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# Integrated Project Schedule (IPS) Monthly Schedule and Progress Analysis

Cut off Date: 30 Dec 2015





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### 1.0 Overall Summary Overall Analysis – Information page 1 of 4

### 1) Target Milestones

\* Target Milestone Overall = LTA Ready for Power Transmission (Power Available) = 04 July 2017

Tracking Milestone = 18 May 2017 forecast date (no change this month)

\* Target Milestone Overall=LITL-1st Power Transfer Lab to Nfld = 9 Sep 2017 (Tracking Milestone)

No change from last month

\* Target Milestone Overall = MFGen First Power from Muskrat Falls = (**On hold**, see below for details)

Tracking Milestone removed pending resolution of CH0007 remediation of schedule

NOTE: A tracking milestone simply indicates this month forecast completion date.

### 2) Overall Engineering/Construction/Commissioning Progress

Period Planned Progress: 2.3% Cumulative Planned Progress: 49.5%

Period Forecast Progress 1.8%

Period Earned Progress: 0.9% Cumulative Earned Progress: 40.5%



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### 1.0 Overall Summary Overall Analysis – Information page 2 of 4

### **LTA**

### 1) Target Milestone

Target Milestone Overall = LTA Ready for Power Transmission (Power Available) = 04 July 2017

Tracking Milestone = 18 May 2017 forecast date (no change from last month)

NOTE: A tracking milestone simply indicates this month forecast completion date.

### 2) Overall Engineering/Construction/Commissioning Progress

Period Planned Progress: 2.6% Cumulative Planned Progress: 63.5%

Period Forecast Progress 4.4%

Period Earned Progress: 2.5% Cumulative Earned Progress: 69.0%

### 3) Critical Path: : no change from last month

• CF Switchyard continues to be on critical path to LTA Power Available forecast for May 2017.

#### 4) Switchyards: no change from last month

• No change to completion date of static commissioning for either switchyard (CF, MF).

### 5) 315kV HVac Lines CF-MF: no change from last month

• HVac Seg 1/2 - line construction/stringing progressing with no change this month to HVac Seg 1/2 final inspection date which is end of line construction.

### 6) 735kV HVac CF Interconnection (Bus Extension): no change from last month

• CF 735kV -bus extension - TL construction start (foundations) not planned until June 2016.



### 1.0 Overall Summary Overall Analysis – Information page 3 of 4 LITL

#### 1) Target Milestone

• Target Milestone Overall=LITL-1st Power Transfer Lab to Nfld = 9 Sep 2017 (Tracking Milestone)

### No change from last month (See page 16)

Target Milestone Overall=LITL-Ready for Sustainable Power Transfer Labrador to Newfoundland= 11 Nov 2017 Now 14 Nov 2017
 No change from last month

NOTE: A tracking milestone simply indicates this month forecast completion date.

### 2) Overall Engineering/Construction/Commissioning Progress

Period Planned Progress: 2.7% Cumulative Planned Progress: 37.9%

Period Forecast Progress 3.0%

Period Earned Progress: 1.3% Cumulative Earned Progress: 33.8%

Forecast progress variance from last month due to ongoing progress shortfalls in hvdc and converters.

### 3) Critical Path for 1st Power Transfer Lab to Nfld: No change from last month

• MF Converter is driving the LITL critical path . (see page 30)

### 4) SOBI Crossing

- · Land cable installation completed at both Shoal Cove and Forteau Point
- · Arrival of cable laying vessel forecast for June 2016

### 5) HVdc Line

- HVdc Lab Seg 1/2 = no change this month to final inspection dates in Sep 2016.
- HVdc Nfld Seg 3/4/5 = no change this month to final inspection dates in March2017 -> July 2017 period

### 6) Converters / Switchyards / Sych Cond

- Converters: Review of SOP schedule resulted in a 20 day earlier static commission completion date. Review of MF schedule ongoing.
- Switchyard: No forecasted delay to static commissioning completion date.
- Sych Cond: No change to completion of static comm. for Units 1/2/3.

### 7) SOP Transmission Line Rebuilds

• Work continues with reliance on outages. (see pages 20)

### 8) Transition Compounds / Grounding (Electrode) Stations

- · Grounding stations work to resume Apr 2016. No delay on completion date of static commissioning.
- · Lab Transition compound no change to completion date of static commissioning.
- Nfld Transition compound completion date of static commissioning delayed 66 days still within float.

nalcor energy LOWER CHURCHILL PROJECT

### 1.0 Overall Summary Overall Analysis – Information page 4 of 4 MFG

#### 1) Target Milestone

Target Milestone: MFGen 1st power from Muskrat Falls = (On hold)

### 2) Overall Engineering/Construction/Commissioning Progress

Period Planned Progress: 1.9% Cumulative Planned Progress: 56.6%

Period Forecast Progress: 0.2%

Period Earned Progress: 0.1% Cumulative Earned Progress: 39.7%

### 3) Critical Path(s):

- Diversion River Closure (priority 1a) see page 13
- On schedule for start on 6 July 2016
- Diversion Winter Headpond El. 25m (priority 1b) see page 14
- On schedule for start on 26 Oct 2016
- Diversion Impoundment Full Supply Level El. 39m (priority 1c) see page 15
- (On hold, see below for details)

### 4) Reservoir Clearing:

- Labour transferred to ROW clearing in LITL, forecast for restart in July 2016 with completion in Dec 2016.

### 5) North Spur:

- Work progressing with all milestones forecast to be achievable.

### 6) Spillway

- Work continues towards planned river diversion

### 7) Transition Dams/North & South Dams

North and South Dams contractor demobilized for winter.

### 8) Powerhouse:

- A review of the C1 (Muskrat Falls Generation) work plan is underway, and implementation of an updated C1 schedule will remain on hold pending acceptance of agreed actions and mitigations plan.



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### **1.0 Overall Summary =** Target Milestone page 1 of 2

nalcor	Ir	ntegrated F	Project Sc	hedule			L	CP Project Co	ontrol	
energy		030 IPS Ta	rget Milesto	nes			U	pdated: 30-D	ec-15	
Activity Name		Start	Delta-Last Month Start	Finish	Delta-Last Month Finish	2014 Q1   Q2   Q3   Q4	2015 Q1   Q2   Q3   Q4	2016 Q1 Q2 Q3 Q4	2017 Q1 Q2 Q3 Q4	2018 Q1   Q2   Q3   Q4
Lower Churchill Project General										
LCP Overall										
Target MIL=Overall-LCP Project Phase 1 - Project Sanction			Od	17-Dec-12 A	Od	]				
Target MIL=Overall-MFG Bulk Excavation - Construction Start		13-Jan-13 A	Od		Od					
Target MIL=Overall-LITL-EA Release		21-Jun-13 A	Od		Od					
Target MIL=Overall-LITL-SOBI Cable Systems - Ready			Od	11-Oct-16	Od			11-Oct-16 💠		
Target MIL= Overall-LTA-Ready for Power Transmission (Power Available)			Od	04-Jul-17	Od				4-Jul-17 🕏	
Target MIL=Overall-LITL-1st Power Transfer Labrador to Newfoundland - Tracki	ing Forecast	09-Sep-17	Od		Od				9-Sep-17, 🕏	
Target MIL=Overall-LITL-Ready for Sustainable Power Transfer Labrador to Nev	vfoundland		Od	14-Nov-17	Od			_	14-Nov-17 🕏	
Target MIL=Overall-Muskrat Falls Powerhouse - First Power from Muskrat Falls			-10d	20-Dec-17	-10d				20-Dec-17 🕏	
Target MIL=Overall-LCP Phase 1 - READY FOR SYSTEM INTEGRATION TEST (Final	)		Od	27-Mar-18	Od				27-Mar-1	.8 🕏
Target MIL=Overall-Muskrat Falls Powerhouse - Full Power from Muskrat Falls			-6d	12-Apr-18	-6d	Hr	der rev	- wai	12-Apr-	18 🕏
Target MIL=Overall-LCP Phase 1 - Comm Certificate Issued (Integration Test Com	nplete)		Od	01-Jun-18	Od	U,	IGG I I G V	- VV	01-Ju	n-18 🍀
Target MIL=Overall-LCP Phase 1 - Date Certain			Od	28-Feb-19	Od	1				28-Feb-19
LTA									-	
Target MIL= LTA-Hvac Transmission Line - Right of Way (ROW) Clearing - Start		15-Aug-13 A	Od		Od				†	
Target MIL= LTA-Hvac Transmission Line - Construction Complete			Od	12-Oct-16	Od	1		12-Oct-16 🕏		
Target MIL= LTA-Muskrat Falls Switchyard - Ready to Energize (Initial)			Od	01-Mar-17	Od	1		01-Mar-:	17 🌲	
Target MIL= LTA-Churchill Falls Switchyard - Ready to Energize (Initial)			Od	01-Mar-17	Od	-		01-Mar-	17 🕏	
Target MIL= LTA-Ready for Power Transmission (Power Available) - Tracking Fo	recast		Od	18-May-17	Od	1		18-M	ay-17 🕏	
LITL				,						
Target MIL= LITL-SOBI Landfall Protection (HDD) - Start		19-Nov-13 A	Od		Od					
Target MIL= LITL-HVdc Transmission Line Right of Way (ROW) Clearing - Start		16-Jun-14 A	Od		Od	14 A, 💲				
Target MIL= LITL-SOBI Landfall Protection (HDD) - Complete		20 7411 2 7 7 7	Od	20-Oct-14 A	Od	0-Oct-14 A 🕏				
Target MIL= LITL-SOBI Cable Systems - Ready for Power Transmission			Od	11-Oct-16	Od	··································		11-Oct-16 🕏		
Target MIL= LITL-Soldiers Pond Synchronous Condensor - Testing 1/2/3 Comple	at a		Od	08-Jul-17	Od	-			8-Jul-17 🕏	
Target MIL= LITL-Soldiers Pond Switchyard & Convertor Station (Stand Alon			20d	14-Jul-17	20d	-			4-Jul-17 🐈	
Target MIL= LITL-Muskrat Falls Switchyard & Convertor Station - (Stand Alone			Od	25-Aug-17	Od	-			25-Aug-17 🕏	
Target MIL= LITL-HVdc Transmission Line Construction - Complete and Connector			Od	01-Sep-17	Od	-		:	01-Sep-17 🕏	
Target MIL= LITL-Ready for Sustainable Power Transfer Labrador to Newfoundl			Od	14-Nov-17	Od	-			14-Nov-17 🕏	
· · · · · · · · · · · · · · · · · · ·	and-Tracking Forecast		ou	14-1400-17	ou	ļ				
MF Gen						_				
Target MIL= MFG-MF Access Road - Ready for Use		30-Nov-12 A	Od		Od	14-Mar-15 A	•			
Target MIL= MFG-North Spur Stabilization Works - Start		14-Mar-15 A	0d	04.54	0d	14-Mai-12	, ♥ 21-Mar-1	<u>.</u>		
Target MIL= MFG-Powerhouse Crane - Commissioned		10.1.15	-35d	21-Mar-16	-35d	-	21-Mar-1			
Target MIL= MFG-South Dam - Construction Start		18-Apr-16	Od	05.4 45	Od	-		-16, 🤻 5-Aug-16 🕏		
Target MIL= MFG-River Diversion (priority 1a- River closure) - Complete	hdo.koo hoo h		Od	05-Aug-16	Od	-		15-Sep-16 🕏		
Target MIL= MFG-North Spur - Ready for Winter Headpond (EL 25m)(priority 1	p- winter head pond esta		Od	15-Sep-16	Od	-		31-Oct-16 \$		
Target MIL= MFG-South Dam - Construction Complete			Od	31-Oct-16	Od	-		16-Dec-16		
Target MIL= MFG-Reservoir Clearing - Complete			Od	16-Dec-16	Od			10-Dec-19	<b>∨</b> ;	
◆ Milestone-Current		Page 1 of 2	1	Project: IPS Curr	ent curz1					
				,						
▼ Milestone - Last Month				Layout = 030 IPS	Target Milest	ones Filter = T	SK filter: insT	arget Mileston	00	

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### **1.0 Overall Summary** = Target Milestone page 2 of 2

nalcor	Integrated	Project Sch	edule	LCP Project Control			
energy cower churchul project	030 IPS T	arget Mileston	es		Updated:	30-Dec-15	
vity Name	Start	Delta-Last Month Start	Finish	Delta-Last Month Finish	2014   2015   20   Q1   Q2   Q3   Q4   Q1   Q2   Q3   Q4   Q1   Q2	16 2017 2018   Q3   Q4   Q1   Q2   Q3   Q4   Q1   Q2   Q3   Q	
Target MIL= MFG-Powerhouse - Unit 1 Ready to Turn		-13d	17-Jul-17	-13d		17:Jul-17 🗳	
Target MIL= MFG-North Spur Stabilization Works - Complete		Od	15-Aug-17	Od		15-Aug-17 🕏	
Target MIL= MFG-North Dam (RCC/CVC) - Complete		Od	03-Nov-17	Od		03-Nov-17 🕏	
Target MIL= MFG-Reservoir Impoundment EL39m (priority 1c- Impoundment to Full Servi	ice Level) - Con	-25d	14-Dec-17	-25d		14-Dec-17 🗸 🗢	
Target MIL= MFG-Muskrat Falls Powerhouse - Unit 1 Ready for Operation		-10d	20-Dec-17	-10d	Under review _	20-Dec-17 🦸	
Target MIL= MFG-Muskrat Falls Powerhouse - First Power		-10d	20-Dec-17	-10d		20-Dec-17 🗳	
Target MIL= MFG-Muskrat Falls Powerhouse - Unit 2 Ready for Operation		-5d	04-Jan-18	-5d		04-Jan-18 🕏	
Target MIL= MFG-Muskrat Falls Powerhouse - Unit 3 Ready for Operation		Od	25-Feb-18	Od		25-Feb-18 🕏	
Target MIL= MFG-Muskrat Falls Powerhouse - Unit 4 Ready for Operation		-6d	12-Apr-18	-6d		12-Apr-18 🕏	
Target MIL= MFG-Muskrat Falls Powerhouse - Full Power		-6d	12-Apr-18	-6d		12-Apr-18 🕏	

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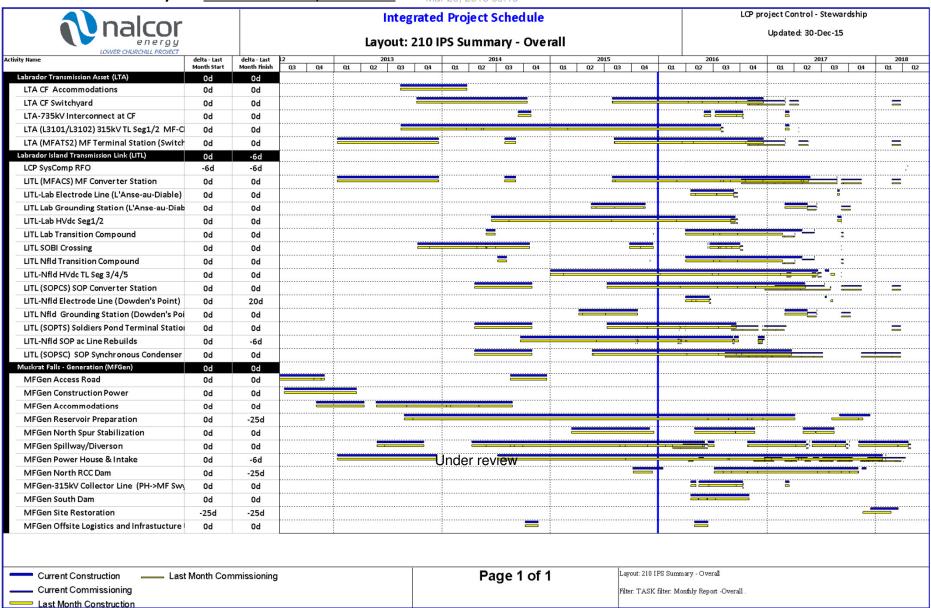
◆ Milestone-Current ▼ Milestone - Last Month

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Layout = 030 IPS Target Milestones Filter = TASK filter: ipsTarget Milestones.



### **1.0 Overall Summary** = Overall Summary Schedule - Actual and forecast dates with no baseline



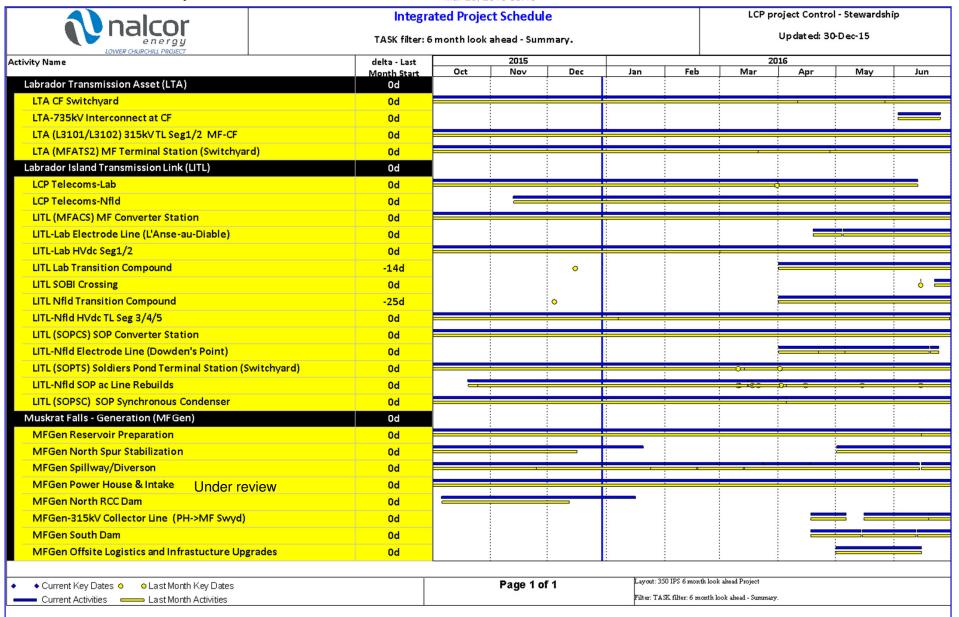
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**1.0 Overall Summary =** Overall 6 Month Look Ahead



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1.0 Overall Summary = Overall Engineering/Construction/Commissioning Progress Curve

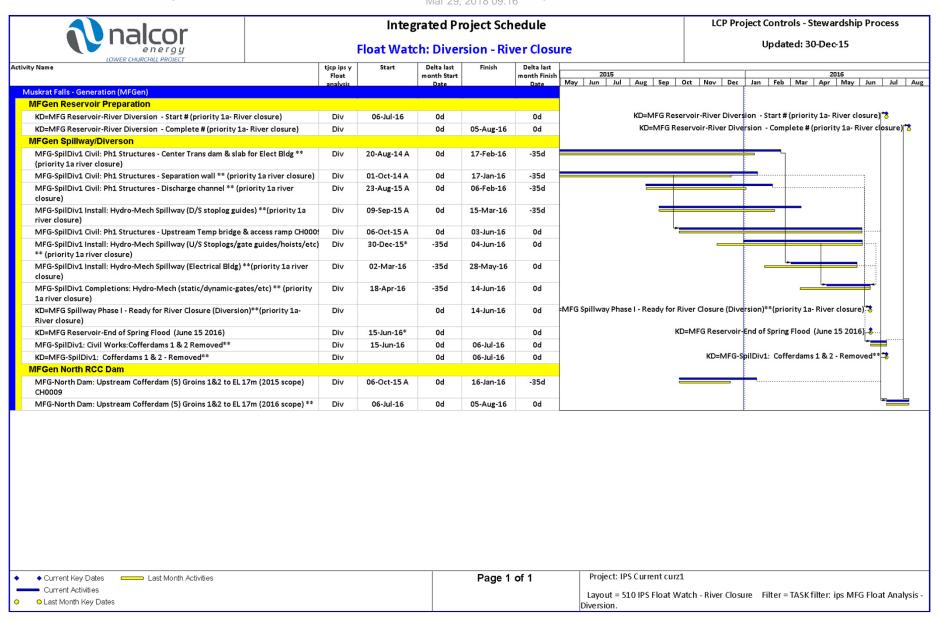
## Overall progress curve will return when Muskrat Falls Generation review complete



### **1.0 Overall Summary** = Overall Engineering/Construction/Commissioning Progress Table

		LCP -	Overall						
			Th	nis Repor	ting Period				Next Month
	Weight		Period % Cumulative % *2						
	Factor %	Plan *1	Forecast	Earned	Var-Forecast	Plan	Earned	Variance	Period %
	Α	В	B1	С	C-B1	E	F	F-E	G
Labrador Transmission Asset (LTA)	11.1%	2.6%	4.4%	2.5%	-1.9%	63.5%	69.0%	5.5%	1.6%
Labrador Island Transmission Link (LITL)	42.2%	2.7%	3.0%	1.3%	-1.7%	37.9%	33.8%	-4.1%	2.2%
Muskrat Falls Generation (MFGen)	46.7%	1.9%	0.2%	0.1%	-0.1%	56.6%	39.7%	-16.9%	0.2%
LCP-Overall	100.0%	2.3%	1.8%	0.9%	-1.0%	49.5%	40.5%	-9.0%	1.2%
			La	st Repor	ting Period				
	Weight		Pe	riod %					
	Factor %	Plan		Earned		Plan	Earned		
	Α	В		С		E	F		
Labrador Transmission Asset (LTA)	11.1%	3.2%		6.2%		60.9%	66.5%		
Labrador Island Transmission Link (LITL)	42.2%	3.4%		1.7%		35.2%	32.5%		
Muskrat Falls Generation (MFGen)	46.7%	1.9%		1.1%		54.7%	39.6%		
LCP-Overall	100.0%	2.7%		1.9%		47.2%	39.6%		

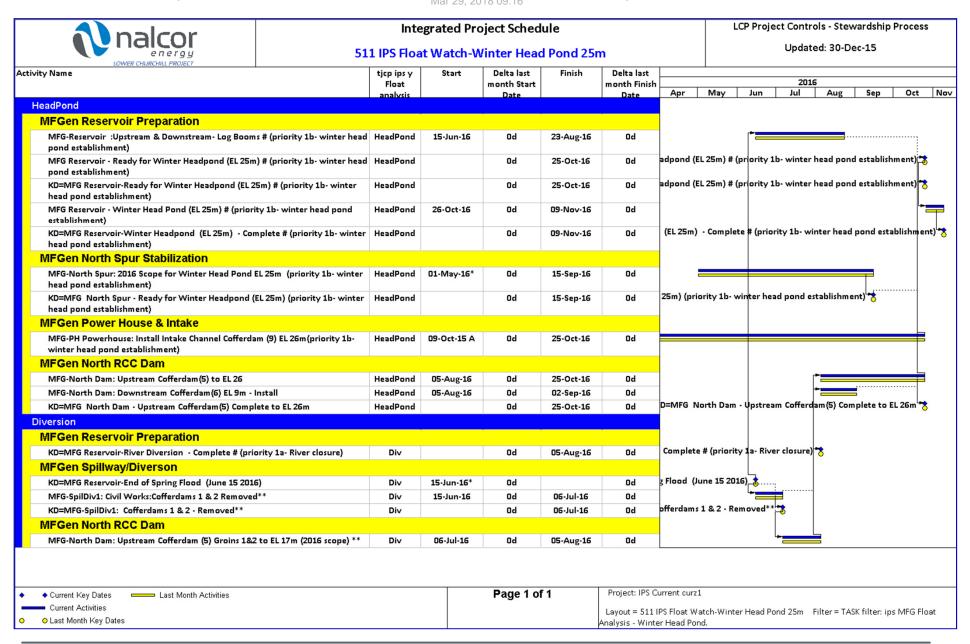
### 1.0 Overall Summary Float Watch: C1: Diversion - River Closure priority P1a



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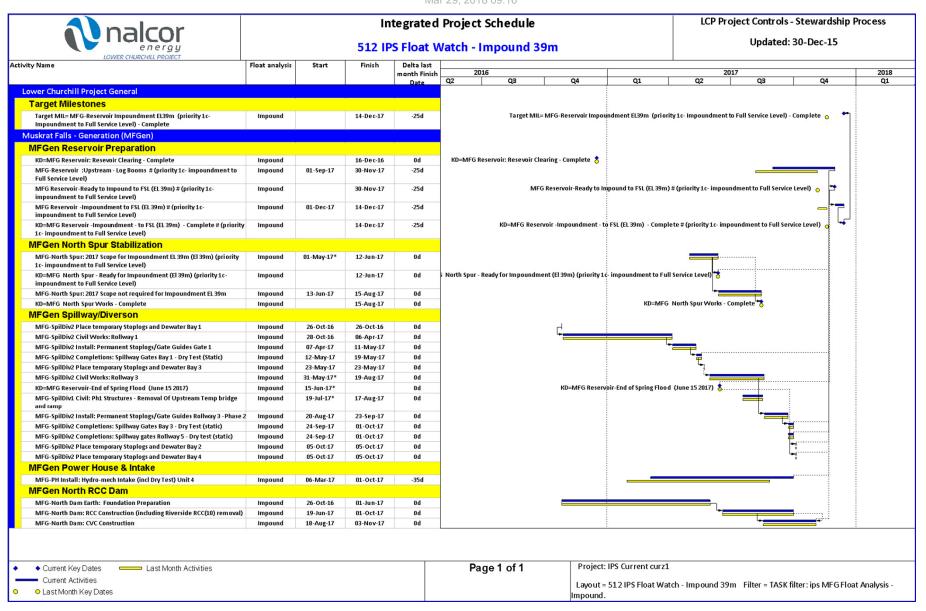
### 1.0 Overall Summary Float Watch: C1: Diversion- Winter Head Pond (25m) Priority P1b



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### 1.0 Overall Summary Float Watch: C1: Diversion - Impoundment (39m) Priority P1c



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### 1.0 Overall Summary Float Watch: C3-C4 - 1st Power Transfer Lab PNfld

nolcor		Integrate	d Project Sc	chedule					LCP pr	roject Co	ontrols	- Stewar	dship	
l laicol energy	Layo	ut: 515 IPS Floa	at Watch-1st I	Power Lab - Nf	ld					Update	ed: 30-[	Dec-15		
LOWER CHURCHILL PROJECT Activity Name		Start	Variance -Last Mont	Finish	Variance	Feb Ma	ar /	Apr	May	2017 Jun	Jul	Aug	Sep	Oct
LCP Overall			-Last Mont		-Last Mont	142 1111	<u> </u>			74	, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	1 1.00	1 000	
Target MIL=Overall-LITL-1st Power Transfer Lab Tracking Forecast	rador to Newfoundland -	09-Sep-17	0d		0d								*	
un														
DynCm-3: LITL: Nfld REACTIVE SUPPORT (from S	OP Sync Cond)		0d	08-Jun-17	0d					<b>**********</b>	;			
DynCm-3: LITL: SOP & MF CONVERTER STANDAL COMPLETED	LONE TESTING & HVdc LINK	09-Sep-17	0d		0d								8	
LITL-SP Synch Cond														
DynCm-6-Nfld ac: 9b SOP SyncCond #2: dynamic	testing	27-Apr-17	0d	08-Jun-17	0d									
LITL-HVdc NFLD Seg3 SOBI														
LITL-dcNfSeg3: Conductor/OPGW Install		15-Mar-16*	0d	07-Mar-17	0d									
LITL-dcNfSeg3: Installation Final Inspection Nfld	d (static)	08-Mar-17	0d	21-Mar-17	0d	<b> -</b>	<b>_</b>							
LITL-dcNfSeg3: Connection to Nfld TransCmp (S	lack Span>)	15-Jul-17	20d	28-Jul-17	20d						-			
DynCm-3: LITL: LITL-dcNfSeg3: Post Installation Connection	Final Inspection & Slack Span		20d	28-Jul-17	20d						4	•		
LITL MF Converter														
LITL-MFConvert: Static Commissioning		05-Oct-16	1d	24-Aug-17	0d						-			
LITL-MF Conveter: OTN Communication Establis Transition Compound	shed - MFConverter <-> Lab		-66d	03-Jul-17	-66d			0			<b>*</b>			
DynCm-3: LITL: LITL-MFConvert: Static Commiss	ioning Complete		0d	24-Aug-17	0d							7		
DynCm-3: LITL: 7a p1- MF Converter: STATION S	TAND ALONE TESTING	25-Aug-17	0d	25-Aug-17	0d							<b>-</b> -∤.		
DynCm-3: LITL: 7a p2- MF Converter: HVdc LINK	ENERGIZATION	09-Sep-17	0d	15-Sep-17	0d								=	
LITL SP Converter														
LITL-SOPConvert: Static Commissioning		26-Jan-17	-34d	13-Jul-17	20d							_		
DynCm-3: LITL: LITL-SOP Convert: Static Commis	ssioning Complete		20d	13-Jul-17	20d							0		
DynCm-3: LITL: 8a p1 SOP Converter: STATION S	TANDALONE TESTING	14-Jul-17	20d	14-Jul-17	20d						<b>-</b> 1			
DynCm-3: LITL: 8a p2 SOP Converter: HVdc LINK	ENERIZATION	09-Sep-17	0d	15-Sep-17	0d								-	
LITL-HVdc NFLD Seg5 SP														
LITL-dcNfSeg5: Conductor/OPGW Install		15-Feb-17	0d	19-Jun-17	0d						_,			
LITL-dcNfSeg5: Installation Final Inspection Nflo	d (static)	20-Jun-17	0d	03-Jul-17	0d					·+	=			
Milestone current		Page 1 of 1	l	Layout = 5	15 IPS Float Wat	Project: IPS ( ch-1st Power I				ted: 13-J: SK filter: ip		t - 1st pov	wer Lab	to Nfld.

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### 1.0 Overall Summary Float Watch: C3 Conveters

Integrated Project Schedule LCP project Controls - Stewardship Updated: 30-Dec-15 Layout: 540 IPS Float Watch - Converter\_1 Variance - Last 2016 **Activity Name** Start Finish Month Finish C3 float-converter-MF f Civil/Structures LITL-MFConvert: Building Foundation/Erect/Outfit 28-Jul-15 A 05-Oct-16 13d LITL-MFConvert: Foundation Outdoor 07-Aug-15 A 26-Oct-16 -62 d g Installation LITL-MFConvert: Valve Hall & Control Bldg Install Equipment 08-Jul-16 19-May-17 Οd LITL-MFConvert: Outdoor Install ac equipment 01-Aug-16 02-May-17 Od LITL-MFConvert: Install Converter transformers 22-Aug-16 06-Mar-17 -17d LITL-MFConvert: Outdoor Install dc equipment 26-Sep-16 25-May-17 -31d LITL-MFConvert: Gantry available for HVdc Seg1 TL & Lab 25-Aug-17 25-Aug-17 Οd Electrode TL j Completions LITL-MFConvert: Static Commissioning 05-Oct-16 24-Aug-17 C3 float-converter-SOP f Civil/Structures LITL-SOP Convert: Building Foundation/Erect/Outfit 10-Jul-15 A 23-Aug-16 30d LITL-SOP Convert: Outdoor Foundation 10-Jul-15 A 06-Sep-16 Οd g Installation 08-Jul-16 LITL-SPConvert: Outdoor Install ac equipment 11-Apr-17 -1d LITL-SPConvert: Valve Hall/Control Bldg Install Equipment 18-Jul-16 05-May-17 Od LITL-SPConvert: Outdoor Install dc equipment 17-Oct-16 11-Apr-17 13d 08-May-17 LITL-SPConvert: Converter Transformers Install 1d 23-Nov-16 LITL-SOPConvert: Gantry available for HVdc Seg5 TL & Nfld 14-Jul-17 14-Jul-17 20d Electr TL j Completions LITL-SOPConvert: Static Commissioning 26-Jan-17 13-Jul-17 20d Page 1 of 1 Project: IPS Current curz1 print ed: 13-Jan-16 ◆ Milestone current Activity Last Month Activity current Layout = 540 IPS Float Watch - Converter\_1 Filter = TASK filter: ipsC3 float - Converters o Milestone Last Month

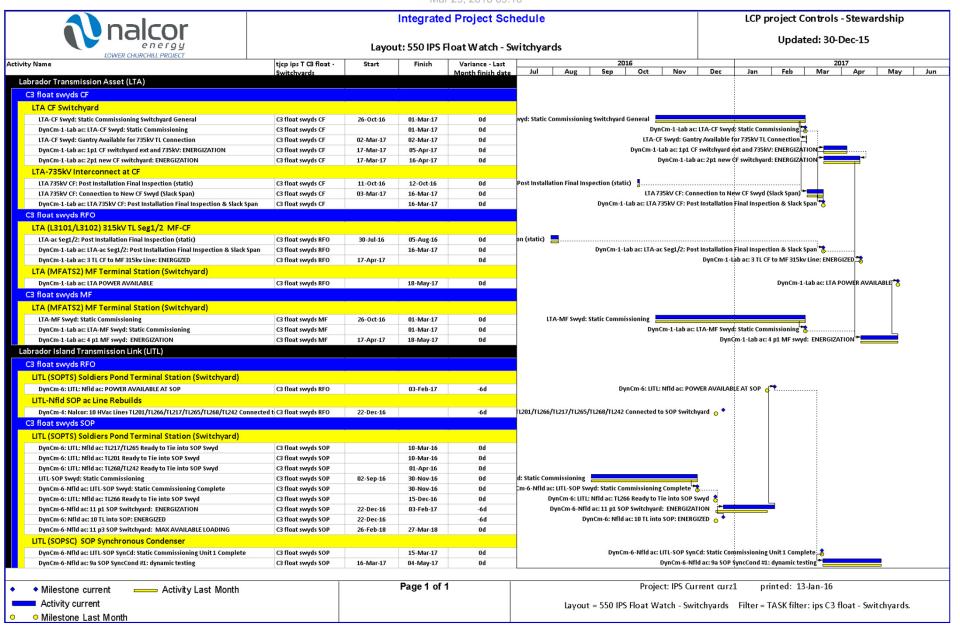
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#### 1.0 Overall Summary Float Watch: C3 – Switchyards



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IPS Monthly Schedule & Progress Analysis

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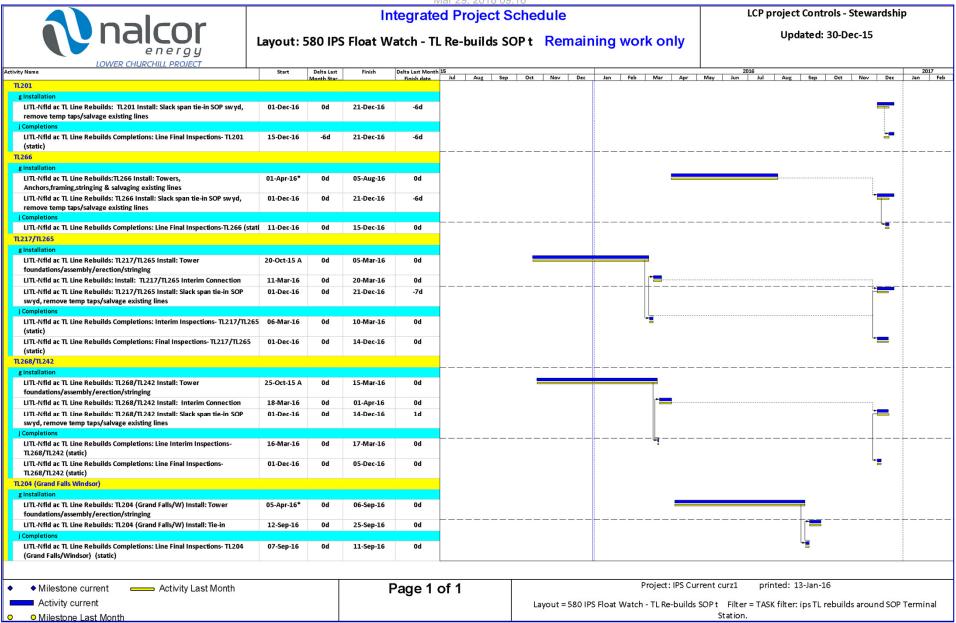
### 1.0 Overall Summary Float Watch: C4 – transmission Line sinnes Cooper Mar 29, 2018 09:16

1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		Inte	grated Project	Schedule		LCP project Controls - Stewardship
U NAICOF energy LOWER CHURCHILL PROJECT		Layout: 570 I	PS Float Watch -	Transmission li	nes	Updated: 30-Dec-15
Activity Name		Start	Finish	Delta Last Month Finish date	Jul A S O N D J F M	2016 2017   A   M   J   Jul   A   S   O   N   D   J   F   M   A   M   J   Jul   A   S   O   N
MFGen-315kV Collector Line (PH->MF Swyd)				, IIIII		
MFGen-315 PH-SY TL: Post Installation Final Inspection	on (static)	11-Oct-16	12-Oct-16	0d	TL: Post Installation Final	Inspection (static)
MFGen-315 PH-SY TL: Connection to PH (Slack Span)		03-Mar-17	16-Mar-17	0d	MFGen-315 PH-SY T	L: Connection to PH (Slack Span) 📇
MFGen-315 PH-SY TL: Connection to MF Swyd (Slack	Span)	03-Mar-17	16-Mar-17	0d	MFGen-315 PH-SY TL: Con	nection to MF Swyd (Slack Span) 📆
LTA-735kV Interconnect at CF						
LTA 735kV CF: Post Installation Final Inspection (stati	ic)	11-Oct-16	12-Oct-16	0d	CF: Post Installation Final	Inspection (static)
LTA 735kV CF: Connection to Existing CF Swyd (Slack	Span)	03-Mar-17	16-Mar-17	0d	LTA 735kV CF: Connection	to Existing CF Swyd (Slack Span) 📇
LTA 735kV CF: Connection to New CF Swyd (Slack Spa	ın)	03-Mar-17	16-Mar-17	0d	LTA 735kV CF: Connect	ion to New CF Swyd (Slack Span) 📆
LTA (L3101/L3102) 315kV TL Seg1/2 MF-CF						
LTA-ac Seg1/2: Post Installation Final Inspection (star	tic)	30-Jul-16	05-Aug-16	0d		ion (static)
LTA-ac Seg1/2: Connection to MF & CF Switchyard (SI	ack Span)	03-Mar-17	16-Mar-17	0d	ac Seg1/2: Connection to I	MF & CF Switchyard (Slack Span) =
LITL-Lab Electrode Line (L'Anse-au-Diable)						
LITL Lab Electr. TL: Post installation Final Inspection ( TL to E Site)	static) (from HVdc	10-Sep-16	23-Sep-16	Od	nspection (static) (from H\	/dc TL to E Site)
LITL Lab Electr. TL: Connection to MF Conveter/Grou span>)	nding Site (slack	26-Aug-17	01-Sep-17	0d	ITL Lab Electr. TL: Connec	tion to MF Conveter/Grounding Site (slack span>):
LITL-Lab HVdc Seg1/2						
LITL-dcLabSeg2/Electr TL: Post Installation Final Inspe	ection (static)	31-Aug-16	13-Sep-16	0d	Post Installation Final Insp	ection (static)
LITL-dcLabSeg1/Electr TL: Post Installation Final Inspe	ection (static)	16-Sep-16	22-Sep-16	0d	: Post Installation Final Ins	pection (static)
LITL-dcLabSeg1/Electr TL: HVdc Seg 1 & Electrode TL ( Converter (Slack Span>)	Connection to MF	26-Aug-17	08-Sep-17	0d	ctr TL: HVdc Seg 1 & Electr	ode TL Connection to MF Converter (Slack Span>)
LITL-dcLabSeg2/Electr TL: Connection to Lab TransCm	p (Slack Span>)	26-Aug-17	08-Sep-17	0d	LITL-dcLabSeg2/Ele	ectr TL: Connection to Lab TransCmp (Slack Span>) 📇
LITL-Nfld HVdc TL Seg 3/4/5						
LITL-dcNfSeg3: Installation Final Inspection Nfld (stat	ic)	08-Mar-17	21-Mar-17	0d	LITL-dcNfSeg3 Installa	tion Final Inspection Nfld (static)
LITL-dcNfSeg4: Installation Final Inspection Nfld (sta	tic)	01-Jun-17	14-Jun-17	0d	LITL-dcNfSeg4:	Installation Final Inspection Nfld (static)
LITL-dcNfSeg5: Installation Final Inspection Nfld (sta	tic)	20-Jun-17	03-Jul-17	0d	LITL-dcNfSeg	5: Installation Final Inspection Nfld (static) 🚦
LITL-dcNfSeg3: Connection to Nfld TransCmp (Slack S	pan>)	15-Jul-17	28-Jul-17	20d	LITL-dcNfSeg	3: Connection to Nfld TransCmp (Slack Span>)
LITL-dcNfSeg5: Connection to SP Converter (Slack Spa	an>)	15-Jul-17	28-Jul-17	20d	LITL-dcNfSe	g5: Connection to SP Converter (Slack Span>)
LITL-Nfld Electrode Line (Dowden's Point)						
LITL Nfld Electr. TL: Post installation Final Inspection	(static)	20-Jun-16	24-Jun-16	0d	stallation Final Inspection	(static)
LITL Nfld Electr. TL: Connection to Grounding Site (sl	ack span>)	15-Jul-17	21-Jul-17	20d	LITL Nfld Electr. TL	: Connection to Grounding Site (slack span>) 📲 🔒
Milestone current		Page	e 1 of 1		•	Current curz 1 printed: 13-Jan-16  - Transmission lines Filter = TASK filter: ipsC4 float old.
<ul> <li>Milestone Last Month</li> </ul>						·

Project Stewardship: IPS Monthly Schedule & Progress Analysis **Dec 2015** 19 of 35



### 1.0 Overall Summary Float Watch: C4 – Line Rebuilds Soldiers Pond Area



Project Stewardship: IPS Monthly Schedule & Progress Analysis Dec 2015 Confidential 20 of 35

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### 2.0 Labrador Transmission Asset (LTA) LTA Analysis – Observations

### 1) Target Milestone

Target Milestone Overall = LTA Ready for Power Transmission (Power Available) = 04 July 2017

Tracking Milestone = 18 May 2017 forecast date (no change from last month)

NOTE: A tracking milestone simply indicates this month forecast completion date.

### 2) Overall Engineering/Construction/Commissioning Progress

.6%	Cumulative Planned Progress:	63.5%
	.6%	.6% Cumulative Planned Progress:

Period Forecast Progress 4.4%

Period Earned Progress: 2.5% Cumulative Earned Progress: 69.0%

### 3) Critical Path: : no change from last month

• CF Switchyard continues to be on critical path to LTA Power Available forecast for May 2017.

### 4) Switchyards: no change from last month

• No change to completion date of static commissioning for either switchyard (CF, MF).

### 5) 315kV HVac Lines CF-MF: no change from last month

• HVac Seg 1/2 - line construction/stringing progressing with no change this month to HVac Seg 1/2 final inspection date which is end of line construction.

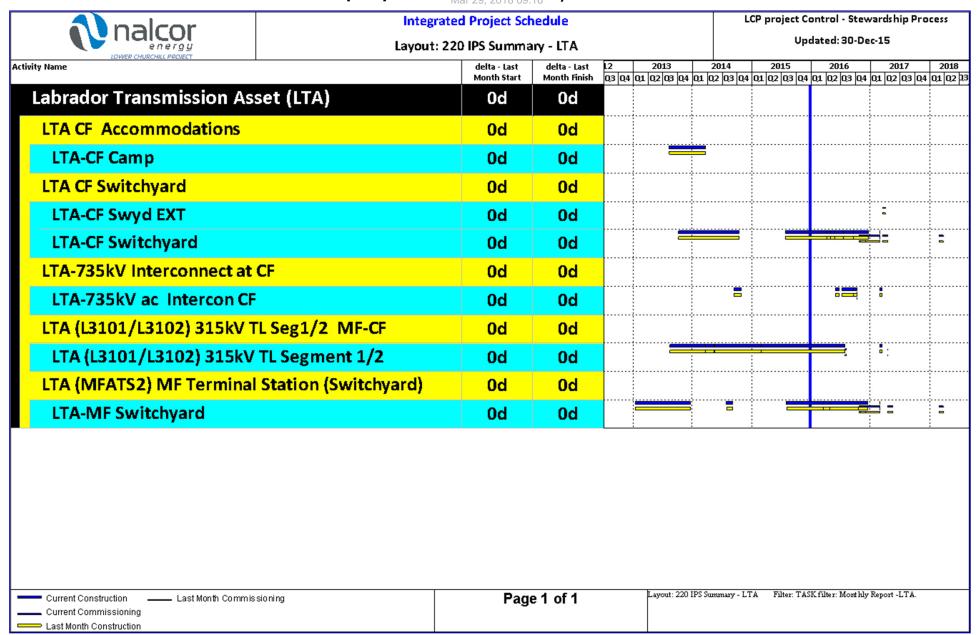
### 6) 735kV HVac CF Interconnection (Bus Extension): no change from last month

• CF 735kV -bus extension - TL construction start (foundations) not planned until June 2016.



### 2.0 Labrador Transmission Asset (LTA)

### LTA Summary Schedule

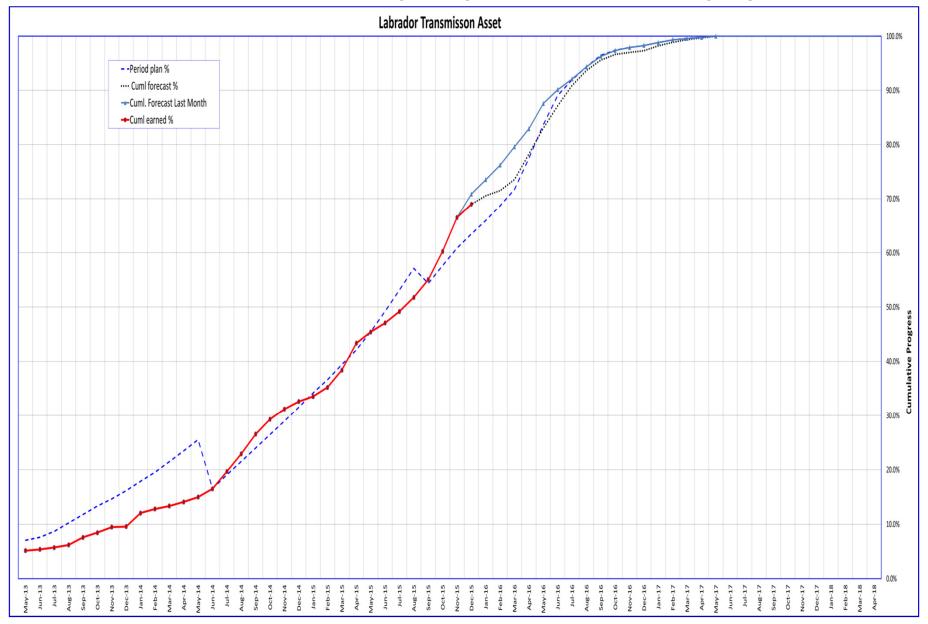


Project Stewardship: IPS Monthly Schedule & Progress Analysis

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### 2.0 Labrador Transmission Asset (LTA) - LTA Engineering/Construction/Commissioning Progress Curve



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### 2.0 Labrador Transmission Asset (LTA) - Engineering Cooper Cooper Cooper

#### LTA Progress Table **2015 Dec** This Reporting Period Period % Weight Cumulative % Factor % **Earned** Variance Variance Plan Plan Earned C C-B Ε F-E 1.1% 0.0% 100.0% 100.0% LTA CF Accommodations 0.0% 0.0% 0.0% 56.0% 2.3% -0.8% 79.1% 83.7% LTA HVac Transmission Line Seg1/2 - MF to CF 3.1% 4.6% 20.9% 1.6% 2.5% 0.9% 35.8% 48.4% 12.6% LTA Churchill Falls Switchyard LTA Muskrat Falls Switchyard 14.0% 3.3% 4.7% 1.4% 24.1% 26.9% 2.8% 8.0% 0.7% 0.0% -0.7% 90.2% 89.2% -1.0% LTA Misc 100.0% 2.6% 2.5% -0.1% 63.5% 69.0% 5.5% LTA TOTAL **Last Reporting Period** Weight Period % **Cumulative %** Earned Variance Factor % Plan **Earned** Variance Plan Α В C C-B F-E 1.1% 100.0% 100.0% LTA CF Accommodations 0.0% 0.0% 0.0% 0.0% 56.0% 5.5% 76.0% 5.4% 2.9% 2.6% 81.4% LTA HVac Transmission Line Seg1/2 - MF to CF 20.9% 2.7% 10.7% 8.0% 34.2% 45.9% 11.7% LTA Churchill Falls Switchyard LTA Muskrat Falls Switchyard 14.0% 7.1% 6.5% -0.6% 20.9% 22.2% 1.3% 8.0% 0.3% 0.0% -0.3% 89.5% 89.2% -0.3% LTA Misc 100.0% 3.0% 66.5% 3.2% 6.2% 60.9% 5.6% LTA TOTAL

Project Stewardship: IPS Monthly Schedule & Progress Analysis Dec 2015
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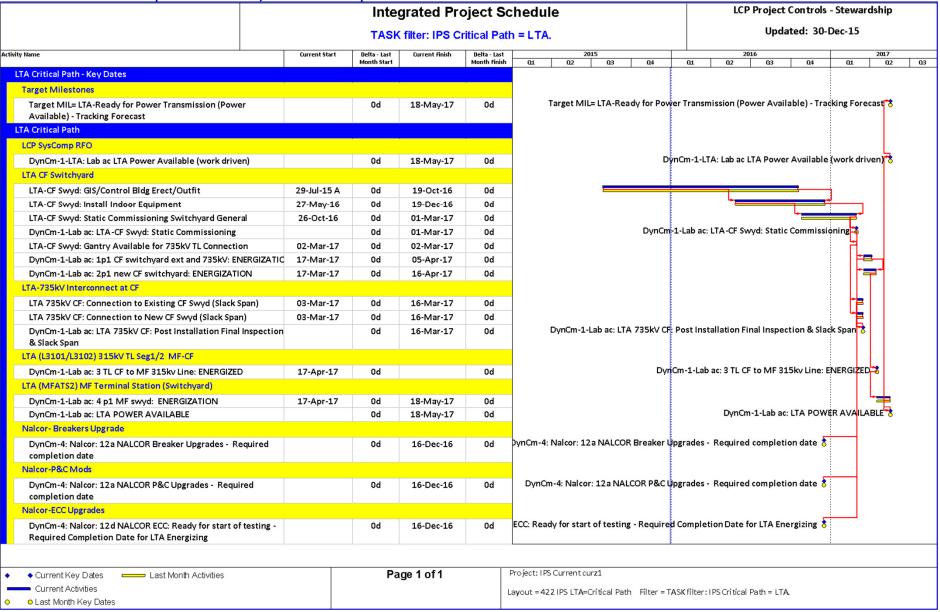
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### 2.0 Labrador Transmission Asset (LTA)

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NOTE: For complete Critical / Subcritical path schedule see attachment



Project Stewardship: IPS Monthly Schedule & Progress Analysis Dec 2015 25 of 35

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### 3.0 Labrador Island Transmission Link (LITL) Mar 2 Link Analysis – Observations

#### 1) Target Milestone

• Target Milestone Overall=LITL-1st Power Transfer Lab to Nfld = 9 Sep 2017 (Tracking Milestone)

### No change from last month (See page 16)

• Target Milestone Overall=LITL-Ready for Sustainable Power Transfer Labrador to Newfoundland= 11 Nov 2017 Now 14 Nov 2017

#### No change from last month

NOTE: A tracking milestone simply indicates this month forecast completion date.

### 2) Overall Engineering/Construction/Commissioning Progress

Period Planned Progress: 2.7% Cumulative Planned Progress: 37.9%

Period Forecast Progress 3.0%

Period Earned Progress: 1.3% Cumulative Earned Progress: 33.8%

Forecast progress variance from last month due to ongoing progress shortfalls in hvdc and converters.

### 3) Critical Path for 1st Power Transfer Lab to Nfld: No change from last month

• MF Converter is driving the LITL critical path . (see page 30)

### 4) SOBI Crossing

- Land cable installation completed at both Shoal Cove and Forteau Point
- Arrival of cable laying vessel forecast for June 2016

### 5) HVdc Line

- HVdc Lab Seg 1/2 = no change this month to final inspection dates in Sep 2016.
- HVdc Nfld Seg 3/4/5 = no change this month to final inspection dates in March2017 -> July 2017 period

### 6) Converters / Switchyards / Sych Cond

- Converters: Review of SOP schedule resulted in a 20 day earlier static commission completion date. Review of MF schedule ongoing.
- Switchyard: No forecasted delay to static commissioning completion date.
- Sych Cond: No change to completion of static comm. for Units 1/2/3.

### 7) SOP Transmission Line Rebuilds

• Work continues with reliance on outages. (see pages 20)

### 8) Transition Compounds / Grounding (Electrode) Stations

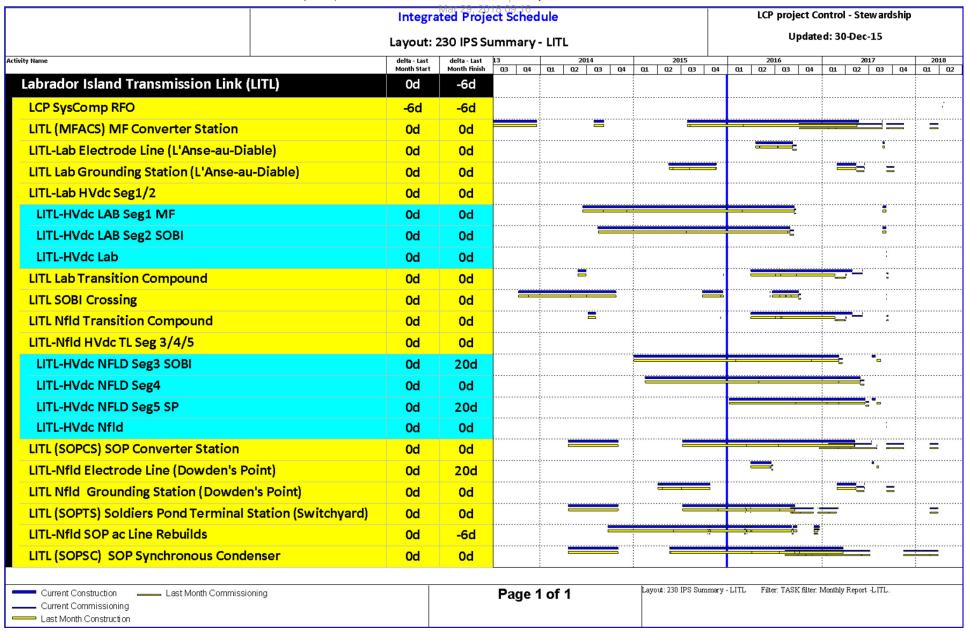
- Grounding stations work to resume Apr 2016. No delay on completion date of static commissioning.
- Lab Transition compound no change to completion date of static commissioning.
- Nfld Transition compound completion date of static commissioning delayed 66 days still within float.

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### 3.0 Labrador Island Transmission Link (LITL)

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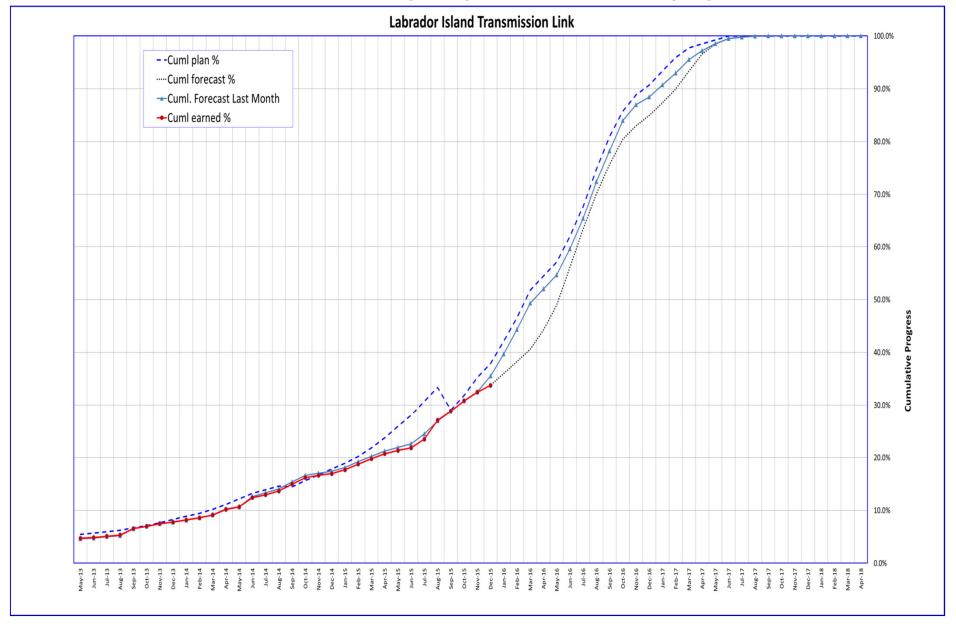


Project Stewardship:
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### 3.0 Labrador Island Transmission Link (LITL) - LITL Engineering/Construction/Commissioning Progress Curve



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### 3.0 Labrador Island Transmission Link (LITL) - Engineering/Construction/Commissioning Progress Table

LITL Progress Table 2015 Dec  This Reporting Period												
			•	This Rep	orting P	eric	od					
	Weight			Period %			Cumulative %					
	Factor %		Plan	Earned	Variance		Plan	Earned	Variance			
	Α		В	С	С-В		E	F	F-E			
LITL Muskrat Falls Converter	5.7%		1.4%	0.4%	-1.0%		13.4%	8.5%	-4.9%			
LITL Soldiers Pond Converter	5.8%		0.8%	0.4%	-0.4%		24.2%	18.2%	-6.0%			
LITL HVdc Transmission Line Seg 1/2	19.3%		5.0%	4.9%	-0.1%		47.4%	44.8%	-2.6%			
LITL HVdc Transmission Line Seg 3/4/5	35.3%		2.7%	0.4%	-2.3%		14.1%	8.0%	-6.1%			
LITL Grounding (Electrode) Sites	1.7%		3.9%	0.0%	-3.9%		73.4%	75.0%	1.6%			
LITL Transition Compounds	1.8%		0.0%	0.0%	0.0%		32.9%	32.9%	0.0%			
LITL SOBI Cable Crossing	18.0%		1.2%	0.1%	-1.1%		71.7%	70.0%	-1.7%			
LITL Soldiers Pond Switchyard	3.2%		2.2%	3.0%	0.8%		37.0%	37.8%	0.8%			
LITL Soldiers Pond Synchronous Condensors	4.9%		5.0%	0.0%	-5.0%		42.4%	28.6%	-13.8%			
LITL Misc	4.3%	Ш	0.0%	0.8%	0.8%		79.1%	81.1%	2.0%			
LITL TOTAL	100.0%		2.7%	1.3%	-1.4%		37.9%	33.8%	-4.1%			
				Last Rep	orting P	eric	od					
	Weight			Period %			(	Cumulative 9	6			
	Factor %		Plan	Earned	Variance		Plan	Earned	Variance			
	Α	Ш	В	с	С-В		E	F	F-E			
LITL Muskrat Falls Converter	5.7%		2.4%	1.0%	-1.4%		12.0%	8.1%	-3.9%			
LITL Soldiers Pond Converter	5.8%		3.0%	2.2%	-0.8%		23.4%	17.8%	-5.6%			
LITL HVdc Transmission Line Seg 1/2	19.3%		5.8%	3.7%	-2.1%		42.4%	39.9%	-2.5%			
LITL HVdc Transmission Line Seg 3/4/5	35.3%		3.4%	0.9%	-2.5%		11.4%	7.6%	-3.8%			
LITL Grounding (Electrode) Sites	1.7%		4.3%	4.6%	0.3%		69.5%	75.0%	5.5%			
LITL Transition Compounds	1.8%		0.0%	0.0%	0.0%		32.9%	32.9%	0.0%			
LITL SOBI Cable Crossing	18.0%		1.4%	0.6%	-0.8%		70.5%	69.9%	-0.6%			
LITL Soldiers Pond Switchyard	3.2%		3.5%	6.7%	3.2%		34.8%	34.8%	0.0%			
LITL Soldiers Pond Synchronous Condensors	4.9%		6.1%	0.5%	-5.6%		37.4%	28.6%	-8.8%			
LITL Misc	4.3%	3.6	0.0%	0.2%	0.2%		79.0%	80.2%	1.2%			
LITL TOTAL	100.0%		3.4%	1.7%	-1.6%		35.2%	32.5%	-2.7%			

Project Stewardship:
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### 3.0 Labrador Island Transmission Link (LITL)

### Molities Corintel Path 1st Power transfer Lab-> Nfld

NOTE: For complete Critical / Subcritical path schedule see attachment

nalcor		Integ	grated Pro	oject Sche	dule		LCP Project Cont	rols - Stewardship	
OWER CHIRCHIA PROJECT		1st	Power tran	isfer Lab -> N	fld		Updated:	30-Dec-15	
Activity Name		Current Start	Delta - Last Month Start	Current Finish	Delta - Last Month Finish	2015 01 02 03	2016 04 01 02 03 04	2017	Q3 Q4
1st Power Transfer-CP-KD									
Target Milestones									
Target MIL=Overall-LITL-1st Power Transfer Lal Newfoundland - Tracking Forecast	brador to	09-Sep-17	0d		Od	-1st Power Transfer l	abrador to Newfoundland	Tracking Forecast	18
1st Power Transfer-CP									
LCP SysComp RFO									
DynCm-3: LITL: All HVdc TL COMPLETED AND CO	ONNECTED		0d	08-Sep-17	0d	DynCm-3: LI	TL: All HVdc TL COMPLETED	AND CONNECTED	<b>≓</b> 8
DynCm-3: LITL: SOP & MF CONVERTER STANDA HVdc LINK COMPLETED	LONE TESTING &	09-Sep-17	0d		Od	& MF CONVERTER STA	ANDALONE TESTING & HVd	: LINK COMPLETED	=8
LITL (MFACS) MF Converter Station									
LITL-MFConvert: Building Foundation/Erect/Ou	utfit	28-Jul-15 A	0d	05-Oct-16	13d				
LITL-MFConvert: Valve Hall & Control Bldg Inst:	all Equipment	08-Jul-16	-128d	19-May-17	0d		<del></del>	<del></del>	Н
LITL-MFConvert: Static Commissioning		05-Oct-16	1d	24-Aug-17	0d		<b>└</b> =	$\overline{}$	4
LITL-MFConvert: Gantry available for HVdc Seg Electrode TL	1 TL & Lab	25-Aug-17	0d	25-Aug-17	0d			j	*
DynCm-3: LITL: 7a p2- MF Converter: HVdc LINk	CENERGIZATION	09-Sep-17	0d	15-Sep-17	0d				<b>₽</b>
LITL-Lab HVdc Seg1/2									
LITL-dcLabSeg1/Electr TL: HVdc Seg 1 & Electro to MF Converter (Slack Span>)	de TL Connection	26-Aug-17	0d	08-Sep-17	0d				13
LITL-dcLabSeg2/Electr TL: Connection to Lab Tra Span>)	ansCmp (Slack	26-Aug-17	Od	08-Sep-17	Od			4	13
DynCm-3: LITL: LITL-dcLabSeg1/Electr TL: Post I Inspection & Slack Span Connection	nstallation Final		Od	08-Sep-17	Od	Electr TL: Post Installa	tion Final Inspection & Slac	k Span Connection	18
DynCm-3: LITL: LITL-dcLabSeg2/Electr TL: Post I Inspection & Slack Span Connection	nstallation Final		Od	08-Sep-17	Od	Electr TL: Post Installa	tion Final Inspection & Slac	k Span Connection	18
DynCm-3: LITL: 6a HVdc TL and Electrode Line L	ab: Energized	09-Sep-17	0d		0d	DynCm-3: LITL:	6a HVdc TL and Electrode I	ine Lab: Energized	₽3
LITL-Nfld HVdc TL Seg 3/4/5									
DynCm-3: LITL: 6c HVdc TL and Electrode Line N	Nfld: Energized	09-Sep-17	0d		0d	DynCm-3: LITL: 0	5c HVdc TL and Electrode Li	ne Nfld: Energized	<b>₽</b>
LITL (SOPCS) SOP Converter Station									
DynCm-3: LITL: 8a p2 SOP Converter: HVdc LINk	CENERIZATION	09-Sep-17	0d	15-Sep-17	0d	1			<del>-</del>
							•		
Current Key Dates     Last Month Activities     Current Activities     Asst Month Key Dates		Pa	ge 1 of 1		ect: IPS Current ( ut = 452 IPS LITL		Filter = TASK filter: IPS Critical F	ath = LITL.	

Project Stewardship: IPS Monthly Schedule & Progress Analysis

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### 4.0 Muskrat Falls Generation (MFGen) MFGen Analysis - Observations

### 1) Target Milestone

Target Milestone: MFGen 1st power from Muskrat Falls = (On hold)

### 2) Overall Engineering/Construction/Commissioning Progress

Period Planned Progress: 1.9% Cumulative Planned Progress: 56.6%

Period Forecast Progress: 0.2%

Period Earned Progress: 0.1% Cumulative Earned Progress: 39.7%

#### 3) Critical Path(s):

<u>Diversion - River Closure (priority 1a) - see page 13</u>

On schedule for start on 6 July 2016

- Diversion Winter Headpond El. 25m (priority 1b) see page 14
- On schedule for start on 26 Oct 2016
- Diversion Impoundment Full Supply Level El. 39m (priority 1c) see page 15
- (On hold, see below for details)

#### 4) Reservoir Clearing:

- Labour transferred to ROW clearing in LITL, forecast for restart in July 2016 with completion in Dec 2016.

### 5) North Spur:

- Work progressing with all milestones forecast to be achievable.

### 6) Spillway

- Work continues towards planned river diversion

### 7) Transition Dams/North & South Dams

- North and South Dams contractor demobilized for winter.

### 8) Powerhouse:

- A review of the C1 (Muskrat Falls Generation) work plan is underway, and implementation of an updated C1 schedule will remain on hold pending acceptance of agreed actions and mitigations plan.

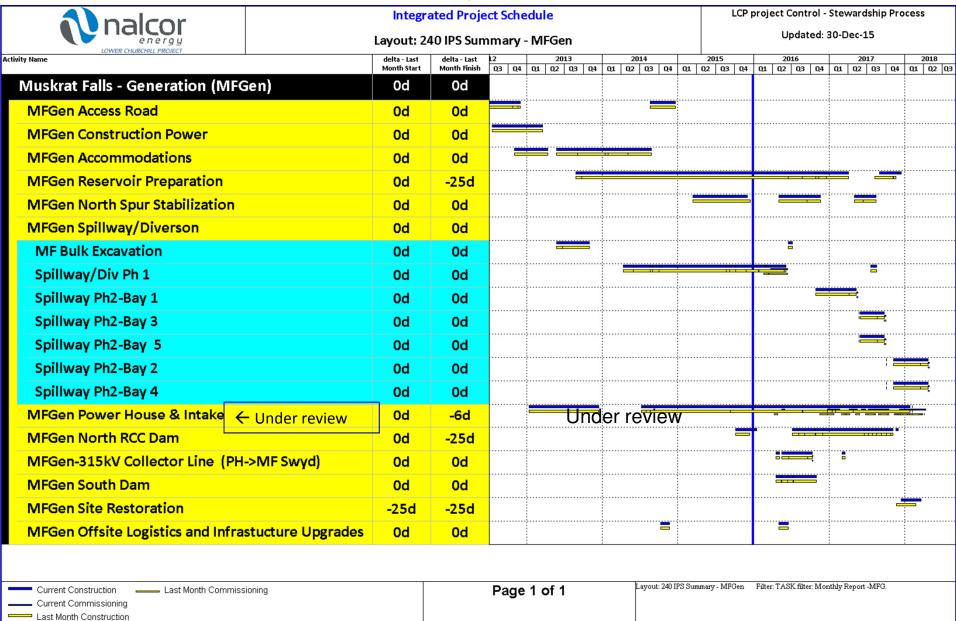
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### 4.0 Muskrat Falls Generation (MFGen)

### MFGen Summary Schedule

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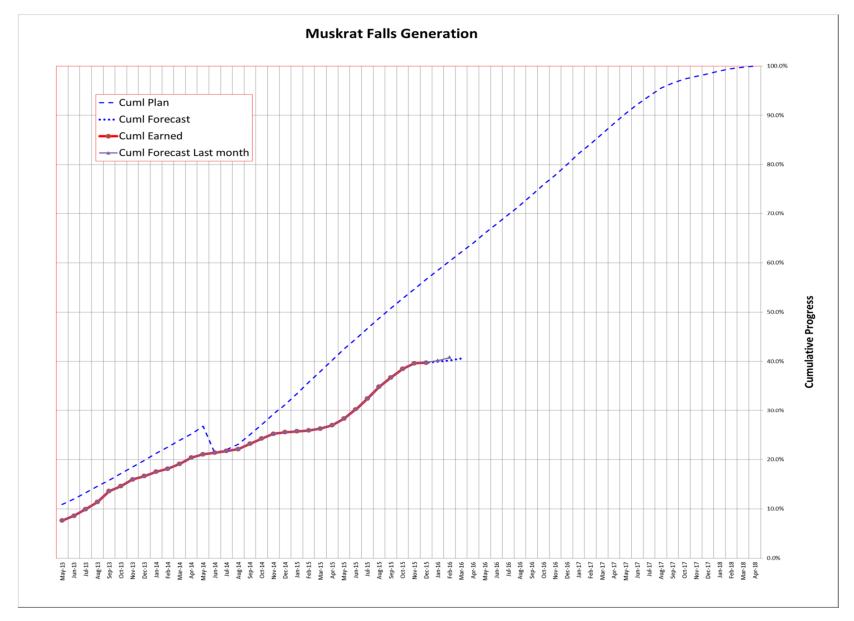


Project Stewardship:
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### **4.0 Muskrat Falls Generation (MFGen) - MFGen Engineering** Construction/Commissioning Progress Curve



Project Stewardship: IPS Monthly Schedule & Progress Analysis Dec 2015 33 of 35

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### 4.0 Muskrat Falls Generation (MFGen) - MFGen Engineering/Construction/Commissioning Progress Table

MFG	en Progre	ess Tabl						
_			This Re	porting Pe	riod			
	Weight		Period %			Cumulative 9	6	
	Factor %	Plan	Earned	Variance	Plan	Earned	Variance	
	Α	В	С	C-B	E	F	F-E	
MFG Road/Camp/Constr. Power	7.9%	0.0%	0.0%	0.0%	100.0%	99.8%	-0.2%	
MFG Reservoir Preparation	6.5%	0.0%	0.0%	0.0%	60.8%	60.8%	0.0%	
MFG Spillway & Gates	11.4%	2.0%	0.3%	-1.7%	63.0%	66.1%	3.1%	
MFG North Spur Stabiliztion	4.2%	2.2%	0.3%	-1.9%	39.2%	43.6%	4.4%	
MFG North Dam (incl North Transition Dam)	7.5%	0.0%	0.0%	0.0%	0.0%	4.1%	4.1%	
MFG Powerhouse & intake	54.9%	2.5%	0.1%	-2.4%	52.2%	23.2%	-29.0%	
MFG South Dam (incl South Transition Dam)	1.1%	0.0%	1.9%	1.9%	0.0%	9.1%	9.1%	
MFG Misc:Eng/ 315kV/Site Rest./logistic	6.5%	0.0%	0.0%	0.0%	83.5%	83.5%	0.0%	
MFGen TOTAL	100.0%	1.9%	0.1%	-1.8%	56.6%	39.7%	-17.0%	
			Last Re	porting Pe	riod			
	Weight		Period %			Cumulative 9	ative %	
	Factor %	Plan	Earned	Variance	Plan	Earned	Variance	
	Α	В	С	C-B	E	F	F-E	
MFG Road/Camp/Constr. Power	7.9%	0.0%	0.0%	0.0%	100.0%	99.8%	-0.2%	
MFG Reservoir Preparation	6.5%	0.0%	0.0%	0.0%	60.8%	60.8%	0.0%	
MFG Spillway & Gates	11.4%	2.1%	1.1%	-1.0%	61.0%	65.8%	4.8%	
MFG North Spur Stabiliztion	4.2%	9.6%	6.1%	-3.5%	37.0%	43.3%	6.3%	
MFG North Dam (incl North Transition Dam)	7.5%	0.0%	0.0%	0.0%	0.0%	4.1%	4.1%	
MFG Powerhouse & intake	54.9%	2.5%	1.1%	-1.4%	49.7%	23.1%	-26.6%	
MFG South Dam (incl South Transition Dam)	1.1%	0.0%	0.0%	0.0%	0.0%	7.2%	7.2%	
MFG Misc:Eng/ 315kV/Site Rest./logistic	6.5%	0.0%	0.0%	0.0%	83.5%	83.5%	0.0%	
MFGen TOTAL	100.0%	1.9%	1.1%	-0.8%	54.7%	39.6%	-15.2%	

Project Stewardship: IPS Monthly Schedule & Progress Analysis

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### **End of Report**

## **Lower Churchill Project Delivery Team Project Controls**

