Petrel Robertson

Petrel Robertson Consulting Ltd.
Global Petroleum Consulting

UNDISCOVERED RESOURCE ESTIMATE - UNCONVENTIONAL

Area/Region:	Cumberland Basin Nova Scotia
Play Name:	**Horton Bluff Shale**
Play Type:	**Shale gas**
Estimator Name:	PRCL team

Avg. Surface Temp. (°C):	15
Normal Pressure Gradient (kPa/m):	9.93
Temp. Gradient (°C/100 m.):	1.80
Raw Gas Gravity:	0.60

1. Risk Component

Risk Factors	Play risk
1. Source Rock	0.50
2. Charge	1.00
3. Migration	1.00
4. Reservoir Rock	1.00
5. Trap/Closure	1.00
6. Seal/Containment	1.00
Probability of Geological Success (P_g)	**0.50**

2. Hydrocarbon Volume Component

	Low	Best	High	Mean	P99	P90	P50	P10	P01	NOTES
Reservoir Depth (mTVD)	840	1,500	4,500	2,501	1,225	1,679	2,450	3,404	3,977	
Reservoir overpressuring (x hydrostatic)	1.0	1.0	1.1	1.01	0.94	0.97	1.01	1.04	1.07	
Reservoir Pressure (MPa)	--	--	--	25.0	12.2	16.7	24.5	34.0	40.1	
Reservoir Temperature (°C)	--	--	--	60	37	45	59	76	87	
H_2S Content	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
CO_2 Content	0.01	0.03	0.05	0.03	0.01	0.01	0.03	0.05	0.09	
Total Play Area (sqkm)	2,510	2,953	3,396	2,951	2,301	2,535	2,933	3,394	3,738	
Tested Play Area (sqkm)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
Untested Play Area (sqkm)	--	--	--	2,951	2,301	2,535	2,933	3,394	3,738	
Fraction of Untested Play Filled	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
Developable Fraction of Total Play	0.050	0.122	0.300	0.151	0.029	0.052	0.122	0.291	0.516	
Fraction of Total Play in Trap										
Fractional fill of Untested Play Traps										
Potential O&G Area (sqkm)	--	--	--	445.8	83.3	150.0	359.9	862.0	1,532.8	
Fraction of PV Oil Bearing	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
Potential Oil Area (sqkm)	--	--	--	0.000	0.000	0.000	0.000	0.000	0.000	
Potential Gas Area (sqkm)	--	--	--	445.8	83.3	150.0	359.9	862.0	1,532.8	
Average Net Pay (m)	7	30	128	52	3	7	30	124	318	
Matrix Porosity	0.01	0.02	0.03	0.020	0.008	0.011	0.018	0.031	0.044	
Natural Fracture Porosity	0.000	0.002	0.010	0.0039	0.0002	0.0004	0.0020	0.0095	0.0265	
Total Porosity	--	--	--	0.024	0.009	0.013	0.022	0.037	0.052	
Hydrocarbon Saturation	0.45	0.60	0.85	0.62	0.37	0.45	0.61	0.81	0.94	
Free Gas Parameters										
Initial Gas Compressibility "Z"	0.95	1.00	1.05	1.04	0.78	0.84	1.02	1.47	1.87	
Gas Formation Expansion Factor	--	--	--	206	138	172	197	213	225	
Adsorbed gas parameters										
Rock matrix density (g/cc)	2.48	2.53	2.60	2.54	2.44	2.48	2.54	2.59	2.63	
Total Organic content (TOC, % wt)	1.5	3.0	6.0	3.40	0.99	1.54	3.00	5.86	9.13	
Ratio Langmuir volume /%TOC (sm3/tonne	0.3	0.5	1.0	0.57	0.16	0.26	0.50	0.98	1.52	
Langmuir Pressure (MPa)	2.00	3.00	4.00	2.99	1.66	2.07	2.90	4.05	5.05	
Adsorbed gas saturation (fraction)	0.40	0.60	0.80	0.60	0.33	0.41	0.58	0.81	1.01	
Gas Recovery Factor	0.05	0.15	0.25	0.15	0.03	0.06	0.13	0.27	0.46	

3. Yield Component

	Low	Best	High	Mean	P99	P90	P50	P10	P01	
Oil-in-Place (stm3/m3)	--	--	--	0	0	0	0	0	0	
Recoverable Oil (stm3/m3)	--	--	--	0	0	0	0	0	0	
Solution Gas-in-Place (sm3/m3)	--	--	--	0	0	0	0	0	0	
Free Gas-in-Place (sm3/m3)	--	--	--	3.0	0.9	1.4	2.6	4.6	7.2	
Adsorbed Gas-in-Place (sm3/m3)	--	--	--	2.6	0.3	0.7	1.9	5.3	11.1	
Total Gas-in-Place (sm3/m3)	--	--	--	5.6	1.8	2.8	4.9	8.7	14.3	
Raw Recoverable Gas (sm3/m3)	--	--	--	0.8	0.1	0.2	0.6	1.6	3.4	
Marketable Gas (sm3/m3)	--	--	--	0.7	0.1	0.2	0.5	1.4	3.0	
Gas Liquids Yield (stm3/e6sm3)	10	20	30	20	8	11	18	31	44	
Gas to BOE Conversion (Mscf/BOE)	--	6.00	--							
Surface Loss (Fuel gas, etc...)	--	10%	--							
Marketable Gas (Fraction of Raw)	--	--	--	0.87	0.82	0.85	0.88	0.89	0.89	

4. Play Totals

	Risked Mean volumes			Volumes given Geological Success in Play						
				Mean	P99	P90	P50	P10	P01	
In Place										
Oil ($10^6 stm^3$)		0.0		0	0	0	0	0	0	
Condensate & NGL ($10^6 stm^3$)		0.7		1.4	0.0	0.1	0.5	3.1	12.6	
Total Liquids ($10^6 stm^3$)		0.7		1.4	0.0	0.1	0.5	3.1	12.6	
Total Liquids (MMstb)		*4.4*		*8.7*	*0.1*	*0.5*	*3.2*	*19.8*	*79.4*	
Solution gas ($10^9 sm^3$)		0.00		0	0	0	0	0	0	
Free gas ($10^9 sm^3$)		35		70	1	5	28	158	575	
Adsorbed gas ($10^9 sm^3$)		30		60	1	3	21	143	616	
Total gas ($10^9 sm^3$)		65		130	3	9	53	306	1,138	
Total gas (Bscf)		*2,311*		*4,622*	*91*	*327*	*1,872*	##########	##########	
MMBOE		*390*		*779*	*15*	*55*	*315*	*1,830*	*6,811*	
Recoverable										
Oil ($10^6 stm^3$)		0		0	0	0	0	0	0	
Condensate & NGL ($10^6 stm^3$)		0.1		0.21	0.00	0.01	0.06	0.46	2.11	
Total Liquids ($10^6 stm^3$)		0.1		0	0.00	0.01	0.06	0.46	2.11	
Total Liquids (MMstb)		*0.7*		*1*	*0.0*	*0.1*	*0.4*	*2.9*	*13.3*	
Associated gas ($10^9 sm^3$)		0		0	0	0	0	0	0	Gas originally dissolved in oil
Non associated gas ($10^9 sm^3$)		9.7		19	0	1	7	45	191	
Total gas ($10^9 sm^3$)		9.7		19	0.2	1.0	6.6	44.9	190.9	
Marketable Gas ($10^9 sm^3$)		8.5		17	0.2	0.9	5.7	39.0	168.1	
Marketable Gas (Bscf)		*301*		*601*	*7*	*31*	*204*	*1,385*	*5,966*	
MMBOE		*51*		*102*	*1*	*5*	*34*	*234*	*1,008*	

Note for parameter estimates;
Calculations Require Low < Best < High

Petrel Robertson

Petrel Robertson Consulting Ltd.
Global Petroleum Consulting

UNDISCOVERED RESOURCE ESTIMATE - UNCONVENTIONAL

Area/Region:	Cumberland Basin Nova Scotia
Play Name:	**Cumberland Coal Bed Methane (CBM)**
Play Type:	**Coal bed methane**
Estimator Name:	PRCL team

Avg. Surface Temp. (°C):	15
Normal Pressure Gradient (kPa/m):	9.93
Temp. Gradient (°C/100 m.):	2.04
Raw Gas Gravity:	0.60

1. Risk Component

Risk Factors	Play risk
1. Source Rock	1.00
2. Charge	1.00
3. Migration	1.00
4. Reservoir Rock	1.00
5. Trap/Closure	1.00
6. Seal/Containment	1.00
Probability of Geological Success (P_g)	1.00

2. Hydrocarbon Volume Component

	Low	Best	High	Mean	P99	P90	P50	P10	P01	NOTES
Reservoir Depth (mTVD)	0	768	3,500	1,604	378	830	1,561	2,445	3,004	
Reservoir overpressuring (x hydrostatic)	1.0	1.0	1.1	1.01	0.94	0.97	1.01	1.04	1.07	
Reservoir Pressure (MPa)	--	--	--	16.0	3.8	8.3	15.6	24.4	30.2	
Reservoir Temperature (°C)	--	--	--	48	23	32	47	65	76	
Methane Content	0.85		0.98	0.96	0.89	0.92	0.96	0.99	1.00	
Ethane Content	0.01	0.02	0.05	0.03	0.01	0.01	0.02	0.05	0.08	
Propane Content	0.00	0.01	0.05	0.03	0.00	0.00	0.00	0.08	0.55	
H_2S Content	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
CO_2 Content	0.01	0.03	0.06	0.03	0.01	0.01	0.03	0.06	0.11	
Total Play Area (sqkm)	2,001	2,858	3,715	2,743	1,684	2,041	2,720	3,495	3,845	
Tested Play Area (sqkm)	206.400	258.000	309.600	257.658	184.038	209.552	254.857	309.952	352.900	
Untested Play Area (sqkm)	--	--	--	2,485	1,426	1,783	2,460	3,235	3,589	
Fraction of Untested Play Filled	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
Developable Fraction of Total Play	0.050	0.132	0.350	0.169	0.028	0.052	0.132	0.338	0.631	
Fraction of Total Play in Trap										
Fractional fill of Untested Play Traps										
Potential O&G Area (sqkm)	--	--	--	420.8	60.9	120.8	322.0	853.8	1,628.4	
Fraction of PV Oil Bearing	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
Potential Oil Area (sqkm)	--	--	--	0.000	0.000	0.000	0.000	0.000	0.000	
Potential Gas Area (sqkm)	--	--	--	420.8	60.9	120.8	322.0	853.8	1,628.4	
Average Net Pay (m)	3	12	20	12	2	4	9	23	42	
Matrix Porosity	0.01	0.02	0.05	0.022	0.003	0.005	0.016	0.048	0.100	
Natural Fracture Porosity	0.00	0.01	0.01	0.0055	0.0013	0.0022	0.0047	0.0102	0.0170	
Total Porosity	--	--	--	0.028	0.006	0.010	0.022	0.054	0.106	
Hydrocarbon Saturation	0.70	0.90	1.00	0.83	0.64	0.71	0.83	0.94	0.97	
Free Gas Parameters										
Initial Gas Compressibility "Z"	0.95	1.00	1.05	0.83	0.76	0.79	0.85	1.02	1.26	
Gas Formation Expansion Factor	--	--	--	171	41	93	167	203	217	
Adsorbed gas parameters				0	0	0	0	0	0	
Rock matrix density (g/cc)	1.25	1.45	1.65	1.45	1.15	1.26	1.44	1.65	1.80	
Total Organic content (TOC, % wt)	50.0	70.0	90.0	69.82	42.56	51.38	68.23	90.62	109.36	
Ratio Langmuir volume /%TOC (sm3/ton	0.1	0.2	0.4	0.23	0.07	0.10	0.20	0.39	0.61	
Langmuir Pressure (MPa)	2.00	3.00	4.00	2.99	1.66	2.07	2.90	4.05	5.05	
Adsorbed gas saturation (fraction)	0.40	0.60	0.80	0.60	0.33	0.41	0.58	0.81	1.01	
Solution GOR (ksm3/stm3)	0.03	0.09	0.25	0.12	0.02	0.03	0.09	0.24	0.48	
Oil Formation Volume Factor	1.20	1.30	1.50	1.33	1.11	1.19	1.32	1.48	1.58	
Oil Recovery Factor	0.05	0.15	0.25	0.15	0.03	0.06	0.13	0.27	0.46	
Gas Recovery Factor	0.50	0.60	0.70	0.60	0.45	0.51	0.59	0.70	0.78	

3. Yield Component

	Low	Best	High	Mean	P99	P90	P50	P10	P01	
Oil-in-Place (stm3/m3)	--	--	--	0	0	0	0	0	0	
Recoverable Oil (stm3/m3)	--	--	--	0	0	0	0	0	0	
Solution Gas-in-Place (sm3/m3)	--	--	--	0	0	0	0	0	0	
Free Gas-in-Place (sm3/m3)	--	--	--	3.9	0.5	1.1	2.8	7.3	15.5	
Adsorbed Gas-in-Place (sm3/m3)	--	--	--	11.6	2.2	4.2	9.4	20.8	38.0	
Total Gas-in-Place (sm3/m3)	--	--	--	15.5	3.8	6.8	13.0	25.6	42.4	
Raw Recoverable Gas (sm3/m3)	--	--	--	9.3	2.2	3.9	7.8	15.4	26.4	
Marketable Gas (sm3/m3)	--	--	--	8.1	1.9	3.4	6.8	13.4	23.0	
Gas Liquids Yield (stm3/e6sm3)	10	20	30	20	8	11	18	31	44	
Gas to BOE Conversion (Mscf/BOE)	--	6.00	--							
Surface Loss (Fuel gas, etc...)	--	10%	--							
Marketable Gas (Fraction of Raw)	--	--	--	0.87	0.80	0.84	0.88	0.89	0.89	

4. Play Totals

	Risked Mean volumes			Volumes given Geological Success in Play						
				Mean	P99	P90	P50	P10	P01	
In Place										
Oil ($10^6 stm^3$)		0.0		0	0	0	0	0	0	
Condensate & NGL ($10^6 stm^3$)		0.4		0.4	0.0	0.0	0.2	0.8	3.1	
Total Liquids ($10^6 stm^3$)		0.4		0.4	0.0	0.0	0.2	0.8	3.1	
Total Liquids (MMstb)		*2.4*		*2.4*	*0.0*	*0.2*	*0.9*	*5.3*	*19.6*	
Solution gas ($10^9 sm^3$)		0.00		0	0	0	0	0	0	
Free gas ($10^9 sm^3$)		19		19	0	2	8	42	148	
Adsorbed gas ($10^9 sm^3$)		57		57	2	6	28	130	434	
Total gas ($10^9 sm^3$)		76		76	3	9	39	170	528	
Total gas (Bscf)		*2,705*		##########	*94*	*309*	##########	##########	##########	
MMBOE		*453*		*453*	*16*	*52*	*232*	##########	##########	
Recoverable										
Oil ($10^6 stm^3$)		0		0	0	0	0	0	0	
Condensate & NGL ($10^6 stm^3$)		0.2		0.23	0.00	0.02	0.09	0.51	1.86	
Total Liquids ($10^6 stm^3$)		0.2		0	0.00	0.02	0.09	0.51	1.86	
Total Liquids (MMstb)		*1.5*		*1*	*0.0*	*0.1*	*0.6*	*3.2*	*11.7*	
Associated gas ($10^9 sm^3$)		0		0	0	0	0	0	0	Gas originally dissolved in oil
Non associated gas (109sm3)		45.7		46	2	5	23	102	316	
Total gas ($10^9 sm^3$)		45.7		46	1.5	5.1	23.1	102.1	315.8	
Marketable Gas ($10^9 sm^3$)		39.8		40	1.3	4.4	20.1	88.9	276.7	
Marketable Gas (Bscf)		*1,411*		##########	*47*	*158*	*714*	##########	##########	
MMBOE		*237*		*237*	*8*	*26*	*120*	*529*	##########	

Note for parameter estimates;
Calculations Require Low < Best < High

Petrel Robertson

Petrel Robertson Consulting Ltd.
Global Petroleum Consulting

UNDISCOVERED RESOURCE ESTIMATE - UNCONVENTIONAL

Area/Region:	Cumberland Basin Nova Scotia
Play Name:	**Cumberland Group Boss Point sandstone, Ragged Reef fm**
Play Type:	
Estimator Name:	PRCL team

Avg. Surface Temp. (°C):	15
Normal Pressure Gradient (kPa/m):	9.93
Temp. Gradient (°C/100 m.):	1.70
Raw Gas Gravity:	0.60

1. Risk Component

Risk Factors	Play risk
1. Source Rock	0.90
2. Charge	0.75
3. Migration	0.90
4. Reservoir Rock	0.75
5. Trap/Closure	0.90
6. Seal/Containment	0.70
Probability of Geological Success (P_g)	**0.29**

2. Hydrocarbon Volume Component

	Low	Best	High	Mean	P99	P90	P50	P10	P01	NOTES
Reservoir Depth (mTVD)	50	1,682	4,500	2,209	350	1,000	2,178	3,461	4,171	
Reservoir overpressuring (x hydrostatic)	1.0	1.0	1.1	1.01	0.94	0.97	1.01	1.04	1.07	
Reservoir Pressure (MPa)	--	--	--	22	3	10	22	35	42	
Reservoir Temperature (°C)	--	--	--	53	21	32	52	74	86	
H_2S Content	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
CO_2 Content	0.01	0.05	0.09	0.05	0.00	0.01	0.03	0.12	0.30	
Total Play Area (sqkm)	2,001	2,858	3,715	2,743	1,684	2,041	2,720	3,495	3,845	
Tested Play Area (sqkm)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
Untested Play Area (sqkm)	--	--	--	2,743	1,684	2,041	2,720	3,495	3,845	
Fraction of Total Play in Trap	0.010	0.028	0.080	0.037	0.005	0.010	0.028	0.077	0.150	
Fractional fill of Untested Play Traps	0.600	0.850	0.900	0.774	0.562	0.638	0.772	0.917	0.988	
Potential O&G Area (sqkm)	--	--	--	79.6	9.9	20.5	58.3	167.2	341.1	
Fraction of PV Oil Bearing	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
Potential Oil Area (sqkm)	--	--	--	0.000	0.000	0.000	0.000	0.000	0.000	
Potential Gas Area (sqkm)	--	--	--	79.6	9.9	20.5	58.3	167.2	341.1	
Average Net Pay (m)	11	24	43	26	7	11	22	44	69	
Matrix Porosity	0.10	0.14	0.20	0.146	0.081	0.101	0.141	0.198	0.247	
Natural Fracture Porosity	0.00	0.00	0.00	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Total Porosity	--	--	--	0.146	0.081	0.101	0.141	0.198	0.247	
Hydrocarbon Saturation	0.45	0.60	0.85	0.62	0.37	0.45	0.61	0.81	0.94	
Gas Compressibility "Z"	0.95	1.00	1.05	0.95	0.77	0.81	0.95	1.51	2.01	
Gas Formation Expansion Factor	--	--	--	204	37	114	190	212	225	
Gas Recovery Factor	0.35	0.55	0.70	0.53	0.30	0.37	0.51	0.71	0.86	

3. Yield Component

	Low	Best	High	Mean	P99	P90	P50	P10	P01
Yield: Oil-in-Place (stm3/m3)	--	--	--	0	0	0	0	0	0
Yield: Recoverable Oil (stm3/m3)	--	--	--	0	0	0	0	0	0
Solution Gas-in-Place (sm3/m3)	--	--	--	0	0	0	0	0	0
Free Gas-in-Place (sm3/m3)	--	--	--	18.4	2.8	8.1	15.3	24.8	35.2
Yield: Gas-in-Place (sm3/m3)	--	--	--	18.4	2.8	8.1	15.3	24.8	35.3
Yield: Raw Recoverable Gas (sm3/m3)	--	--	--	9.8	1.4	3.8	7.7	14.0	21.4
Yield: Marketable Gas (sm3/m3)	--	--	--	8.3	1.2	3.2	6.6	12.0	18.5
Gas Liquids Yield (stm3/e6sm3)	20	30	50	33	15	20	31	48	65
Gas to BOE Conversion (Mscf/BOE)	--	6.00	--						
Surface Loss (Fuel gas, etc...)	--	10%	--						
Marketable Gas (Fraction of Raw)	--	--	--	0.85	0.63	0.79	0.87	0.89	0.90

4. Play Totals

	Risked Mean volumes			Volumes given Geological Success in Play					
				Mean	P99	P90	P50	P10	P01
In Place									
Oil ($10^6 stm^3$)		0.0		0	0	0	0	0	0
Condensate & NGL ($10^6 stm^3$)		0.4		1.2	0.0	0.1	0.6	2.5	7.1
Total Liquids ($10^6 stm^3$)		0.4		1.2	0.0	0.1	0.6	2.5	7.1
Total Liquids (MMstb)		*2.2*		*7.7*	*0.3*	*0.9*	*3.7*	*15.5*	*44.9*
Solution gas ($10^9 sm^3$)		0.00		0	0	0	0	0	0
Free gas ($10^9 sm^3$)		11		37	1	5	19	74	198
Total gas ($10^9 sm^3$)		11		37	1	5	19	74	198
Total gas (Bscf)		*381*		*1,328*	*53*	*168*	*682*	*2,625*	*7,039*
MMBOE		*66*		*229*	*9*	*29*	*117*	*453*	*1,218*
Recoverable									
Oil ($10^6 stm^3$)		0		0	0	0	0	0	0
Condensate & NGL ($10^6 stm^3$)		0.2		0.65	0.02	0.07	0.31	1.31	3.84
Total Liquids ($10^6 stm^3$)		0.2		1	0.02	0.07	0.31	1.31	3.84
Total Liquids (MMstb)		*1.2*		*4*	*0.1*	*0.4*	*1.9*	*8.3*	*24.2*
Solution gas ($10^9 sm^3$)		0		0	0	0	0	0	0
Non associated gas (109sm3)		5.7		20	1	2	10	39	108
Total gas ($10^9 sm^3$)		5.7		20	0.7	2.4	9.9	39.2	107.8
Marketable Gas ($10^9 sm^3$)		4.9		17	0.6	2.0	8.4	33.4	92.9
Marketable Gas (Bscf)		*172*		*600*	*20*	*71*	*299*	*1,185*	*3,297*
MMBOE		*30*		*104*	*4*	*12*	*52*	*206*	*574*

Note for parameter estimates;
Calculations Require Low < Best < High

Petrel Robertson Consulting Ltd.
Global Petroleum Consulting

UNDISCOVERED RESOURCE ESTIMATE - UNCONVENTIONAL

Area/Region:	Cumberland Basin Nova Scotia
Play Name:	Mabou Group Upper Claremont Fm
Play Type:	
Estimator Name:	PRCL team

Avg. Surface Temp. (°C):	15
Normal Pressure Gradient (kPa/m):	9.93
Temp. Gradient (°C/100 m.):	1.12
Raw Gas Gravity:	0.60

1. Risk Component

Risk Factors	Play risk
1. Source Rock	1.00
2. Charge	0.95
3. Migration	0.90
4. Reservoir Rock	0.95
5. Trap/Closure	0.90
6. Seal/Containment	0.50
Probability of Geological Success (P_g)	**0.37**

2. Hydrocarbon Volume Component

	Low	Best	High	Mean	P99	P90	P50	P10	P01	NOTES
Reservoir Depth (mTVD)	0	2,990	4,500	2,497	366	1,160	2,594	3,676	4,239	
Reservoir overpressuring (x hydrostatic)	1.0	1.0	1.1	1.01	0.94	0.97	1.01	1.04	1.07	
Reservoir Pressure (MPa)	--	--	--	25	4	12	26	37	43	
Reservoir Temperature (°C)	--	--	--	43	19	28	44	56	62	
H_2S Content	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
CO_2 Content	0.01	0.05	0.09	0.05	0.00	0.01	0.03	0.12	0.30	
Total Play Area (sqkm)	3,419	3,799	4,179	3,634	3,204	3,381	3,658	3,850	3,895	
Tested Play Area (sqkm)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
Untested Play Area (sqkm)	--	--	--	3,634	3,204	3,381	3,658	3,850	3,895	
Fraction of Total Play in Trap	0.010	0.028	0.080	0.037	0.005	0.010	0.028	0.077	0.150	
Fractional fill of Untested Play Traps	0.600	0.850	0.900	0.774	0.562	0.638	0.772	0.917	0.988	
Potential O&G Area (sqkm)	--	--	--	105.5	14.3	28.6	78.7	218.3	428.7	
Fraction of PV Oil Bearing	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
Potential Oil Area (sqkm)	--	--	--	0.000	0.000	0.000	0.000	0.000	0.000	
Potential Gas Area (sqkm)	--	--	--	105.5	14.3	28.6	78.7	218.3	428.7	
Average Net Pay (m)	8	28	96	41	4	8	28	93	207	
Matrix Porosity	0.03	0.05	0.07	0.048	0.023	0.030	0.046	0.069	0.090	
Natural Fracture Porosity	0.00	0.00	0.00	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Total Porosity	--	--	--	0.048	0.023	0.030	0.046	0.069	0.090	
Hydrocarbon Saturation	0.45	0.60	0.85	0.62	0.37	0.45	0.61	0.81	0.94	
Gas Compressibility "Z"	0.95	1.00	1.05	1.04	0.77	0.82	1.07	1.64	2.06	
Gas Formation Expansion Factor	--	--	--	217	39	135	202	223	236	
Gas Recovery Factor	0.35	0.55	0.70	0.53	0.30	0.37	0.51	0.71	0.86	

3. Yield Component

	Low	Best	High	Mean	P99	P90	P50	P10	P01
Yield: Oil-in-Place (stm3/m3)	--	--	--	0	0	0	0	0	0
Yield: Recoverable Oil (stm3/m3)	--	--	--	0	0	0	0	0	0
Solution Gas-in-Place (sm3/m3)	--	--	--	0	0	0	0	0	0
Free Gas-in-Place (sm3/m3)	--	--	--	6.5	1.0	2.8	5.3	9.0	13.2
Yield: Gas-in-Place (sm3/m3)	--	--	--	6.5	1.0	2.8	5.3	9.0	13.2
Yield: Raw Recoverable Gas (sm3/m3)	--	--	--	3.4	0.5	1.3	2.7	5.0	7.9
Yield: Marketable Gas (sm3/m3)	--	--	--	2.9	0.4	1.1	2.3	4.3	6.8
Gas Liquids Yield (stm3/e6sm3)	20	30	50	33	15	20	31	48	65
Gas to BOE Conversion (Mscf/BOE)	--	6.00	--						
Surface Loss (Fuel gas, etc...)	--	10%	--						
Marketable Gas (Fraction of Raw)	--	--	--	0.85	0.63	0.79	0.87	0.89	0.90

4. Play Totals

	Risked Mean volumes			Volumes given Geological Success in Play					
				Mean	P99	P90	P50	P10	P01
In Place									
Oil ($10^6 stm^3$)		0.0		0	0	0	0	0	0
Condensate & NGL ($10^6 stm^3$)		0.3		0.9	0.0	0.1	0.3	1.9	7.1
Total Liquids ($10^6 stm^3$)		0.3		0.9	0.0	0.1	0.3	1.9	7.1
Total Liquids (MMstb)		*2.1*		*5.8*	*0.1*	*0.4*	*2.2*	*12.0*	*44.5*
Solution gas ($10^9 sm^3$)		0.00		0	0	0	0	0	0
Free gas ($10^9 sm^3$)		10		28	1	2	11	59	201
Total gas ($10^9 sm^3$)		10		28	1	2	11	59	201
Total gas (Bscf)		*366*		*1,002*	*18*	*72*	*395*	*2,085*	*7,129*
MMBOE		*63*		*173*	*3*	*12*	*68*	*359*	*1,233*
Recoverable									
Oil ($10^6 stm^3$)		0		0	0	0	0	0	0
Condensate & NGL ($10^6 stm^3$)		0.2		0	0	0	0	1	4
Total Liquids ($10^6 stm^3$)		0.2		0	0.01	0.03	0.18	1.02	3.73
Total Liquids (MMstb)		*1.1*		*3*	*0.0*	*0.2*	*1.1*	*6.4*	*23.5*
Solution gas ($10^9 sm^3$)		0		0	0	0	0	0	0
Non associated gas (109sm3)		5.5		15	0	1	6	31	108
Total gas ($10^9 sm^3$)		5.5		15	0.3	1.0	5.7	31.1	108.5
Marketable Gas ($10^9 sm^3$)		4.7		13	0.2	0.9	4.9	26.6	91.4
Marketable Gas (Bscf)		*165*		*453*	*8*	*31*	*173*	*943*	*3,245*
MMBOE		*29*		*78*	*1*	*5*	*30*	*164*	*564*

Note for parameter estimates;
Calculations Require Low < Best < High

Petrel Robertson Consulting Ltd.
Global Petroleum Consulting

UNDISCOVERED RESOURCE ESTIMATE - UNCONVENTIONAL

Area/Region:	Cumberland Basin Nova Scotia
Play Name:	**Windsor Group – carbonates with interbedded evaporites**
Play Type:	**Carbonate**
Estimator Name:	PRCL team

Avg. Surface Temp. (°C):	15
Normal Pressure Gradient (kPa/m):	9.93
Temp. Gradient (°C/100 m.):	1.12
Raw Gas Gravity:	0.60

1. Risk Component

Risk Factors	Play risk
1. Source Rock	0.95
2. Charge	0.80
3. Migration	0.90
4. Reservoir Rock	0.95
5. Trap/Closure	0.90
6. Seal/Containment	0.65
Probability of Geological Success (P_g)	**0.38**

2. Hydrocarbon Volume Component

	Low	Best	High	Mean	P99	P90	P50	P10	P01	NOTES
Reservoir Depth (mTVD)	2,730	4,240	4,500	3,823	2,893	3,247	3,886	4,285	4,432	
Reservoir overpressuring (x hydrostatic)	1.0	1.0	1.1	1.01	0.94	0.97	1.01	1.04	1.07	
Reservoir Pressure (MPa)	--	--	--	38	29	32	39	43	45	
Reservoir Temperature (°C)	--	--	--	58	47	51	59	63	65	
H_2S Content	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
CO_2 Content	0.01	0.03	0.06	0.03	0.00	0.01	0.02	0.07	0.16	
Total Play Area (sqkm)	2,118	2,353	2,588	2,352	1,997	2,129	2,346	2,585	2,756	
Tested Play Area (sqkm)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
Untested Play Area (sqkm)	--	--	--	2,352	1,997	2,129	2,346	2,585	2,756	
Fraction of Total Play in Trap	0.010	0.028	0.080	0.037	0.005	0.010	0.028	0.077	0.150	
Fractional fill of Untested Play Traps	0.600	0.850	0.900	0.774	0.562	0.638	0.772	0.917	0.988	
Potential O&G Area (sqkm)	--	--	--	68.3	9.2	18.4	50.9	142.0	281.0	
Fraction of PV Oil Bearing	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
Potential Oil Area (sqkm)	--	--	--	0.000	0.000	0.000	0.000	0.000	0.000	
Potential Gas Area (sqkm)	--	--	--	68.3	9.2	18.4	50.9	142.0	281.0	
Average Net Pay (m)	1	13	60	25	1	2	11	63	208	
Matrix Porosity	0.05	0.07	0.10	0.073	0.041	0.051	0.071	0.099	0.123	
Natural Fracture Porosity	0.00	0.00	0.00	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Total Porosity	--	--	--	0.073	0.041	0.051	0.071	0.099	0.123	
Hydrocarbon Saturation	0.45	0.60	0.85	0.62	0.37	0.45	0.61	0.81	0.94	
Gas Compressibility "Z"	0.95	1.00	1.05	1.74	1.18	1.37	1.78	2.11	2.28	
Gas Formation Expansion Factor	--	--	--	189	159	170	188	210	226	
Gas Recovery Factor	0.35	0.55	0.70	0.53	0.30	0.37	0.51	0.71	0.86	

3. Yield Component

	Low	Best	High	Mean	P99	P90	P50	P10	P01
Yield: Oil-in-Place (stm3/m3)	--	--	--	0	0	0	0	0	0
Yield: Recoverable Oil (stm3/m3)	--	--	--	0	0	0	0	0	0
Solution Gas-in-Place (sm3/m3)	--	--	--	0	0	0	0	0	0
Free Gas-in-Place (sm3/m3)	--	--	--	8.6	3.7	5.2	8.1	12.5	17.3
Yield: Gas-in-Place (sm3/m3)	--	--	--	8.6	3.7	5.2	8.1	12.5	17.3
Yield: Raw Recoverable Gas (sm3/m3)	--	--	--	4.5	1.5	2.4	4.2	7.1	10.7
Yield: Marketable Gas (sm3/m3)	--	--	--	3.9	1.4	2.1	3.6	6.2	9.4
Gas Liquids Yield (stm3/e6sm3)	20	30	50	33	15	20	31	48	65
Gas to BOE Conversion (Mscf/BOE)	--	6.00	--						
Surface Loss (Fuel gas, etc...)	--	10%	--						
Marketable Gas (Fraction of Raw)	--	--	--	0.87	0.76	0.84	0.88	0.89	0.90

4. Play Totals

	Risked Mean volumes			Volumes given Geological Success in Play					
				Mean	P99	P90	P50	P10	P01
In Place									
Oil ($10^6 stm^3$)		0.0		0	0	0	0	0	0
Condensate & NGL ($10^6 stm^3$)		0.2		0.5	0.0	0.0	0.1	1.1	5.5
Total Liquids ($10^6 stm^3$)		0.2		0.5	0.0	0.0	0.1	1.1	5.5
Total Liquids (MMstb)		*1.1*		*3.0*	*0.0*	*0.1*	*0.9*	*7.0*	*34.8*
Solution gas ($10^9 sm^3$)		0.00		0	0	0	0	0	0
Free gas ($10^9 sm^3$)		6		15	0	1	4	35	166
Total gas ($10^9 sm^3$)		6		15	0	1	4	35	166
Total gas (Bscf)		*196*		*517*	*4*	*19*	*154*	*1,229*	*5,883*
MMBOE		*34*		*89*	*1*	*3*	*27*	*212*	*1,015*
Recoverable									
Oil ($10^6 stm^3$)		0		0	0	0	0	0	0
Condensate & NGL ($10^6 stm^3$)		0.1		0	0	0	0	1	3
Total Liquids ($10^6 stm^3$)		0.1		0	0.00	0.01	0.07	0.58	2.91
Total Liquids (MMstb)		*0.6*		*2*	*0.0*	*0.1*	*0.4*	*3.7*	*18.3*
Solution gas ($10^9 sm^3$)		0		0	0	0	0	0	0
Non associated gas (109sm3)		2.9		8	0	0	2	18	88
Total gas ($10^9 sm^3$)		2.9		8	0.1	0.3	2.2	18.3	87.8
Marketable Gas ($10^9 sm^3$)		2.5		7	0.1	0.2	1.9	15.8	76.4
Marketable Gas (Bscf)		*90*		*238*	*2*	*8*	*69*	*560*	*2,711*
MMBOE		*16*		*41*	*0*	*1*	*12*	*97*	*470*

Note for parameter estimates;
Calculations Require Low < Best < High

Petrel Robertson Consulting Ltd.
Global Petroleum Consulting

UNDISCOVERED RESOURCE ESTIMATE - UNCONVENTIONAL

Area/Region:	Cumberland Basin Nova Scotia
Play Name:	**Horton Fm clastics**
Play Type:	**Low porosity sands - stratigraphic traps**
Estimator Name:	PRCL team

Avg. Surface Temp. (°C):	15
Normal Pressure Gradient (kPa/m):	9.93
Temp. Gradient (°C/100 m.):	1.80
Raw Gas Gravity:	0.60

1. Risk Component

Risk Factors	Play risk
1. Source Rock	0.90
2. Charge	0.90
3. Migration	0.90
4. Reservoir Rock	0.65
5. Trap/Closure	0.95
6. Seal/Containment	0.80
Probability of Geological Success (P_g)	**0.36**

2. Hydrocarbon Volume Component

	Low	Best	High	Mean	P99	P90	P50	P10	P01	NOTES
Reservoir Depth (mTVD)	830	1,520	4,500	2,538	1,060	1,560	2,483	3,598	4,214	
Reservoir overpressuring (x hydrostatic)	1.0	1.0	1.1	1.01	0.94	0.97	1.01	1.04	1.07	
Reservoir Pressure (MPa)	--	--	--	25	11	16	25	36	42	
Reservoir Temperature (°C)	--	--	--	61	34	43	60	80	91	
H_2S Content	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
CO_2 Content	0.01	0.03	0.06	0.03	0.00	0.01	0.02	0.07	0.16	
Total Play Area (sqkm)	2,658	2,953	3,248	2,952	2,506	2,672	2,944	3,244	3,459	
Tested Play Area (sqkm)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
Untested Play Area (sqkm)	--	--	--	2,952	2,506	2,672	2,944	3,244	3,459	
Fraction of Total Play in Trap	0.010	0.028	0.080	0.037	0.005	0.010	0.028	0.077	0.150	
Fractional fill of Untested Play Traps	0.600	0.850	0.900	0.774	0.562	0.638	0.772	0.917	0.988	
Potential O&G Area (sqkm)	--	--	--	85.7	11.7	23.0	63.9	177.6	350.9	
Fraction of PV Oil Bearing	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
Potential Oil Area (sqkm)	--	--	--	0.000	0.000	0.000	0.000	0.000	0.000	
Potential Gas Area (sqkm)	--	--	--	85.7	11.7	23.0	63.9	177.6	350.9	
Average Net Pay (m)	3	8	20	10	2	3	8	19	36	
Matrix Porosity	0.05	0.07	0.10	0.073	0.041	0.051	0.071	0.099	0.123	
Natural Fracture Porosity	0.00	0.00	0.00	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
Total Porosity	--	--	--	0.073	0.041	0.051	0.071	0.099	0.123	
Hydrocarbon Saturation	0.45	0.60	0.85	0.62	0.37	0.45	0.61	0.81	0.94	
Gas Compressibility "Z"	0.95	1.00	1.05	1.05	0.78	0.83	1.04	1.59	2.04	
Gas Formation Expansion Factor	--	--	--	206	121	163	194	212	224	
Gas Recovery Factor	0.35	0.55	0.70	0.53	0.30	0.37	0.51	0.71	0.86	

3. Yield Component

	Low	Best	High	Mean	P99	P90	P50	P10	P01
Yield: Oil-in-Place (stm3/m3)	--	--	--	0	0	0	0	0	0
Yield: Recoverable Oil (stm3/m3)	--	--	--	0	0	0	0	0	0
Solution Gas-in-Place (sm3/m3)	--	--	--	0	0	0	0	0	0
Free Gas-in-Place (sm3/m3)	--	--	--	9.3	3.5	5.1	8.1	12.7	17.8
Yield: Gas-in-Place (sm3/m3)	--	--	--	9.3	3.5	5.1	8.1	12.7	17.8
Yield: Raw Recoverable Gas (sm3/m3)	--	--	--	4.9	1.5	2.3	4.2	7.2	11.1
Yield: Marketable Gas (sm3/m3)	--	--	--	4.3	1.3	2.0	3.6	6.3	9.7
Gas Liquids Yield (stm3/e6sm3)	20	30	50	33	15	20	31	48	65
Gas to BOE Conversion (Mscf/BOE)	--	6.00	--						
Surface Loss (Fuel gas, etc...)	--	10%	--						
Marketable Gas (Fraction of Raw)	--	--	--	0.87	0.76	0.84	0.88	0.89	0.90

4. Play Totals

	Risked Mean volumes			Volumes given Geological Success in Play					
				Mean	P99	P90	P50	P10	P01
In Place									
Oil ($10^6 stm^3$)		0.0		0	0	0	0	0	0
Condensate & NGL ($10^6 stm^3$)		0.1		0.3	0.0	0.0	0.1	0.5	1.7
Total Liquids ($10^6 stm^3$)		0.1		0.3	0.0	0.0	0.1	0.5	1.7
Total Liquids (MMstb)		*0.6*		*1.6*	*0.1*	*0.2*	*0.8*	*3.5*	*10.4*
Solution gas ($10^9 sm^3$)		0.00		0	0	0	0	0	0
Free gas ($10^9 sm^3$)		3		8	0	1	4	17	47
Total gas ($10^9 sm^3$)		3		8	0	1	4	17	47
Total gas (Bscf)		*100*		*277*	*12*	*34*	*141*	*595*	*1,664*
MMBOE		*17*		*48*	*2*	*6*	*24*	*103*	*288*
Recoverable									
Oil ($10^6 stm^3$)		0		0	0	0	0	0	0
Condensate & NGL ($10^6 stm^3$)		0.0		0	0	0	0	0	1
Total Liquids ($10^6 stm^3$)		0.0		0	0.00	0.01	0.06	0.29	0.89
Total Liquids (MMstb)		*0.3*		*1*	*0.0*	*0.1*	*0.4*	*1.8*	*5.6*
Solution gas ($10^9 sm^3$)		0		0	0	0	0	0	0
Non associated gas (109sm3)		1.5		4	0	0	2	9	27
Total gas ($10^9 sm^3$)		1.5		4	0.2	0.5	2.0	8.8	26.7
Marketable Gas ($10^9 sm^3$)		1.3		4	0.1	0.4	1.8	7.7	23.1
Marketable Gas (Bscf)		*46*		*128*	*5*	*15*	*63*	*273*	*820*
MMBOE		*8*		*22*	*1*	*3*	*11*	*47*	*142*

Note for parameter estimates;
Calculations Require Low < Best < High

Area/Region: Cumberland Basin Nova Scotia

Play Name:	**Horton Bluff Shale**			**Cumberland Coal Bed Methane (CBM)**			**Cumberland Group Boss Point sandstone, Ragged Reef fm**			**Mabou Group Upper Claremont Fm**			**Windsor Group – carbonates with interbedded evaporites**			**Horton Fm clastics**		
Play Type:	Shale gas			Coal bed methane			0			0			Carbonate			Low porosity sands - stratigraphic		
Estimator Name:	PRCL team			PRCL team			PRCL team			PRCL team			PRCL team			PRCL team		
Avg. Surface Temp. (°C):	15			15			15			15			15			15		
Normal Pressure Gradient (kPa/m):	9.93			9.93			9.93			9.93			9.93			9.93		
Temp. Gradient (°C/100 m.):	1.80			2.04			1.70			1.12			1.12			1.80		
Raw Gas Gravity:	0.60			0.60			0.60			0.60			0.60			0.60		
1. Risk Component																		
Risk Factors	**Play risk**			**Play risk**			**Play risk**			**Play risk**			**Play risk**			**Play risk**		
1. Source Rock	0.50			1.00			0.90			1.00			0.95			0.90		
2. Charge	1.00			1.00			0.75			0.95			0.80			0.90		
3. Migration /Timing	1.00			1.00			0.90			0.90			0.90			0.90		
4. Reservoir Rock	1.00			1.00			0.75			0.95			0.95			0.65		
5. Trap/Closure	1.00			1.00			0.90			0.90			0.90			0.95		
6. Seal/Containment	1.00			1.00			0.70			0.50			0.65			0.80		
Probability of Geological Success (P_g)	**0.50**			**1.00**			**0.29**			**0.37**			**0.38**			**0.36**		
2. Hydrocarbon Volume Component																		
	Low	**Best**	**High**	**Low**	**Best**	**High**	**Low**	**Best**	**High**	**Low**	**Best**	**High**	**Low**	**Best**	**High**	**Low**	**Best**	**High**
Reservoir Depth (mTVSS)	840	1,500	4,500	0	768	3,500	50	1,682	4,500	0	2,990	4,500	2,730	4,240	4,500	830	1,520	4,500
Reservoir overpressuring (x hydrostatic)	0.97	1.00	1.05	0.97	1.00	1.05	0.97	1.00	1.05	0.97	1.00	1.05	0.97	1.00	1.05	0.97	1.00	1.05
H_2S Content	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CO_2 Content	0.01	0.03	0.05	0.01	0.03	0.06	0.01	0.05	0.09	0.01	0.05	0.09	0.01	0.03	0.06	0.01	0.03	0.06
GRV (e6m3)	335,036	478,623	622,210	5,159,467	7,792,797	6,127,044	1,074,771	2,149,542	3,224,313	1,341,006	1,676,258	2,011,510	155,850	467,551	779,252	27,065	38,664	46,397
Total Play Area (sqkm)	2,510	2,953	3,396	2,001	2,858	3,715	2,001	2,858	3,715	3,419	3,799	4,179	2,118	2,353	2,588	2,658	2,953	3,248
Tested Play Area (sqkm)	0	0	0	206	258	310	0	0	0	0	0	0	0	0	0	0	0	0
Untested Play Area (sqkm)																		
Fraction of Untested Play Filled	1.000	1.000	1.000	1.000	1.000	1.000												
Developable Fraction of Total Play	0.050	0.122	0.300	0.050	0.132	0.350												
Fraction of Total Play in Trap							0.010	0.028	0.080	0.010	0.028	0.080	0.010	0.028	0.080	0.010	0.028	0.080
Fractional fill of Untested Play Traps							0.600	0.850	0.900	0.600	0.850	0.900	0.600	0.850	0.900	0.600	0.850	0.900
Fraction of PV Oil Bearing	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Net to Gross	0.05	0.19	0.70	0.0012	0.0044	0.0121	0.02	0.03	0.05	0.02	0.06	0.20	0.02	0.06	0.20	0.50	0.59	0.70
Average Net Pay (m)	7	30	128	3	12	20	11	24	43	8	28	96	1	13	60	3	8	20
Matrix Porosity	0.010	0.020	0.030	0.005	0.016	0.050	0.10	0.14	0.20	0.03	0.05	0.07	0.05	0.07	0.10	0.05	0.07	0.10
Natural Fracture Porosity	0.0004	0.002	0.010	0.002	0.005	0.010	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hydrocarbon Saturation	0.45	0.60	0.85	0.70	0.90	1.00	0.45	0.60	0.85	0.45	0.60	0.85	0.45	0.60	0.85	0.45	0.60	0.85
Free Gas Parameters																		
Initial Gas Compressibility "Z" uncertainty	0.95	1.00	1.05	0.95	1.00	1.05	0.95	1.00	1.05	0.95	1.00	1.05	0.95	1.00	1.05	0.95	1.00	1.05
Gas Formation Expansion Factor																		
Adsorbed gas parameters																		
Rock matrix density (g/cc)	2.48	2.53	2.60	1.25	1.45	1.65												
Total Organic content (TOC, % wt)	1.5	3.0	6.0	50	70	90												
Ratio Langmuir volume /TOC (sm3/tonne)	0.25	0.50	1.00	0.10	0.20	0.40												
Langmuir Pressure (MPa)	2.0	3.0	4.0	2.0	3.0	4.0												
Adsorbed gas saturation (fraction)	0.40	0.60	0.80	0.40	0.60	0.80												
Solution GOR (ksm3/stm3)	0.03	0.09	0.25	0.03	0.09	0.25	0.03	0.09	0.25	0.03	0.09	0.25	0.03	0.09	0.25	0.03	0.09	0.25
Oil Formation Volume Factor	1.20	1.30	1.50	1.20	1.30	1.50	1.20	1.30	1.50	1.20	1.30	1.50	1.20	1.30	1.50	1.20	1.30	1.50
Oil Recovery Factor	0.05	0.15	0.25	0.05	0.15	0.25	0.05	0.15	0.25	0.05	0.15	0.25	0.05	0.15	0.25	0.05	0.15	0.25
Gas Recovery Factor	0.05	0.15	0.25	0.50	0.60	0.70	0.35	0.55	0.70	0.35	0.55	0.70	0.35	0.55	0.70	0.35	0.55	0.70
3. Yield Component																		
Gas Liquids Yield (stm3/e6sm3)	10	20	30	10	20	30	20	30	50	20	30	50	20	30	50	20	30	50
Gas to BOE Conversion (Mscf/BOE)	--	6.00	--	--	6.00	--	--	6.00	--	--	6.00	--	--	6.00	--	--	6.00	--
Surface Loss (Fuel gas, etc...)	--	10%	--	--	10%	--	--	10%	--	--	10%	--	--	10%	--	--	10%	--

	Play Risk	Risked Liquids volume e6stm3	OIP+CIIP given success P90 e6stm3	P50 e6stm3	P10 e6stm3	Risked Gas Volume e9sm3	GIIP given success P90 e9sm3	P50 e9sm3	P10 e9sm3		Risked Gas Volume Bscf	GIIP given success P90 Bscf	P50 Bscf	P10 Bscf	
Horton Bluff Shale	0.50	0.69	0.08	0.50	3.14	65.1	9.2	52.7	306.0		2,311	327	1,872	10,862	
Cumberland Coal Bed Methane (CBM)	1.00	0.39	0.03	0.15	0.84	76.2	8.7	39.1	169.9	**	2,705	309	1,387	6,032	**
Cumberland Group Boss Point sandstone, Ragged Re	0.29	0.35	0.14	0.59	2.46	10.7	4.7	19.2	74.0		381	168	682	2,625	
Mabou Group Upper Claremont Fm	0.37	0.34	0.06	0.34	1.90	10.3	2.0	11.1	58.7		366	72	395	2,085	
Windsor Group – carbonates with interbedded evapor	0.38	0.18	0.02	0.14	1.12	5.5	0.5	4.3	34.6		196	19	154	1,229	
Horton Fm clastics	0.36	0.09	0.03	0.12	0.55	2.8	1.0	4.0	16.8		100	34	141	595	

			Recoverable Gas given success P90	P50	P10		Recoverable Gas given success P90	P50	P10			Recoverable Gas given success P90	P50	P10	
		e6stm3	e6stm3	e6stm3	e6stm3	e9sm3	e9sm3	e9sm3	e9sm3		Bscf	Bscf	Bscf	Bscf	
Horton Bluff Shale	0.50	0.10	0.01	0.06	0.46	8.5	0.9	5.7	39.0		301	31	204	1,385	
Cumberland Coal Bed Methane (CBM)	1.00	0.23	0.02	0.09	0.51	39.8	4.4	20.1	88.9	**	1,411	158	714	3,155	**
Cumberland Group Boss Point sandstone, Ragged Ree	0.29	0.19	0.07	0.31	1.31	4.9	2.0	8.4	33.4		172	71	299	1,185	
Mabou Group Upper Claremont Fm	0.37	0.18	0.03	0.18	1.02	4.7	0.9	4.9	26.6		165	31	173	943	
Windsor Group – carbonates with interbedded evapor	0.38	0.10	0.01	0.07	0.58	2.5	0.2	1.9	15.8		90	8	69	560	
Horton Fm clastics	0.36	0.05	0.01	0.06	0.29	1.3	0.4	1.8	7.7		46	15	63	273	

Note **
Undiscovered CBM resource only
Discovered CBM resource is extra: