Forecast of Economic Gas production in the Marcellus

Supporting Online Materials-3: Details of Economic Analysis

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LIST OF FORMULAS USED FOR ECONOMIC ANALYSIS

- The net cash value in year-i ($ million) is defined as

$$\mathrm{NCF}_i = \mathrm{GR}_i - \mathrm{CAPEX}_i - \mathrm{OPEX}_i - \mathrm{ROY}_i - \mathrm{TAX}_i \tag{1}$$

  which is the gross revenues minus the capital expenditures, operating expenditures, royalty, and tax in year-i.

- The gross revenue in year-i ($ million) **for gas and natural gas liquids (NGL) production in Marcellus is defined as:**

$$\mathrm{GR}_i = \mathrm{PRICEG} \times \mathrm{PRODG}_i + \mathrm{PRICEL} \times \mathrm{PRODL}_i \tag{2}$$

  Where PRICEG **is gas price ($/kscf=$ million/Bscf),** PRODG_i**, is the annual gas production (Bscf/year),** PRICEL **is NGL price ($/bbl=$ million/million bbl), and** PRODL_i**, is the annual NGL production (million bbl/year)**

- The capital expenditure, CAPEX_i, ($ million) is booked only in the initial year ($i = 0$) and the year of well closing ($i = t_{\mathrm{surv}}$), respectively. For infill scenario, CAPEX_i is the summation of drilling & completion cost, and land acquisition cost in the initial year, and the plug & abandonment cost at the end of production.

$$\mathrm{CAPEX}_i = \begin{cases} \mathrm{DRILL} + \mathrm{LAND} & : \text{for } t = 0, \\ \mathrm{PLUG} & : \text{for } t = t_{\max} \\ 0 & : \text{for } 0 < t < t_{\max} \end{cases} \tag{3}$$

- The operating expenditure in year-i, OPEX_i, ($ million) is the multiplication of the operating cost, OPEX, **($/boe=$ million/million boe), and the total annual production of NGL and gas in barrel of oil quivalent,** PROD_i**, (million boe/year)**

$$\mathrm{OPEX}_i = \mathrm{OPEX} \times \mathrm{PROD}_i \tag{4}$$

- The royalty paid in year-i, ROY_i, ($ million) is calculated as the fraction of the gross revenue in that year

$$\mathrm{ROY}_i = \mathrm{ROY} \times \mathrm{GR}_i \tag{5}$$

- The total tax in year-i, TAX_i, ($ million) is the summation of the federal corporate tax and the severance tax

$$\begin{aligned} \mathrm{TAX}_i = \mathrm{TAXC} \times (\mathrm{GR}_i - \mathrm{ROY}_i - \mathrm{OPEX}_i - \mathrm{DEP}_{\mathrm{TAN,i}} - \mathrm{DEP}_{\mathrm{INTAN},,i}) \\ + \mathrm{TAXS} \times \mathrm{PROD}_i \end{aligned} \tag{6}$$

  Both tax rates, TAXC and TAXS, are listed in Table 1.

- The depreciation of tangible expenditures in year-i, $\mathrm{DEP_{TAN,I}}$, ($ million) is calculated using the declining balance method

$$\mathrm{DEP_{TAN,i}} = \frac{\mathrm{ACCL}}{\mathrm{T_{USE}}} \times \left[(1 - \mathrm{INTAN}) \times \mathrm{CAPEX}_i - \sum_{\mathrm{j=0}}^{\mathrm{i-1}} \mathrm{DEP_{TAN},}_j \right] \tag{7}$$

where ACCL is the accelerator factor for the declining balance model, and $\mathrm{T_{USE}}$ is the expected useful time of the assets. The values of ACCL and $\mathrm{T_{USE}}$ are 150% and 5 years, respectively. Remember that for $\mathrm{I} = 0$ and $\mathrm{I} > \mathrm{T_{USE}}$, $\mathrm{DEP_{TAN,i}} = 0$. The percentage of intangible expenditures in the total capital expenditures, INTAN.

- The depletion of intangible expenditures in year-i, $\mathrm{DEP_{INTAN}}$, ($ million) are calculated with the method of production

$$\mathrm{DEP_{INTAN},}_i = \frac{\mathrm{PROD}_i}{\sum_{j=1}^{15\ \mathrm{years}} \mathrm{PROD}_j} \times \mathrm{INTAN} \times \mathrm{CAPEX}_i \tag{8}$$

- Finally, the present value in year-i ($ million) is

$$\mathrm{PV}_i = \frac{\mathrm{NCF}_i}{(1 + \mathrm{DIS})^i} \tag{9}$$

Assuming a constant discount rate, DIS, the net present value (NPV) is simply the summation of all present values over a 15-year time period

$$\mathrm{NPV} = \sum_{i=0}^{15\ \mathrm{years}} \mathrm{PV}_i \tag{10}$$

Table 1. Parameters used to calculate NPV in the Marcellus shale.

Parameters	Notations	Units	Values
Drilling & comp. cost	DRILL	$ million	$5.0^{(a,b)}$
Land acquisition cost	LAND	$ million	$0.5^{(c)}$
Plug & abandon. cost	PLUG	$ million	$0.3^{(f)}$
Operating cost	OPEX	$/boe	$4.2^{(d)}$
Severance tax rate	TAXS	$/boe	$0.3^{(b)}$
Corporate tax rate	TAXC	frac./year	$0.25^{(b)}$
Intangible expend.	INTAN	frac./year	0.5
Royalty rate	ROY	frac./year	$0.15^{(e)}$
Discount rate	DIS	frac./year	0.05, $0.1^{(a)}$

Sources: [a] (Khodabakhshnejad et al., 2019), [b] (Range, 2019), [c] (Hefley and Seydor, 2011), [d] (Duman, 2012), [e] (Hefley and Seydor, 2015), [f] (Tabuchi, 2020),

Table 1 lists the economic parameters used to calculate net present value (NPV) of different development scenarios in the Marcellus shale. The NPV results at various gas prices **for four different reservoir qualities in the Marcellus at various gas and NGL prices** are shown in Fig. 1. The details of calculations are tabulated in Table **2–73**.

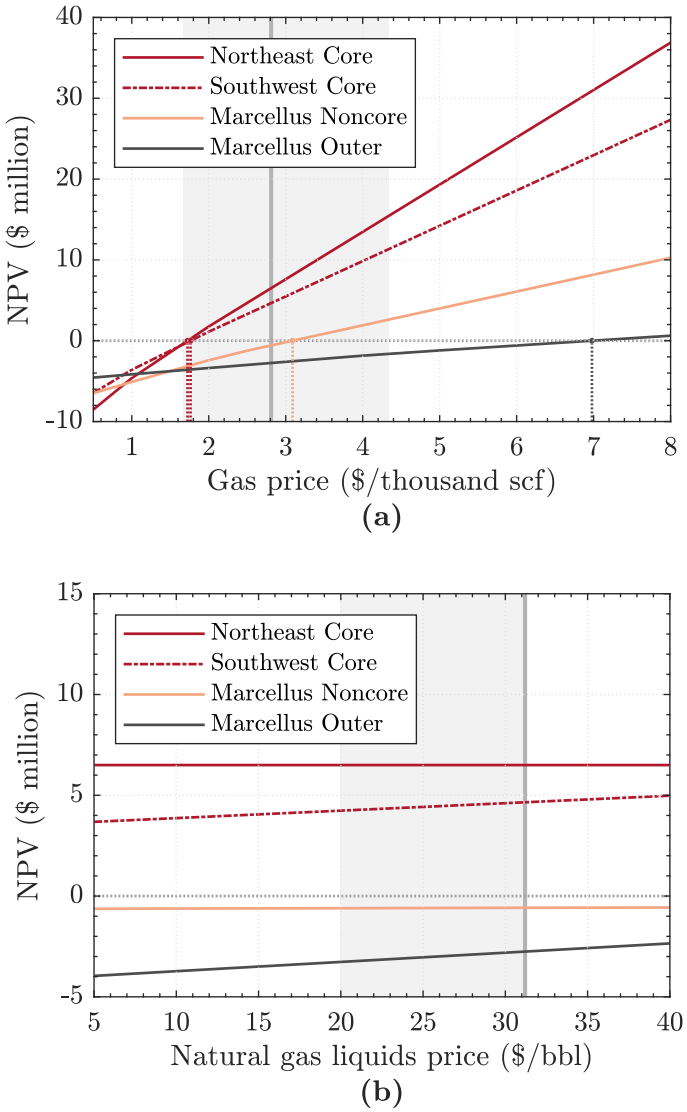

Figure 1. **Net present values (NPV) for four different reservoir qualities in the Marcellus, calculated at: (a) various gas prices and a constant NGL price at $32/bbl; and (b) various NGL prices and a constant gas price at $2.81/kscf.**

Table 2. NPV calculation for “Northeast Core", assuming that the price of NGL is constant at $32/boe and the price of gas is $0.5/thousand scf

Year	Annual gas production Bscf/yr	Annual NGL production million boe	Capital expenditures $ million	Tangible depreciation $ million	Intangible depletion $ million	Operating expenditures $ million	Gross revenues $ million	Royalty rates $ million	Taxation rates $ million	Net cash flow $ million	Present values $ million
0	0.000	0.000	5.500	0.000	0.000	0.000	0.000	0.000	0.000	-5.500	-5.500
1	3.562	0.000	0.000	0.825	0.633	2.493	1.781	0.267	0.178	-1.158	-1.052
2	1.769	0.000	0.000	0.578	0.314	1.238	0.885	0.133	0.088	-0.575	-0.475
3	1.298	0.000	0.000	0.404	0.231	0.909	0.649	0.097	0.065	-0.422	-0.317
4	1.059	0.000	0.000	0.283	0.188	0.741	0.530	0.079	0.053	-0.344	-0.235
5	0.906	0.000	0.000	0.198	0.161	0.634	0.453	0.068	0.045	-0.294	-0.183
6	0.795	0.000	0.000	0.000	0.141	0.557	0.398	0.060	0.040	-0.258	-0.146
7	0.711	0.000	0.000	0.000	0.126	0.498	0.355	0.053	0.036	-0.231	-0.119
8	0.643	0.000	0.000	0.000	0.114	0.450	0.322	0.048	0.032	-0.209	-0.098
9	0.588	0.000	0.000	0.000	0.104	0.411	0.294	0.044	0.029	-0.191	-0.081
10	0.541	0.000	0.000	0.000	0.096	0.379	0.270	0.041	0.027	-0.176	-0.068
11	0.501	0.000	0.000	0.000	0.089	0.350	0.250	0.038	0.000	-0.138	-0.048
12	0.466	0.000	0.000	0.000	0.083	0.326	0.233	0.035	0.000	-0.128	-0.041
13	0.435	0.000	0.000	0.000	0.077	0.304	0.217	0.033	0.000	-0.120	-0.035
14	0.408	0.000	0.000	0.000	0.072	0.285	0.204	0.031	0.000	-0.112	-0.030
15	0.383	0.000	0.300	0.000	0.068	0.268	0.192	0.029	0.000	-0.405	-0.097
											NPV = -8.52

Table 3. NPV calculation for “Northeast Core", assuming that the price of NGL is constant at $32/boe and the price of gas is $1/thousand scf

Year	Annual gas production Bscf/yr	Annual NGL production million boe	Capital expenditures $ million	Tangible depreciation $ million	Intangible depletion $ million	Operating expenditures $ million	Gross revenues $ million	Royalty rates $ million	Taxation rates $ million	Net cash flow $ million	Present values $ million
0	0.000	0.000	5.500	0.000	0.000	0.000	0.000	0.000	0.000	-5.500	-5.500
1	3.562	0.000	0.000	0.825	0.633	2.493	3.562	0.534	0.178	0.356	0.324
2	1.769	0.000	0.000	0.578	0.314	1.238	1.769	0.265	0.088	0.177	0.146
3	1.298	0.000	0.000	0.404	0.231	0.909	1.298	0.195	0.065	0.130	0.098
4	1.059	0.000	0.000	0.283	0.188	0.741	1.059	0.159	0.053	0.106	0.072
5	0.906	0.000	0.000	0.198	0.161	0.634	0.906	0.136	0.045	0.091	0.056
6	0.795	0.000	0.000	0.000	0.141	0.557	0.795	0.119	0.040	0.080	0.045
7	0.711	0.000	0.000	0.000	0.126	0.498	0.711	0.107	0.036	0.071	0.036
8	0.643	0.000	0.000	0.000	0.114	0.450	0.643	0.097	0.032	0.064	0.030
9	0.588	0.000	0.000	0.000	0.104	0.411	0.588	0.088	0.029	0.059	0.025
10	0.541	0.000	0.000	0.000	0.096	0.379	0.541	0.081	0.027	0.054	0.021
11	0.501	0.000	0.000	0.000	0.089	0.350	0.501	0.075	0.000	0.075	0.026
12	0.466	0.000	0.000	0.000	0.083	0.326	0.466	0.070	0.000	0.070	0.022
13	0.435	0.000	0.000	0.000	0.077	0.304	0.435	0.065	0.000	0.065	0.019
14	0.408	0.000	0.000	0.000	0.072	0.285	0.408	0.061	0.000	0.061	0.016
15	0.383	0.000	0.300	0.000	0.068	0.268	0.383	0.057	0.000	-0.243	-0.058
											NPV = -4.62

Table 4. NPV calculation for “Northeast Core", assuming that the price of NGL is constant at $32/boe and the price of gas is $2/thousand scf

Year	Annual gas production Bscf/yr	Annual NGL production million boe	Capital expenditures $ million	Tangible depreciation $ million	Intangible depletion $ million	Operating expenditures $ million	Gross revenues $ million	Royalty rates $ million	Taxation rates $ million	Net cash flow $ million	Present values $ million
0	0.000	0.000	5.500	0.000	0.000	0.000	0.000	0.000	0.000	-5.500	-5.500
1	3.562	0.000	0.000	0.825	0.633	2.493	7.124	1.069	0.704	2.858	2.598
2	1.769	0.000	0.000	0.578	0.314	1.238	3.538	0.531	0.308	1.461	1.208
3	1.298	0.000	0.000	0.404	0.231	0.909	2.596	0.389	0.231	1.068	0.802
4	1.059	0.000	0.000	0.283	0.188	0.741	2.118	0.318	0.200	0.859	0.587
5	0.906	0.000	0.000	0.198	0.161	0.634	1.811	0.272	0.182	0.724	0.449
6	0.795	0.000	0.000	0.000	0.141	0.557	1.591	0.239	0.203	0.592	0.334
7	0.711	0.000	0.000	0.000	0.126	0.498	1.422	0.213	0.182	0.529	0.272
8	0.643	0.000	0.000	0.000	0.114	0.450	1.287	0.193	0.164	0.479	0.223
9	0.588	0.000	0.000	0.000	0.104	0.411	1.176	0.176	0.150	0.438	0.186
10	0.541	0.000	0.000	0.000	0.096	0.379	1.082	0.162	0.138	0.403	0.155
11	0.501	0.000	0.000	0.000	0.089	0.350	1.001	0.150	0.103	0.398	0.139
12	0.466	0.000	0.000	0.000	0.083	0.326	0.931	0.140	0.096	0.370	0.118
13	0.435	0.000	0.000	0.000	0.077	0.304	0.870	0.130	0.089	0.346	0.100
14	0.408	0.000	0.000	0.000	0.072	0.285	0.815	0.122	0.084	0.324	0.085
15	0.383	0.000	0.300	0.000	0.068	0.268	0.766	0.115	0.079	0.004	0.001
											NPV = 1.76

Table 5. NPV calculation for “Northeast Core", assuming that the price of NGL is constant at $32/boe and the price of gas is $2.5/thousand scf

Year	Annual gas production Bscf/yr	Annual NGL production million boe	Capital expenditures $ million	Tangible depreciation $ million	Intangible depletion $ million	Operating expenditures $ million	Gross revenues $ million	Royalty rates $ million	Taxation rates $ million	Net cash flow $ million	Present values $ million
0	0.000	0.000	5.500	0.000	0.000	0.000	0.000	0.000	0.000	-5.500	-5.500
1	3.562	0.000	0.000	0.825	0.633	2.493	8.905	1.336	1.083	3.993	3.630
2	1.769	0.000	0.000	0.578	0.314	1.238	4.423	0.663	0.496	2.025	1.674
3	1.298	0.000	0.000	0.404	0.231	0.909	3.246	0.487	0.369	1.481	1.113
4	1.059	0.000	0.000	0.283	0.188	0.741	2.648	0.397	0.312	1.197	0.817
5	0.906	0.000	0.000	0.198	0.161	0.634	2.264	0.340	0.278	1.012	0.629
6	0.795	0.000	0.000	0.000	0.141	0.557	1.988	0.298	0.288	0.846	0.477
7	0.711	0.000	0.000	0.000	0.126	0.498	1.777	0.267	0.257	0.756	0.388
8	0.643	0.000	0.000	0.000	0.114	0.450	1.609	0.241	0.233	0.684	0.319
9	0.588	0.000	0.000	0.000	0.104	0.411	1.469	0.220	0.213	0.625	0.265
10	0.541	0.000	0.000	0.000	0.096	0.379	1.352	0.203	0.196	0.575	0.222
11	0.501	0.000	0.000	0.000	0.089	0.350	1.252	0.188	0.156	0.557	0.195
12	0.466	0.000	0.000	0.000	0.083	0.326	1.164	0.175	0.145	0.518	0.165
13	0.435	0.000	0.000	0.000	0.077	0.304	1.087	0.163	0.136	0.484	0.140
14	0.408	0.000	0.000	0.000	0.072	0.285	1.019	0.153	0.127	0.454	0.119
15	0.383	0.000	0.300	0.000	0.068	0.268	0.958	0.144	0.119	0.127	0.030
											NPV = 4.68

Table 6. NPV calculation for “Northeast Core", assuming that the price of NGL is constant at $32/boe and the price of gas is $3/thousand scf

Year	Annual gas production Bscf/yr	Annual NGL production million boe	Capital expenditures $ million	Tangible depreciation $ million	Intangible depletion $ million	Operating expenditures $ million	Gross revenues $ million	Royalty rates $ million	Taxation rates $ million	Net cash flow $ million	Present values $ million
0	0.000	0.000	5.500	0.000	0.000	0.000	0.000	0.000	0.000	-5.500	-5.500
1	3.562	0.000	0.000	0.825	0.633	2.493	10.686	1.603	1.461	5.129	4.663
2	1.769	0.000	0.000	0.578	0.314	1.238	5.307	0.796	0.684	2.589	2.140
3	1.298	0.000	0.000	0.404	0.231	0.909	3.895	0.584	0.507	1.895	1.424
4	1.059	0.000	0.000	0.283	0.188	0.741	3.177	0.477	0.425	1.534	1.048
5	0.906	0.000	0.000	0.198	0.161	0.634	2.717	0.408	0.374	1.301	0.808
6	0.795	0.000	0.000	0.000	0.141	0.557	2.386	0.358	0.372	1.099	0.620
7	0.711	0.000	0.000	0.000	0.126	0.498	2.133	0.320	0.333	0.982	0.504
8	0.643	0.000	0.000	0.000	0.114	0.450	1.930	0.290	0.301	0.889	0.415
9	0.588	0.000	0.000	0.000	0.104	0.411	1.763	0.265	0.275	0.812	0.344
10	0.541	0.000	0.000	0.000	0.096	0.379	1.623	0.243	0.253	0.747	0.288
11	0.501	0.000	0.000	0.000	0.089	0.350	1.502	0.225	0.209	0.717	0.251
12	0.466	0.000	0.000	0.000	0.083	0.326	1.397	0.210	0.195	0.667	0.212
13	0.435	0.000	0.000	0.000	0.077	0.304	1.305	0.196	0.182	0.623	0.180
14	0.408	0.000	0.000	0.000	0.072	0.285	1.223	0.183	0.170	0.584	0.154
15	0.383	0.000	0.300	0.000	0.068	0.268	1.150	0.172	0.160	0.249	0.060
											NPV = 7.61

Table 7. NPV calculation for “Northeast Core", assuming that the price of NGL is constant at $32/boe and the price of gas is $4/thousand scf

Year	Annual gas production Bscf/yr	Annual NGL production million boe	Capital expenditures $ million	Tangible depreciation $ million	Intangible depletion $ million	Operating expenditures $ million	Gross revenues $ million	Royalty rates $ million	Taxation rates $ million	Net cash flow $ million	Present values $ million
0	0.000	0.000	5.500	0.000	0.000	0.000	0.000	0.000	0.000	-5.500	-5.500
1	3.562	0.000	0.000	0.825	0.633	2.493	14.248	2.137	2.218	7.400	6.727
2	1.769	0.000	0.000	0.578	0.314	1.238	7.076	1.061	1.060	3.717	3.072
3	1.298	0.000	0.000	0.404	0.231	0.909	5.193	0.779	0.782	2.723	2.046
4	1.059	0.000	0.000	0.283	0.188	0.741	4.237	0.635	0.650	2.210	1.509
5	0.906	0.000	0.000	0.198	0.161	0.634	3.622	0.543	0.567	1.878	1.166
6	0.795	0.000	0.000	0.000	0.141	0.557	3.181	0.477	0.541	1.606	0.907
7	0.711	0.000	0.000	0.000	0.126	0.498	2.844	0.427	0.484	1.436	0.737
8	0.643	0.000	0.000	0.000	0.114	0.450	2.574	0.386	0.438	1.299	0.606
9	0.588	0.000	0.000	0.000	0.104	0.411	2.351	0.353	0.400	1.187	0.503
10	0.541	0.000	0.000	0.000	0.096	0.379	2.164	0.325	0.368	1.092	0.421
11	0.501	0.000	0.000	0.000	0.089	0.350	2.003	0.300	0.316	1.036	0.363
12	0.466	0.000	0.000	0.000	0.083	0.326	1.863	0.279	0.294	0.964	0.307
13	0.435	0.000	0.000	0.000	0.077	0.304	1.740	0.261	0.274	0.900	0.261
14	0.408	0.000	0.000	0.000	0.072	0.285	1.630	0.245	0.257	0.844	0.222
15	0.383	0.000	0.300	0.000	0.068	0.268	1.533	0.230	0.242	0.493	0.118
											NPV = 13.46

Table 8. NPV calculation for “Northeast Core", assuming that the price of NGL is constant at $32/boe and the price of gas is $5/thousand scf

Year	Annual gas production Bscf/yr	Annual NGL production million boe	Capital expenditures $ million	Tangible depreciation $ million	Intangible depletion $ million	Operating expenditures $ million	Gross revenues $ million	Royalty rates $ million	Taxation rates $ million	Net cash flow $ million	Present values $ million
0	0.000	0.000	5.500	0.000	0.000	0.000	0.000	0.000	0.000	-5.500	-5.500
1	3.562	0.000	0.000	0.825	0.633	2.493	17.810	2.672	2.975	9.670	8.791
2	1.769	0.000	0.000	0.578	0.314	1.238	8.845	1.327	1.435	4.845	4.004
3	1.298	0.000	0.000	0.404	0.231	0.909	6.491	0.974	1.058	3.550	2.667
4	1.059	0.000	0.000	0.283	0.188	0.741	5.296	0.794	0.875	2.885	1.970
5	0.906	0.000	0.000	0.198	0.161	0.634	4.528	0.679	0.759	2.456	1.525
6	0.795	0.000	0.000	0.000	0.141	0.557	3.977	0.596	0.710	2.113	1.193
7	0.711	0.000	0.000	0.000	0.126	0.498	3.555	0.533	0.635	1.889	0.969
8	0.643	0.000	0.000	0.000	0.114	0.450	3.217	0.483	0.575	1.709	0.797
9	0.588	0.000	0.000	0.000	0.104	0.411	2.939	0.441	0.525	1.562	0.662
10	0.541	0.000	0.000	0.000	0.096	0.379	2.704	0.406	0.483	1.437	0.554
11	0.501	0.000	0.000	0.000	0.089	0.350	2.503	0.375	0.422	1.355	0.475
12	0.466	0.000	0.000	0.000	0.083	0.326	2.328	0.349	0.393	1.261	0.402
13	0.435	0.000	0.000	0.000	0.077	0.304	2.175	0.326	0.367	1.177	0.341
14	0.408	0.000	0.000	0.000	0.072	0.285	2.038	0.306	0.344	1.103	0.291
15	0.383	0.000	0.300	0.000	0.068	0.268	1.916	0.287	0.323	0.737	0.176
											NPV = 19.32

Table 9. NPV calculation for “Northeast Core", assuming that the price of NGL is constant at $32/boe and the price of gas is $6/thousand scf

Year	Annual gas production Bscf/yr	Annual NGL production million boe	Capital expenditures $ million	Tangible depreciation $ million	Intangible depletion $ million	Operating expenditures $ million	Gross revenues $ million	Royalty rates $ million	Taxation rates $ million	Net cash flow $ million	Present values $ million
0	0.000	0.000	5.500	0.000	0.000	0.000	0.000	0.000	0.000	-5.500	-5.500
1	3.562	0.000	0.000	0.825	0.633	2.493	21.372	3.206	3.732	11.941	10.856
2	1.769	0.000	0.000	0.578	0.314	1.238	10.614	1.592	1.811	5.972	4.936
3	1.298	0.000	0.000	0.404	0.231	0.909	7.789	1.168	1.334	4.378	3.289
4	1.059	0.000	0.000	0.283	0.188	0.741	6.355	0.953	1.100	3.560	2.432
5	0.906	0.000	0.000	0.198	0.161	0.634	5.433	0.815	0.952	3.033	1.883
6	0.795	0.000	0.000	0.000	0.141	0.557	4.772	0.716	0.879	2.620	1.479
7	0.711	0.000	0.000	0.000	0.126	0.498	4.265	0.640	0.786	2.342	1.202
8	0.643	0.000	0.000	0.000	0.114	0.450	3.860	0.579	0.711	2.120	0.989
9	0.588	0.000	0.000	0.000	0.104	0.411	3.527	0.529	0.650	1.936	0.821
10	0.541	0.000	0.000	0.000	0.096	0.379	3.245	0.487	0.598	1.782	0.687
11	0.501	0.000	0.000	0.000	0.089	0.350	3.004	0.451	0.528	1.674	0.587
12	0.466	0.000	0.000	0.000	0.083	0.326	2.794	0.419	0.492	1.557	0.496
13	0.435	0.000	0.000	0.000	0.077	0.304	2.610	0.391	0.459	1.455	0.421
14	0.408	0.000	0.000	0.000	0.072	0.285	2.446	0.367	0.430	1.363	0.359
15	0.383	0.000	0.300	0.000	0.068	0.268	2.299	0.345	0.404	0.982	0.235
											NPV = 25.17

Table 10. NPV calculation for “Northeast Core", assuming that the price of NGL is constant at $32/boe and the price of gas is $8/thousand scf

Year	Annual gas production Bscf/yr	Annual NGL production million boe	Capital expenditures $ million	Tangible depreciation $ million	Intangible depletion $ million	Operating expenditures $ million	Gross revenues $ million	Royalty rates $ million	Taxation rates $ million	Net cash flow $ million	Present values $ million
0	0.000	0.000	5.500	0.000	0.000	0.000	0.000	0.000	0.000	-5.500	-5.500
1	3.562	0.000	0.000	0.825	0.633	2.493	28.496	4.274	5.246	16.483	14.984
2	1.769	0.000	0.000	0.578	0.314	1.238	14.152	2.123	2.563	8.228	6.800
3	1.298	0.000	0.000	0.404	0.231	0.909	10.386	1.558	1.886	6.033	4.533
4	1.059	0.000	0.000	0.283	0.188	0.741	8.473	1.271	1.550	4.910	3.354
5	0.906	0.000	0.000	0.198	0.161	0.634	7.244	1.087	1.336	4.187	2.600
6	0.795	0.000	0.000	0.000	0.141	0.557	6.363	0.954	1.217	3.634	2.051
7	0.711	0.000	0.000	0.000	0.126	0.498	5.687	0.853	1.088	3.248	1.667
8	0.643	0.000	0.000	0.000	0.114	0.450	5.147	0.772	0.985	2.940	1.372
9	0.588	0.000	0.000	0.000	0.104	0.411	4.702	0.705	0.900	2.686	1.139
10	0.541	0.000	0.000	0.000	0.096	0.379	4.327	0.649	0.828	2.472	0.953
11	0.501	0.000	0.000	0.000	0.089	0.350	4.005	0.601	0.741	2.313	0.811
12	0.466	0.000	0.000	0.000	0.083	0.326	3.725	0.559	0.689	2.151	0.685
13	0.435	0.000	0.000	0.000	0.077	0.304	3.479	0.522	0.644	2.009	0.582
14	0.408	0.000	0.000	0.000	0.072	0.285	3.261	0.489	0.603	1.883	0.496
15	0.383	0.000	0.300	0.000	0.068	0.268	3.065	0.460	0.567	1.470	0.352
											NPV = 36.88

Table 11. NPV calculation for “Southwest Core", assuming that the price of NGL is constant at $32/boe and the price of gas is $0.5/thousand scf

Year	Annual gas production Bscf/yr	Annual NGL production million boe	Capital expenditures $ million	Tangible depreciation $ million	Intangible depletion $ million	Operating expenditures $ million	Gross revenues $ million	Royalty rates $ million	Taxation rates $ million	Net cash flow $ million	Present values $ million
0	0.000	0.000	5.500	0.000	0.000	0.000	0.000	0.000	0.000	-5.500	-5.500
1	2.683	0.023	0.000	0.825	0.663	1.974	2.052	0.308	0.141	-0.371	-0.337
2	1.434	0.012	0.000	0.578	0.354	1.055	1.097	0.165	0.075	-0.198	-0.164
3	1.018	0.009	0.000	0.404	0.252	0.749	0.779	0.117	0.054	-0.141	-0.106
4	0.812	0.007	0.000	0.283	0.201	0.598	0.621	0.093	0.043	-0.112	-0.077
5	0.681	0.006	0.000	0.198	0.168	0.501	0.521	0.078	0.036	-0.094	-0.058
6	0.588	0.005	0.000	0.000	0.145	0.433	0.450	0.067	0.031	-0.081	-0.046
7	0.517	0.004	0.000	0.000	0.128	0.380	0.395	0.059	0.027	-0.071	-0.037
8	0.461	0.004	0.000	0.000	0.114	0.339	0.352	0.053	0.000	-0.039	-0.018
9	0.415	0.004	0.000	0.000	0.102	0.305	0.317	0.048	0.000	-0.036	-0.015
10	0.376	0.003	0.000	0.000	0.093	0.277	0.288	0.043	0.000	-0.032	-0.012
11	0.344	0.003	0.000	0.000	0.085	0.253	0.263	0.039	0.000	-0.029	-0.010
12	0.315	0.003	0.000	0.000	0.078	0.232	0.241	0.036	0.000	-0.027	-0.009
13	0.291	0.002	0.000	0.000	0.072	0.214	0.223	0.033	0.000	-0.025	-0.007
14	0.181	0.002	0.000	0.000	0.045	0.133	0.138	0.021	0.000	-0.015	-0.004
15	0.000	0.000	0.300	0.000	0.000	0.000	0.000	0.000	0.000	-0.300	-0.072
											NPV = -6.47

Table 12. NPV calculation for “Southwest Core", assuming that the price of NGL is constant at $32/boe and the price of gas is $1/thousand scf

Year	Annual gas production Bscf/yr	Annual NGL production million boe	Capital expenditures $ million	Tangible depreciation $ million	Intangible depletion $ million	Operating expenditures $ million	Gross revenues $ million	Royalty rates $ million	Taxation rates $ million	Net cash flow $ million	Present values $ million
0	0.000	0.000	5.500	0.000	0.000	0.000	0.000	0.000	0.000	-5.500	-5.500
1	2.683	0.023	0.000	0.825	0.663	1.974	3.393	0.509	0.141	0.770	0.700
2	1.434	0.012	0.000	0.578	0.354	1.055	1.814	0.272	0.075	0.411	0.340
3	1.018	0.009	0.000	0.404	0.252	0.749	1.288	0.193	0.054	0.292	0.219
4	0.812	0.007	0.000	0.283	0.201	0.598	1.027	0.154	0.043	0.233	0.159
5	0.681	0.006	0.000	0.198	0.168	0.501	0.862	0.129	0.036	0.195	0.121
6	0.588	0.005	0.000	0.000	0.145	0.433	0.744	0.112	0.044	0.155	0.088
7	0.517	0.004	0.000	0.000	0.128	0.380	0.654	0.098	0.039	0.136	0.070
8	0.461	0.004	0.000	0.000	0.114	0.339	0.583	0.087	0.011	0.146	0.068
9	0.415	0.004	0.000	0.000	0.102	0.305	0.525	0.079	0.010	0.131	0.056
10	0.376	0.003	0.000	0.000	0.093	0.277	0.476	0.071	0.009	0.119	0.046
11	0.344	0.003	0.000	0.000	0.085	0.253	0.435	0.065	0.008	0.109	0.038
12	0.315	0.003	0.000	0.000	0.078	0.232	0.399	0.060	0.007	0.100	0.032
13	0.291	0.002	0.000	0.000	0.072	0.214	0.368	0.055	0.007	0.092	0.027
14	0.181	0.002	0.000	0.000	0.045	0.133	0.229	0.034	0.004	0.057	0.015
15	0.000	0.000	0.300	0.000	0.000	0.000	0.000	0.000	0.000	-0.300	-0.072
											NPV = -3.59

Table 13. NPV calculation for “Southwest Core", assuming that the price of NGL is constant at $32/boe and the price of gas is $2/thousand scf

Year	Annual gas production Bscf/yr	Annual NGL production million boe	Capital expenditures $ million	Tangible depreciation $ million	Intangible depletion $ million	Operating expenditures $ million	Gross revenues $ million	Royalty rates $ million	Taxation rates $ million	Net cash flow $ million	Present values $ million
0	0.000	0.000	5.500	0.000	0.000	0.000	0.000	0.000	0.000	-5.500	-5.500
1	2.683	0.023	0.000	0.825	0.663	1.974	6.077	0.911	0.567	2.624	2.386
2	1.434	0.012	0.000	0.578	0.354	1.055	3.248	0.487	0.269	1.437	1.188
3	1.018	0.009	0.000	0.404	0.252	0.749	2.306	0.346	0.192	1.019	0.765
4	0.812	0.007	0.000	0.283	0.201	0.598	1.840	0.276	0.163	0.803	0.548
5	0.681	0.006	0.000	0.198	0.168	0.501	1.543	0.231	0.147	0.664	0.412
6	0.588	0.005	0.000	0.000	0.145	0.433	1.332	0.200	0.169	0.530	0.299
7	0.517	0.004	0.000	0.000	0.128	0.380	1.171	0.176	0.149	0.466	0.239
8	0.461	0.004	0.000	0.000	0.114	0.339	1.044	0.157	0.109	0.439	0.205
9	0.415	0.004	0.000	0.000	0.102	0.305	0.939	0.141	0.098	0.396	0.168
10	0.376	0.003	0.000	0.000	0.093	0.277	0.852	0.128	0.089	0.359	0.138
11	0.344	0.003	0.000	0.000	0.085	0.253	0.778	0.117	0.081	0.328	0.115
12	0.315	0.003	0.000	0.000	0.078	0.232	0.714	0.107	0.074	0.301	0.096
13	0.291	0.002	0.000	0.000	0.072	0.214	0.659	0.099	0.069	0.278	0.080
14	0.181	0.002	0.000	0.000	0.045	0.133	0.409	0.061	0.043	0.172	0.045
15	0.000	0.000	0.300	0.000	0.000	0.000	0.000	0.000	0.000	-0.300	-0.072
											NPV = 1.11

Table 14. NPV calculation for “Southwest Core", assuming that the price of NGL is constant at $32/boe and the price of gas is $2.5/thousand scf

Year	Annual gas production Bscf/yr	Annual NGL production million boe	Capital expenditures $ million	Tangible depreciation $ million	Intangible depletion $ million	Operating expenditures $ million	Gross revenues $ million	Royalty rates $ million	Taxation rates $ million	Net cash flow $ million	Present values $ million
0	0.000	0.000	5.500	0.000	0.000	0.000	0.000	0.000	0.000	-5.500	-5.500
1	2.683	0.023	0.000	0.825	0.663	1.974	7.418	1.113	0.852	3.480	3.163
2	1.434	0.012	0.000	0.578	0.354	1.055	3.966	0.595	0.421	1.894	1.566
3	1.018	0.009	0.000	0.404	0.252	0.749	2.816	0.422	0.301	1.343	1.009
4	0.812	0.007	0.000	0.283	0.201	0.598	2.246	0.337	0.250	1.062	0.725
5	0.681	0.006	0.000	0.198	0.168	0.501	1.884	0.283	0.219	0.881	0.547
6	0.588	0.005	0.000	0.000	0.145	0.433	1.626	0.244	0.232	0.717	0.405
7	0.517	0.004	0.000	0.000	0.128	0.380	1.430	0.214	0.204	0.631	0.324
8	0.461	0.004	0.000	0.000	0.114	0.339	1.274	0.191	0.158	0.586	0.274
9	0.415	0.004	0.000	0.000	0.102	0.305	1.147	0.172	0.142	0.528	0.224
10	0.376	0.003	0.000	0.000	0.093	0.277	1.040	0.156	0.129	0.479	0.185
11	0.344	0.003	0.000	0.000	0.085	0.253	0.950	0.143	0.117	0.437	0.153
12	0.315	0.003	0.000	0.000	0.078	0.232	0.872	0.131	0.108	0.401	0.128
13	0.291	0.002	0.000	0.000	0.072	0.214	0.805	0.121	0.099	0.370	0.107
14	0.181	0.002	0.000	0.000	0.045	0.133	0.500	0.075	0.062	0.230	0.061
15	0.000	0.000	0.300	0.000	0.000	0.000	0.000	0.000	0.000	-0.300	-0.072
											NPV = 3.30

Table 15. NPV calculation for “Southwest Core", assuming that the price of NGL is constant at $32/boe and the price of gas is $3/thousand scf

Year	Annual gas production Bscf/yr	Annual NGL production million boe	Capital expenditures $ million	Tangible depreciation $ million	Intangible depletion $ million	Operating expenditures $ million	Gross revenues $ million	Royalty rates $ million	Taxation rates $ million	Net cash flow $ million	Present values $ million
0	0.000	0.000	5.500	0.000	0.000	0.000	0.000	0.000	0.000	-5.500	-5.500
1	2.683	0.023	0.000	0.825	0.663	1.974	8.760	1.314	1.137	4.335	3.941
2	1.434	0.012	0.000	0.578	0.354	1.055	4.683	0.702	0.574	2.351	1.943
3	1.018	0.009	0.000	0.404	0.252	0.749	3.325	0.499	0.409	1.668	1.253
4	0.812	0.007	0.000	0.283	0.201	0.598	2.652	0.398	0.336	1.321	0.902
5	0.681	0.006	0.000	0.198	0.168	0.501	2.225	0.334	0.292	1.098	0.682
6	0.588	0.005	0.000	0.000	0.145	0.433	1.920	0.288	0.294	0.905	0.511
7	0.517	0.004	0.000	0.000	0.128	0.380	1.688	0.253	0.259	0.796	0.408
8	0.461	0.004	0.000	0.000	0.114	0.339	1.504	0.226	0.206	0.733	0.342
9	0.415	0.004	0.000	0.000	0.102	0.305	1.354	0.203	0.186	0.660	0.280
10	0.376	0.003	0.000	0.000	0.093	0.277	1.229	0.184	0.169	0.599	0.231
11	0.344	0.003	0.000	0.000	0.085	0.253	1.122	0.168	0.154	0.547	0.192
12	0.315	0.003	0.000	0.000	0.078	0.232	1.030	0.154	0.141	0.502	0.160
13	0.291	0.002	0.000	0.000	0.072	0.214	0.950	0.143	0.130	0.463	0.134
14	0.181	0.002	0.000	0.000	0.045	0.133	0.590	0.089	0.081	0.288	0.076
15	0.000	0.000	0.300	0.000	0.000	0.000	0.000	0.000	0.000	-0.300	-0.072
											NPV = 5.48

Table 16. NPV calculation for “Southwest Core", assuming that the price of NGL is constant at $32/boe and the price of gas is $4/thousand scf

Year	Annual gas production Bscf/yr	Annual NGL production million boe	Capital expenditures $ million	Tangible depreciation $ million	Intangible depletion $ million	Operating expenditures $ million	Gross revenues $ million	Royalty rates $ million	Taxation rates $ million	Net cash flow $ million	Present values $ million
0	0.000	0.000	5.500	0.000	0.000	0.000	0.000	0.000	0.000	-5.500	-5.500
1	2.683	0.023	0.000	0.825	0.663	1.974	11.443	1.716	1.707	6.045	5.496
2	1.434	0.012	0.000	0.578	0.354	1.055	6.117	0.918	0.878	3.266	2.699
3	1.018	0.009	0.000	0.404	0.252	0.749	4.343	0.651	0.625	2.317	1.741
4	0.812	0.007	0.000	0.283	0.201	0.598	3.465	0.520	0.509	1.839	1.256
5	0.681	0.006	0.000	0.198	0.168	0.501	2.906	0.436	0.436	1.532	0.952
6	0.588	0.005	0.000	0.000	0.145	0.433	2.508	0.376	0.419	1.280	0.722
7	0.517	0.004	0.000	0.000	0.128	0.380	2.205	0.331	0.369	1.125	0.577
8	0.461	0.004	0.000	0.000	0.114	0.339	1.965	0.295	0.304	1.027	0.479
9	0.415	0.004	0.000	0.000	0.102	0.305	1.769	0.265	0.274	0.924	0.392
10	0.376	0.003	0.000	0.000	0.093	0.277	1.605	0.241	0.249	0.839	0.323
11	0.344	0.003	0.000	0.000	0.085	0.253	1.465	0.220	0.227	0.766	0.268
12	0.315	0.003	0.000	0.000	0.078	0.232	1.345	0.202	0.208	0.703	0.224
13	0.291	0.002	0.000	0.000	0.072	0.214	1.241	0.186	0.192	0.649	0.188
14	0.181	0.002	0.000	0.000	0.045	0.133	0.771	0.116	0.119	0.403	0.106
15	0.000	0.000	0.300	0.000	0.000	0.000	0.000	0.000	0.000	-0.300	-0.072
											NPV = 9.85

Table 17. NPV calculation for “Southwest Core", assuming that the price of NGL is constant at $32/boe and the price of gas is $5/thousand scf

Year	Annual gas production Bscf/yr	Annual NGL production million boe	Capital expenditures $ million	Tangible depreciation $ million	Intangible depletion $ million	Operating expenditures $ million	Gross revenues $ million	Royalty rates $ million	Taxation rates $ million	Net cash flow $ million	Present values $ million
0	0.000	0.000	5.500	0.000	0.000	0.000	0.000	0.000	0.000	-5.500	-5.500
1	2.683	0.023	0.000	0.825	0.663	1.974	14.126	2.119	2.277	7.756	7.051
2	1.434	0.012	0.000	0.578	0.354	1.055	7.551	1.133	1.183	4.180	3.455
3	1.018	0.009	0.000	0.404	0.252	0.749	5.361	0.804	0.842	2.967	2.229
4	0.812	0.007	0.000	0.283	0.201	0.598	4.277	0.642	0.681	2.357	1.610
5	0.681	0.006	0.000	0.198	0.168	0.501	3.588	0.538	0.581	1.967	1.221
6	0.588	0.005	0.000	0.000	0.145	0.433	3.096	0.464	0.544	1.655	0.934
7	0.517	0.004	0.000	0.000	0.128	0.380	2.722	0.408	0.479	1.455	0.747
8	0.461	0.004	0.000	0.000	0.114	0.339	2.426	0.364	0.402	1.321	0.616
9	0.415	0.004	0.000	0.000	0.102	0.305	2.184	0.328	0.362	1.189	0.504
10	0.376	0.003	0.000	0.000	0.093	0.277	1.981	0.297	0.329	1.079	0.416
11	0.344	0.003	0.000	0.000	0.085	0.253	1.809	0.271	0.300	0.985	0.345
12	0.315	0.003	0.000	0.000	0.078	0.232	1.661	0.249	0.275	0.904	0.288
13	0.291	0.002	0.000	0.000	0.072	0.214	1.532	0.230	0.254	0.834	0.242
14	0.181	0.002	0.000	0.000	0.045	0.133	0.952	0.143	0.158	0.518	0.136
15	0.000	0.000	0.300	0.000	0.000	0.000	0.000	0.000	0.000	-0.300	-0.072
											NPV = 14.22

Table 18. NPV calculation for “Southwest Core", assuming that the price of NGL is constant at $32/boe and the price of gas is $6/thousand scf

Year	Annual gas production Bscf/yr	Annual NGL production million boe	Capital expenditures $ million	Tangible depreciation $ million	Intangible depletion $ million	Operating expenditures $ million	Gross revenues $ million	Royalty rates $ million	Taxation rates $ million	Net cash flow $ million	Present values $ million
0	0.000	0.000	5.500	0.000	0.000	0.000	0.000	0.000	0.000	-5.500	-5.500
1	2.683	0.023	0.000	0.825	0.663	1.974	16.809	2.521	2.847	9.466	8.606
2	1.434	0.012	0.000	0.578	0.354	1.055	8.986	1.348	1.488	5.095	4.210
3	1.018	0.009	0.000	0.404	0.252	0.749	6.380	0.957	1.058	3.616	2.717
4	0.812	0.007	0.000	0.283	0.201	0.598	5.090	0.763	0.854	2.875	1.963
5	0.681	0.006	0.000	0.198	0.168	0.501	4.269	0.640	0.726	2.401	1.491
6	0.588	0.005	0.000	0.000	0.145	0.433	3.684	0.553	0.669	2.030	1.146
7	0.517	0.004	0.000	0.000	0.128	0.380	3.240	0.486	0.589	1.785	0.916
8	0.461	0.004	0.000	0.000	0.114	0.339	2.887	0.433	0.500	1.615	0.753
9	0.415	0.004	0.000	0.000	0.102	0.305	2.598	0.390	0.450	1.453	0.616
10	0.376	0.003	0.000	0.000	0.093	0.277	2.357	0.354	0.409	1.318	0.508
11	0.344	0.003	0.000	0.000	0.085	0.253	2.153	0.323	0.373	1.204	0.422
12	0.315	0.003	0.000	0.000	0.078	0.232	1.976	0.296	0.342	1.105	0.352
13	0.291	0.002	0.000	0.000	0.072	0.214	1.823	0.273	0.316	1.020	0.295
14	0.181	0.002	0.000	0.000	0.045	0.133	1.132	0.170	0.196	0.633	0.167
15	0.000	0.000	0.300	0.000	0.000	0.000	0.000	0.000	0.000	-0.300	-0.072
											NPV = 18.59

Table 19. NPV calculation for “Southwest Core", assuming that the price of NGL is constant at $32/boe and the price of gas is $8/thousand scf

Year	Annual gas production Bscf/yr	Annual NGL production million boe	Capital expenditures $ million	Tangible depreciation $ million	Intangible depletion $ million	Operating expenditures $ million	Gross revenues $ million	Royalty rates $ million	Taxation rates $ million	Net cash flow $ million	Present values $ million
0	0.000	0.000	5.500	0.000	0.000	0.000	0.000	0.000	0.000	-5.500	-5.500
1	2.683	0.023	0.000	0.825	0.663	1.974	22.175	3.326	3.988	12.888	11.716
2	1.434	0.012	0.000	0.578	0.354	1.055	11.854	1.778	2.098	6.923	5.722
3	1.018	0.009	0.000	0.404	0.252	0.749	8.417	1.262	1.491	4.914	3.692
4	0.812	0.007	0.000	0.283	0.201	0.598	6.715	1.007	1.199	3.911	2.671
5	0.681	0.006	0.000	0.198	0.168	0.501	5.632	0.845	1.016	3.270	2.030
6	0.588	0.005	0.000	0.000	0.145	0.433	4.860	0.729	0.919	2.779	1.569
7	0.517	0.004	0.000	0.000	0.128	0.380	4.274	0.641	0.808	2.444	1.254
8	0.461	0.004	0.000	0.000	0.114	0.339	3.808	0.571	0.696	2.202	1.027
9	0.415	0.004	0.000	0.000	0.102	0.305	3.428	0.514	0.627	1.982	0.841
10	0.376	0.003	0.000	0.000	0.093	0.277	3.110	0.467	0.568	1.798	0.693
11	0.344	0.003	0.000	0.000	0.085	0.253	2.840	0.426	0.519	1.642	0.576
12	0.315	0.003	0.000	0.000	0.078	0.232	2.607	0.391	0.477	1.508	0.480
13	0.291	0.002	0.000	0.000	0.072	0.214	2.405	0.361	0.440	1.391	0.403
14	0.181	0.002	0.000	0.000	0.045	0.133	1.494	0.224	0.273	0.864	0.227
15	0.000	0.000	0.300	0.000	0.000	0.000	0.000	0.000	0.000	-0.300	-0.072
											NPV = 27.33

Table 20. NPV calculation for “Marcellus Noncore", assuming that the price of NGL is constant at $32/boe and the price of gas is $0.5/thousand scf

Year	Annual gas production Bscf/yr	Annual NGL production million boe	Capital expenditures $ million	Tangible depreciation $ million	Intangible depletion $ million	Operating expenditures $ million	Gross revenues $ million	Royalty rates $ million	Taxation rates $ million	Net cash flow $ million	Present values $ million
0	0.000	0.000	5.500	0.000	0.000	0.000	0.000	0.000	0.000	-5.500	-5.500
1	1.093	0.001	0.000	0.825	0.545	0.769	0.576	0.086	0.055	-0.334	-0.304
2	0.733	0.001	0.000	0.578	0.365	0.516	0.386	0.058	0.037	-0.224	-0.185
3	0.509	0.000	0.000	0.404	0.254	0.358	0.269	0.040	0.000	-0.130	-0.098
4	0.408	0.000	0.000	0.283	0.203	0.287	0.215	0.032	0.000	-0.104	-0.071
5	0.345	0.000	0.000	0.198	0.172	0.243	0.182	0.027	0.000	-0.088	-0.055
6	0.301	0.000	0.000	0.000	0.150	0.212	0.159	0.024	0.000	-0.077	-0.043
7	0.268	0.000	0.000	0.000	0.133	0.188	0.141	0.021	0.000	-0.068	-0.035
8	0.241	0.000	0.000	0.000	0.120	0.170	0.127	0.019	0.000	-0.062	-0.029
9	0.220	0.000	0.000	0.000	0.110	0.155	0.116	0.017	0.000	-0.056	-0.024
10	0.202	0.000	0.000	0.000	0.101	0.142	0.106	0.016	0.000	-0.052	-0.020
11	0.186	0.000	0.000	0.000	0.093	0.131	0.098	0.015	0.000	-0.048	-0.017
12	0.173	0.000	0.000	0.000	0.086	0.122	0.091	0.014	0.000	-0.044	-0.014
13	0.161	0.000	0.000	0.000	0.080	0.113	0.085	0.013	0.000	-0.041	-0.012
14	0.151	0.000	0.000	0.000	0.075	0.106	0.080	0.012	0.000	-0.039	-0.010
15	0.024	0.000	0.300	0.000	0.012	0.017	0.013	0.002	0.000	-0.306	-0.073
											NPV = -6.49

Table 21. NPV calculation for “Marcellus Noncore", assuming that the price of NGL is constant at $32/boe and the price of gas is $1/thousand scf

Year	Annual gas production Bscf/yr	Annual NGL production million boe	Capital expenditures $ million	Tangible depreciation $ million	Intangible depletion $ million	Operating expenditures $ million	Gross revenues $ million	Royalty rates $ million	Taxation rates $ million	Net cash flow $ million	Present values $ million
0	0.000	0.000	5.500	0.000	0.000	0.000	0.000	0.000	0.000	-5.500	-5.500
1	1.093	0.001	0.000	0.825	0.545	0.769	1.123	0.168	0.055	0.130	0.118
2	0.733	0.001	0.000	0.578	0.365	0.516	0.753	0.113	0.037	0.087	0.072
3	0.509	0.000	0.000	0.404	0.254	0.358	0.523	0.078	0.000	0.086	0.065
4	0.408	0.000	0.000	0.283	0.203	0.287	0.419	0.063	0.000	0.069	0.047
5	0.345	0.000	0.000	0.198	0.172	0.243	0.354	0.053	0.000	0.058	0.036
6	0.301	0.000	0.000	0.000	0.150	0.212	0.309	0.046	0.000	0.051	0.029
7	0.268	0.000	0.000	0.000	0.133	0.188	0.275	0.041	0.000	0.045	0.023
8	0.241	0.000	0.000	0.000	0.120	0.170	0.248	0.037	0.000	0.041	0.019
9	0.220	0.000	0.000	0.000	0.110	0.155	0.226	0.034	0.000	0.037	0.016
10	0.202	0.000	0.000	0.000	0.101	0.142	0.207	0.031	0.000	0.034	0.013
11	0.186	0.000	0.000	0.000	0.093	0.131	0.191	0.029	0.000	0.032	0.011
12	0.173	0.000	0.000	0.000	0.086	0.122	0.178	0.027	0.000	0.029	0.009
13	0.161	0.000	0.000	0.000	0.080	0.113	0.166	0.025	0.000	0.027	0.008
14	0.151	0.000	0.000	0.000	0.075	0.106	0.155	0.023	0.000	0.026	0.007
15	0.024	0.000	0.300	0.000	0.012	0.017	0.025	0.004	0.000	-0.296	-0.071
											NPV = -5.10

Table 22. NPV calculation for “Marcellus Noncore", assuming that the price of NGL is constant at $32/boe and the price of gas is $2/thousand scf

Year	Annual gas production Bscf/yr	Annual NGL production million boe	Capital expenditures $ million	Tangible depreciation $ million	Intangible depletion $ million	Operating expenditures $ million	Gross revenues $ million	Royalty rates $ million	Taxation rates $ million	Net cash flow $ million	Present values $ million
0	0.000	0.000	5.500	0.000	0.000	0.000	0.000	0.000	0.000	-5.500	-5.500
1	1.093	0.001	0.000	0.825	0.545	0.769	2.216	0.332	0.055	1.059	0.963
2	0.733	0.001	0.000	0.578	0.365	0.516	1.486	0.223	0.037	0.710	0.587
3	0.509	0.000	0.000	0.404	0.254	0.358	1.032	0.155	0.000	0.519	0.390
4	0.408	0.000	0.000	0.283	0.203	0.287	0.826	0.124	0.000	0.416	0.284
5	0.345	0.000	0.000	0.198	0.172	0.243	0.699	0.105	0.000	0.352	0.218
6	0.301	0.000	0.000	0.000	0.150	0.212	0.610	0.092	0.039	0.268	0.151
7	0.268	0.000	0.000	0.000	0.133	0.188	0.543	0.081	0.035	0.238	0.122
8	0.241	0.000	0.000	0.000	0.120	0.170	0.489	0.073	0.031	0.215	0.100
9	0.220	0.000	0.000	0.000	0.110	0.155	0.446	0.067	0.029	0.196	0.083
10	0.202	0.000	0.000	0.000	0.101	0.142	0.409	0.061	0.026	0.179	0.069
11	0.186	0.000	0.000	0.000	0.093	0.131	0.378	0.057	0.024	0.166	0.058
12	0.173	0.000	0.000	0.000	0.086	0.122	0.351	0.053	0.023	0.154	0.049
13	0.161	0.000	0.000	0.000	0.080	0.113	0.327	0.049	0.021	0.143	0.042
14	0.151	0.000	0.000	0.000	0.075	0.106	0.306	0.046	0.020	0.134	0.035
15	0.024	0.000	0.300	0.000	0.012	0.017	0.049	0.007	0.003	-0.279	-0.067
											NPV = -2.41

Table 23. NPV calculation for “Marcellus Noncore", assuming that the price of NGL is constant at $32/boe and the price of gas is $2.5/thousand scf

Year	Annual gas production Bscf/yr	Annual NGL production million boe	Capital expenditures $ million	Tangible depreciation $ million	Intangible depletion $ million	Operating expenditures $ million	Gross revenues $ million	Royalty rates $ million	Taxation rates $ million	Net cash flow $ million	Present values $ million
0	0.000	0.000	5.500	0.000	0.000	0.000	0.000	0.000	0.000	-5.500	-5.500
1	1.093	0.001	0.000	0.825	0.545	0.769	2.762	0.414	0.107	1.472	1.338
2	0.733	0.001	0.000	0.578	0.365	0.516	1.852	0.278	0.066	0.993	0.820
3	0.509	0.000	0.000	0.404	0.254	0.358	1.287	0.193	0.019	0.716	0.538
4	0.408	0.000	0.000	0.283	0.203	0.287	1.030	0.155	0.026	0.563	0.385
5	0.345	0.000	0.000	0.198	0.172	0.243	0.872	0.131	0.032	0.466	0.290
6	0.301	0.000	0.000	0.000	0.150	0.212	0.761	0.114	0.071	0.364	0.205
7	0.268	0.000	0.000	0.000	0.133	0.188	0.677	0.102	0.063	0.323	0.166
8	0.241	0.000	0.000	0.000	0.120	0.170	0.610	0.092	0.057	0.292	0.136
9	0.220	0.000	0.000	0.000	0.110	0.155	0.556	0.083	0.052	0.266	0.113
10	0.202	0.000	0.000	0.000	0.101	0.142	0.510	0.076	0.048	0.244	0.094
11	0.186	0.000	0.000	0.000	0.093	0.131	0.471	0.071	0.044	0.225	0.079
12	0.173	0.000	0.000	0.000	0.086	0.122	0.437	0.066	0.041	0.209	0.067
13	0.161	0.000	0.000	0.000	0.080	0.113	0.408	0.061	0.038	0.195	0.056
14	0.151	0.000	0.000	0.000	0.075	0.106	0.381	0.057	0.036	0.182	0.048
15	0.024	0.000	0.300	0.000	0.012	0.017	0.061	0.009	0.006	-0.271	-0.065
											NPV = -1.23

Table 24. NPV calculation for “Marcellus Noncore", assuming that the price of NGL is constant at $32/boe and the price of gas is $3/thousand scf

Year	Annual gas production Bscf/yr	Annual NGL production million boe	Capital expenditures $ million	Tangible depreciation $ million	Intangible depletion $ million	Operating expenditures $ million	Gross revenues $ million	Royalty rates $ million	Taxation rates $ million	Net cash flow $ million	Present values $ million
0	0.000	0.000	5.500	0.000	0.000	0.000	0.000	0.000	0.000	-5.500	-5.500
1	1.093	0.001	0.000	0.825	0.545	0.769	3.309	0.496	0.223	1.820	1.655
2	0.733	0.001	0.000	0.578	0.365	0.516	2.218	0.333	0.144	1.226	1.014
3	0.509	0.000	0.000	0.404	0.254	0.358	1.542	0.231	0.073	0.879	0.660
4	0.408	0.000	0.000	0.283	0.203	0.287	1.234	0.185	0.069	0.693	0.473
5	0.345	0.000	0.000	0.198	0.172	0.243	1.044	0.157	0.069	0.576	0.358
6	0.301	0.000	0.000	0.000	0.150	0.212	0.911	0.137	0.103	0.460	0.259
7	0.268	0.000	0.000	0.000	0.133	0.188	0.811	0.122	0.092	0.409	0.210
8	0.241	0.000	0.000	0.000	0.120	0.170	0.731	0.110	0.083	0.369	0.172
9	0.220	0.000	0.000	0.000	0.110	0.155	0.666	0.100	0.075	0.336	0.142
10	0.202	0.000	0.000	0.000	0.101	0.142	0.611	0.092	0.069	0.308	0.119
11	0.186	0.000	0.000	0.000	0.093	0.131	0.564	0.085	0.064	0.285	0.100
12	0.173	0.000	0.000	0.000	0.086	0.122	0.524	0.079	0.059	0.264	0.084
13	0.161	0.000	0.000	0.000	0.080	0.113	0.488	0.073	0.055	0.246	0.071
14	0.151	0.000	0.000	0.000	0.075	0.106	0.457	0.069	0.052	0.230	0.061
15	0.024	0.000	0.300	0.000	0.012	0.017	0.072	0.011	0.008	-0.263	-0.063
											NPV = -0.19

Table 25. NPV calculation for “Marcellus Noncore", assuming that the price of NGL is constant at $32/boe and the price of gas is $4/thousand scf

Year	Annual gas production Bscf/yr	Annual NGL production million boe	Capital expenditures $ million	Tangible depreciation $ million	Intangible depletion $ million	Operating expenditures $ million	Gross revenues $ million	Royalty rates $ million	Taxation rates $ million	Net cash flow $ million	Present values $ million
0	0.000	0.000	5.500	0.000	0.000	0.000	0.000	0.000	0.000	-5.500	-5.500
1	1.093	0.001	0.000	0.825	0.545	0.769	4.402	0.660	0.456	2.517	2.288
2	0.733	0.001	0.000	0.578	0.365	0.516	2.951	0.443	0.299	1.694	1.400
3	0.509	0.000	0.000	0.404	0.254	0.358	2.051	0.308	0.182	1.203	0.904
4	0.408	0.000	0.000	0.283	0.203	0.287	1.642	0.246	0.156	0.953	0.651
5	0.345	0.000	0.000	0.198	0.172	0.243	1.389	0.208	0.142	0.796	0.494
6	0.301	0.000	0.000	0.000	0.150	0.212	1.212	0.182	0.167	0.651	0.368
7	0.268	0.000	0.000	0.000	0.133	0.188	1.078	0.162	0.149	0.579	0.297
8	0.241	0.000	0.000	0.000	0.120	0.170	0.972	0.146	0.134	0.522	0.244
9	0.220	0.000	0.000	0.000	0.110	0.155	0.885	0.133	0.122	0.476	0.202
10	0.202	0.000	0.000	0.000	0.101	0.142	0.813	0.122	0.112	0.437	0.168
11	0.186	0.000	0.000	0.000	0.093	0.131	0.751	0.113	0.103	0.403	0.141
12	0.173	0.000	0.000	0.000	0.086	0.122	0.697	0.105	0.096	0.374	0.119
13	0.161	0.000	0.000	0.000	0.080	0.113	0.649	0.097	0.090	0.349	0.101
14	0.151	0.000	0.000	0.000	0.075	0.106	0.608	0.091	0.084	0.327	0.086
15	0.024	0.000	0.300	0.000	0.012	0.017	0.096	0.014	0.013	-0.248	-0.059
											NPV = 1.90

Table 26. NPV calculation for “Marcellus Noncore", assuming that the price of NGL is constant at $32/boe and the price of gas is $5/thousand scf

Year	Annual gas production Bscf/yr	Annual NGL production million boe	Capital expenditures $ million	Tangible depreciation $ million	Intangible depletion $ million	Operating expenditures $ million	Gross revenues $ million	Royalty rates $ million	Taxation rates $ million	Net cash flow $ million	Present values $ million
0	0.000	0.000	5.500	0.000	0.000	0.000	0.000	0.000	0.000	-5.500	-5.500
1	1.093	0.001	0.000	0.825	0.545	0.769	5.495	0.824	0.688	3.214	2.922
2	0.733	0.001	0.000	0.578	0.365	0.516	3.684	0.553	0.455	2.161	1.786
3	0.509	0.000	0.000	0.404	0.254	0.358	2.560	0.384	0.290	1.528	1.148
4	0.408	0.000	0.000	0.283	0.203	0.287	2.050	0.307	0.242	1.213	0.828
5	0.345	0.000	0.000	0.198	0.172	0.243	1.734	0.260	0.215	1.016	0.631
6	0.301	0.000	0.000	0.000	0.150	0.212	1.513	0.227	0.231	0.843	0.476
7	0.268	0.000	0.000	0.000	0.133	0.188	1.346	0.202	0.206	0.750	0.385
8	0.241	0.000	0.000	0.000	0.120	0.170	1.214	0.182	0.185	0.676	0.316
9	0.220	0.000	0.000	0.000	0.110	0.155	1.105	0.166	0.169	0.616	0.261
10	0.202	0.000	0.000	0.000	0.101	0.142	1.014	0.152	0.155	0.565	0.218
11	0.186	0.000	0.000	0.000	0.093	0.131	0.937	0.141	0.143	0.522	0.183
12	0.173	0.000	0.000	0.000	0.086	0.122	0.870	0.130	0.133	0.485	0.154
13	0.161	0.000	0.000	0.000	0.080	0.113	0.811	0.122	0.124	0.452	0.131
14	0.151	0.000	0.000	0.000	0.075	0.106	0.759	0.114	0.116	0.423	0.111
15	0.024	0.000	0.300	0.000	0.012	0.017	0.120	0.018	0.018	-0.233	-0.056
											NPV = 3.99

Table 27. NPV calculation for “Marcellus Noncore", assuming that the price of NGL is constant at $32/boe and the price of gas is $6/thousand scf

Year	Annual gas production Bscf/yr	Annual NGL production million boe	Capital expenditures $ million	Tangible depreciation $ million	Intangible depletion $ million	Operating expenditures $ million	Gross revenues $ million	Royalty rates $ million	Taxation rates $ million	Net cash flow $ million	Present values $ million
0	0.000	0.000	5.500	0.000	0.000	0.000	0.000	0.000	0.000	-5.500	-5.500
1	1.093	0.001	0.000	0.825	0.545	0.769	6.588	0.988	0.920	3.911	3.555
2	0.733	0.001	0.000	0.578	0.365	0.516	4.417	0.663	0.611	2.628	2.172
3	0.509	0.000	0.000	0.404	0.254	0.358	3.069	0.460	0.398	1.853	1.392
4	0.408	0.000	0.000	0.283	0.203	0.287	2.457	0.369	0.329	1.473	1.006
5	0.345	0.000	0.000	0.198	0.172	0.243	2.079	0.312	0.289	1.236	0.768
6	0.301	0.000	0.000	0.000	0.150	0.212	1.814	0.272	0.295	1.035	0.584
7	0.268	0.000	0.000	0.000	0.133	0.188	1.614	0.242	0.262	0.921	0.473
8	0.241	0.000	0.000	0.000	0.120	0.170	1.455	0.218	0.237	0.830	0.387
9	0.220	0.000	0.000	0.000	0.110	0.155	1.325	0.199	0.216	0.756	0.321
10	0.202	0.000	0.000	0.000	0.101	0.142	1.216	0.182	0.198	0.694	0.268
11	0.186	0.000	0.000	0.000	0.093	0.131	1.123	0.168	0.183	0.641	0.225
12	0.173	0.000	0.000	0.000	0.086	0.122	1.043	0.156	0.170	0.595	0.190
13	0.161	0.000	0.000	0.000	0.080	0.113	0.972	0.146	0.158	0.555	0.161
14	0.151	0.000	0.000	0.000	0.075	0.106	0.909	0.136	0.148	0.519	0.137
15	0.024	0.000	0.300	0.000	0.012	0.017	0.144	0.022	0.023	-0.218	-0.052
											NPV = 6.08

Table 28. NPV calculation for “Marcellus Noncore", assuming that the price of NGL is constant at $32/boe and the price of gas is $8/thousand scf

Year	Annual gas production Bscf/yr	Annual NGL production million boe	Capital expenditures $ million	Tangible depreciation $ million	Intangible depletion $ million	Operating expenditures $ million	Gross revenues $ million	Royalty rates $ million	Taxation rates $ million	Net cash flow $ million	Present values $ million
0	0.000	0.000	5.500	0.000	0.000	0.000	0.000	0.000	0.000	-5.500	-5.500
1	1.093	0.001	0.000	0.825	0.545	0.769	8.774	1.316	1.385	5.304	4.822
2	0.733	0.001	0.000	0.578	0.365	0.516	5.883	0.882	0.922	3.562	2.944
3	0.509	0.000	0.000	0.404	0.254	0.358	4.088	0.613	0.615	2.502	1.880
4	0.408	0.000	0.000	0.283	0.203	0.287	3.273	0.491	0.502	1.993	1.361
5	0.345	0.000	0.000	0.198	0.172	0.243	2.769	0.415	0.435	1.676	1.041
6	0.301	0.000	0.000	0.000	0.150	0.212	2.416	0.362	0.423	1.419	0.801
7	0.268	0.000	0.000	0.000	0.133	0.188	2.149	0.322	0.376	1.262	0.648
8	0.241	0.000	0.000	0.000	0.120	0.170	1.938	0.291	0.339	1.138	0.531
9	0.220	0.000	0.000	0.000	0.110	0.155	1.765	0.265	0.309	1.037	0.440
10	0.202	0.000	0.000	0.000	0.101	0.142	1.620	0.243	0.284	0.951	0.367
11	0.186	0.000	0.000	0.000	0.093	0.131	1.496	0.224	0.262	0.879	0.308
12	0.173	0.000	0.000	0.000	0.086	0.122	1.389	0.208	0.243	0.816	0.260
13	0.161	0.000	0.000	0.000	0.080	0.113	1.295	0.194	0.227	0.760	0.220
14	0.151	0.000	0.000	0.000	0.075	0.106	1.211	0.182	0.212	0.711	0.187
15	0.024	0.000	0.300	0.000	0.012	0.017	0.192	0.029	0.034	-0.187	-0.045
											NPV = 10.26

Table 29. NPV calculation for “Marcellus Outer", assuming that the price of NGL is constant at $32/boe and the price of gas is $0.5/thousand scf

Year	Annual gas production Bscf/yr	Annual NGL production million boe	Capital expenditures $ million	Tangible depreciation $ million	Intangible depletion $ million	Operating expenditures $ million	Gross revenues $ million	Royalty rates $ million	Taxation rates $ million	Net cash flow $ million	Present values $ million
0	0.000	0.000	5.500	0.000	0.000	0.000	0.000	0.000	0.000	-5.500	-5.500
1	0.303	0.018	0.000	0.825	0.534	0.288	0.718	0.108	0.000	0.322	0.293
2	0.257	0.015	0.000	0.578	0.452	0.244	0.608	0.091	0.000	0.273	0.225
3	0.161	0.010	0.000	0.404	0.284	0.153	0.381	0.057	0.000	0.171	0.128
4	0.121	0.007	0.000	0.283	0.213	0.115	0.287	0.043	0.000	0.129	0.088
5	0.097	0.006	0.000	0.198	0.171	0.093	0.230	0.035	0.000	0.103	0.064
6	0.081	0.005	0.000	0.000	0.143	0.077	0.192	0.029	0.000	0.086	0.049
7	0.069	0.004	0.000	0.000	0.122	0.066	0.163	0.025	0.000	0.073	0.038
8	0.060	0.004	0.000	0.000	0.105	0.057	0.142	0.021	0.000	0.063	0.030
9	0.052	0.003	0.000	0.000	0.092	0.050	0.124	0.019	0.000	0.056	0.024
10	0.046	0.003	0.000	0.000	0.082	0.044	0.110	0.017	0.000	0.049	0.019
11	0.042	0.002	0.000	0.000	0.073	0.040	0.098	0.015	0.000	0.044	0.015
12	0.037	0.002	0.000	0.000	0.066	0.036	0.089	0.013	0.000	0.040	0.013
13	0.034	0.002	0.000	0.000	0.060	0.032	0.080	0.012	0.000	0.036	0.010
14	0.031	0.002	0.000	0.000	0.054	0.029	0.073	0.011	0.000	0.033	0.009
15	0.028	0.002	0.300	0.000	0.050	0.027	0.067	0.010	0.000	-0.270	-0.065
											NPV = -4.56

Table 30. NPV calculation for “Marcellus Outer", assuming that the price of NGL is constant at $32/boe and the price of gas is $1/thousand scf

Year	Annual gas production Bscf/yr	Annual NGL production million boe	Capital expenditures $ million	Tangible depreciation $ million	Intangible depletion $ million	Operating expenditures $ million	Gross revenues $ million	Royalty rates $ million	Taxation rates $ million	Net cash flow $ million	Present values $ million
0	0.000	0.000	5.500	0.000	0.000	0.000	0.000	0.000	0.000	-5.500	-5.500
1	0.303	0.018	0.000	0.825	0.534	0.288	0.869	0.130	0.000	0.451	0.410
2	0.257	0.015	0.000	0.578	0.452	0.244	0.736	0.110	0.000	0.382	0.315
3	0.161	0.010	0.000	0.404	0.284	0.153	0.462	0.069	0.000	0.239	0.180
4	0.121	0.007	0.000	0.283	0.213	0.115	0.348	0.052	0.000	0.180	0.123
5	0.097	0.006	0.000	0.198	0.171	0.093	0.279	0.042	0.000	0.145	0.090
6	0.081	0.005	0.000	0.000	0.143	0.077	0.232	0.035	0.000	0.120	0.068
7	0.069	0.004	0.000	0.000	0.122	0.066	0.198	0.030	0.000	0.103	0.053
8	0.060	0.004	0.000	0.000	0.105	0.057	0.171	0.026	0.000	0.089	0.041
9	0.052	0.003	0.000	0.000	0.092	0.050	0.150	0.023	0.000	0.078	0.033
10	0.046	0.003	0.000	0.000	0.082	0.044	0.133	0.020	0.000	0.069	0.027
11	0.042	0.002	0.000	0.000	0.073	0.040	0.119	0.018	0.000	0.062	0.022
12	0.037	0.002	0.000	0.000	0.066	0.036	0.107	0.016	0.000	0.056	0.018
13	0.034	0.002	0.000	0.000	0.060	0.032	0.097	0.015	0.000	0.050	0.015
14	0.031	0.002	0.000	0.000	0.054	0.029	0.089	0.013	0.000	0.046	0.012
15	0.028	0.002	0.300	0.000	0.050	0.027	0.081	0.012	0.000	-0.258	-0.062
											NPV = -4.16

Table 31. NPV calculation for “Marcellus Outer", assuming that the price of NGL is constant at $32/boe and the price of gas is $2/thousand scf

Year	Annual gas production Bscf/yr	Annual NGL production million boe	Capital expenditures $ million	Tangible depreciation $ million	Intangible depletion $ million	Operating expenditures $ million	Gross revenues $ million	Royalty rates $ million	Taxation rates $ million	Net cash flow $ million	Present values $ million
0	0.000	0.000	5.500	0.000	0.000	0.000	0.000	0.000	0.000	-5.500	-5.500
1	0.303	0.018	0.000	0.825	0.534	0.288	1.172	0.176	0.000	0.708	0.644
2	0.257	0.015	0.000	0.578	0.452	0.244	0.993	0.149	0.000	0.600	0.496
3	0.161	0.010	0.000	0.404	0.284	0.153	0.623	0.093	0.000	0.376	0.283
4	0.121	0.007	0.000	0.283	0.213	0.115	0.469	0.070	0.000	0.283	0.193
5	0.097	0.006	0.000	0.198	0.171	0.093	0.376	0.056	0.000	0.227	0.141
6	0.081	0.005	0.000	0.000	0.143	0.077	0.313	0.047	0.012	0.178	0.100
7	0.069	0.004	0.000	0.000	0.122	0.066	0.267	0.040	0.010	0.151	0.078
8	0.060	0.004	0.000	0.000	0.105	0.057	0.231	0.035	0.009	0.131	0.061
9	0.052	0.003	0.000	0.000	0.092	0.050	0.203	0.030	0.008	0.115	0.049
10	0.046	0.003	0.000	0.000	0.082	0.044	0.180	0.027	0.007	0.102	0.039
11	0.042	0.002	0.000	0.000	0.073	0.040	0.161	0.024	0.006	0.091	0.032
12	0.037	0.002	0.000	0.000	0.066	0.036	0.145	0.022	0.005	0.082	0.026
13	0.034	0.002	0.000	0.000	0.060	0.032	0.131	0.020	0.005	0.074	0.022
14	0.031	0.002	0.000	0.000	0.054	0.029	0.119	0.018	0.004	0.068	0.018
15	0.028	0.002	0.300	0.000	0.050	0.027	0.109	0.016	0.004	-0.238	-0.057
											NPV = -3.38

Table 32. NPV calculation for “Marcellus Outer", assuming that the price of NGL is constant at $32/boe and the price of gas is $2.5/thousand scf

Year	Annual gas production Bscf/yr	Annual NGL production million boe	Capital expenditures $ million	Tangible depreciation $ million	Intangible depletion $ million	Operating expenditures $ million	Gross revenues $ million	Royalty rates $ million	Taxation rates $ million	Net cash flow $ million	Present values $ million
0	0.000	0.000	5.500	0.000	0.000	0.000	0.000	0.000	0.000	-5.500	-5.500
1	0.303	0.018	0.000	0.825	0.534	0.288	1.324	0.199	0.000	0.837	0.761
2	0.257	0.015	0.000	0.578	0.452	0.244	1.122	0.168	0.000	0.709	0.586
3	0.161	0.010	0.000	0.404	0.284	0.153	0.704	0.106	0.000	0.445	0.334
4	0.121	0.007	0.000	0.283	0.213	0.115	0.529	0.079	0.000	0.335	0.229
5	0.097	0.006	0.000	0.198	0.171	0.093	0.425	0.064	0.000	0.269	0.167
6	0.081	0.005	0.000	0.000	0.143	0.077	0.354	0.053	0.020	0.203	0.115
7	0.069	0.004	0.000	0.000	0.122	0.066	0.301	0.045	0.017	0.173	0.089
8	0.060	0.004	0.000	0.000	0.105	0.057	0.261	0.039	0.015	0.150	0.070
9	0.052	0.003	0.000	0.000	0.092	0.050	0.229	0.034	0.013	0.132	0.056
10	0.046	0.003	0.000	0.000	0.082	0.044	0.203	0.030	0.012	0.117	0.045
11	0.042	0.002	0.000	0.000	0.073	0.040	0.181	0.027	0.010	0.104	0.037
12	0.037	0.002	0.000	0.000	0.066	0.036	0.163	0.025	0.009	0.094	0.030
13	0.034	0.002	0.000	0.000	0.060	0.032	0.148	0.022	0.008	0.085	0.025
14	0.031	0.002	0.000	0.000	0.054	0.029	0.135	0.020	0.008	0.077	0.020
15	0.028	0.002	0.300	0.000	0.050	0.027	0.123	0.019	0.007	-0.229	-0.055
											NPV = -2.99

Table 33. NPV calculation for “Marcellus Outer", assuming that the price of NGL is constant at $32/boe and the price of gas is $3/thousand scf

Year	Annual gas production Bscf/yr	Annual NGL production million boe	Capital expenditures $ million	Tangible depreciation $ million	Intangible depletion $ million	Operating expenditures $ million	Gross revenues $ million	Royalty rates $ million	Taxation rates $ million	Net cash flow $ million	Present values $ million
0	0.000	0.000	5.500	0.000	0.000	0.000	0.000	0.000	0.000	-5.500	-5.500
1	0.303	0.018	0.000	0.825	0.534	0.288	1.475	0.221	0.000	0.966	0.878
2	0.257	0.015	0.000	0.578	0.452	0.244	1.250	0.187	0.000	0.818	0.676
3	0.161	0.010	0.000	0.404	0.284	0.153	0.784	0.118	0.000	0.513	0.386
4	0.121	0.007	0.000	0.283	0.213	0.115	0.590	0.088	0.000	0.386	0.264
5	0.097	0.006	0.000	0.198	0.171	0.093	0.474	0.071	0.000	0.310	0.193
6	0.081	0.005	0.000	0.000	0.143	0.077	0.394	0.059	0.029	0.229	0.129
7	0.069	0.004	0.000	0.000	0.122	0.066	0.336	0.050	0.025	0.195	0.100
8	0.060	0.004	0.000	0.000	0.105	0.057	0.291	0.044	0.021	0.169	0.079
9	0.052	0.003	0.000	0.000	0.092	0.050	0.255	0.038	0.019	0.148	0.063
10	0.046	0.003	0.000	0.000	0.082	0.044	0.226	0.034	0.017	0.132	0.051
11	0.042	0.002	0.000	0.000	0.073	0.040	0.202	0.030	0.015	0.118	0.041
12	0.037	0.002	0.000	0.000	0.066	0.036	0.182	0.027	0.013	0.106	0.034
13	0.034	0.002	0.000	0.000	0.060	0.032	0.165	0.025	0.012	0.096	0.028
14	0.031	0.002	0.000	0.000	0.054	0.029	0.150	0.023	0.011	0.087	0.023
15	0.028	0.002	0.300	0.000	0.050	0.027	0.138	0.021	0.010	-0.220	-0.053
											NPV = -2.61

Table 34. NPV calculation for “Marcellus Outer", assuming that the price of NGL is constant at $32/boe and the price of gas is $4/thousand scf

Year	Annual gas production Bscf/yr	Annual NGL production million boe	Capital expenditures $ million	Tangible depreciation $ million	Intangible depletion $ million	Operating expenditures $ million	Gross revenues $ million	Royalty rates $ million	Taxation rates $ million	Net cash flow $ million	Present values $ million
0	0.000	0.000	5.500	0.000	0.000	0.000	0.000	0.000	0.000	-5.500	-5.500
1	0.303	0.018	0.000	0.825	0.534	0.288	1.778	0.267	0.000	1.223	1.112
2	0.257	0.015	0.000	0.578	0.452	0.244	1.507	0.226	0.002	1.035	0.855
3	0.161	0.010	0.000	0.404	0.284	0.153	0.945	0.142	0.000	0.650	0.488
4	0.121	0.007	0.000	0.283	0.213	0.115	0.711	0.107	0.000	0.489	0.334
5	0.097	0.006	0.000	0.198	0.171	0.093	0.571	0.086	0.006	0.387	0.240
6	0.081	0.005	0.000	0.000	0.143	0.077	0.475	0.071	0.046	0.281	0.159
7	0.069	0.004	0.000	0.000	0.122	0.066	0.405	0.061	0.039	0.239	0.123
8	0.060	0.004	0.000	0.000	0.105	0.057	0.351	0.053	0.034	0.207	0.097
9	0.052	0.003	0.000	0.000	0.092	0.050	0.308	0.046	0.030	0.182	0.077
10	0.046	0.003	0.000	0.000	0.082	0.044	0.273	0.041	0.026	0.161	0.062
11	0.042	0.002	0.000	0.000	0.073	0.040	0.244	0.037	0.024	0.144	0.050
12	0.037	0.002	0.000	0.000	0.066	0.036	0.219	0.033	0.021	0.130	0.041
13	0.034	0.002	0.000	0.000	0.060	0.032	0.199	0.030	0.019	0.117	0.034
14	0.031	0.002	0.000	0.000	0.054	0.029	0.181	0.027	0.018	0.107	0.028
15	0.028	0.002	0.300	0.000	0.050	0.027	0.166	0.025	0.016	-0.202	-0.048
											NPV = -1.85

Table 35. NPV calculation for “Marcellus Outer", assuming that the price of NGL is constant at $32/boe and the price of gas is $5/thousand scf

Year	Annual gas production Bscf/yr	Annual NGL production million boe	Capital expenditures $ million	Tangible depreciation $ million	Intangible depletion $ million	Operating expenditures $ million	Gross revenues $ million	Royalty rates $ million	Taxation rates $ million	Net cash flow $ million	Present values $ million
0	0.000	0.000	5.500	0.000	0.000	0.000	0.000	0.000	0.000	-5.500	-5.500
1	0.303	0.018	0.000	0.825	0.534	0.288	2.082	0.312	0.031	1.450	1.318
2	0.257	0.015	0.000	0.578	0.452	0.244	1.763	0.265	0.056	1.198	0.990
3	0.161	0.010	0.000	0.404	0.284	0.153	1.106	0.166	0.025	0.762	0.573
4	0.121	0.007	0.000	0.283	0.213	0.115	0.832	0.125	0.024	0.568	0.388
5	0.097	0.006	0.000	0.198	0.171	0.093	0.668	0.100	0.027	0.449	0.279
6	0.081	0.005	0.000	0.000	0.143	0.077	0.556	0.083	0.063	0.333	0.188
7	0.069	0.004	0.000	0.000	0.122	0.066	0.474	0.071	0.054	0.283	0.145
8	0.060	0.004	0.000	0.000	0.105	0.057	0.411	0.062	0.047	0.245	0.114
9	0.052	0.003	0.000	0.000	0.092	0.050	0.360	0.054	0.041	0.215	0.091
10	0.046	0.003	0.000	0.000	0.082	0.044	0.319	0.048	0.036	0.191	0.074
11	0.042	0.002	0.000	0.000	0.073	0.040	0.285	0.043	0.032	0.171	0.060
12	0.037	0.002	0.000	0.000	0.066	0.036	0.257	0.039	0.029	0.154	0.049
13	0.034	0.002	0.000	0.000	0.060	0.032	0.233	0.035	0.026	0.139	0.040
14	0.031	0.002	0.000	0.000	0.054	0.029	0.212	0.032	0.024	0.127	0.033
15	0.028	0.002	0.300	0.000	0.050	0.027	0.194	0.029	0.022	-0.184	-0.044
											NPV = -1.20

Table 36. NPV calculation for “Marcellus Outer", assuming that the price of NGL is constant at $32/boe and the price of gas is $6/thousand scf

Year	Annual gas production Bscf/yr	Annual NGL production million boe	Capital expenditures $ million	Tangible depreciation $ million	Intangible depletion $ million	Operating expenditures $ million	Gross revenues $ million	Royalty rates $ million	Taxation rates $ million	Net cash flow $ million	Present values $ million
0	0.000	0.000	5.500	0.000	0.000	0.000	0.000	0.000	0.000	-5.500	-5.500
1	0.303	0.018	0.000	0.825	0.534	0.288	2.385	0.358	0.095	1.644	1.494
2	0.257	0.015	0.000	0.578	0.452	0.244	2.020	0.303	0.111	1.362	1.126
3	0.161	0.010	0.000	0.404	0.284	0.153	1.267	0.190	0.059	0.865	0.650
4	0.121	0.007	0.000	0.283	0.213	0.115	0.953	0.143	0.050	0.645	0.441
5	0.097	0.006	0.000	0.198	0.171	0.093	0.766	0.115	0.047	0.511	0.317
6	0.081	0.005	0.000	0.000	0.143	0.077	0.637	0.096	0.081	0.384	0.217
7	0.069	0.004	0.000	0.000	0.122	0.066	0.543	0.081	0.069	0.327	0.168
8	0.060	0.004	0.000	0.000	0.105	0.057	0.470	0.071	0.059	0.284	0.132
9	0.052	0.003	0.000	0.000	0.092	0.050	0.413	0.062	0.052	0.249	0.105
10	0.046	0.003	0.000	0.000	0.082	0.044	0.366	0.055	0.046	0.220	0.085
11	0.042	0.002	0.000	0.000	0.073	0.040	0.327	0.049	0.041	0.197	0.069
12	0.037	0.002	0.000	0.000	0.066	0.036	0.294	0.044	0.037	0.177	0.057
13	0.034	0.002	0.000	0.000	0.060	0.032	0.267	0.040	0.034	0.161	0.047
14	0.031	0.002	0.000	0.000	0.054	0.029	0.243	0.036	0.031	0.146	0.039
15	0.028	0.002	0.300	0.000	0.050	0.027	0.222	0.033	0.028	-0.166	-0.040
											NPV = -0.59

Table 37. NPV calculation for “Marcellus Outer", assuming that the price of NGL is constant at $32/boe and the price of gas is $8/thousand scf

Year	Annual gas production Bscf/yr	Annual NGL production million boe	Capital expenditures $ million	Tangible depreciation $ million	Intangible depletion $ million	Operating expenditures $ million	Gross revenues $ million	Royalty rates $ million	Taxation rates $ million	Net cash flow $ million	Present values $ million
0	0.000	0.000	5.500	0.000	0.000	0.000	0.000	0.000	0.000	-5.500	-5.500
1	0.303	0.018	0.000	0.825	0.534	0.288	2.991	0.449	0.224	2.030	1.845
2	0.257	0.015	0.000	0.578	0.452	0.244	2.534	0.380	0.220	1.689	1.396
3	0.161	0.010	0.000	0.404	0.284	0.153	1.589	0.238	0.127	1.070	0.804
4	0.121	0.007	0.000	0.283	0.213	0.115	1.196	0.179	0.101	0.800	0.546
5	0.097	0.006	0.000	0.198	0.171	0.093	0.960	0.144	0.089	0.635	0.394
6	0.081	0.005	0.000	0.000	0.143	0.077	0.799	0.120	0.115	0.487	0.275
7	0.069	0.004	0.000	0.000	0.122	0.066	0.681	0.102	0.098	0.415	0.213
8	0.060	0.004	0.000	0.000	0.105	0.057	0.590	0.088	0.085	0.360	0.168
9	0.052	0.003	0.000	0.000	0.092	0.050	0.518	0.078	0.074	0.316	0.134
10	0.046	0.003	0.000	0.000	0.082	0.044	0.459	0.069	0.066	0.280	0.108
11	0.042	0.002	0.000	0.000	0.073	0.040	0.410	0.061	0.059	0.250	0.088
12	0.037	0.002	0.000	0.000	0.066	0.036	0.369	0.055	0.053	0.225	0.072
13	0.034	0.002	0.000	0.000	0.060	0.032	0.334	0.050	0.048	0.204	0.059
14	0.031	0.002	0.000	0.000	0.054	0.029	0.305	0.046	0.044	0.186	0.049
15	0.028	0.002	0.300	0.000	0.050	0.027	0.279	0.042	0.040	-0.130	-0.031
											NPV = 0.62

Table 38. NPV calculation for “Northeast Core", assuming that the price of gas is constant at $2.8/thousand scf and the price of NGL is $5/boe

Year	Annual gas production Bscf/yr	Annual NGL production million boe	Capital expenditures $ million	Tangible depreciation $ million	Intangible depletion $ million	Operating expenditures $ million	Gross revenues $ million	Royalty rates $ million	Taxation rates $ million	Net cash flow $ million	Present values $ million
0	0.000	0.000	5.500	0.000	0.000	0.000	0.000	0.000	0.000	-5.500	-5.500
1	3.562	0.000	0.000	0.825	0.633	2.493	10.009	1.501	1.317	4.697	4.270
2	1.769	0.000	0.000	0.578	0.314	1.238	4.971	0.746	0.612	2.375	1.963
3	1.298	0.000	0.000	0.404	0.231	0.909	3.648	0.547	0.454	1.738	1.306
4	1.059	0.000	0.000	0.283	0.188	0.741	2.976	0.446	0.382	1.406	0.960
5	0.906	0.000	0.000	0.198	0.161	0.634	2.545	0.382	0.338	1.191	0.740
6	0.795	0.000	0.000	0.000	0.141	0.557	2.235	0.335	0.340	1.003	0.566
7	0.711	0.000	0.000	0.000	0.126	0.498	1.998	0.300	0.304	0.896	0.460
8	0.643	0.000	0.000	0.000	0.114	0.450	1.808	0.271	0.275	0.811	0.378
9	0.588	0.000	0.000	0.000	0.104	0.411	1.652	0.248	0.251	0.741	0.314
10	0.541	0.000	0.000	0.000	0.096	0.379	1.520	0.228	0.231	0.682	0.263
11	0.501	0.000	0.000	0.000	0.089	0.350	1.407	0.211	0.189	0.656	0.230
12	0.466	0.000	0.000	0.000	0.083	0.326	1.309	0.196	0.176	0.610	0.194
13	0.435	0.000	0.000	0.000	0.077	0.304	1.222	0.183	0.164	0.570	0.165
14	0.408	0.000	0.000	0.000	0.072	0.285	1.145	0.172	0.154	0.534	0.141
15	0.383	0.000	0.300	0.000	0.068	0.268	1.077	0.162	0.145	0.202	0.048
											NPV = 6.50

Table 39. NPV calculation for “Northeast Core", assuming that the price of gas is constant at $2.8/thousand scf and the price of NGL is $10/boe

Year	Annual gas production Bscf/yr	Annual NGL production million boe	Capital expenditures $ million	Tangible depreciation $ million	Intangible depletion $ million	Operating expenditures $ million	Gross revenues $ million	Royalty rates $ million	Taxation rates $ million	Net cash flow $ million	Present values $ million
0	0.000	0.000	5.500	0.000	0.000	0.000	0.000	0.000	0.000	-5.500	-5.500
1	3.562	0.000	0.000	0.825	0.633	2.493	10.009	1.501	1.317	4.697	4.270
2	1.769	0.000	0.000	0.578	0.314	1.238	4.971	0.746	0.612	2.375	1.963
3	1.298	0.000	0.000	0.404	0.231	0.909	3.648	0.547	0.454	1.738	1.306
4	1.059	0.000	0.000	0.283	0.188	0.741	2.976	0.446	0.382	1.406	0.960
5	0.906	0.000	0.000	0.198	0.161	0.634	2.545	0.382	0.338	1.191	0.740
6	0.795	0.000	0.000	0.000	0.141	0.557	2.235	0.335	0.340	1.003	0.566
7	0.711	0.000	0.000	0.000	0.126	0.498	1.998	0.300	0.304	0.896	0.460
8	0.643	0.000	0.000	0.000	0.114	0.450	1.808	0.271	0.275	0.811	0.378
9	0.588	0.000	0.000	0.000	0.104	0.411	1.652	0.248	0.251	0.741	0.314
10	0.541	0.000	0.000	0.000	0.096	0.379	1.520	0.228	0.231	0.682	0.263
11	0.501	0.000	0.000	0.000	0.089	0.350	1.407	0.211	0.189	0.656	0.230
12	0.466	0.000	0.000	0.000	0.083	0.326	1.309	0.196	0.176	0.610	0.194
13	0.435	0.000	0.000	0.000	0.077	0.304	1.222	0.183	0.164	0.570	0.165
14	0.408	0.000	0.000	0.000	0.072	0.285	1.145	0.172	0.154	0.534	0.141
15	0.383	0.000	0.300	0.000	0.068	0.268	1.077	0.162	0.145	0.202	0.048
											NPV = 6.50

Table 40. NPV calculation for “Northeast Core", assuming that the price of gas is constant at $2.8/thousand scf and the price of NGL is $15/boe

Year	Annual gas production Bscf/yr	Annual NGL production million boe	Capital expenditures $ million	Tangible depreciation $ million	Intangible depletion $ million	Operating expenditures $ million	Gross revenues $ million	Royalty rates $ million	Taxation rates $ million	Net cash flow $ million	Present values $ million
0	0.000	0.000	5.500	0.000	0.000	0.000	0.000	0.000	0.000	-5.500	-5.500
1	3.562	0.000	0.000	0.825	0.633	2.493	10.009	1.501	1.317	4.697	4.270
2	1.769	0.000	0.000	0.578	0.314	1.238	4.971	0.746	0.612	2.375	1.963
3	1.298	0.000	0.000	0.404	0.231	0.909	3.648	0.547	0.454	1.738	1.306
4	1.059	0.000	0.000	0.283	0.188	0.741	2.976	0.446	0.382	1.406	0.960
5	0.906	0.000	0.000	0.198	0.161	0.634	2.545	0.382	0.338	1.191	0.740
6	0.795	0.000	0.000	0.000	0.141	0.557	2.235	0.335	0.340	1.003	0.566
7	0.711	0.000	0.000	0.000	0.126	0.498	1.998	0.300	0.304	0.896	0.460
8	0.643	0.000	0.000	0.000	0.114	0.450	1.808	0.271	0.275	0.811	0.378
9	0.588	0.000	0.000	0.000	0.104	0.411	1.652	0.248	0.251	0.741	0.314
10	0.541	0.000	0.000	0.000	0.096	0.379	1.520	0.228	0.231	0.682	0.263
11	0.501	0.000	0.000	0.000	0.089	0.350	1.407	0.211	0.189	0.656	0.230
12	0.466	0.000	0.000	0.000	0.083	0.326	1.309	0.196	0.176	0.610	0.194
13	0.435	0.000	0.000	0.000	0.077	0.304	1.222	0.183	0.164	0.570	0.165
14	0.408	0.000	0.000	0.000	0.072	0.285	1.145	0.172	0.154	0.534	0.141
15	0.383	0.000	0.300	0.000	0.068	0.268	1.077	0.162	0.145	0.202	0.048
											NPV = 6.50

Table 41. NPV calculation for “Northeast Core", assuming that the price of gas is constant at $2.8/thousand scf and the price of NGL is $20/boe

Year	Annual gas production Bscf/yr	Annual NGL production million boe	Capital expenditures $ million	Tangible depreciation $ million	Intangible depletion $ million	Operating expenditures $ million	Gross revenues $ million	Royalty rates $ million	Taxation rates $ million	Net cash flow $ million	Present values $ million
0	0.000	0.000	5.500	0.000	0.000	0.000	0.000	0.000	0.000	-5.500	-5.500
1	3.562	0.000	0.000	0.825	0.633	2.493	10.009	1.501	1.317	4.697	4.270
2	1.769	0.000	0.000	0.578	0.314	1.238	4.971	0.746	0.612	2.375	1.963
3	1.298	0.000	0.000	0.404	0.231	0.909	3.648	0.547	0.454	1.738	1.306
4	1.059	0.000	0.000	0.283	0.188	0.741	2.976	0.446	0.382	1.406	0.960
5	0.906	0.000	0.000	0.198	0.161	0.634	2.545	0.382	0.338	1.191	0.740
6	0.795	0.000	0.000	0.000	0.141	0.557	2.235	0.335	0.340	1.003	0.566
7	0.711	0.000	0.000	0.000	0.126	0.498	1.998	0.300	0.304	0.896	0.460
8	0.643	0.000	0.000	0.000	0.114	0.450	1.808	0.271	0.275	0.811	0.378
9	0.588	0.000	0.000	0.000	0.104	0.411	1.652	0.248	0.251	0.741	0.314
10	0.541	0.000	0.000	0.000	0.096	0.379	1.520	0.228	0.231	0.682	0.263
11	0.501	0.000	0.000	0.000	0.089	0.350	1.407	0.211	0.189	0.656	0.230
12	0.466	0.000	0.000	0.000	0.083	0.326	1.309	0.196	0.176	0.610	0.194
13	0.435	0.000	0.000	0.000	0.077	0.304	1.222	0.183	0.164	0.570	0.165
14	0.408	0.000	0.000	0.000	0.072	0.285	1.145	0.172	0.154	0.534	0.141
15	0.383	0.000	0.300	0.000	0.068	0.268	1.077	0.162	0.145	0.202	0.048
											NPV = 6.50

Table 42. NPV calculation for “Northeast Core", assuming that the price of gas is constant at $2.8/thousand scf and the price of NGL is $25/boe

Year	Annual gas production Bscf/yr	Annual NGL production million boe	Capital expenditures $ million	Tangible depreciation $ million	Intangible depletion $ million	Operating expenditures $ million	Gross revenues $ million	Royalty rates $ million	Taxation rates $ million	Net cash flow $ million	Present values $ million
0	0.000	0.000	5.500	0.000	0.000	0.000	0.000	0.000	0.000	-5.500	-5.500
1	3.562	0.000	0.000	0.825	0.633	2.493	10.009	1.501	1.317	4.697	4.270
2	1.769	0.000	0.000	0.578	0.314	1.238	4.971	0.746	0.612	2.375	1.963
3	1.298	0.000	0.000	0.404	0.231	0.909	3.648	0.547	0.454	1.738	1.306
4	1.059	0.000	0.000	0.283	0.188	0.741	2.976	0.446	0.382	1.406	0.960
5	0.906	0.000	0.000	0.198	0.161	0.634	2.545	0.382	0.338	1.191	0.740
6	0.795	0.000	0.000	0.000	0.141	0.557	2.235	0.335	0.340	1.003	0.566
7	0.711	0.000	0.000	0.000	0.126	0.498	1.998	0.300	0.304	0.896	0.460
8	0.643	0.000	0.000	0.000	0.114	0.450	1.808	0.271	0.275	0.811	0.378
9	0.588	0.000	0.000	0.000	0.104	0.411	1.652	0.248	0.251	0.741	0.314
10	0.541	0.000	0.000	0.000	0.096	0.379	1.520	0.228	0.231	0.682	0.263
11	0.501	0.000	0.000	0.000	0.089	0.350	1.407	0.211	0.189	0.656	0.230
12	0.466	0.000	0.000	0.000	0.083	0.326	1.309	0.196	0.176	0.610	0.194
13	0.435	0.000	0.000	0.000	0.077	0.304	1.222	0.183	0.164	0.570	0.165
14	0.408	0.000	0.000	0.000	0.072	0.285	1.145	0.172	0.154	0.534	0.141
15	0.383	0.000	0.300	0.000	0.068	0.268	1.077	0.162	0.145	0.202	0.048
											NPV = 6.50

Table 43. NPV calculation for “Northeast Core", assuming that the price of gas is constant at $2.8/thousand scf and the price of NGL is $30/boe

Year	Annual gas production Bscf/yr	Annual NGL production million boe	Capital expenditures $ million	Tangible depreciation $ million	Intangible depletion $ million	Operating expenditures $ million	Gross revenues $ million	Royalty rates $ million	Taxation rates $ million	Net cash flow $ million	Present values $ million
0	0.000	0.000	5.500	0.000	0.000	0.000	0.000	0.000	0.000	-5.500	-5.500
1	3.562	0.000	0.000	0.825	0.633	2.493	10.009	1.501	1.317	4.697	4.270
2	1.769	0.000	0.000	0.578	0.314	1.238	4.971	0.746	0.612	2.375	1.963
3	1.298	0.000	0.000	0.404	0.231	0.909	3.648	0.547	0.454	1.738	1.306
4	1.059	0.000	0.000	0.283	0.188	0.741	2.976	0.446	0.382	1.406	0.960
5	0.906	0.000	0.000	0.198	0.161	0.634	2.545	0.382	0.338	1.191	0.740
6	0.795	0.000	0.000	0.000	0.141	0.557	2.235	0.335	0.340	1.003	0.566
7	0.711	0.000	0.000	0.000	0.126	0.498	1.998	0.300	0.304	0.896	0.460
8	0.643	0.000	0.000	0.000	0.114	0.450	1.808	0.271	0.275	0.811	0.378
9	0.588	0.000	0.000	0.000	0.104	0.411	1.652	0.248	0.251	0.741	0.314
10	0.541	0.000	0.000	0.000	0.096	0.379	1.520	0.228	0.231	0.682	0.263
11	0.501	0.000	0.000	0.000	0.089	0.350	1.407	0.211	0.189	0.656	0.230
12	0.466	0.000	0.000	0.000	0.083	0.326	1.309	0.196	0.176	0.610	0.194
13	0.435	0.000	0.000	0.000	0.077	0.304	1.222	0.183	0.164	0.570	0.165
14	0.408	0.000	0.000	0.000	0.072	0.285	1.145	0.172	0.154	0.534	0.141
15	0.383	0.000	0.300	0.000	0.068	0.268	1.077	0.162	0.145	0.202	0.048
											NPV = 6.50

Table 44. NPV calculation for “Northeast Core", assuming that the price of gas is constant at $2.8/thousand scf and the price of NGL is $35/boe

Year	Annual gas production Bscf/yr	Annual NGL production million boe	Capital expenditures $ million	Tangible depreciation $ million	Intangible depletion $ million	Operating expenditures $ million	Gross revenues $ million	Royalty rates $ million	Taxation rates $ million	Net cash flow $ million	Present values $ million
0	0.000	0.000	5.500	0.000	0.000	0.000	0.000	0.000	0.000	-5.500	-5.500
1	3.562	0.000	0.000	0.825	0.633	2.493	10.009	1.501	1.317	4.697	4.270
2	1.769	0.000	0.000	0.578	0.314	1.238	4.971	0.746	0.612	2.375	1.963
3	1.298	0.000	0.000	0.404	0.231	0.909	3.648	0.547	0.454	1.738	1.306
4	1.059	0.000	0.000	0.283	0.188	0.741	2.976	0.446	0.382	1.406	0.960
5	0.906	0.000	0.000	0.198	0.161	0.634	2.545	0.382	0.338	1.191	0.740
6	0.795	0.000	0.000	0.000	0.141	0.557	2.235	0.335	0.340	1.003	0.566
7	0.711	0.000	0.000	0.000	0.126	0.498	1.998	0.300	0.304	0.896	0.460
8	0.643	0.000	0.000	0.000	0.114	0.450	1.808	0.271	0.275	0.811	0.378
9	0.588	0.000	0.000	0.000	0.104	0.411	1.652	0.248	0.251	0.741	0.314
10	0.541	0.000	0.000	0.000	0.096	0.379	1.520	0.228	0.231	0.682	0.263
11	0.501	0.000	0.000	0.000	0.089	0.350	1.407	0.211	0.189	0.656	0.230
12	0.466	0.000	0.000	0.000	0.083	0.326	1.309	0.196	0.176	0.610	0.194
13	0.435	0.000	0.000	0.000	0.077	0.304	1.222	0.183	0.164	0.570	0.165
14	0.408	0.000	0.000	0.000	0.072	0.285	1.145	0.172	0.154	0.534	0.141
15	0.383	0.000	0.300	0.000	0.068	0.268	1.077	0.162	0.145	0.202	0.048
											NPV = 6.50

Table 45. NPV calculation for “Northeast Core", assuming that the price of gas is constant at $2.8/thousand scf and the price of NGL is $40/boe

Year	Annual gas production Bscf/yr	Annual NGL production million boe	Capital expenditures $ million	Tangible depreciation $ million	Intangible depletion $ million	Operating expenditures $ million	Gross revenues $ million	Royalty rates $ million	Taxation rates $ million	Net cash flow $ million	Present values $ million
0	0.000	0.000	5.500	0.000	0.000	0.000	0.000	0.000	0.000	-5.500	-5.500
1	3.562	0.000	0.000	0.825	0.633	2.493	10.009	1.501	1.317	4.697	4.270
2	1.769	0.000	0.000	0.578	0.314	1.238	4.971	0.746	0.612	2.375	1.963
3	1.298	0.000	0.000	0.404	0.231	0.909	3.648	0.547	0.454	1.738	1.306
4	1.059	0.000	0.000	0.283	0.188	0.741	2.976	0.446	0.382	1.406	0.960
5	0.906	0.000	0.000	0.198	0.161	0.634	2.545	0.382	0.338	1.191	0.740
6	0.795	0.000	0.000	0.000	0.141	0.557	2.235	0.335	0.340	1.003	0.566
7	0.711	0.000	0.000	0.000	0.126	0.498	1.998	0.300	0.304	0.896	0.460
8	0.643	0.000	0.000	0.000	0.114	0.450	1.808	0.271	0.275	0.811	0.378
9	0.588	0.000	0.000	0.000	0.104	0.411	1.652	0.248	0.251	0.741	0.314
10	0.541	0.000	0.000	0.000	0.096	0.379	1.520	0.228	0.231	0.682	0.263
11	0.501	0.000	0.000	0.000	0.089	0.350	1.407	0.211	0.189	0.656	0.230
12	0.466	0.000	0.000	0.000	0.083	0.326	1.309	0.196	0.176	0.610	0.194
13	0.435	0.000	0.000	0.000	0.077	0.304	1.222	0.183	0.164	0.570	0.165
14	0.408	0.000	0.000	0.000	0.072	0.285	1.145	0.172	0.154	0.534	0.141
15	0.383	0.000	0.300	0.000	0.068	0.268	1.077	0.162	0.145	0.202	0.048
											NPV = 6.50

Table 46. NPV calculation for “Northeast Core", assuming that the price of gas is constant at $2.8/thousand scf and the price of NGL is $45/boe

Year	Annual gas production Bscf/yr	Annual NGL production million boe	Capital expenditures $ million	Tangible depreciation $ million	Intangible depletion $ million	Operating expenditures $ million	Gross revenues $ million	Royalty rates $ million	Taxation rates $ million	Net cash flow $ million	Present values $ million
0	0.000	0.000	5.500	0.000	0.000	0.000	0.000	0.000	0.000	-5.500	-5.500
1	3.562	0.000	0.000	0.825	0.633	2.493	10.009	1.501	1.317	4.697	4.270
2	1.769	0.000	0.000	0.578	0.314	1.238	4.971	0.746	0.612	2.375	1.963
3	1.298	0.000	0.000	0.404	0.231	0.909	3.648	0.547	0.454	1.738	1.306
4	1.059	0.000	0.000	0.283	0.188	0.741	2.976	0.446	0.382	1.406	0.960
5	0.906	0.000	0.000	0.198	0.161	0.634	2.545	0.382	0.338	1.191	0.740
6	0.795	0.000	0.000	0.000	0.141	0.557	2.235	0.335	0.340	1.003	0.566
7	0.711	0.000	0.000	0.000	0.126	0.498	1.998	0.300	0.304	0.896	0.460
8	0.643	0.000	0.000	0.000	0.114	0.450	1.808	0.271	0.275	0.811	0.378
9	0.588	0.000	0.000	0.000	0.104	0.411	1.652	0.248	0.251	0.741	0.314
10	0.541	0.000	0.000	0.000	0.096	0.379	1.520	0.228	0.231	0.682	0.263
11	0.501	0.000	0.000	0.000	0.089	0.350	1.407	0.211	0.189	0.656	0.230
12	0.466	0.000	0.000	0.000	0.083	0.326	1.309	0.196	0.176	0.610	0.194
13	0.435	0.000	0.000	0.000	0.077	0.304	1.222	0.183	0.164	0.570	0.165
14	0.408	0.000	0.000	0.000	0.072	0.285	1.145	0.172	0.154	0.534	0.141
15	0.383	0.000	0.300	0.000	0.068	0.268	1.077	0.162	0.145	0.202	0.048
											NPV = 6.50

Table 47. NPV calculation for “Southwest Core", assuming that the price of gas is constant at $2.8/thousand scf and the price of NGL is $5/boe

Year	Annual gas production Bscf/yr	Annual NGL production million boe	Capital expenditures $ million	Tangible depreciation $ million	Intangible depletion $ million	Operating expenditures $ million	Gross revenues $ million	Royalty rates $ million	Taxation rates $ million	Net cash flow $ million	Present values $ million
0	0.000	0.000	5.500	0.000	0.000	0.000	0.000	0.000	0.000	-5.500	-5.500
1	2.683	0.023	0.000	0.825	0.663	1.974	7.653	1.148	0.902	3.630	3.300
2	1.434	0.012	0.000	0.578	0.354	1.055	4.091	0.614	0.448	1.974	1.632
3	1.018	0.009	0.000	0.404	0.252	0.749	2.905	0.436	0.320	1.400	1.052
4	0.812	0.007	0.000	0.283	0.201	0.598	2.317	0.348	0.265	1.107	0.756
5	0.681	0.006	0.000	0.198	0.168	0.501	1.944	0.292	0.232	0.919	0.571
6	0.588	0.005	0.000	0.000	0.145	0.433	1.677	0.252	0.243	0.750	0.424
7	0.517	0.004	0.000	0.000	0.128	0.380	1.475	0.221	0.214	0.660	0.339
8	0.461	0.004	0.000	0.000	0.114	0.339	1.314	0.197	0.166	0.612	0.286
9	0.415	0.004	0.000	0.000	0.102	0.305	1.183	0.177	0.150	0.551	0.234
10	0.376	0.003	0.000	0.000	0.093	0.277	1.073	0.161	0.136	0.500	0.193
11	0.344	0.003	0.000	0.000	0.085	0.253	0.980	0.147	0.124	0.457	0.160
12	0.315	0.003	0.000	0.000	0.078	0.232	0.900	0.135	0.114	0.419	0.134
13	0.291	0.002	0.000	0.000	0.072	0.214	0.830	0.125	0.105	0.387	0.112
14	0.181	0.002	0.000	0.000	0.045	0.133	0.516	0.077	0.065	0.240	0.063
15	0.000	0.000	0.300	0.000	0.000	0.000	0.000	0.000	0.000	-0.300	-0.072
											NPV = 3.68

Table 48. NPV calculation for “Southwest Core", assuming that the price of gas is constant at $2.8/thousand scf and the price of NGL is $10/boe

Year	Annual gas production Bscf/yr	Annual NGL production million boe	Capital expenditures $ million	Tangible depreciation $ million	Intangible depletion $ million	Operating expenditures $ million	Gross revenues $ million	Royalty rates $ million	Taxation rates $ million	Net cash flow $ million	Present values $ million
0	0.000	0.000	5.500	0.000	0.000	0.000	0.000	0.000	0.000	-5.500	-5.500
1	2.683	0.023	0.000	0.825	0.663	1.974	7.767	1.165	0.926	3.702	3.366
2	1.434	0.012	0.000	0.578	0.354	1.055	4.152	0.623	0.461	2.013	1.664
3	1.018	0.009	0.000	0.404	0.252	0.749	2.948	0.442	0.329	1.428	1.073
4	0.812	0.007	0.000	0.283	0.201	0.598	2.352	0.353	0.272	1.129	0.771
5	0.681	0.006	0.000	0.198	0.168	0.501	1.973	0.296	0.238	0.937	0.582
6	0.588	0.005	0.000	0.000	0.145	0.433	1.702	0.255	0.248	0.766	0.433
7	0.517	0.004	0.000	0.000	0.128	0.380	1.497	0.225	0.218	0.674	0.346
8	0.461	0.004	0.000	0.000	0.114	0.339	1.334	0.200	0.170	0.625	0.291
9	0.415	0.004	0.000	0.000	0.102	0.305	1.201	0.180	0.153	0.562	0.238
10	0.376	0.003	0.000	0.000	0.093	0.277	1.089	0.163	0.139	0.510	0.197
11	0.344	0.003	0.000	0.000	0.085	0.253	0.995	0.149	0.127	0.466	0.163
12	0.315	0.003	0.000	0.000	0.078	0.232	0.913	0.137	0.117	0.428	0.136
13	0.291	0.002	0.000	0.000	0.072	0.214	0.842	0.126	0.108	0.394	0.114
14	0.181	0.002	0.000	0.000	0.045	0.133	0.523	0.078	0.067	0.245	0.065
15	0.000	0.000	0.300	0.000	0.000	0.000	0.000	0.000	0.000	-0.300	-0.072
											NPV = 3.87

Table 49. NPV calculation for “Southwest Core", assuming that the price of gas is constant at $2.8/thousand scf and the price of NGL is $15/boe

Year	Annual gas production Bscf/yr	Annual NGL production million boe	Capital expenditures $ million	Tangible depreciation $ million	Intangible depletion $ million	Operating expenditures $ million	Gross revenues $ million	Royalty rates $ million	Taxation rates $ million	Net cash flow $ million	Present values $ million
0	0.000	0.000	5.500	0.000	0.000	0.000	0.000	0.000	0.000	-5.500	-5.500
1	2.683	0.023	0.000	0.825	0.663	1.974	7.881	1.182	0.950	3.775	3.432
2	1.434	0.012	0.000	0.578	0.354	1.055	4.213	0.632	0.474	2.052	1.696
3	1.018	0.009	0.000	0.404	0.252	0.749	2.991	0.449	0.338	1.456	1.094
4	0.812	0.007	0.000	0.283	0.201	0.598	2.386	0.358	0.279	1.151	0.786
5	0.681	0.006	0.000	0.198	0.168	0.501	2.002	0.300	0.244	0.956	0.593
6	0.588	0.005	0.000	0.000	0.145	0.433	1.727	0.259	0.253	0.782	0.442
7	0.517	0.004	0.000	0.000	0.128	0.380	1.519	0.228	0.223	0.688	0.353
8	0.461	0.004	0.000	0.000	0.114	0.339	1.353	0.203	0.174	0.637	0.297
9	0.415	0.004	0.000	0.000	0.102	0.305	1.218	0.183	0.157	0.573	0.243
10	0.376	0.003	0.000	0.000	0.093	0.277	1.105	0.166	0.142	0.520	0.201
11	0.344	0.003	0.000	0.000	0.085	0.253	1.009	0.151	0.130	0.475	0.167
12	0.315	0.003	0.000	0.000	0.078	0.232	0.927	0.139	0.119	0.436	0.139
13	0.291	0.002	0.000	0.000	0.072	0.214	0.855	0.128	0.110	0.402	0.117
14	0.181	0.002	0.000	0.000	0.045	0.133	0.531	0.080	0.068	0.250	0.066
15	0.000	0.000	0.300	0.000	0.000	0.000	0.000	0.000	0.000	-0.300	-0.072
											NPV = 4.05

Table 50. NPV calculation for “Southwest Core", assuming that the price of gas is constant at $2.8/thousand scf and the price of NGL is $20/boe

Year	Annual gas production Bscf/yr	Annual NGL production million boe	Capital expenditures $ million	Tangible depreciation $ million	Intangible depletion $ million	Operating expenditures $ million	Gross revenues $ million	Royalty rates $ million	Taxation rates $ million	Net cash flow $ million	Present values $ million
0	0.000	0.000	5.500	0.000	0.000	0.000	0.000	0.000	0.000	-5.500	-5.500
1	2.683	0.023	0.000	0.825	0.663	1.974	7.995	1.199	0.974	3.847	3.498
2	1.434	0.012	0.000	0.578	0.354	1.055	4.274	0.641	0.487	2.091	1.728
3	1.018	0.009	0.000	0.404	0.252	0.749	3.034	0.455	0.347	1.483	1.114
4	0.812	0.007	0.000	0.283	0.201	0.598	2.421	0.363	0.287	1.173	0.801
5	0.681	0.006	0.000	0.198	0.168	0.501	2.030	0.305	0.250	0.974	0.605
6	0.588	0.005	0.000	0.000	0.145	0.433	1.752	0.263	0.259	0.798	0.450
7	0.517	0.004	0.000	0.000	0.128	0.380	1.541	0.231	0.228	0.702	0.360
8	0.461	0.004	0.000	0.000	0.114	0.339	1.373	0.206	0.179	0.650	0.303
9	0.415	0.004	0.000	0.000	0.102	0.305	1.236	0.185	0.161	0.585	0.248
10	0.376	0.003	0.000	0.000	0.093	0.277	1.121	0.168	0.146	0.530	0.205
11	0.344	0.003	0.000	0.000	0.085	0.253	1.024	0.154	0.133	0.484	0.170
12	0.315	0.003	0.000	0.000	0.078	0.232	0.940	0.141	0.122	0.445	0.142
13	0.291	0.002	0.000	0.000	0.072	0.214	0.867	0.130	0.113	0.410	0.119
14	0.181	0.002	0.000	0.000	0.045	0.133	0.539	0.081	0.070	0.255	0.067
15	0.000	0.000	0.300	0.000	0.000	0.000	0.000	0.000	0.000	-0.300	-0.072
											NPV = 4.24

Table 51. NPV calculation for “Southwest Core", assuming that the price of gas is constant at $2.8/thousand scf and the price of NGL is $25/boe

Year	Annual gas production Bscf/yr	Annual NGL production million boe	Capital expenditures $ million	Tangible depreciation $ million	Intangible depletion $ million	Operating expenditures $ million	Gross revenues $ million	Royalty rates $ million	Taxation rates $ million	Net cash flow $ million	Present values $ million
0	0.000	0.000	5.500	0.000	0.000	0.000	0.000	0.000	0.000	-5.500	-5.500
1	2.683	0.023	0.000	0.825	0.663	1.974	8.109	1.216	0.999	3.920	3.564
2	1.434	0.012	0.000	0.578	0.354	1.055	4.335	0.650	0.500	2.130	1.760
3	1.018	0.009	0.000	0.404	0.252	0.749	3.078	0.462	0.356	1.511	1.135
4	0.812	0.007	0.000	0.283	0.201	0.598	2.455	0.368	0.294	1.195	0.816
5	0.681	0.006	0.000	0.198	0.168	0.501	2.059	0.309	0.256	0.993	0.616
6	0.588	0.005	0.000	0.000	0.145	0.433	1.777	0.267	0.264	0.814	0.459
7	0.517	0.004	0.000	0.000	0.128	0.380	1.563	0.234	0.232	0.716	0.367
8	0.461	0.004	0.000	0.000	0.114	0.339	1.393	0.209	0.183	0.662	0.309
9	0.415	0.004	0.000	0.000	0.102	0.305	1.253	0.188	0.164	0.596	0.253
10	0.376	0.003	0.000	0.000	0.093	0.277	1.137	0.171	0.149	0.541	0.208
11	0.344	0.003	0.000	0.000	0.085	0.253	1.038	0.156	0.136	0.494	0.173
12	0.315	0.003	0.000	0.000	0.078	0.232	0.953	0.143	0.125	0.453	0.144
13	0.291	0.002	0.000	0.000	0.072	0.214	0.879	0.132	0.115	0.418	0.121
14	0.181	0.002	0.000	0.000	0.045	0.133	0.546	0.082	0.072	0.260	0.068
15	0.000	0.000	0.300	0.000	0.000	0.000	0.000	0.000	0.000	-0.300	-0.072
											NPV = 4.42

Table 52. NPV calculation for “Southwest Core", assuming that the price of gas is constant at $2.8/thousand scf and the price of NGL is $30/boe

Year	Annual gas production Bscf/yr	Annual NGL production million boe	Capital expenditures $ million	Tangible depreciation $ million	Intangible depletion $ million	Operating expenditures $ million	Gross revenues $ million	Royalty rates $ million	Taxation rates $ million	Net cash flow $ million	Present values $ million
0	0.000	0.000	5.500	0.000	0.000	0.000	0.000	0.000	0.000	-5.500	-5.500
1	2.683	0.023	0.000	0.825	0.663	1.974	8.223	1.233	1.023	3.993	3.630
2	1.434	0.012	0.000	0.578	0.354	1.055	4.396	0.659	0.513	2.168	1.792
3	1.018	0.009	0.000	0.404	0.252	0.749	3.121	0.468	0.365	1.538	1.156
4	0.812	0.007	0.000	0.283	0.201	0.598	2.490	0.373	0.301	1.217	0.831
5	0.681	0.006	0.000	0.198	0.168	0.501	2.088	0.313	0.263	1.011	0.628
6	0.588	0.005	0.000	0.000	0.145	0.433	1.802	0.270	0.269	0.830	0.468
7	0.517	0.004	0.000	0.000	0.128	0.380	1.585	0.238	0.237	0.730	0.374
8	0.461	0.004	0.000	0.000	0.114	0.339	1.412	0.212	0.187	0.674	0.315
9	0.415	0.004	0.000	0.000	0.102	0.305	1.271	0.191	0.168	0.607	0.257
10	0.376	0.003	0.000	0.000	0.093	0.277	1.153	0.173	0.153	0.551	0.212
11	0.344	0.003	0.000	0.000	0.085	0.253	1.053	0.158	0.139	0.503	0.176
12	0.315	0.003	0.000	0.000	0.078	0.232	0.967	0.145	0.128	0.462	0.147
13	0.291	0.002	0.000	0.000	0.072	0.214	0.892	0.134	0.118	0.426	0.123
14	0.181	0.002	0.000	0.000	0.045	0.133	0.554	0.083	0.073	0.265	0.070
15	0.000	0.000	0.300	0.000	0.000	0.000	0.000	0.000	0.000	-0.300	-0.072
											NPV = 4.61

Table 53. NPV calculation for “Southwest Core", assuming that the price of gas is constant at $2.8/thousand scf and the price of NGL is $35/boe

Year	Annual gas production Bscf/yr	Annual NGL production million boe	Capital expenditures $ million	Tangible depreciation $ million	Intangible depletion $ million	Operating expenditures $ million	Gross revenues $ million	Royalty rates $ million	Taxation rates $ million	Net cash flow $ million	Present values $ million
0	0.000	0.000	5.500	0.000	0.000	0.000	0.000	0.000	0.000	-5.500	-5.500
1	2.683	0.023	0.000	0.825	0.663	1.974	8.336	1.250	1.047	4.065	3.696
2	1.434	0.012	0.000	0.578	0.354	1.055	4.456	0.668	0.526	2.207	1.824
3	1.018	0.009	0.000	0.404	0.252	0.749	3.164	0.475	0.375	1.566	1.176
4	0.812	0.007	0.000	0.283	0.201	0.598	2.524	0.379	0.309	1.239	0.846
5	0.681	0.006	0.000	0.198	0.168	0.501	2.117	0.318	0.269	1.030	0.639
6	0.588	0.005	0.000	0.000	0.145	0.433	1.827	0.274	0.275	0.846	0.477
7	0.517	0.004	0.000	0.000	0.128	0.380	1.607	0.241	0.242	0.744	0.382
8	0.461	0.004	0.000	0.000	0.114	0.339	1.432	0.215	0.191	0.687	0.320
9	0.415	0.004	0.000	0.000	0.102	0.305	1.289	0.193	0.172	0.618	0.262
10	0.376	0.003	0.000	0.000	0.093	0.277	1.169	0.175	0.156	0.561	0.216
11	0.344	0.003	0.000	0.000	0.085	0.253	1.068	0.160	0.142	0.512	0.180
12	0.315	0.003	0.000	0.000	0.078	0.232	0.980	0.147	0.131	0.470	0.150
13	0.291	0.002	0.000	0.000	0.072	0.214	0.904	0.136	0.121	0.434	0.126
14	0.181	0.002	0.000	0.000	0.045	0.133	0.562	0.084	0.075	0.269	0.071
15	0.000	0.000	0.300	0.000	0.000	0.000	0.000	0.000	0.000	-0.300	-0.072
											NPV = 4.79

Table 54. NPV calculation for “Southwest Core", assuming that the price of gas is constant at $2.8/thousand scf and the price of NGL is $40/boe

Year	Annual gas production Bscf/yr	Annual NGL production million boe	Capital expenditures $ million	Tangible depreciation $ million	Intangible depletion $ million	Operating expenditures $ million	Gross revenues $ million	Royalty rates $ million	Taxation rates $ million	Net cash flow $ million	Present values $ million
0	0.000	0.000	5.500	0.000	0.000	0.000	0.000	0.000	0.000	-5.500	-5.500
1	2.683	0.023	0.000	0.825	0.663	1.974	8.450	1.268	1.071	4.138	3.761
2	1.434	0.012	0.000	0.578	0.354	1.055	4.517	0.678	0.539	2.246	1.856
3	1.018	0.009	0.000	0.404	0.252	0.749	3.207	0.481	0.384	1.593	1.197
4	0.812	0.007	0.000	0.283	0.201	0.598	2.559	0.384	0.316	1.261	0.861
5	0.681	0.006	0.000	0.198	0.168	0.501	2.146	0.322	0.275	1.048	0.651
6	0.588	0.005	0.000	0.000	0.145	0.433	1.852	0.278	0.280	0.862	0.486
7	0.517	0.004	0.000	0.000	0.128	0.380	1.629	0.244	0.246	0.758	0.389
8	0.461	0.004	0.000	0.000	0.114	0.339	1.451	0.218	0.195	0.699	0.326
9	0.415	0.004	0.000	0.000	0.102	0.305	1.306	0.196	0.176	0.630	0.267
10	0.376	0.003	0.000	0.000	0.093	0.277	1.185	0.178	0.159	0.571	0.220
11	0.344	0.003	0.000	0.000	0.085	0.253	1.082	0.162	0.146	0.522	0.183
12	0.315	0.003	0.000	0.000	0.078	0.232	0.994	0.149	0.134	0.479	0.153
13	0.291	0.002	0.000	0.000	0.072	0.214	0.916	0.137	0.123	0.442	0.128
14	0.181	0.002	0.000	0.000	0.045	0.133	0.569	0.085	0.077	0.274	0.072
15	0.000	0.000	0.300	0.000	0.000	0.000	0.000	0.000	0.000	-0.300	-0.072
											NPV = 4.98

Table 55. NPV calculation for “Southwest Core", assuming that the price of gas is constant at $2.8/thousand scf and the price of NGL is $45/boe

Year	Annual gas production Bscf/yr	Annual NGL production million boe	Capital expenditures $ million	Tangible depreciation $ million	Intangible depletion $ million	Operating expenditures $ million	Gross revenues $ million	Royalty rates $ million	Taxation rates $ million	Net cash flow $ million	Present values $ million
0	0.000	0.000	5.500	0.000	0.000	0.000	0.000	0.000	0.000	-5.500	-5.500
1	2.683	0.023	0.000	0.825	0.663	1.974	8.564	1.285	1.095	4.210	3.827
2	1.434	0.012	0.000	0.578	0.354	1.055	4.578	0.687	0.551	2.285	1.888
3	1.018	0.009	0.000	0.404	0.252	0.749	3.250	0.488	0.393	1.621	1.218
4	0.812	0.007	0.000	0.283	0.201	0.598	2.593	0.389	0.323	1.283	0.876
5	0.681	0.006	0.000	0.198	0.168	0.501	2.175	0.326	0.281	1.066	0.662
6	0.588	0.005	0.000	0.000	0.145	0.433	1.877	0.282	0.285	0.878	0.495
7	0.517	0.004	0.000	0.000	0.128	0.380	1.650	0.248	0.251	0.772	0.396
8	0.461	0.004	0.000	0.000	0.114	0.339	1.471	0.221	0.199	0.712	0.332
9	0.415	0.004	0.000	0.000	0.102	0.305	1.324	0.199	0.179	0.641	0.272
10	0.376	0.003	0.000	0.000	0.093	0.277	1.201	0.180	0.163	0.581	0.224
11	0.344	0.003	0.000	0.000	0.085	0.253	1.097	0.165	0.149	0.531	0.186
12	0.315	0.003	0.000	0.000	0.078	0.232	1.007	0.151	0.136	0.487	0.155
13	0.291	0.002	0.000	0.000	0.072	0.214	0.929	0.139	0.126	0.450	0.130
14	0.181	0.002	0.000	0.000	0.045	0.133	0.577	0.087	0.078	0.279	0.074
15	0.000	0.000	0.300	0.000	0.000	0.000	0.000	0.000	0.000	-0.300	-0.072
											NPV = 5.16

Table 56. NPV calculation for “Marcellus Noncore", assuming that the price of gas is constant at $2.8/thousand scf and the price of NGL is $5/boe

Year	Annual gas production Bscf/yr	Annual NGL production million boe	Capital expenditures $ million	Tangible depreciation $ million	Intangible depletion $ million	Operating expenditures $ million	Gross revenues $ million	Royalty rates $ million	Taxation rates $ million	Net cash flow $ million	Present values $ million
0	0.000	0.000	5.500	0.000	0.000	0.000	0.000	0.000	0.000	-5.500	-5.500
1	1.093	0.001	0.000	0.825	0.545	0.769	3.076	0.461	0.174	1.672	1.520
2	0.733	0.001	0.000	0.578	0.365	0.516	2.062	0.309	0.110	1.127	0.931
3	0.509	0.000	0.000	0.404	0.254	0.358	1.433	0.215	0.050	0.809	0.608
4	0.408	0.000	0.000	0.283	0.203	0.287	1.147	0.172	0.051	0.638	0.436
5	0.345	0.000	0.000	0.198	0.172	0.243	0.971	0.146	0.053	0.529	0.329
6	0.301	0.000	0.000	0.000	0.150	0.212	0.847	0.127	0.090	0.419	0.236
7	0.268	0.000	0.000	0.000	0.133	0.188	0.754	0.113	0.080	0.372	0.191
8	0.241	0.000	0.000	0.000	0.120	0.170	0.679	0.102	0.072	0.336	0.157
9	0.220	0.000	0.000	0.000	0.110	0.155	0.619	0.093	0.065	0.306	0.130
10	0.202	0.000	0.000	0.000	0.101	0.142	0.568	0.085	0.060	0.281	0.108
11	0.186	0.000	0.000	0.000	0.093	0.131	0.524	0.079	0.055	0.259	0.091
12	0.173	0.000	0.000	0.000	0.086	0.122	0.487	0.073	0.051	0.241	0.077
13	0.161	0.000	0.000	0.000	0.080	0.113	0.454	0.068	0.048	0.224	0.065
14	0.151	0.000	0.000	0.000	0.075	0.106	0.425	0.064	0.045	0.210	0.055
15	0.024	0.000	0.300	0.000	0.012	0.017	0.067	0.010	0.007	-0.267	-0.064
											NPV = -0.63

Table 57. NPV calculation for “Marcellus Noncore", assuming that the price of gas is constant at $2.8/thousand scf and the price of NGL is $10/boe

Year	Annual gas production Bscf/yr	Annual NGL production million boe	Capital expenditures $ million	Tangible depreciation $ million	Intangible depletion $ million	Operating expenditures $ million	Gross revenues $ million	Royalty rates $ million	Taxation rates $ million	Net cash flow $ million	Present values $ million
0	0.000	0.000	5.500	0.000	0.000	0.000	0.000	0.000	0.000	-5.500	-5.500
1	1.093	0.001	0.000	0.825	0.545	0.769	3.081	0.462	0.175	1.675	1.523
2	0.733	0.001	0.000	0.578	0.365	0.516	2.066	0.310	0.111	1.129	0.933
3	0.509	0.000	0.000	0.404	0.254	0.358	1.435	0.215	0.051	0.811	0.609
4	0.408	0.000	0.000	0.283	0.203	0.287	1.149	0.172	0.051	0.639	0.436
5	0.345	0.000	0.000	0.198	0.172	0.243	0.972	0.146	0.053	0.530	0.329
6	0.301	0.000	0.000	0.000	0.150	0.212	0.848	0.127	0.090	0.420	0.237
7	0.268	0.000	0.000	0.000	0.133	0.188	0.755	0.113	0.080	0.373	0.192
8	0.241	0.000	0.000	0.000	0.120	0.170	0.680	0.102	0.072	0.336	0.157
9	0.220	0.000	0.000	0.000	0.110	0.155	0.620	0.093	0.066	0.306	0.130
10	0.202	0.000	0.000	0.000	0.101	0.142	0.569	0.085	0.060	0.281	0.108
11	0.186	0.000	0.000	0.000	0.093	0.131	0.525	0.079	0.056	0.260	0.091
12	0.173	0.000	0.000	0.000	0.086	0.122	0.488	0.073	0.052	0.241	0.077
13	0.161	0.000	0.000	0.000	0.080	0.113	0.455	0.068	0.048	0.225	0.065
14	0.151	0.000	0.000	0.000	0.075	0.106	0.425	0.064	0.045	0.210	0.055
15	0.024	0.000	0.300	0.000	0.012	0.017	0.068	0.010	0.007	-0.267	-0.064
											NPV = -0.62

Table 58. NPV calculation for “Marcellus Noncore", assuming that the price of gas is constant at $2.8/thousand scf and the price of NGL is $15/boe

Year	Annual gas production Bscf/yr	Annual NGL production million boe	Capital expenditures $ million	Tangible depreciation $ million	Intangible depletion $ million	Operating expenditures $ million	Gross revenues $ million	Royalty rates $ million	Taxation rates $ million	Net cash flow $ million	Present values $ million
0	0.000	0.000	5.500	0.000	0.000	0.000	0.000	0.000	0.000	-5.500	-5.500
1	1.093	0.001	0.000	0.825	0.545	0.769	3.086	0.463	0.176	1.678	1.525
2	0.733	0.001	0.000	0.578	0.365	0.516	2.069	0.310	0.112	1.131	0.935
3	0.509	0.000	0.000	0.404	0.254	0.358	1.438	0.216	0.051	0.812	0.610
4	0.408	0.000	0.000	0.283	0.203	0.287	1.151	0.173	0.051	0.640	0.437
5	0.345	0.000	0.000	0.198	0.172	0.243	0.974	0.146	0.054	0.531	0.330
6	0.301	0.000	0.000	0.000	0.150	0.212	0.850	0.127	0.090	0.420	0.237
7	0.268	0.000	0.000	0.000	0.133	0.188	0.756	0.113	0.080	0.374	0.192
8	0.241	0.000	0.000	0.000	0.120	0.170	0.682	0.102	0.072	0.337	0.157
9	0.220	0.000	0.000	0.000	0.110	0.155	0.621	0.093	0.066	0.307	0.130
10	0.202	0.000	0.000	0.000	0.101	0.142	0.570	0.085	0.060	0.282	0.109
11	0.186	0.000	0.000	0.000	0.093	0.131	0.526	0.079	0.056	0.260	0.091
12	0.173	0.000	0.000	0.000	0.086	0.122	0.488	0.073	0.052	0.242	0.077
13	0.161	0.000	0.000	0.000	0.080	0.113	0.455	0.068	0.048	0.225	0.065
14	0.151	0.000	0.000	0.000	0.075	0.106	0.426	0.064	0.045	0.211	0.055
15	0.024	0.000	0.300	0.000	0.012	0.017	0.068	0.010	0.007	-0.267	-0.064
											NPV = -0.61

Table 59. NPV calculation for “Marcellus Noncore", assuming that the price of gas is constant at $2.8/thousand scf and the price of NGL is $20/boe

Year	Annual gas production Bscf/yr	Annual NGL production million boe	Capital expenditures $ million	Tangible depreciation $ million	Intangible depletion $ million	Operating expenditures $ million	Gross revenues $ million	Royalty rates $ million	Taxation rates $ million	Net cash flow $ million	Present values $ million
0	0.000	0.000	5.500	0.000	0.000	0.000	0.000	0.000	0.000	-5.500	-5.500
1	1.093	0.001	0.000	0.825	0.545	0.769	3.091	0.464	0.177	1.681	1.528
2	0.733	0.001	0.000	0.578	0.365	0.516	2.072	0.311	0.113	1.133	0.936
3	0.509	0.000	0.000	0.404	0.254	0.358	1.440	0.216	0.052	0.814	0.611
4	0.408	0.000	0.000	0.283	0.203	0.287	1.153	0.173	0.052	0.641	0.438
5	0.345	0.000	0.000	0.198	0.172	0.243	0.976	0.146	0.054	0.532	0.331
6	0.301	0.000	0.000	0.000	0.150	0.212	0.851	0.128	0.090	0.421	0.238
7	0.268	0.000	0.000	0.000	0.133	0.188	0.757	0.114	0.080	0.375	0.192
8	0.241	0.000	0.000	0.000	0.120	0.170	0.683	0.102	0.072	0.338	0.158
9	0.220	0.000	0.000	0.000	0.110	0.155	0.622	0.093	0.066	0.308	0.130
10	0.202	0.000	0.000	0.000	0.101	0.142	0.571	0.086	0.061	0.282	0.109
11	0.186	0.000	0.000	0.000	0.093	0.131	0.527	0.079	0.056	0.261	0.091
12	0.173	0.000	0.000	0.000	0.086	0.122	0.489	0.073	0.052	0.242	0.077
13	0.161	0.000	0.000	0.000	0.080	0.113	0.456	0.068	0.048	0.226	0.065
14	0.151	0.000	0.000	0.000	0.075	0.106	0.427	0.064	0.045	0.211	0.056
15	0.024	0.000	0.300	0.000	0.012	0.017	0.068	0.010	0.007	-0.266	-0.064
											NPV = -0.60

Table 60. NPV calculation for “Marcellus Noncore", assuming that the price of gas is constant at $2.8/thousand scf and the price of NGL is $25/boe

Year	Annual gas production Bscf/yr	Annual NGL production million boe	Capital expenditures $ million	Tangible depreciation $ million	Intangible depletion $ million	Operating expenditures $ million	Gross revenues $ million	Royalty rates $ million	Taxation rates $ million	Net cash flow $ million	Present values $ million
0	0.000	0.000	5.500	0.000	0.000	0.000	0.000	0.000	0.000	-5.500	-5.500
1	1.093	0.001	0.000	0.825	0.545	0.769	3.095	0.464	0.178	1.684	1.531
2	0.733	0.001	0.000	0.578	0.365	0.516	2.075	0.311	0.113	1.135	0.938
3	0.509	0.000	0.000	0.404	0.254	0.358	1.442	0.216	0.052	0.815	0.612
4	0.408	0.000	0.000	0.283	0.203	0.287	1.154	0.173	0.052	0.642	0.439
5	0.345	0.000	0.000	0.198	0.172	0.243	0.977	0.147	0.054	0.533	0.331
6	0.301	0.000	0.000	0.000	0.150	0.212	0.852	0.128	0.091	0.422	0.238
7	0.268	0.000	0.000	0.000	0.133	0.188	0.758	0.114	0.081	0.375	0.193
8	0.241	0.000	0.000	0.000	0.120	0.170	0.684	0.103	0.073	0.339	0.158
9	0.220	0.000	0.000	0.000	0.110	0.155	0.623	0.093	0.066	0.308	0.131
10	0.202	0.000	0.000	0.000	0.101	0.142	0.571	0.086	0.061	0.283	0.109
11	0.186	0.000	0.000	0.000	0.093	0.131	0.528	0.079	0.056	0.261	0.092
12	0.173	0.000	0.000	0.000	0.086	0.122	0.490	0.073	0.052	0.243	0.077
13	0.161	0.000	0.000	0.000	0.080	0.113	0.457	0.069	0.049	0.226	0.066
14	0.151	0.000	0.000	0.000	0.075	0.106	0.427	0.064	0.045	0.212	0.056
15	0.024	0.000	0.300	0.000	0.012	0.017	0.068	0.010	0.007	-0.266	-0.064
											NPV = -0.59

Table 61. NPV calculation for “Marcellus Noncore", assuming that the price of gas is constant at $2.8/thousand scf and the price of NGL is $30/boe

Year	Annual gas production Bscf/yr	Annual NGL production million boe	Capital expenditures $ million	Tangible depreciation $ million	Intangible depletion $ million	Operating expenditures $ million	Gross revenues $ million	Royalty rates $ million	Taxation rates $ million	Net cash flow $ million	Present values $ million
0	0.000	0.000	5.500	0.000	0.000	0.000	0.000	0.000	0.000	-5.500	-5.500
1	1.093	0.001	0.000	0.825	0.545	0.769	3.100	0.465	0.179	1.687	1.534
2	0.733	0.001	0.000	0.578	0.365	0.516	2.078	0.312	0.114	1.137	0.940
3	0.509	0.000	0.000	0.404	0.254	0.358	1.444	0.217	0.053	0.817	0.613
4	0.408	0.000	0.000	0.283	0.203	0.287	1.156	0.173	0.052	0.644	0.440
5	0.345	0.000	0.000	0.198	0.172	0.243	0.979	0.147	0.055	0.534	0.332
6	0.301	0.000	0.000	0.000	0.150	0.212	0.854	0.128	0.091	0.423	0.239
7	0.268	0.000	0.000	0.000	0.133	0.188	0.759	0.114	0.081	0.376	0.193
8	0.241	0.000	0.000	0.000	0.120	0.170	0.685	0.103	0.073	0.339	0.158
9	0.220	0.000	0.000	0.000	0.110	0.155	0.624	0.094	0.066	0.309	0.131
10	0.202	0.000	0.000	0.000	0.101	0.142	0.572	0.086	0.061	0.284	0.109
11	0.186	0.000	0.000	0.000	0.093	0.131	0.529	0.079	0.056	0.262	0.092
12	0.173	0.000	0.000	0.000	0.086	0.122	0.491	0.074	0.052	0.243	0.077
13	0.161	0.000	0.000	0.000	0.080	0.113	0.457	0.069	0.049	0.227	0.066
14	0.151	0.000	0.000	0.000	0.075	0.106	0.428	0.064	0.046	0.212	0.056
15	0.024	0.000	0.300	0.000	0.012	0.017	0.068	0.010	0.007	-0.266	-0.064
											NPV = -0.58

Table 62. NPV calculation for “Marcellus Noncore", assuming that the price of gas is constant at $2.8/thousand scf and the price of NGL is $35/boe

Year	Annual gas production Bscf/yr	Annual NGL production million boe	Capital expenditures $ million	Tangible depreciation $ million	Intangible depletion $ million	Operating expenditures $ million	Gross revenues $ million	Royalty rates $ million	Taxation rates $ million	Net cash flow $ million	Present values $ million
0	0.000	0.000	5.500	0.000	0.000	0.000	0.000	0.000	0.000	-5.500	-5.500
1	1.093	0.001	0.000	0.825	0.545	0.769	3.105	0.466	0.180	1.690	1.536
2	0.733	0.001	0.000	0.578	0.365	0.516	2.082	0.312	0.115	1.139	0.941
3	0.509	0.000	0.000	0.404	0.254	0.358	1.447	0.217	0.053	0.818	0.615
4	0.408	0.000	0.000	0.283	0.203	0.287	1.158	0.174	0.053	0.645	0.440
5	0.345	0.000	0.000	0.198	0.172	0.243	0.980	0.147	0.055	0.535	0.332
6	0.301	0.000	0.000	0.000	0.150	0.212	0.855	0.128	0.091	0.424	0.239
7	0.268	0.000	0.000	0.000	0.133	0.188	0.761	0.114	0.081	0.377	0.193
8	0.241	0.000	0.000	0.000	0.120	0.170	0.686	0.103	0.073	0.340	0.159
9	0.220	0.000	0.000	0.000	0.110	0.155	0.625	0.094	0.067	0.310	0.131
10	0.202	0.000	0.000	0.000	0.101	0.142	0.573	0.086	0.061	0.284	0.110
11	0.186	0.000	0.000	0.000	0.093	0.131	0.529	0.079	0.056	0.262	0.092
12	0.173	0.000	0.000	0.000	0.086	0.122	0.491	0.074	0.052	0.244	0.078
13	0.161	0.000	0.000	0.000	0.080	0.113	0.458	0.069	0.049	0.227	0.066
14	0.151	0.000	0.000	0.000	0.075	0.106	0.429	0.064	0.046	0.212	0.056
15	0.024	0.000	0.300	0.000	0.012	0.017	0.068	0.010	0.007	-0.266	-0.064
											NPV = -0.58

Table 63. NPV calculation for “Marcellus Noncore", assuming that the price of gas is constant at $2.8/thousand scf and the price of NGL is $40/boe

Year	Annual gas production Bscf/yr	Annual NGL production million boe	Capital expenditures $ million	Tangible depreciation $ million	Intangible depletion $ million	Operating expenditures $ million	Gross revenues $ million	Royalty rates $ million	Taxation rates $ million	Net cash flow $ million	Present values $ million
0	0.000	0.000	5.500	0.000	0.000	0.000	0.000	0.000	0.000	-5.500	-5.500
1	1.093	0.001	0.000	0.825	0.545	0.769	3.110	0.466	0.181	1.693	1.539
2	0.733	0.001	0.000	0.578	0.365	0.516	2.085	0.313	0.115	1.141	0.943
3	0.509	0.000	0.000	0.404	0.254	0.358	1.449	0.217	0.054	0.819	0.616
4	0.408	0.000	0.000	0.283	0.203	0.287	1.160	0.174	0.053	0.646	0.441
5	0.345	0.000	0.000	0.198	0.172	0.243	0.982	0.147	0.055	0.536	0.333
6	0.301	0.000	0.000	0.000	0.150	0.212	0.856	0.128	0.092	0.425	0.240
7	0.268	0.000	0.000	0.000	0.133	0.188	0.762	0.114	0.081	0.378	0.194
8	0.241	0.000	0.000	0.000	0.120	0.170	0.687	0.103	0.073	0.341	0.159
9	0.220	0.000	0.000	0.000	0.110	0.155	0.626	0.094	0.067	0.310	0.132
10	0.202	0.000	0.000	0.000	0.101	0.142	0.574	0.086	0.061	0.285	0.110
11	0.186	0.000	0.000	0.000	0.093	0.131	0.530	0.080	0.057	0.263	0.092
12	0.173	0.000	0.000	0.000	0.086	0.122	0.492	0.074	0.053	0.244	0.078
13	0.161	0.000	0.000	0.000	0.080	0.113	0.459	0.069	0.049	0.227	0.066
14	0.151	0.000	0.000	0.000	0.075	0.106	0.429	0.064	0.046	0.213	0.056
15	0.024	0.000	0.300	0.000	0.012	0.017	0.068	0.010	0.007	-0.266	-0.064
											NPV = -0.57

Table 64. NPV calculation for “Marcellus Noncore", assuming that the price of gas is constant at $2.8/thousand scf and the price of NGL is $45/boe

Year	Annual gas production Bscf/yr	Annual NGL production million boe	Capital expenditures $ million	Tangible depreciation $ million	Intangible depletion $ million	Operating expenditures $ million	Gross revenues $ million	Royalty rates $ million	Taxation rates $ million	Net cash flow $ million	Present values $ million
0	0.000	0.000	5.500	0.000	0.000	0.000	0.000	0.000	0.000	-5.500	-5.500
1	1.093	0.001	0.000	0.825	0.545	0.769	3.115	0.467	0.182	1.696	1.542
2	0.733	0.001	0.000	0.578	0.365	0.516	2.088	0.313	0.116	1.143	0.945
3	0.509	0.000	0.000	0.404	0.254	0.358	1.451	0.218	0.054	0.821	0.617
4	0.408	0.000	0.000	0.283	0.203	0.287	1.162	0.174	0.054	0.647	0.442
5	0.345	0.000	0.000	0.198	0.172	0.243	0.983	0.147	0.056	0.537	0.334
6	0.301	0.000	0.000	0.000	0.150	0.212	0.858	0.129	0.092	0.425	0.240
7	0.268	0.000	0.000	0.000	0.133	0.188	0.763	0.114	0.082	0.378	0.194
8	0.241	0.000	0.000	0.000	0.120	0.170	0.688	0.103	0.074	0.341	0.159
9	0.220	0.000	0.000	0.000	0.110	0.155	0.626	0.094	0.067	0.311	0.132
10	0.202	0.000	0.000	0.000	0.101	0.142	0.575	0.086	0.062	0.285	0.110
11	0.186	0.000	0.000	0.000	0.093	0.131	0.531	0.080	0.057	0.263	0.092
12	0.173	0.000	0.000	0.000	0.086	0.122	0.493	0.074	0.053	0.244	0.078
13	0.161	0.000	0.000	0.000	0.080	0.113	0.460	0.069	0.049	0.228	0.066
14	0.151	0.000	0.000	0.000	0.075	0.106	0.430	0.064	0.046	0.213	0.056
15	0.024	0.000	0.300	0.000	0.012	0.017	0.068	0.010	0.007	-0.266	-0.064
											NPV = -0.56

Table 65. NPV calculation for “Marcellus Outer", assuming that the price of gas is constant at $2.8/thousand scf and the price of NGL is $5/boe

Year	Annual gas production Bscf/yr	Annual NGL production million boe	Capital expenditures $ million	Tangible depreciation $ million	Intangible depletion $ million	Operating expenditures $ million	Gross revenues $ million	Royalty rates $ million	Taxation rates $ million	Net cash flow $ million	Present values $ million
0	0.000	0.000	5.500	0.000	0.000	0.000	0.000	0.000	0.000	-5.500	-5.500
1	0.303	0.018	0.000	0.825	0.534	0.288	0.942	0.141	0.000	0.513	0.466
2	0.257	0.015	0.000	0.578	0.452	0.244	0.798	0.120	0.000	0.434	0.359
3	0.161	0.010	0.000	0.404	0.284	0.153	0.501	0.075	0.000	0.272	0.205
4	0.121	0.007	0.000	0.283	0.213	0.115	0.377	0.057	0.000	0.205	0.140
5	0.097	0.006	0.000	0.198	0.171	0.093	0.303	0.045	0.000	0.165	0.102
6	0.081	0.005	0.000	0.000	0.143	0.077	0.252	0.038	0.000	0.137	0.077
7	0.069	0.004	0.000	0.000	0.122	0.066	0.215	0.032	0.000	0.117	0.060
8	0.060	0.004	0.000	0.000	0.105	0.057	0.186	0.028	0.000	0.101	0.047
9	0.052	0.003	0.000	0.000	0.092	0.050	0.163	0.024	0.000	0.089	0.038
10	0.046	0.003	0.000	0.000	0.082	0.044	0.145	0.022	0.000	0.079	0.030
11	0.042	0.002	0.000	0.000	0.073	0.040	0.129	0.019	0.000	0.070	0.025
12	0.037	0.002	0.000	0.000	0.066	0.036	0.116	0.017	0.000	0.063	0.020
13	0.034	0.002	0.000	0.000	0.060	0.032	0.105	0.016	0.000	0.057	0.017
14	0.031	0.002	0.000	0.000	0.054	0.029	0.096	0.014	0.000	0.052	0.014
15	0.028	0.002	0.300	0.000	0.050	0.027	0.088	0.013	0.000	-0.252	-0.060
											NPV = -3.96

Table 66. NPV calculation for “Marcellus Outer", assuming that the price of gas is constant at $2.8/thousand scf and the price of NGL is $10/boe

Year	Annual gas production Bscf/yr	Annual NGL production million boe	Capital expenditures $ million	Tangible depreciation $ million	Intangible depletion $ million	Operating expenditures $ million	Gross revenues $ million	Royalty rates $ million	Taxation rates $ million	Net cash flow $ million	Present values $ million
0	0.000	0.000	5.500	0.000	0.000	0.000	0.000	0.000	0.000	-5.500	-5.500
1	0.303	0.018	0.000	0.825	0.534	0.288	1.033	0.155	0.000	0.590	0.536
2	0.257	0.015	0.000	0.578	0.452	0.244	0.875	0.131	0.000	0.500	0.413
3	0.161	0.010	0.000	0.404	0.284	0.153	0.549	0.082	0.000	0.313	0.235
4	0.121	0.007	0.000	0.283	0.213	0.115	0.413	0.062	0.000	0.236	0.161
5	0.097	0.006	0.000	0.198	0.171	0.093	0.332	0.050	0.000	0.189	0.118
6	0.081	0.005	0.000	0.000	0.143	0.077	0.276	0.041	0.004	0.154	0.087
7	0.069	0.004	0.000	0.000	0.122	0.066	0.235	0.035	0.003	0.131	0.067
8	0.060	0.004	0.000	0.000	0.105	0.057	0.204	0.031	0.003	0.114	0.053
9	0.052	0.003	0.000	0.000	0.092	0.050	0.179	0.027	0.002	0.100	0.042
10	0.046	0.003	0.000	0.000	0.082	0.044	0.158	0.024	0.002	0.088	0.034
11	0.042	0.002	0.000	0.000	0.073	0.040	0.142	0.021	0.002	0.079	0.028
12	0.037	0.002	0.000	0.000	0.066	0.036	0.127	0.019	0.002	0.071	0.023
13	0.034	0.002	0.000	0.000	0.060	0.032	0.115	0.017	0.002	0.064	0.019
14	0.031	0.002	0.000	0.000	0.054	0.029	0.105	0.016	0.001	0.059	0.015
15	0.028	0.002	0.300	0.000	0.050	0.027	0.096	0.014	0.001	-0.246	-0.059
											NPV = -3.73

Table 67. NPV calculation for “Marcellus Outer", assuming that the price of gas is constant at $2.8/thousand scf and the price of NGL is $15/boe

Year	Annual gas production Bscf/yr	Annual NGL production million boe	Capital expenditures $ million	Tangible depreciation $ million	Intangible depletion $ million	Operating expenditures $ million	Gross revenues $ million	Royalty rates $ million	Taxation rates $ million	Net cash flow $ million	Present values $ million
0	0.000	0.000	5.500	0.000	0.000	0.000	0.000	0.000	0.000	-5.500	-5.500
1	0.303	0.018	0.000	0.825	0.534	0.288	1.124	0.169	0.000	0.667	0.606
2	0.257	0.015	0.000	0.578	0.452	0.244	0.952	0.143	0.000	0.565	0.467
3	0.161	0.010	0.000	0.404	0.284	0.153	0.597	0.090	0.000	0.354	0.266
4	0.121	0.007	0.000	0.283	0.213	0.115	0.449	0.067	0.000	0.267	0.182
5	0.097	0.006	0.000	0.198	0.171	0.093	0.361	0.054	0.000	0.214	0.133
6	0.081	0.005	0.000	0.000	0.143	0.077	0.300	0.045	0.009	0.169	0.096
7	0.069	0.004	0.000	0.000	0.122	0.066	0.256	0.038	0.008	0.144	0.074
8	0.060	0.004	0.000	0.000	0.105	0.057	0.222	0.033	0.007	0.125	0.058
9	0.052	0.003	0.000	0.000	0.092	0.050	0.194	0.029	0.006	0.110	0.046
10	0.046	0.003	0.000	0.000	0.082	0.044	0.172	0.026	0.005	0.097	0.037
11	0.042	0.002	0.000	0.000	0.073	0.040	0.154	0.023	0.005	0.087	0.030
12	0.037	0.002	0.000	0.000	0.066	0.036	0.139	0.021	0.004	0.078	0.025
13	0.034	0.002	0.000	0.000	0.060	0.032	0.126	0.019	0.004	0.071	0.021
14	0.031	0.002	0.000	0.000	0.054	0.029	0.114	0.017	0.003	0.065	0.017
15	0.028	0.002	0.300	0.000	0.050	0.027	0.105	0.016	0.003	-0.241	-0.058
											NPV = -3.50

Table 68. NPV calculation for “Marcellus Outer", assuming that the price of gas is constant at $2.8/thousand scf and the price of NGL is $20/boe

Year	Annual gas production Bscf/yr	Annual NGL production million boe	Capital expenditures $ million	Tangible depreciation $ million	Intangible depletion $ million	Operating expenditures $ million	Gross revenues $ million	Royalty rates $ million	Taxation rates $ million	Net cash flow $ million	Present values $ million
0	0.000	0.000	5.500	0.000	0.000	0.000	0.000	0.000	0.000	-5.500	-5.500
1	0.303	0.018	0.000	0.825	0.534	0.288	1.215	0.182	0.000	0.744	0.676
2	0.257	0.015	0.000	0.578	0.452	0.244	1.029	0.154	0.000	0.630	0.521
3	0.161	0.010	0.000	0.404	0.284	0.153	0.645	0.097	0.000	0.395	0.297
4	0.121	0.007	0.000	0.283	0.213	0.115	0.486	0.073	0.000	0.297	0.203
5	0.097	0.006	0.000	0.198	0.171	0.093	0.390	0.058	0.000	0.239	0.148
6	0.081	0.005	0.000	0.000	0.143	0.077	0.325	0.049	0.014	0.185	0.104
7	0.069	0.004	0.000	0.000	0.122	0.066	0.277	0.041	0.012	0.157	0.081
8	0.060	0.004	0.000	0.000	0.105	0.057	0.240	0.036	0.010	0.136	0.064
9	0.052	0.003	0.000	0.000	0.092	0.050	0.210	0.032	0.009	0.120	0.051
10	0.046	0.003	0.000	0.000	0.082	0.044	0.186	0.028	0.008	0.106	0.041
11	0.042	0.002	0.000	0.000	0.073	0.040	0.166	0.025	0.007	0.095	0.033
12	0.037	0.002	0.000	0.000	0.066	0.036	0.150	0.022	0.006	0.085	0.027
13	0.034	0.002	0.000	0.000	0.060	0.032	0.136	0.020	0.006	0.077	0.022
14	0.031	0.002	0.000	0.000	0.054	0.029	0.124	0.019	0.005	0.070	0.019
15	0.028	0.002	0.300	0.000	0.050	0.027	0.113	0.017	0.005	-0.236	-0.056
											NPV = -3.27

Table 69. NPV calculation for “Marcellus Outer", assuming that the price of gas is constant at $2.8/thousand scf and the price of NGL is $25/boe

Year	Annual gas production Bscf/yr	Annual NGL production million boe	Capital expenditures $ million	Tangible depreciation $ million	Intangible depletion $ million	Operating expenditures $ million	Gross revenues $ million	Royalty rates $ million	Taxation rates $ million	Net cash flow $ million	Present values $ million
0	0.000	0.000	5.500	0.000	0.000	0.000	0.000	0.000	0.000	-5.500	-5.500
1	0.303	0.018	0.000	0.825	0.534	0.288	1.305	0.196	0.000	0.821	0.746
2	0.257	0.015	0.000	0.578	0.452	0.244	1.106	0.166	0.000	0.696	0.575
3	0.161	0.010	0.000	0.404	0.284	0.153	0.694	0.104	0.000	0.436	0.328
4	0.121	0.007	0.000	0.283	0.213	0.115	0.522	0.078	0.000	0.328	0.224
5	0.097	0.006	0.000	0.198	0.171	0.093	0.419	0.063	0.000	0.264	0.164
6	0.081	0.005	0.000	0.000	0.143	0.077	0.349	0.052	0.019	0.200	0.113
7	0.069	0.004	0.000	0.000	0.122	0.066	0.297	0.045	0.016	0.171	0.088
8	0.060	0.004	0.000	0.000	0.105	0.057	0.257	0.039	0.014	0.148	0.069
9	0.052	0.003	0.000	0.000	0.092	0.050	0.226	0.034	0.012	0.130	0.055
10	0.046	0.003	0.000	0.000	0.082	0.044	0.200	0.030	0.011	0.115	0.044
11	0.042	0.002	0.000	0.000	0.073	0.040	0.179	0.027	0.010	0.103	0.036
12	0.037	0.002	0.000	0.000	0.066	0.036	0.161	0.024	0.009	0.092	0.029
13	0.034	0.002	0.000	0.000	0.060	0.032	0.146	0.022	0.008	0.084	0.024
14	0.031	0.002	0.000	0.000	0.054	0.029	0.133	0.020	0.007	0.076	0.020
15	0.028	0.002	0.300	0.000	0.050	0.027	0.122	0.018	0.007	-0.230	-0.055
											NPV = -3.04

Table 70. NPV calculation for “Marcellus Outer", assuming that the price of gas is constant at $2.8/thousand scf and the price of NGL is $30/boe

Year	Annual gas production Bscf/yr	Annual NGL production million boe	Capital expenditures $ million	Tangible depreciation $ million	Intangible depletion $ million	Operating expenditures $ million	Gross revenues $ million	Royalty rates $ million	Taxation rates $ million	Net cash flow $ million	Present values $ million
0	0.000	0.000	5.500	0.000	0.000	0.000	0.000	0.000	0.000	-5.500	-5.500
1	0.303	0.018	0.000	0.825	0.534	0.288	1.396	0.209	0.000	0.898	0.817
2	0.257	0.015	0.000	0.578	0.452	0.244	1.183	0.177	0.000	0.761	0.629
3	0.161	0.010	0.000	0.404	0.284	0.153	0.742	0.111	0.000	0.477	0.359
4	0.121	0.007	0.000	0.283	0.213	0.115	0.558	0.084	0.000	0.359	0.245
5	0.097	0.006	0.000	0.198	0.171	0.093	0.448	0.067	0.000	0.288	0.179
6	0.081	0.005	0.000	0.000	0.143	0.077	0.373	0.056	0.024	0.216	0.122
7	0.069	0.004	0.000	0.000	0.122	0.066	0.318	0.048	0.021	0.184	0.094
8	0.060	0.004	0.000	0.000	0.105	0.057	0.275	0.041	0.018	0.159	0.074
9	0.052	0.003	0.000	0.000	0.092	0.050	0.242	0.036	0.016	0.140	0.059
10	0.046	0.003	0.000	0.000	0.082	0.044	0.214	0.032	0.014	0.124	0.048
11	0.042	0.002	0.000	0.000	0.073	0.040	0.191	0.029	0.012	0.111	0.039
12	0.037	0.002	0.000	0.000	0.066	0.036	0.172	0.026	0.011	0.100	0.032
13	0.034	0.002	0.000	0.000	0.060	0.032	0.156	0.023	0.010	0.090	0.026
14	0.031	0.002	0.000	0.000	0.054	0.029	0.142	0.021	0.009	0.082	0.022
15	0.028	0.002	0.300	0.000	0.050	0.027	0.130	0.020	0.008	-0.225	-0.054
											NPV = -2.81

Table 71. NPV calculation for “Marcellus Outer", assuming that the price of gas is constant at $2.8/thousand scf and the price of NGL is $35/boe

Year	Annual gas production Bscf/yr	Annual NGL production million boe	Capital expenditures $ million	Tangible depreciation $ million	Intangible depletion $ million	Operating expenditures $ million	Gross revenues $ million	Royalty rates $ million	Taxation rates $ million	Net cash flow $ million	Present values $ million
0	0.000	0.000	5.500	0.000	0.000	0.000	0.000	0.000	0.000	-5.500	-5.500
1	0.303	0.018	0.000	0.825	0.534	0.288	1.487	0.223	0.000	0.975	0.887
2	0.257	0.015	0.000	0.578	0.452	0.244	1.260	0.189	0.000	0.826	0.683
3	0.161	0.010	0.000	0.404	0.284	0.153	0.790	0.119	0.000	0.518	0.389
4	0.121	0.007	0.000	0.283	0.213	0.115	0.594	0.089	0.000	0.390	0.266
5	0.097	0.006	0.000	0.198	0.171	0.093	0.477	0.072	0.000	0.313	0.194
6	0.081	0.005	0.000	0.000	0.143	0.077	0.397	0.060	0.030	0.231	0.131
7	0.069	0.004	0.000	0.000	0.122	0.066	0.339	0.051	0.025	0.197	0.101
8	0.060	0.004	0.000	0.000	0.105	0.057	0.293	0.044	0.022	0.171	0.080
9	0.052	0.003	0.000	0.000	0.092	0.050	0.257	0.039	0.019	0.150	0.063
10	0.046	0.003	0.000	0.000	0.082	0.044	0.228	0.034	0.017	0.133	0.051
11	0.042	0.002	0.000	0.000	0.073	0.040	0.204	0.031	0.015	0.119	0.042
12	0.037	0.002	0.000	0.000	0.066	0.036	0.183	0.028	0.014	0.107	0.034
13	0.034	0.002	0.000	0.000	0.060	0.032	0.166	0.025	0.012	0.097	0.028
14	0.031	0.002	0.000	0.000	0.054	0.029	0.151	0.023	0.011	0.088	0.023
15	0.028	0.002	0.300	0.000	0.050	0.027	0.139	0.021	0.010	-0.219	-0.053
											NPV = -2.58

Table 72. NPV calculation for “Marcellus Outer", assuming that the price of gas is constant at $2.8/thousand scf and the price of NGL is $40/boe

Year	Annual gas production Bscf/yr	Annual NGL production million boe	Capital expenditures $ million	Tangible depreciation $ million	Intangible depletion $ million	Operating expenditures $ million	Gross revenues $ million	Royalty rates $ million	Taxation rates $ million	Net cash flow $ million	Present values $ million
0	0.000	0.000	5.500	0.000	0.000	0.000	0.000	0.000	0.000	-5.500	-5.500
1	0.303	0.018	0.000	0.825	0.534	0.288	1.578	0.237	0.000	1.053	0.957
2	0.257	0.015	0.000	0.578	0.452	0.244	1.336	0.200	0.000	0.892	0.737
3	0.161	0.010	0.000	0.404	0.284	0.153	0.838	0.126	0.000	0.559	0.420
4	0.121	0.007	0.000	0.283	0.213	0.115	0.631	0.095	0.000	0.421	0.287
5	0.097	0.006	0.000	0.198	0.171	0.093	0.507	0.076	0.000	0.338	0.210
6	0.081	0.005	0.000	0.000	0.143	0.077	0.422	0.063	0.035	0.247	0.139
7	0.069	0.004	0.000	0.000	0.122	0.066	0.359	0.054	0.030	0.210	0.108
8	0.060	0.004	0.000	0.000	0.105	0.057	0.311	0.047	0.026	0.182	0.085
9	0.052	0.003	0.000	0.000	0.092	0.050	0.273	0.041	0.022	0.160	0.068
10	0.046	0.003	0.000	0.000	0.082	0.044	0.242	0.036	0.020	0.142	0.055
11	0.042	0.002	0.000	0.000	0.073	0.040	0.216	0.032	0.018	0.126	0.044
12	0.037	0.002	0.000	0.000	0.066	0.036	0.195	0.029	0.016	0.114	0.036
13	0.034	0.002	0.000	0.000	0.060	0.032	0.176	0.026	0.015	0.103	0.030
14	0.031	0.002	0.000	0.000	0.054	0.029	0.161	0.024	0.013	0.094	0.025
15	0.028	0.002	0.300	0.000	0.050	0.027	0.147	0.022	0.012	-0.214	-0.051
											NPV = -2.35

Table 73. NPV calculation for “Marcellus Outer", assuming that the price of gas is constant at $2.8/thousand scf and the price of NGL is $45/boe

Year	Annual gas production Bscf/yr	Annual NGL production million boe	Capital expenditures $ million	Tangible depreciation $ million	Intangible depletion $ million	Operating expenditures $ million	Gross revenues $ million	Royalty rates $ million	Taxation rates $ million	Net cash flow $ million	Present values $ million
0	0.000	0.000	5.500	0.000	0.000	0.000	0.000	0.000	0.000	-5.500	-5.500
1	0.303	0.018	0.000	0.825	0.534	0.288	1.668	0.250	0.000	1.130	1.027
2	0.257	0.015	0.000	0.578	0.452	0.244	1.413	0.212	0.000	0.957	0.791
3	0.161	0.010	0.000	0.404	0.284	0.153	0.887	0.133	0.000	0.600	0.451
4	0.121	0.007	0.000	0.283	0.213	0.115	0.667	0.100	0.000	0.452	0.308
5	0.097	0.006	0.000	0.198	0.171	0.093	0.536	0.080	0.000	0.363	0.225
6	0.081	0.005	0.000	0.000	0.143	0.077	0.446	0.067	0.040	0.262	0.148
7	0.069	0.004	0.000	0.000	0.122	0.066	0.380	0.057	0.034	0.223	0.115
8	0.060	0.004	0.000	0.000	0.105	0.057	0.329	0.049	0.029	0.193	0.090
9	0.052	0.003	0.000	0.000	0.092	0.050	0.289	0.043	0.026	0.170	0.072
10	0.046	0.003	0.000	0.000	0.082	0.044	0.256	0.038	0.023	0.150	0.058
11	0.042	0.002	0.000	0.000	0.073	0.040	0.229	0.034	0.020	0.134	0.047
12	0.037	0.002	0.000	0.000	0.066	0.036	0.206	0.031	0.018	0.121	0.039
13	0.034	0.002	0.000	0.000	0.060	0.032	0.186	0.028	0.017	0.110	0.032
14	0.031	0.002	0.000	0.000	0.054	0.029	0.170	0.025	0.015	0.100	0.026
15	0.028	0.002	0.300	0.000	0.050	0.027	0.155	0.023	0.014	-0.209	-0.050
											NPV = -2.12