

Rating: Buy
S&P 500: 1118

Encore Acquisition Company **Rising Recovery and Leadership**

<i>Symbol</i>	EAC	<i>Ebitda Next Twelve Months ending 6/30/05 (\$mm)</i>	246
<i>Rating</i>	Buy	<i>North American Natural Gas/Ebitda (%)</i>	25
<i>Price (\$/sh)</i>	29.67	<i>Natural Gas and Oil Production/Ebitda (%)</i>	100
<i>Pricing Date</i>	9/2/04	<i>Adjusted Reserves/Production NTM</i>	12.0
<i>Shares (mm)</i>	33	<i>EV/Ebitda</i>	5.5
<i>Market Capitalization (\$mm)</i>	970	<i>PV/Ebitda</i>	7.8
<i>Debt (\$mm)</i>	380	<i>Undeveloped Reserves (%)</i>	24
<i>Enterprise Value (EV) (\$mm)</i>	1,350	<i>Natural Gas and Oil Ebitda (\$/boe)</i>	26.20
<i>Present Value (PV) (\$mm)</i>	1,910	<i>Present Value Proven Reserves(\$/boe)</i>	11.70
<i>Net Present Value (\$/share)</i>	47	<i>Present Value Proven Reserves(\$/mcf)</i>	1.90
<i>Debt/Present Value</i>	0.20	<i>Earnings Next Twelve Months (US\$/sh)</i>	2.87
<i>McDep Ratio - EV/PV</i>	0.70	<i>Price/Earnings Next Twelve Months</i>	10
<i>Dividend Yield (%/year)</i>	0.0	<i>Indicated Annual Dividend (US\$/sh)</i>	0.00

Note: Estimated cash flow and earnings tied to one-year futures prices for oil and natural gas.
Reported results may vary widely from estimates. Estimated present value per share revised only infrequently.

Summary and Recommendation

We continue to recommend current purchase of the common shares of **Encore Acquisition (EAC)** for small cap participation in the rising profit opportunities in oil and gas production. The company has a commanding position in a large, old oil field in Montana/North Dakota, the Cedar Creek Anticline. The field is producing from proven reserves that have a long life assuming a recovery factor of just 19% of original oil in place. Enhanced recovery techniques offer the promise of up to a 31% recovery factor. We illustrate a present value calculation that suggests the stock ought to be \$47 a share at the 19% recovery factor and assuming a 7% real return annually and a constant real oil price of \$35 a barrel. Not just an asset play, the stock is managed by a far-sighted founder with multiple past successes.

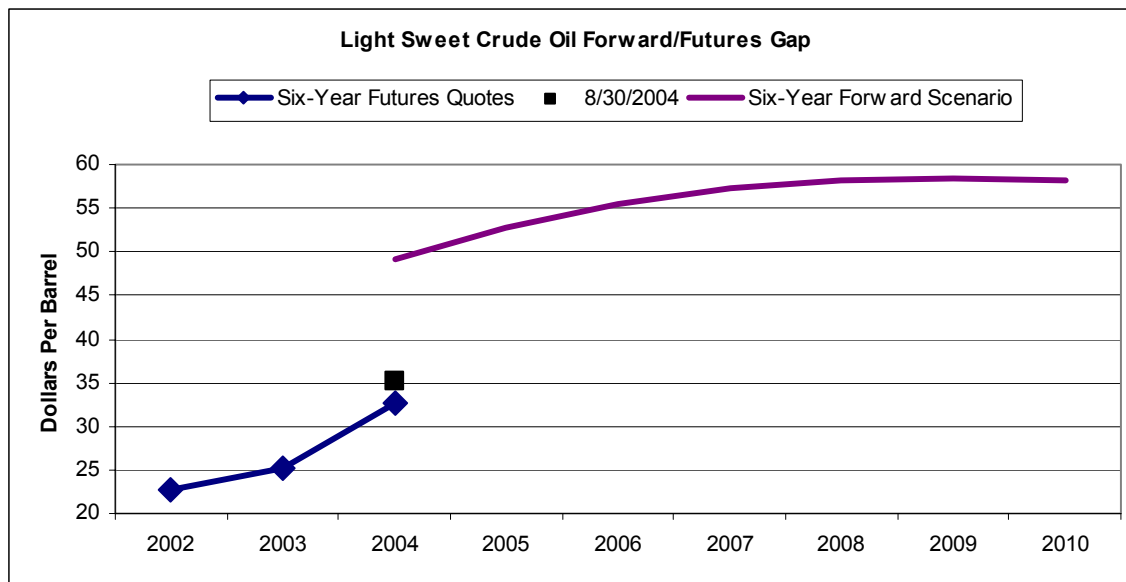
Moderate Oil Price Scenario

The value of the company depends in large part on the future price of crude oil. Publicly traded in the commodity markets, futures contracts for delivery over the next six years continue in a steep uptrend. Whether the trend will slow for awhile we cannot know. Our scenario is that a move that began in the low \$20 and is now in the mid \$30 could reach \$50 (see chart [Light Sweet Crude Oil Forward/Futures Gap](#)).

To construct the scenario we assumed oil would peak in 2010 at \$50 in constant dollars. That is more moderate than the peak in early 1981 at more than \$80 in constant dollars. Then we applied 3% per year inflation and calculated six-year averages to build a forward curve.

Economics support the price trends. Oil demand is strong with world economic growth paced by developing countries, especially China. Supply growth is limited as spare capacity has virtually disappeared. The largest producing fields in the Middle East are now mature. It will take time, large amounts of capital and a secure political climate to boost producing rates.

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Monetary factors favor oil investment as interest rates below inflation drive investors to real assets for protection against the dollar losing value. If similar past periods are any guide, the authorities may not raise interest rates above inflation for the rest of the decade.

Environmental factors favor higher oil and gas price. Coal is still a quarter of world primary energy supply. Cleaner oil and gas are undervalued as long as we tolerate environmentally disadvantageous coal.

Political factors favor higher oil price in consuming countries and producing countries. Consuming governments often resort to artificial forces to hold down oil price that can appear to work temporarily.

In producing countries we have seen time and again that oil production goes down when international oil companies are not welcome. After Iran, Iraq and Venezuela, now Saudi Arabia appears vulnerable to political change that may bring about production decline.

Too much of a gain in oil price might cause problems of economic adjustment though we think much of the concern expressed is exaggerated. Nonetheless we have a threshold of 60% gain in monthly price compared to a year earlier when we start to become concerned about weak demand for oil. October futures currently near \$44 a barrel would have to remain above \$52 for the 60% threshold to be breached.

One-Year Futures Point to Higher Cash Flow and Profits

As our next twelve months (NTM) cash flow model moves ahead to the period ending June 30, 2005 expectations also advance mainly because of advancing one-year futures. We relate natural gas and oil price to the quotes for commodities traded on the New York Mercantile Exchange (see table Next Twelve Months Operating and Financial Estimates).

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Encore Acquisition Company
Next Twelve Months Operating and Financial Estimates

	<i>Q1</i>	<i>Q2</i>	<i>Q3E</i>	<i>Q4E</i>	<i>Year</i>	<i>Q1E</i>	<i>Q2E</i>	<i>Next Twelve Months</i>
	<i>3/31/04</i>	<i>6/30/04</i>	<i>9/30/04</i>	<i>12/31/04</i>	<i>2004E</i>	<i>3/31/05</i>	<i>6/30/05</i>	<i>6/30/05</i>
Volume								
Natural Gas (mmcf/d)	27.7	35.3	43.0	43.0	37.3	43.0	43.0	43.0
Oil (mbd)	17.70	18.56	18.56	18.56	18.35	18.56	18.50	18.54
Total (mb)	2,009	2,223	2,367	2,367	8,966	2,315	2,336	9,384
Total (mbd)	22.3	24.4	25.7	25.7	24.6	25.7	25.7	25.7
Price								
Henry Hub (\$/mmbtu)	5.64	6.10	5.52	5.83	5.77	6.74	6.01	6.03
Differential (\$/mmbtu)	0.38	0.51	0.46	0.49	0.49	0.49	0.50	0.51
EAC (\$/mcf)	5.12	5.59	5.06	5.35	5.28	6.18	5.51	5.52
WTI Cushing (\$/bbl)	35.23	38.34	43.00	42.07	39.66	41.02	39.90	41.50
Differential	2.72	2.44	2.74	2.68	2.56	2.68	2.54	2.63
EAC (\$/bbl)	32.51	35.90	40.26	39.39	37.10	38.41	37.36	38.87
Total (\$/bbl)	32.14	35.33	37.51	37.35	35.72	38.03	36.16	37.26
Revenue (\$mm)								
Natural Gas	13	18	20	21	72	24	22	87
Oil	52	61	69	67	248	64	63	263
Other	(5)	(8)			(14)			
Total	59	70	89	88	307	88	84	350
Expense								
Lease operating	10	11	12	12	46	12	12	49
Production taxes	6	7	9	9	30	9	8	34
General and administrative	4	4	4	4	15	4	10	21
Total	20	22	25	25	91	24	30	104
Ebitda								
Exploration		2						
Deprec., Deplet., & Amort.	9	11	12	12	45	12	12	49
Other Non Cash	1	1	9	8	19	4	4	24
Ebit								
Interest	4	6	7	7	25	7	7	29
Ebt								
Income Tax	9	10	13	13	44	14	11	50
Net Income (\$mm)								
Per Share (\$)	0.55	0.58	0.72	0.72	2.57	0.81	0.62	2.87
Shares (millions)								
Lease operating (\$/bbl)	5.10	4.91	5.20	5.20	5.11	5.20	5.20	5.20
Production taxes (%rev)	9.0	9.1	9.8	9.8	9.5	9.8	9.8	9.8
General and admin (\$/bbl)	1.84	1.63	1.53	1.53	1.62	1.56	4.28	2.22
Deprec., D,& A (\$/bbl)	4.61	5.06	5.20	5.20	5.03	5.20	5.20	5.20
Ebitda Margin	67%	69%	72%	72%	70%	72%	64%	70%
Tax rate	35%	35%	35%	35%	35%	35%	35%	35%

Investors who want calendar year estimates can find 2004 in the table. For 2005 we suggest using the next twelve months as a rough estimate. Estimates can change frequently along with oil markets.

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Present Value at Real Price and Real Return

NTM estimates determine to a large extent the first year of projected cash flow that we discount to present value (see table Present Value of Oil and Gas Reserves). The calculation is set up on the basis of a barrel of proven reserves, 0.76 developed and 0.24 undeveloped.

Encore Acquisition Company
Present Value of Oil and Gas Reserves
(U.S. dollars)

Volume Decline (%/yr):	9	Nymex Oil Price Post 2005 (\$/bbl)	35
Volume Enhancement (%/yr):	5	Real Discount Rate (%/yr):	7.0
Capex/Cash Flow (%):	12	Variable Cost (%):	20

Year	Basic (bbl)	Volume Enhanced (bbl)	Total (bbl)	Price (\$/bbl)	Revenue (\$)	Fixed Cost (\$)	Var. Cost (\$)	Cash Flow (\$)	Cap Ex (\$)	Free CF (\$)	Disc Factor	Present Value (\$)
Total 2005 through 2029; years ending on 6/30												
	0.760	0.240	1.000	33.22	33.22	6.63	6.64	19.95	1.27	18.68	0.63	11.70
2005	0.073	0.000	0.073	37.26	2.73	0.27	0.55	1.92	0.23	1.69	0.97	1.63
2006	0.067	0.004	0.071	32.90	2.33	0.27	0.47	1.60	0.19	1.40	0.90	1.27
2007	0.061	0.007	0.068	32.90	2.25	0.27	0.45	1.53	0.18	1.35	0.84	1.14
2008	0.056	0.010	0.066	32.90	2.17	0.27	0.43	1.47	0.18	1.30	0.79	1.02
2009	0.051	0.013	0.064	32.90	2.10	0.27	0.42	1.41	0.17	1.25	0.74	0.92
2010	0.047	0.015	0.062	32.90	2.03	0.27	0.41	1.36	0.16	1.20	0.69	0.82
2011	0.043	0.017	0.060	32.90	1.96	0.27	0.39	1.30	0.16	1.15	0.64	0.74
2012	0.039	0.019	0.058	32.90	1.90	0.27	0.38	1.25	0.00	1.25	0.60	0.75
2013	0.036	0.017	0.053	32.90	1.73	0.27	0.35	1.12	0.00	1.12	0.56	0.63
2014	0.033	0.016	0.048	32.90	1.58	0.27	0.32	1.00	0.00	1.00	0.53	0.53
2015	0.030	0.014	0.044	32.90	1.45	0.27	0.29	0.89	0.00	0.89	0.49	0.44
2016	0.027	0.013	0.040	32.90	1.32	0.27	0.26	0.79	0.00	0.79	0.46	0.36
2017	0.025	0.012	0.037	32.90	1.21	0.27	0.24	0.70	0.00	0.70	0.43	0.30
2018	0.023	0.011	0.034	32.90	1.10	0.27	0.22	0.62	0.00	0.62	0.40	0.25
2019	0.021	0.010	0.031	32.90	1.01	0.27	0.20	0.54	0.00	0.54	0.37	0.20
2020	0.019	0.009	0.028	32.90	0.92	0.27	0.18	0.47	0.00	0.47	0.35	0.17
2021	0.017	0.008	0.026	32.90	0.84	0.27	0.17	0.41	0.00	0.41	0.33	0.13
2022	0.016	0.008	0.023	32.90	0.77	0.27	0.15	0.35	0.00	0.35	0.31	0.11
2023	0.014	0.007	0.021	32.90	0.70	0.27	0.14	0.30	0.00	0.30	0.29	0.09
2024	0.013	0.006	0.020	32.90	0.64	0.27	0.13	0.25	0.00	0.25	0.27	0.07
2025	0.012	0.006	0.018	32.90	0.59	0.27	0.12	0.20	0.00	0.20	0.25	0.05
2026	0.011	0.005	0.016	32.90	0.54	0.27	0.11	0.16	0.00	0.16	0.23	0.04
2027	0.010	0.005	0.015	32.90	0.49	0.27	0.10	0.13	0.00	0.13	0.22	0.03
2028	0.009	0.004	0.014	32.90	0.45	0.27	0.09	0.09	0.00	0.09	0.20	0.02
2029	0.008	0.004	0.012	32.90	0.41	0.27	0.08	0.06	0.00	0.06	0.19	0.01

While there are many assumptions that could be discussed, discount rate and oil price are especially important. Price escalation and discount rate interact. In this case we make the simplification of dealing in constant dollars. That assumes price escalation, cost escalation and discount rate are all net of inflation.

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For discount rate we use a 7% real return per year on an unlevered basis. That means a buyer who pays present value would earn 7% per year above inflation if all the projections were to materialize as stated.

First year oil price is from the futures market. We hold it constant at an arbitrary level thereafter. The assumed price listed in the upper right hand corner is the commonly quoted benchmark Light, Sweet Crude. A price of \$35 a barrel leads to present value of future cash flow from a barrel of reserves equal to \$11.70 (see box in right hand column).

Present Value per Barrel Leads to Present Value per Share

We illustrate the calculation of Net Present Value (NPV) in a sensitivity table where each column is headed by a different oil price (see table Net Present Value Calculation). Oil price corresponds to present value per barrel which then leads step by step to the final result. The price of \$35 a barrel corresponds to our standardized present value of \$47 a share. Turn the comparison around and a stock price of \$29, near the current quote, corresponds to a constant real oil price of \$25 a barrel.

Encore Acquisition Company **Net Present Value Calculation** (U.S. dollars)

Constant Oil Price (\$/bbl):	25	35	40	50
Present Value per Barrel (\$):	8.00	11.70	13.60	17.20
Oil and Gas Reserves (million barrels equivalent):	164	164	164	164
Present Value of Oil and Gas Reserves (\$mm):	1,310	1,920	2,230	2,820
Debt (\$mm):	380	380	380	380
Present Value of Equity (\$mm):	930	1,540	1,850	2,440
Shares (mm):	33	33	33	33
Net Present Value (\$/sh):	29	47	57	75

The Magic of Recovery Factor

Encore's major asset is 60+% ownership of the Cedar Creek Anticline (CCA), a giant oil field with more than three billion barrels of original oil in place (OOIP). Other owners include **Burlington Resources (BR)**, MDU Resources and a private company, Continental Resources (?). Cumulative production is only 14% of OOIP. Proven reserves, the amount likely to be produced with a high degree of certainty, amount to 5% of OOIP, presuming a cumulative recovery factor of 19%.

Encore's share of CCA proven reserves is 108 million barrels, two-thirds of its total corporate reserves. The values we calculated above for the stock count only proven reserves.

If CCA recovery factor could be increased just another 5% to 24%, proven reserves would double. In fact, Encore is working currently to do just that. Management is proceeding to boost recovery 2%, reserves by 40%, with horizontal wells and water injection, techniques it calls conventional. Another 3%, reserves 60%, would be proven with the use of High-Pressure Air

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Injection (HPAI) only in the Red River U4 formation where the technique has been proven effective on the CCA.

Yet we are still only at 24% when the typical oil field produces 50% of OOIP and some of the great ones 75%. The company expects that HPAI can be extended to other formations among the many that are layered one above another. Such extension of the tertiary recovery technique would boost recovery factor another 7% to 31% of OOIP. The impact on existing proven reserves would be to add another 140%.

We think we can make a strong case to invest in the stock on the basis of proven reserves alone. The magic of recovery factor may multiply the investment rewards. Obviously the additional quantities are not certain or they would be so categorized. To try to be a bit more quantitative we might say that the probability of achieving a 40% increase in reserves in Encore's CCA reserves could be nine-tenths. The probability of the next 60% could be three-quarters and the probability of the final 140% could be a half.

Looking Ahead Long Ago

On a recent visit we learned that the Cedar Creek Anticline was not a new idea for Mr. Brumley, the founder of Encore. When he was still running Southland Royalty around the time of its formation of the **San Juan Basin Royalty Trust (SJT)** and **Permian Basin Royalty Trust (PBT)** in 1980, he started acquiring leases on the Cedar Creek Anticline. He did not say so, but we picture an attempt to find a new asset that had the long term potential of those in SJT and PBT. When Burlington Resources acquired Southland Royalty, it succeeded to the CCA leases that it still owns today. After Mr. Brumley formed Cross Timbers Oil Company, the predecessor to XTO Energy, he acquired more CCA leases. After Mr. Brumley left XTO, nee Cross Timbers, in the hands of his successors and then formed Encore, he apparently was able to reacquire the CCA leases owned by XTO. All that history prepared Mr. Brumley to propose and conclude the purchase of Shell's dominant ownership of the CCA at an opportune time.

We also met last month with Mr. Thomas Olle, the Senior Vice President – Asset Management of Cedar Creek Anticline who joined Encore from Burlington Resources last year. The career change was more than coincidental. Mr. Olle worked for Southland Royalty, the company Mr. Brumley headed when it was acquired by Burlington. Prior to Southland, Mr. Olle worked for Gulf Oil, the working interest owner of the Waddell Ranch field. Recall that Southland succeeded from a one-eighth royalty owner to the full working interest owner when a 50-year lease to Gulf expired in 1975. Mr. Olle's knowledge of Waddell Ranch helped Southland move quickly to boost production in the field that remains the mainstay of PBT today. Now Mr. Olle's knowledge is guiding Encore's exploitation program on the CCA.

Mr. Brumley and Mr. Olle recalled what little work Gulf did on Waddell Ranch when the lease expiration was approaching. They can make a similar point about Shell on the CCA. Losing interest in the mature U.S. at a time of low commodity price, Shell apparently was reluctant to pursue the new technology of horizontal drilling aggressively on the CCA. Shell also demonstrated how HPAI could work before the time was ripe to apply that technology.

Oil Price, Rising Recovery and Leadership

From \$25 a barrel to \$35 a barrel, a 1% change in expected long-term oil price adds 1.6% to the present value of Encore stock in our illustrative calculation. Raising the recovery factor on the Cedar Creek Anticline from the current low level has the potential to more than double the physical base upon which we calculate that sensitivity. All of that is more credible when we consider that Encore is guided by a far-sighted founder. It looks like a promising investment and interesting enough to be the subject of a business school case for future leaders to study.

Kurt H. Wulff, CFA

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