Load Cases**

**Year 3 - 2014 load forecast [please see Exhibit 20, page A-3, Base Case load for 2014; Wind at Forecast; Actual Diesel Generation Below Expected]**

<i>Assumptions</i>			
L2	YEC Grid load	436,600	MW.h
L3	Fish Lake	8,900	MW.h
L4=L2+L3		<hr/> 445,500 MW.h	
Assumed Actual Generation Sources			
L5	YECL Fish Lake	8,900	MW.h
L6	YEC Hydro	418,362	MW.h
L7	YEC Diesel	18,000	MW.h
L8	YEC Wind	238	MW.h
L9		<hr/> 445,500 MW.h	
L10	YECL Fish Lake (expected)	8,730	MW.h
L11	YEC Wind (expected)	238	MW.h
L12=L9-L10-L11		<hr/> 436,532 MW.h	
L13	Expected Base Diesel Generation at 435 GW.h	20,400	MW.h
L14=(L12-435 GW.h)x58%	Expected Incremental Diesel Generation at 1,532 MW.h above 435 GW.h	889	MW.h
L15=L13+L14		<hr/> 21,289 MW.h	
L16=L15	Expected YEC Diesel Generation in Rates	21,289	MW.h
L17=L7	Actual YEC Diesel Generation	18,000	MW.h
L18=L17-L16	YEC Diesel Generation to be Included in DCF	-	3,289 MW.h
L19=L1xL18	Incremental YEC Diesel Generation Cost to Charge (Refund) DCF (\$000s)		(\$944)

YECL Fish Lake long term average hydro generation based on YUB Order 2009-2 (page 11) on YECL's 2008/09 GRA.

Derived from updated Table 1.1-2  
58% of Load between 435 GW.h and 440 GW.h is diesel

100% of long-term average

Assumed

**Table 1.1-4 (cont): DCF Example for 2012-2016 YEC Load Cases**

**Year 4 - 2015 load forecast [please see Exhibit 20, page A-3, Base Case load for 2015; Actual Wind below Forecast; Actual Diesel Generation Above Expected]**

<i>Assumptions</i>			
L2	YEC Grid load	448,600	MW.h
L3	Fish Lake	7,000	MW.h
L4=L2+L3	Total Grid load	455,600	MW.h
<i>Assumed Actual Generation Sources</i>			
L5	YECL Fish Lake	7,000	MW.h
L6	YEC Hydro	413,400	MW.h
L7	YEC Diesel	35,000	MW.h
L8	YEC Wind	200	MW.h
L9	Total Grid load	455,600	MW.h
<i>Expected Generation Sources</i>			
L10	YECL Fish Lake (expected)	8,730	MW.h
L11	YEC Wind (expected)	238	MW.h
L12=L9-L10-L11	YEC Grid load net of expected Fish Lake and Wind	446,632	MW.h
L13	Expected Base Diesel Generation at 445 GW.h	26,300	MW.h
L14=(L12-445 GW.h)x64%	Expected Incremental Diesel Generation at 1,632 MW.h above 445 GW.h	1,044	MW.h
L15=L13+L14	Total Expected YEC Diesel Generation	27,344	MW.h
L16=L15	Expected YEC Diesel Generation in Rates	27,344	MW.h
L17=L7	Actual YEC Diesel Generation	35,000	MW.h
L18=L17-L16	YEC Diesel Generation to be Included in DCF	7,656	MW.h
L19=L18xL18	Incremental YEC Diesel Generation Cost to Charge (Refund) DCF (\$000s)	\$2,198	

YECL Fish Lake long term average hydro generation based on YUB Order 2009-2 (page 11) on YECL's 2008/09 GRA.

Derived from updated Table 1.1-2  
64% of Load between 445 GW.h and 450 GW.h is diesel

100% of long-term average

Assumed

**Table 1.1-4 (cont): DCF Example for 2012-2016 YEC Load Cases**

**Year 5 - 2016 load forecast [please see Exhibit 20, page A-3, Base Case load for 2016; Wind at Forecast; Actual Diesel Generation Below Expected]**

<i>Assumptions</i>			
L2	YEC Grid load	461,000	MW.h
L3	Fish Lake	9,200	MW.h
L4=L2+L3	Total Grid load	470,200	MW.h
<b>Assumed Actual Generation Sources</b>			
L5	YECL Fish Lake	9,200	MW.h
L6	YEC Hydro	425,762	MW.h
L7	YEC Diesel	35,000	MW.h
L8	YEC Wind	238	MW.h
L9	Total Grid load	470,200	MW.h
<b>Expected Generation Sources</b>			
L10	YECL Fish Lake (expected)	8,730	MW.h
L11	YEC Wind (expected)	238	MW.h
L12=L9-L10-L11	YEC Grid load net of expected Fish Lake and Wind	461,232	MW.h
L13	Expected Base Diesel Generation at 460 GW.h	36,100	MW.h
L14=(L12-460 GW.h)x70%	Expected Incremental Diesel Generation at 762 MW.h above 460 GW.h	862	MW.h
L15=L13+L14	Total Expected YEC Diesel Generation	36,962	MW.h
L16=L15	Expected YEC Diesel Generation in Rates	36,962	MW.h
L17=L7	Actual YEC Diesel Generation	35,000	MW.h
L18=L17-L16	YEC Diesel Generation to be Included in DCF	-	1,962 MW.h
L19=L1xL18	Incremental YEC Diesel Generation Cost to Charge (Refund) DCF (\$000s)		(\$563)

YECL Fish Lake long term average hydro generation based on YUB Order 2009-2 (page 11) on YECL's 2008/09 GRA.

Derived from updated Table 1.1-2  
70% of Load between 460 GW.h and 465 GW.h is diesel

100% of long-term average

Assumed



**APPENDIX 2**

**PROPOSED UPDATES TO THE ENERGY  
RECONCILIATION ADJUSTMENT (ERA)**



## **APPENDIX 2: PROPOSED UPDATES TO THE ENERGY RECONCILIATION ADJUSTMENT (ERA)**

### **OVERVIEW**

The Energy Reconciliation Adjustment (ERA) is an element of Rate Schedule 42 Wholesale Primary (YEC). The ERA determines how Yukon Energy's annual diesel cost variances due solely to variances from YUB approved GRA wholesale forecasts are to be reflected in Yukon Energy's rate charged to Yukon Electrical. Yukon Energy's diesel cost impacts included in the ERA are determined after the Diesel Contingency Fund (DCF), and therefore exclude diesel generation impacts related to current water conditions.

The ERA addresses the material gap that exists between the average wholesale energy rate that YEC charges YECL under Rate Schedule 42 and the incremental cost of diesel incurred by YEC when diesel generation changes occur in response to changes in YECL's wholesale purchases<sup>1</sup>. The ERA is required to comply with OIC direction that the YEC wholesale rate charged to YECL include appropriate provisions to ensure that YEC recovers its costs<sup>2</sup>.

The update to the ERA responds to diesel generation again being on the margin in the determination of YEC revenue requirements and costs, as determined in Board Order 2013, effective January 1, 2012.

The following are reviewed in this update:

- Background for the Long Standing ERA Mechanism;
- Current ERA approved by the YUB;
- Impacts on ERA of the Revised DCF;
- Direction to deferral of Amounts to the DCF and/or ERA on an interim basis;
- Proposed changes to the calculation of the ERA included in the GRA;
- Subsequent revisions to the calculation of the ERA; and
- Specific wording changes to the ERA provisions included in Rate Schedule 42.

Attachment 2.1 sets out the proposed wording changes to the ERA provisions included in Rate Schedule 42.

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<sup>1</sup> When the ERA was established (Order 1993-7), the energy charge under Rate Schedule 42 was 7.502 c/kW.h and the incremental YEC diesel generation fuel and variable O&M cost (as reflected in non-residential run out rate for Hydro rate zone) was 9.84 c/kW.h. Today, the energy rate in effect charged to YECL under Rate Schedule 42 is 8.298 c/kW.h plus the average recovery on YEC Riders charged to YECL retail customers (1.06 c/kW.h in 2012 and 1.69 c/kW.h in 2013), and the incremental YEC diesel generation fuel cost is on average 28.91 c/kW.h at approved diesel fuel prices.

<sup>2</sup> Currently provided for in OIC 1995/90, Section 7(b).

### **Background for the Long Standing ERA Mechanism**

Rate Schedule 42 establishes one rate applicable to all YECL wholesale power purchases from YEC throughout Yukon. Wholesale service is provided by YEC to YECL in the Hydro rate zone.

The wholesale rate to Yukon Electrical has been designed to comply with Section 7(a) of OIC 1995/90, which specifies that YEC's rates for electricity sales to YECL "must be sufficient to enable Yukon Energy Corporation to recover its costs that are not recovered from its other customers."

Since the 1993/94 GRA, Schedule 42 Primary Wholesale has included two elements: first, a single energy-only rate for all primary power supplied by YEC to YECL; and second, when diesel is on the margin, an additional provision, the Energy Reconciliation Adjustment (ERA), which was established to ensure the following:

1. That YECL receives a full pass through of YEC's incremental costs or savings of diesel generation that result from changes in the volume of YECL wholesale purchases compared to the forecast approved by the YUB to establish the then current single energy-only wholesale rate; and
2. That YEC is able to recover its costs from YECL (as required by OIC 1995/90, Section 7(b)) when diesel generation is on the margin in the Hydro zone.

The ERA mechanism was proposed in the 1993/94 GRA, when YECL was managing YEC, to provide a more stable balance of costs and revenues between the two Companies, and was first approved in Order 1993-7. The ERA was subsequently addressed in Order 1996-7 and in Order 1999-4. Thereafter, closure of the Faro mine resulted in diesel not being on the margin on WAF and, accordingly, suspension of any application of the ERA until such time as diesel was once again on the margin in the Hydro zone.

As established in 1993, the ERA in effect ensured that YECL's retail Hydro zone loads would be served by YECL under the same risk profile as all other YECL loads in Yukon. When YECL's loads vary, and this variation in load drives changes in the quantities of diesel generation required, YECL would carry the cost (or capture the saving) that results from these diesel generation changes. The ERA included from the outset a provision where adjustment for shortfalls in actual wholesale purchase would be limited to minus 10% of the forecast wholesale purchases in any period - the 10% limitation on shortfalls reflected the assumption that once the actual wholesale purchases were less than 90% of forecast there would be no diesel generation saving for YEC at normal water flows.

From the outset, the ERA mechanism addressed only changes in YEC diesel costs based on YUB approved hydro generation forecasts and YUB approved diesel fuel prices. If the diesel cost change is driven by low water at Fish Lake hydro or at YEC hydro facilities, ratepayers bear the risk directly through the Diesel Contingency Fund (DCF) mechanism. Similarly, ratepayers bear the risk of diesel fuel price changes directly through the Rider F mechanism.

### **Current ERA approved by the YUB**

The ERA currently included in Rate Schedule 42 was approved by Board Order 2011-6 after a joint submission by the Companies and provides as follows<sup>1</sup>:

Charges to YECL will be adjusted on a monthly basis to reconcile actual wholesale purchases to test year forecast purchase during months when diesel generation in the Hydro zone is on the margin at long term average water flows. To the extent that actual wholesale purchases fall short or exceed forecast wholesale purchases, an adjustment to the YECL bills will be made at a rate equal to the Hydro zone incremental cost of diesel of 32.74 cents per kW.h as approved by the Board in Order 2010-13. Such adjustment for shortfalls in actual wholesale purchases will be limited to minus 10% of the forecast wholesale purchases in any period.

In summary, when diesel is on the margin in the Hydro zone at long term average water flows, Board Order 2011-6 currently provides that the ERA automatically adjusts YECL's Rate Schedule 42 bills (to the extent that actual wholesale purchases vary from forecast wholesale purchases) at a rate equal to 32.74 cents/kWh (subject to the 10% limit noted for shortfalls). For the purpose of this ERA adjustment, the relevant "forecast" wholesale purchases are forecasts as last approved by the YUB for a YEC GRA.

During review of YECL's last GRA, the Board also approved new mechanisms relating to the impact of ERA charges on YECL. Board Order 2009-2 relating to YECL's last GRA approved a wholesale purchase power deferral account which fully addresses any cost impacts on YECL from load forecast variance derived ERA cost changes. Board Order 2010-13 (paragraph 181) confirmed that implicit in its approval of this YECL deferral account is approval of a future rate rider to dispense the accumulated balances in the deferral account. In this regard, YECL proposed a specific Rider D mechanism that would dispense such accumulated balances to all retail and industrial ratepayers of YEC and YECL throughout Yukon.

### **Impacts on ERA of Revised DCF**

The Revised DCF Proposal included as Appendix 1 to this filing includes provisions for the DCF to be permanently switched "on" through use of a formulaic approach that, subject to YUB review at each GRA, would automatically adjust forecast long term hydro generation and related diesel (or other non-diesel fossil fuel) generation to reflect actual grid generation load. The revised DCF provided in Appendix 1 of this filing also incorporates the specific changes directed by Order 2013-1 (paragraph 255).

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<sup>1</sup> See Order 2011-6.

The following elements of the revised DCF proposal will affect the ERA determinations (by way of example, the calculation for the 2012 ERA is reviewed in Attachment 2.2):

1. **Fish Lake hydro:** The revised DCF includes YECL Fish Lake hydro impacts on expected YEC generation, as directed by the Board. Actual YECL Fish Lake generation will be added to actual YEC grid generation (net of secondary sales impacts on YEC generation), and expected (i.e., long term average generation as last approved by the Board<sup>1</sup>) Fish Lake generation will then be deducted. YEC payments to the DCF and or credits from the DCF will therefore reflect the impact on YEC diesel generation due to Fish Lake generation varying from long term average. ERA determinations will exclude Fish Lake variance impacts on YEC wholesales sales to YECL.
2. **Incremental cost of diesel generation:** The revised DCF at this time only includes diesel fuel prices and unit fuel efficiency, i.e., 28.71 cents/kW.h (the average YEC diesel fuel cost in the 2013 test year based on the Compliance Filing).

Board Order 2013-1 (paragraph 60) also directed YEC to reflect 100% long term average (LTA) hydro generation in calculating test year diesel generation requirements. However, as has been noted in prior correspondence with the Board, YEC accounting for actual diesel generation costs on this same basis for these years requires implementation through Board approval of a revised DCF along with a revised ERA that fully reflects the revised DCF.

Consequently, this filing seeks updates to the ERA in order to provide clarifications as required to define the wholesale forecasts and diesel generation costs that will apply when determining the ERA (last approved by the Board in Order 2011-6 as part of the joint 2009 Phase II Rate Application).

#### **Direction to deferral of Amounts to the DCF and/or ERA on an interim basis**

Subsequent to Order 2013-3, Yukon Energy in a letter to the YUB dated July 5, 2013 outlined concerns raised by its auditors regarding the accounting treatment for the 2012 DCF and ERA accounts and Yukon Energy's 2012 annual financial statements. In this letter Yukon Energy noted the following regarding the interrelationship of the DCF and the ERA for 2012:

- Actual diesel generation in 2012 was 2,683 MWh – well below “expected” diesel generation of 15,261 MWh at 100% LTA hydro generation as estimated for actual 2012 grid generation requirements (i.e., YEC’s actual hydro generation was correspondingly higher than long term average).
- Using the proposed DCF approach YEC had \$3.714 million of payments to the DCF (costs to YEC, amount owing to ratepayers – as outlined in Table 1A of this filing) in order to reflect the difference in costs (at approved diesel fuel prices) between actual and expected diesel generation in 2012.

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<sup>1</sup> The revised DCF noted that, as of April 2013, long term average Fish Lake hydro generation is 8.73 GW.h/year less any loss of this generation due to shut down of a unit (in 2013, the long term average was expected in the Compliance Filing to be reduced by 3.85 GW.h due to shut down of Unit #1 until December; in 2012, the long term average is reduced by 4.35 GW.h due to shut down of Unit #1 all year).

- Charges to YECL under Rate Schedule 42 related to the ERA are determined based on YEC costs incurred for incremental diesel generation that arise directly due to higher than forecast sales to YECL. Yukon Energy's actual Rate Schedule 42 wholesale sales to YECL in 2012 were 310,264 MWh or 14,264 MWh higher than the Board's approved sales forecast in YEC's Compliance Filing. Using the proposed DCF and related ERA approach to determine YEC's incremental diesel costs in 2012 due to higher than forecast sales to YECL, Yukon Energy recorded \$1.176 million of ERA adjustment to be paid to YEC (outlined in Attachment 2.2 of this document).

In correspondence dated July 6, 2013, the Board noted that no funds identified by Yukon Energy in its July 5, 2013 letter relating to the DCF and/or the ERA were to be recorded by YEC as earnings in its financial statements and directed that all funds assigned to the DCF and/or ERA as a result of the Board's direction are on an interim basis only and will be subject to further direction by the Board once a new DCF policy is approved. YEC was directed to submit a revised DCF application to the Board no later than September 30, 2013.

### **Proposed Changes to the Calculation of the ERA included in the GRA**

During the GRA proceeding YEC through interrogatory responses provided clarifications regarding the methods to determine incremental diesel generation (MWh) subject to the ERA charge (see response to YECL-YEC-2-1). In particular, the response to YECL-YEC-2-1 outlined and demonstrated the following methods to determine incremental diesel generation (MW.h) subject to the ERA charge:

- An ERA charge to YECL would only occur in a year when there is YEC grid system load growth (above YEC GRA forecast), and that load growth is caused in whole or in part by YECL wholesale sales exceeding YEC GRA forecast.
- An ERA credit to YECL would only occur in a year when there is YEC grid system load decline (below YEC GRA forecast), and that load reduction is caused in whole or in part by YECL wholesale sales being less than YEC GRA forecast.
- The examples provided in the ERA indicated that the calculation to determine the appropriate YECL share (of the growth or decline) would be based on the average percentage change in overall YEC expected diesel generation due to the overall change in YEC generation from the approved GRA forecast. All determinations would be finalized based on annual calendar year numbers.
- Where the YECL load changes are driven by underlying changes in YEC delivery areas (e.g., if the reason YECL's load grows is because of growth in YECL's sales to YEC at a downstream delivery location, such as Johnson's Crossing, where YEC repurchases back from YECL power than was originally generated by YEC), then this will not be considered to be YECL load growth or load reductions for the purpose of ERA determinations.

In summary, the approach to calculating the ERA reviewed during the 2012/2013 GRA did not consider the revenue YEC or YECL received from 100% of the added wholesales over and above the YUB approved forecast. The methods proposed to determine the ERA also did not provide for any

GRA in years when wholesale changes did not move in the same direction as overall grid load changes.

### **Subsequent Revisions to the Calculation of the ERA**

Since filing the Compliance Filing and as part of the ongoing consultation process with Yukon Electrical, Yukon Energy reviewed the ERA calculation for 2012 and has proposed revisions to this calculation that have been shared and reviewed with Yukon Electrical (see Table 2-1). With these revisions, Yukon Energy would also now propose that the ERA calculations apply in all years, including years when wholesale changes do not move in the same direction as overall grid load changes.

The approach to calculating the ERA reviewed during the 2012/2013 GRA did not consider the revenue YEC or YECL received from 100% of the added wholesales over and above the YUB approved forecast. The updated calculation of the ERA as provided for in Table 2-1 takes all related incremental revenues into account and in Yukon Energy's view better reflects the transitional period currently occurring with long term average diesel requirements showing an increasing share of new grid generation growth requirements. The proposed revised ERA calculation assumes 100% of added revenue for both YEC and YECL from added wholesale sales (which results in a reduced ERA and no requirement for YECL to charge Rider D for 2012).

- **YEC ERA charge to YECL:** Include 100% of the added 2012 YEC wholesale sales revenues that attract DCF added costs (and deducting this from the added cost) – results in an ERA charge to YECL of \$0.438 million:
  - On incremental wholesales of 13,272 MW.h, the added diesel cost to YEC (applicable to 40.5% of these sales, after adding in YEC losses), remains \$1.679 million.
  - The added YEC revenues on 100% of the added wholesales is \$1.241 million (reflects wholesale rate of 8.298 c/kWh plus 1.05 c/kWh other added revenue from riders).
  - The \$0.438 million ERA charge reflects the added diesel cost less the added revenue.
- **YECL Rider D charge to Ratepayers:** YECL would place in a deferred cost account and ultimately charge ratepayers an ERA through Rider D only for the net impact on its income from 100% of the increased wholesales – in this case no Rider D charge would be required.
  - Full consideration would be given to YECL's added net revenue of approximately \$0.571 million after all rider flow through charges related to these incremental wholesales (calculated at average incremental rate of 13.38 c/kWh), or \$1.672 million on 100% of the incremental wholesales [after reducing the sales for YECL losses assumed at 6.2%] less normal wholesale charges at 8.298 c/kWh (equals about \$1.101 million for 2012).
  - The YEC ERA charge of \$0.438 million would be less than YECL's related incremental net revenues of \$0.571 million.
  - On this basis there would be no ERA charge required to ratepayers for 2012.

The approach reviewed during the 2012/ 2013 GRA did not consider the revenue YEC or YECL received from 100% of the added wholesales over and above the YUB-approved forecast.

Revenue impacts were implicitly considered for YECL, and directly address for YEC, when the original ERA was established for the 1993/94 GRA to apply when diesel was on the margin on the Hydro grid.

- YECL firm wholesale variances (excluding Fish Lake generation changes addressed by the DCF) were assumed under such conditions to reflect changes to YECL firm retail sales on the WAF grid, and such retail sales variances were also assumed at that time to adjust YECL revenues at established retail run out rates.
- At that time, retail run out rates in the Hydro rate zone were set to reflect incremental diesel energy costs (including line losses) that YEC would incur or save as a result of changes to sales to these customers (relative to GRA approved forecast sales) - accordingly, a change in YECL wholesales was assumed to increase/decrease YECL revenues to the same amount as the change in wholesales increased/decreased YEC diesel generation costs.
- Absent an ERA, however, YECL cost impacts from a change in its wholesales were limited to the fixed wholesale energy rate that was well below YEC's incremental cost for diesel generation.
- The ERA rate was therefore set so that YEC's revenue impacts [and YECL's cost impacts] from a change in YECL wholesales would be the same, and each utility would be able to recover [but only recover] its prudently incurred costs directly related to the change in YECL wholesales, i.e., the ERA was set to equal the net difference between YEC's incremental diesel generation cost (as reflected in the residential run out rate for the Hydro rate zone) and the revenue that YEC was already receiving related to all wholesales [namely, the wholesale fixed energy rate then charged to YECL].

In contrast to 1993/94, in 2012 and 2013 the retail run out rates in the Hydro rate zone are well below current incremental costs of YEC diesel generation. As a result, YECL's revenue impacts from changes in its wholesales will not increase/decrease to the same amount as the change in wholesales increased/decreased YEC diesel generation costs.

In order that YECL's unrecovered costs (or unremitted surpluses) as a result of the ERA can be addressed today through the YECL Purchase Power Flow Through deferral account that the Board has approved, it is currently necessary to estimate YECL's incremental revenue impacts from wholesale variances.

Further, to ensure that YEC as well is recovering [but only recovering] its prudently incurred diesel generation costs related to such wholesale variances, it is also currently fair and reasonable to estimate YEC's incremental revenue impacts from wholesale variances.

#### **Specific Wording Changes to the ERA Provisions included in Rate Schedule 42**

Given that diesel will be on the margin on an ongoing basis effective January 1, 2012, Yukon Energy proposes that the ERA provisions in Rate Schedule 42 be similarly triggered on an ongoing basis effective January 1, 2012. On this basis it is proposed that charges to Yukon Electrical be adjusted when changes in actual Yukon Electrical wholesale purchases (relative to Yukon Energy's most recent

test year forecast for such purchases) result in changes to Yukon Energy costs incurred for diesel generation, whether such costs are incurred through adjustments in actual diesel generation or through adjustments in DCF payments or recoveries.

A summary of proposed edits to clarify and update the ERA are as follows:

1. Charges to YECL under the ERA apply only to the extent that diesel generation costs incurred by YEC vary as a direct result of actual wholesale purchases falling short or exceeding YEC's most recent test year forecast wholesale purchases (as approved by the Board).
2. The wording of the ERA included in Rate Schedule 42 is amended to delete the specific rate of 32.74 cents/kWh as current approved by Order 2011-6, and replaced with wording that sets out that YECL's ERA bill adjustment "will be made based on the variance in diesel generation costs incurred by Yukon Energy as a direct result of actual wholesale purchases falling short or exceeding forecast wholesale purchases".
3. The amended wording to the ERA specifies that reference to forecast wholesale purchases addresses "Yukon Energy's most recent test year forecast wholesale purchases." This reflects what YEC understands has always applied for the ERA. The wording also clarifies that such forecast is "as approved by the Board".
4. The amended wording deletes the currently approved reference to the ERA applying when "diesel generation in the Hydro zone is on the margin at long term average water flows" in order to reflect YEC's updated DCF proposal whereby the DCF would be permanently switched "on" as of January 1, 2012 through use of a formulaic approach, i.e., subject to YUB review at each GRA, the proposed approach would automatically adjust forecast long term hydro generation and related diesel (or other non-diesel fossil fuel) generation to reflect actual grid generation load.

Accordingly, Yukon Energy proposes the wording for the ERA in Rate Schedule 42 be changed effective January 1, 2012 as follows [proposed changes below in **bold** – see also Attachment 2.1]:

Charges to YECL will be adjusted on a monthly basis to reconcile actual wholesale purchases to ***Yukon Energy's most recent*** test year forecast purchases during the months ***when Yukon Energy diesel generation is modified by such variances in wholesale purchases.*** To the extent that actual wholesale purchases fall short or exceed ***Yukon Energy's most recent test year*** forecast wholesale purchases, an adjustment to the YECL bills will be made ***based on the variance in diesel generation costs incurred by Yukon Energy as a direct result of actual wholesale purchases falling short or exceeding forecast wholesale purchases.*** Such adjustment for shortfalls in actual wholesale purchases will be limited to minus 10% of the forecast wholesale purchases in any period.

**Table 2-1: August 2013 Update to Calculation of ERA for 2012**

Revised ERA calculation for Actual 2012

	Under July 2013 version		Revised August 2013 version	
2012 GRA approved wholesales	296,000 MW.h	A	296,000 MW.h	A
2012 actual wholesales	310,264 MW.h	B	310,264 MW.h	B
Incremental	14,264 MW.h	C=B-A	14,264 MW.h	C=B-A
Less: Fish Lake Impact	992 MW.h	D	992 MW.h	D
Incremental net of Fish Lake	13,272 MW.h	E=C-D	13,272 MW.h	E=C-D
Total YEC's 2012 actual load	424,538 MW.h	F	424,538 MW.h	F
2012 GRA approved load forecast	405,553 MW.h	G	405,553 MW.h	G
Total YEC incremental generation relative to GRA approved	18,984 MW.h	H=F-G	18,984 MW.h	H=F-G
Expected diesel generation at 2012 actual load	15,621 MW.h	I	15,621 MW.h	I
Expected diesel generation at 2012 GRA load (approved)	7,926 MW.h	J	7,926 MW.h	J
Total YEC expected incremental diesel generation	7,695 MW.h	K=I-J	7,695 MW.h	K=I-J
Incremental Diesel in Base Rates	40.5%	L=K/H	40.5%	L=K/H
Generation Variance Charged for Diesel Cost	5,848 MW.h	M=E*L*1.087	5,848 MW.h	M=E*L*1.087
<b>Impacts on YEC</b>				
	ERA Based on Diesel Portion (40.5%)		ERA Based on All Incremental Wholesale (100%)	
Added Revenue	503 \$000	N=E*L*(8.298+1.05)	1,241 \$000	N=E*(8.298+1.05)
Added Cost	1,679 \$000	O=M*28.71	1,679 \$000	O=M*28.71
Net Impact on YEC	- 1,176 \$000	P=N-O	- 438 \$000	P=N-O
ERA charge to YECL	1,176 \$000	Q=(-P)	438 \$000	Q=(-P)
<b>Impacts on YECL</b>				
Added Revenue	678 \$000	R=E*L/1.062*13.38	1,672 \$000	R=E/1.062*13.38
Added Cost	1,622 \$000	S=E*L*8.298 +Q	1,539 \$000	S=E*8.298 +Q
Impact on YECL	- 945 \$000	T=R-S	133 \$000	T=R-S
Rider D charge	1,176 \$000	U=Q (assumed)	- \$000	If T>0 then 0; otherwise (-T)
Net Impact on YECL after Rider D	231 \$000	V=T+U	133 \$000	V=T+U

Notes:

1. YEC's approved wholesale and generation numbers and 8.7% grid losses on sales are based on YEC's 2012/13 GRA Revised Compliance Filing.
2. Fish Lake impact on Line D is calculated as the difference between expected 4.35 GW.h and actual generation of 3.388 GW.h for Unit #1.
3. YEC's 2012 actual load on Line F excludes secondary sales and secondary sales related losses calculated based on average actual losses.
4. Added revenue for YEC is calculated at wholesale rates plus estimated rider revenues.
5. Added revenue for YECL is calculated based on estimated average rate per kW.h of 13.38c/kW.h (excludes riders) and 6.2% average YECL losses on sales.
6. Changes between two versions are highlighted in light green colour.



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**ATTACHMENT 2.1- PROPOSED REVISIONS TO RATE SCHEDULE 42**

**RATE SCHEDULE - 42**

**WHOLESALE PRIMARY (YEC)**

**AVAILABLE:** To The Yukon Electrical Company Limited

**APPLICABLE:** For wholesale primary supply to The Yukon Electrical Company Limited.

**RATE:** Energy Charge

All Energy consumed at 8.298¢ per kW.h

Energy Reconciliation Adjustment

Charges to YECL will be adjusted on a monthly basis to reconcile actual wholesale purchases to Yukon Energy's most recent test year forecast purchases during the months when Yukon Energy diesel generation is modified by such variances in wholesale purchases. To the extent that actual wholesale purchases fall short or exceed Yukon Energy's most recent test year forecast wholesale purchases, an adjustment to the YECL bills will be made based on the variance in diesel generation costs incurred by Yukon Energy as a direct result of actual wholesale purchases falling short or exceeding forecast wholesale purchases. Such adjustment for shortfalls in actual wholesale purchases will be limited to minus 10% of the forecast wholesale purchases in any period.

**TERMS AND  
CONDITIONS  
OF SERVICE:**

The Company's Terms and Conditions of Service approved by the Yukon Utilities Board form part of this rate schedule and apply to the Company and every customer supplied with electric service by the Company in the Yukon and British Columbia. Copies of the Terms and Conditions of Service are available for inspection in the offices of the Company during normal working hours.



**APPENDIX 3**  
**DIESEL DEFERRAL ACCOUNT (DDA) OPTION**



### **APPENDIX 3: DIESEL DEFERRAL ACCOUNT (DDA) OPTION**

The Diesel Deferral Account (DDA) option has been developed in response to the Yukon Electrical request that the ERA be discontinued and Yukon Energy's diesel cost recovery requirements addressed through a new YEC diesel deferral account with a new rider mechanism to flow the deferral amounts through to all firm retail and industrial customers in Yukon as appropriate (and with no impacts on Yukon Electrical).

Absent an ERA, Yukon Energy requires a new deferral account (and related rider mechanism applicable to all firm retail and industrial customers in Yukon) to deal with the same amounts that would otherwise have been charged (or rebated) to Yukon Electrical as set out in Appendix 2. As noted in Appendix 2, the ERA addresses the material gap that exists between the average wholesale energy rate that YEC charges YECL under Rate Schedule 42 and the incremental cost of diesel incurred by YEC when diesel generation changes occur in response to changes in YECL's wholesale purchases<sup>1</sup>. The following example summarizes the DDA requirements as regards wholesales if the ERA is discontinued (summary based on Table 2-1 in Appendix 2 for 2012 actual results):

- YEC wholesale sales to YECL in 2012 were 13,272 MW.h higher than the approved GRA forecast, after DCF adjustments for Fish Lake hydro generation being below long-term average.
- These higher-than-forecast power purchases by YECL resulted in YEC incurring costs for \$1.68 million higher-than-forecast costs for diesel generation (5,853 MW.h higher diesel generation at 28.71 c/kW.h approved fuel cost and based on long-term average hydro generation as approved in the GRA).
- These higher-than-forecast power purchases by YECL also resulted in YEC receiving \$1.242 million higher-than-forecast revenues (YECL wholesale charges plus average retail rate rider recoveries from YECL retail customers).
- The net impact on YEC of these higher-than-forecast power purchases by YECL in 2012 was \$0.439 million (which under the ERA would be recovered from YECL, and under the DDA would be charged to the new DDA for recovery from all firm retail and industrial customers in Yukon as appropriate).

In the event that a new DDA is established as outlined above, Yukon Energy would no longer be securing rate adjustments for its wholesale sales to YECL. Under these circumstances, Yukon Energy proposes that the DDA also include all retail and industrial customers served by YEC in order to provide consistent and comprehensive treatment of all firm retail customers served on the grid. The

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<sup>1</sup> When the ERA was established (Order 1993-7), the energy charge under Rate Schedule 42 was 7.502 c/kW.h and the incremental YEC diesel generation fuel and variable O&M cost (as reflected in non-residential run out rate for Hydro rate zone) was 9.84 c/kW.h. Today, the energy rate in effect charged to YECL under Rate Schedule 42 is 8.298 c/kW.h plus the average recovery on YEC Riders charged to YECL retail customers (1.06 c/kW.h in 2012 and 1.69 c/kW.h in 2013), and the incremental YEC diesel generation fuel cost is on average 28.91 c/kW.h at approved diesel fuel prices.

DDA amounts applicable to each of the remaining rate classes would be determined in the same manner as the DDA amount related to wholesales to YECL. The following example summarizes the DDA requirements as regards YEC industrial and retail firm customer purchases in 2012:

- YEC industrial sales in 2012 were 1,247 MW.h higher than the approved GRA forecast, and retail sales in 2012 were 1,520 MW.h higher than the approved GRA forecast.
- These higher-than-forecast purchases resulted in YEC incurring costs for \$0.350 million higher-than-forecast costs for diesel generation (1,222 MW.h higher diesel generation at 28.71 c/kW.h approved fuel cost and based on long-term average hydro generation as approved in the GRA)<sup>2</sup>.
- These higher-than-forecast power purchases also resulted in YEC receiving \$0.327 million higher-than-forecast revenues (energy rate charges plus average retail rate rider recoveries per kW.h from these retail customers)<sup>3</sup>.
- The net impact on YEC of these higher-than-forecast industrial and retail power purchases in 2012 was \$0.024 million (which under the DDA would be charged to the new DDA for recovery from all firm retail and industrial customers in Yukon as appropriate).

The YEC DDA amount for any year will equal the sum of the above amounts for the wholesales, industrial and retail customers, e.g., \$0.463 million charge by YEC to the DDA for 2012 (this amount then to be recovered by a rate rider applicable to all retail and industrial customers in Yukon).

In summary, the DDA option as outlined above allows YEC to recover net cost increases (after revenue gains) of added diesel generation costs due to firm sales increases above approved forecasts. As with the ERA option, the DDA option addresses the gaps between existing energy rates (and riders) applicable to incremental sales and incremental diesel generation costs associated with incremental sales at long term average hydro generation. As a deferral account, the DDA option also rebates to ratepayers any net revenue gains that YEC receives from any firm sales variance from approved forecasts.

Attachment 3.1 indicates the wording changes for the ERA in Rate Schedule 42 effective January 1, 2012 if the DDA option is adopted.

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<sup>2</sup> Estimates for each rate class follow same procedures and assumptions adopted in Table 2-1 [Appendix 2] to estimate incremental costs for added wholesales (net of Fish Lake impacts).

<sup>3</sup> Industrial energy rate at 8.08 c/kW.h plus industrial rate rider estimated per GRA at 0.39 c/kW.h for 2012. Average YEC retail energy rate (excluding block 1) at 13.43 c/kW.h plus estimated average retail rate rider estimated per GRA at 1.09 c/kW.h for 2012. Overall, for 2012 YEC retail sales the incremental revenue (\$0.221 million) exceeds the incremental costs (\$0.192 million), reflecting that only 40.5% of the incremental generation was provided by diesel generation assuming long term hydro generation.

**ATTACHMENT 3.1- REVISIONS TO RATE SCHEDULE 42 IF DDA ADOPTED**

**RATE SCHEDULE - 42**

**WHOLESALE PRIMARY (YEC)**

**AVAILABLE:** To The Yukon Electrical Company Limited

**APPLICABLE:** For wholesale primary supply to The Yukon Electrical Company Limited.

**RATE:** Energy Charge

All Energy consumed at 8.298¢ per kW.h

**TERMS AND  
CONDITIONS**

**OF SERVICE:**

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