

**Louis Dreyfus Natural Gas Corp.  
Long Life Small Cap Producer**

<i>Symbol</i>	<i>Price (\$/sh) 6-Sep 2001</i>	<i>Shares (mm)</i>	<i>Market Cap (\$mm)</i>	<i>Net</i>		<i>McDep Ratio</i>	<i>EV/ Sales NTM</i>	<i>EV/ Ebitda NTM</i>	<i>P/E NTM</i>	<i>Div'd NTM (%)</i>	<i>PV/ Ebitda NTM</i>
				<i>Present Value (\$/sh)</i>	<i>Debt/ Present Value</i>						
LD	32.89	45	1,470	45.90	0.22	0.78	4.8	7.0	19	-	9.0

McDep Ratio = Market cap and Debt to present value of oil and gas and other businesses

EV = Enterprise Value = Market Cap and Debt:

US\$m 2,060

Ebitda = Earnings before interest, tax, depreciation and amortization:

US\$m 294

NTM = Next Twelve Months Ended June 30, 2002; P/E = Stock Price to Earnings

PV = Present Value of energy businesses:

US\$m 2,650

**Summary and Recommendation**

We recommend that investors buy shares of Louis Dreyfus Natural Gas Corp. for small cap representation in natural gas production in anticipation of a future commodity price sharply higher than the currently depressed level. LD has the longest reserve life among peers in the \$1 billion to \$2 billion market cap category that includes **Forest Oil, Newfield Exploration, Spinnaker Exploration, Stone Energy** and **XTO Energy**.

Concentrated on North American natural gas, all six companies have promising prospects. Meanwhile in the face of a weak seasonal period for demand coupled with full storage reservoirs, natural gas producers may have to shut in production in the next few weeks when just last winter the commodity fetched record prices. Perhaps there may be further weakness and perhaps recovery in the winter will be mild, but for sure, we believe, there is likely to be renewed strength in price during the next few years. We are further reassured that Chief Executive Officer Mark Monroe has a record of success we have been measuring in up and down markets for more than a decade.

**Natural Gas Price Low Relative to Oil**

We are bullish on oil, believing that the persistent decline, or backwardation, implied in futures prices will not materialize. Instead of \$21 a barrel quoted for 2005, we think \$30 is likely; our optimistic case is \$50.

Our case for natural gas is that it should sell for the equivalent price of refined products like heating oil. In rough numbers we estimate a refining margin of 20%. In that sense,

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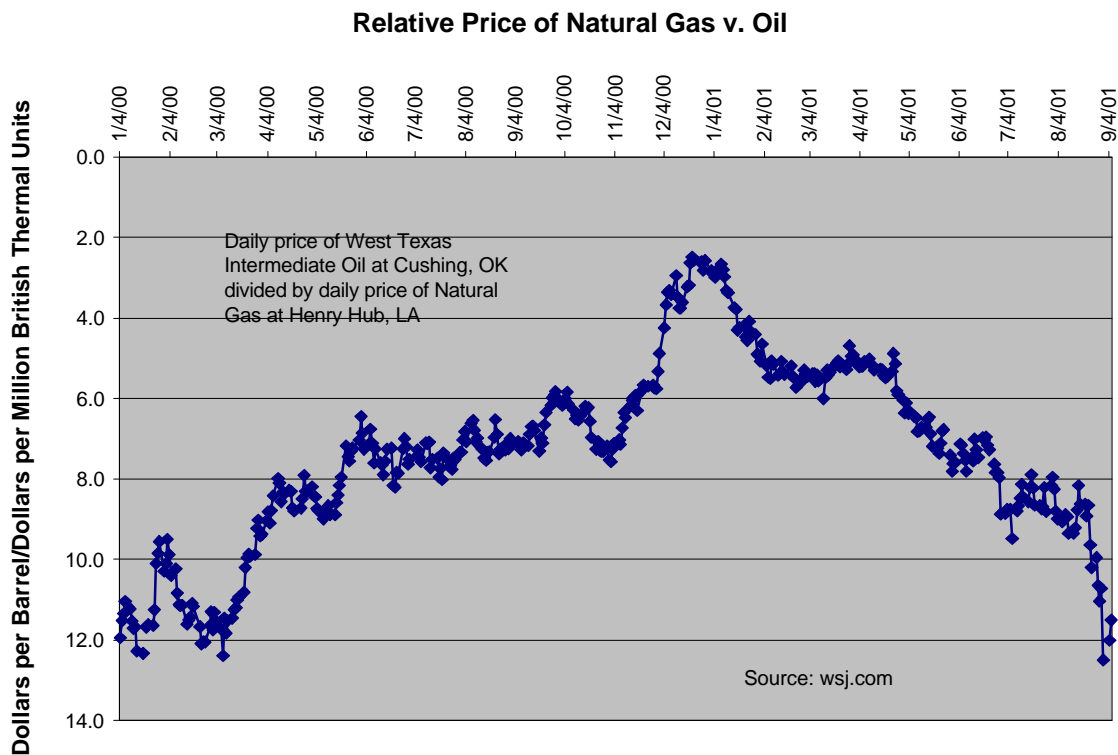
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### Stock Idea

September 7, 2001

\$30 oil becomes \$36 heating oil. It takes about 6 units of natural gas to provide as much heat as a barrel of heating oil. Thus \$36 heating oil becomes \$6 natural gas. Comparing natural gas directly with crude oil the price of natural gas ought to be the price of crude oil divided by 5.

After a run up last winter to oil divided by 3, natural gas traded for a while at oil divided by 5 (see chart). When the price dropped to oil divided by 9 in July, we urged investors to reenter natural gas. Now the sharp drop in just the past few weeks to oil divided by more than 12, prompts us to step up with another recommendation.



The steepness of the decline recently looks like the steepness of the ascent late last year. We might see the current low levels last a month or so just as the peak levels lasted in January.

Since natural gas storage levels are higher than a year ago, we ought not to see winter prices as high as last winter. In the event of warm weather and a weak economy, the whole winter could be weak for natural gas price. That is always a risk in a commodity business. We are inclined to bet with the longer-term trend and are confident that natural gas commitments made today will be rewarding hopefully sooner, and more assuredly later.

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## **Louis Dreyfus is the Name - Natural Gas is the Game**

Accurately named, Louis Dreyfus Natural Gas was founded by the French commodity trading company to develop and produce the clean fuel commodity in which the founders saw a bright future. About 44% of the stock is owned by S.A. Louis Dreyfus et Cie. Insiders own another 4% and the remaining 52% appears to be publicly held.

The company is concentrated in natural gas with 82% of estimated Next Twelve Months revenue from that source (see table). Moreover almost all of the production is onshore U.S., mostly in Oklahoma and Texas. The company got its real start with the acquisition of Bogert Oil and Gas around 1990. The deal not only brought natural gas reserves to the new entity, but also the man who was to become chief executive officer.

## **Long Life Means Higher Cash Flow Multiple**

Aside from being close to a growing market, onshore U.S. natural gas production typically lasts longer than offshore U.S. production. We need not say whether longer life is better than shorter life, but we can say that the present value of a cash flow stream that lasts longer is worth more as a multiple of current annual cash flow. Among peer companies, LD reports the highest level of reserves compared to annual production. Developed reserves, by definition, are the source for all current production. On a developed basis, LD reports proven reserves at 10 times our projected production for the twelve months ended June 30, 2002.

In addition LD reports undeveloped reserves that we count as half the weight of developed reserves. That is because capital outlays are required to convert undeveloped reserves to developed reserves. On our discounted basis, undeveloped reserves add another two years to LD's reserve life index. The total of 12 years compares to a range of 3 to 10 for the other five peer companies.

## **Net Present Value Nearly \$46 Per Share**

What kind of a multiple of cash flow might be appropriate for an estimate of LD's present value? In a theoretical sense, we do our most thorough calculation of present value for five other small cap stocks including three royalty trusts and one offshore producer (see MR Tables posted weekly on [www.mcdep.com](http://www.mcdep.com)). A distinctive feature of the calculations is that they are price neutral as we take price projections from the futures market. The resulting multiples of PV to CF for the entities range from 6 to 10. In the same context, we assess a multiple for LD of 9, which leads to a Present Value of \$2,650 million. Subtracting Debt of \$590 million and dividing by 45 million shares yields Net Present Value of \$45.90 per share.

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September 7, 2001

What kind of return might we expect from LD stock? Just a McDep Ratio of 1.0 implies 42% appreciation to Net Present Value of \$45.90.

### **Management Can Add Upside Potential**

The remaining variable in the PV analysis is reinvestment rate. Because royalty trusts pay out all of their cash flow, the owners control reinvestment. In operating companies, management has the most influence over reinvestment. Of course, ability will vary. Yet it is hard to know in advance if a management is going to do a superior job or not. Ironically, royalty trusts performed better than managed companies during the 1990s when commodity prices were disappointing. Yet LD management did do a superior job. Nonetheless, our assumption on reinvestment rate is the same for every company, at least in the present value calculation.

What is superior management worth? Most corporate managers think they can earn at least a double-digit rate of return (but few do). If the reinvestment rate in the present value calculation were to be 10% per year after tax and the discount rate held at the 6.2% that we assume from the yield on ten year treasury notes plus 1.4%, then present value could be some 40% higher.

### **Commodity Price Adds Most Readily Identifiable Upside Potential**

We do believe that long-term natural gas price will be higher than futures prices indicate. Assuming adjusted reserves of about 1.6 trillion cubic feet, present value is about \$1.60 per mcf. The indicated futures price for LD's mix of oil and gas is \$3.07 per mcf for the next 12 months. As a result, unit present value is about half of starting price. Present value would increase at least by half of permanent increases in price. A permanent increase above futures market projections of more than a dollar, or 30%, seems highly likely.

Finally, analysts increasingly like to recognize "optionality". An options investor, or a corporate manager looking to the future might actually pay something above and beyond the present value at a fixed price schedule for the likelihood that at some time actual price will deviate to the high side. Then the investor or manager might capture additional value through a transaction at the more favorable price.

We have a three part old-fashioned answer to optionality. First we want to buy only those stocks that look good on a base case. Second, we want to minimize downside vulnerability by being sensitive to the commodity price cycle, and keeping a wary eye out for high debt, high cost or other high risk. Third, we also want to know that a stock has upside exposure, but we do not want to pay for upside that may not materialize.

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In the case of Louis Dreyfus Natural Gas the stock does look good in the base case, as we have tried to show. On the downside, the natural gas price cycle is already at a low point, debt is manageable, costs are reasonable and management has a good record for tough times. Our upside is primarily in the commodity just as the founders had in mind a decade ago.

### **Relative Value Attractive**

We have added LD and its five peers in the one billion dollar to two billion dollar market cap group to a broader small cap category in our valuation tables (see Table S-1 and S-2). At a McDep Ratio of 0.78 the stock has strong relative appeal in addition to the absolute appreciation we see for it.

Kurt H. Wulff, CFA

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## Stock Idea

September 7, 2001

### Louis Dreyfus Natural Gas Corp. Next Twelve Months Operating and Financial Estimates

	Q2	Q3E	Q4E	Q1E	Q2E	Next Twelve Months
	6/30/01	9/30/01	12/31/01	3/31/02	6/30/02	6/30/02
<b>Volume</b>						
Natural gas (bcf)	30	30	30	29	30	<b>119</b>
Natural Gas (mmcf)	325	325	325	325	325	<b>325</b>
Days	91	92	92	90	91	<b>365</b>
Oil (mmb)	1	1	1	1	1	<b>3</b>
Oil (mbd)	8	8	8	8	8	<b>8</b>
Total gas & oil (bcf)	34	35	35	34	34	<b>137</b>
<b>Price</b>						
Natural gas (\$/mcf)						
Henry Hub (\$/mmbtu)	4.36	2.75	2.71	3.15	3.03	<b>2.91</b>
LD	4.59	2.75	2.71	3.15	3.03	<b>2.91</b>
Oil (\$/bbl)						
WTI Cushing	27.90	27.05	27.30	26.74	25.89	<b>26.74</b>
LD	25.80	25.02	25.25	24.73	23.95	<b>24.74</b>
Total gas & oil (\$/mcf)	4.55	2.94	2.91	3.28	3.16	<b>3.07</b>
<b>Revenue (\$mm)</b>						
Natural Gas	136	82	81	92	90	<b>345</b>
Oil	20	19	19	19	18	<b>76</b>
Other	1	1	1	1	1	<b>6</b>
Total	157	103	102	112	109	<b>427</b>
<b>Expense</b>						
Fixed	19	19	19	19	19	<b>76</b>
Variable	19	12	12	13	13	<b>51</b>
Other	1	1	1	1	1	<b>6</b>
<b>Ebitda (\$mm)</b>	<b>118</b>	<b>70</b>	<b>69</b>	<b>78</b>	<b>76</b>	<b>294</b>
Exploration	4	4	4	4	4	<b>16</b>
Deprec., Deplet., & Amort.	32	32	32	32	32	<b>128</b>
<b>Ebit</b>	<b>82</b>	<b>34</b>	<b>33</b>	<b>42</b>	<b>40</b>	<b>150</b>
Interest	8	8	8	8	8	<b>32</b>
<b>Ebt</b>	<b>74</b>	<b>26</b>	<b>25</b>	<b>34</b>	<b>32</b>	<b>118</b>
Income Tax	26	9	9	12	11	<b>41</b>
<b>Net Income (\$mm)</b>	<b>48</b>	<b>17</b>	<b>17</b>	<b>22</b>	<b>21</b>	<b>77</b>
<b>Shares (millions)</b>	<b>45</b>	<b>45</b>	<b>45</b>	<b>45</b>	<b>45</b>	<b>45</b>
Per share (\$)	1.07	0.38	0.37	0.50	0.46	<b>1.71</b>
Ebitda Margin	75%	68%	68%	70%	69%	<b>69%</b>
Tax Rate	35%	35%	35%	35%	35%	<b>35%</b>

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September 7, 2001

**Table S-1**  
**Mid Cap and Small Cap Energy Companies**  
**Rank by McDep Ratio: Market Cap and Debt to Present Value**

	<i>Symbol/ Rating</i>	<i>Price (\$/sh) 6-Sep 2001</i>	<i>Shares (mm)</i>	<i>Market Cap (\$mm)</i>	<i>Net Present Value (\$/sh)</i>	<i>Debt/ Present Value</i>	<i>McDep Ratio</i>	
<b>Power</b>								
Consol Energy Inc.	CNX	26.02	79	2,100	27.80	0.57	0.97	
Sempra Energy	SRE	27.50	203	5,600	32.40	0.57	0.93	
CMS Energy Corporation	CMS	22.99	128	2,900	34.00	0.70	0.90	
Constellation Energy Group	CEG	30.05	152	4,600	46.80	0.40	0.78	
	<i>Total or Median</i>			<i>15,200</i>		<i>0.57</i>	<i>0.92</i>	
<b>Natural Gas and Oil</b>								
TEPPCO Partners, L.P.	TPP	32.25	38	1,230	13.20	0.65	1.50	
Valero Energy Corp.(with UDS)	VLO	43.59	110	4,800	44.80	0.54	0.99	
Ocean Energy, Inc.	OEI	19.58	177	3,500	24.40	0.25	0.85	
Unocal Corporation	UCL	36.11	257	9,300	47.80	0.30	0.83	
Marathon Oil Corporation	MRO	1	32.10	310	10,000	42.60	0.26	0.82
PanCanadian Energy	PCX_w	2	26.61	262	6,970	33.90	0.14	0.81
Petro-Canada	PCZ	25.85	267	6,900	33.00	0.08	0.80	
Norsk Hydro ASA (49%)	NHY	43.12	128	5,500	61.60	0.16	0.75	
Devon Energy Corp (incl MND)	DVN	42.91	165	7,100	66.20	0.26	0.74	
PetroChina Company Ltd (10%)	PTR	2	21.15	176	3,700	32.50	0.15	0.70
	<i>Total or Median</i>			<i>59,000</i>		<i>0.26</i>	<i>0.82</i>	
<b>Small Cap</b>								
Quicksilver Resources Inc.	KWK	16.20	19.3	310	10.80	0.59	1.21	
Spinnaker Exploration Company	SKE	38.14	28.4	1,080	33.60	-	1.13	
XTO Energy Inc.	XTO	15.20	123.0	1,870	17.80	0.29	0.90	
Swift Energy Company	SFY	26.04	25.7	670	33.80	0.21	0.82	
Newfield Exploration Company	NFX	34.58	49.3	1,710	46.80	0.18	0.78	
Louis Dreyfus Natural Gas Corp.	LD	2	32.89	44.8	1,470	45.90	0.22	0.78
Penn Virginia Corporation	PVA	34.08	8.8	300	44.20	0.00	0.77	
Encore Acquisition Corporation	EAC	12.69	30.0	380	17.40	0.14	0.77	
Stone Energy Company	SGY	38.32	26.5	1,020	51.90	0.09	0.76	
Forest Oil Corporation	FST	27.39	50.2	1,380	42.10	0.21	0.72	
	<i>Total or Median</i>			<i>10,190</i>		<i>0.19</i>	<i>0.78</i>	
<b>Small Cap (Present Value Recalculated Weekly)</b>								
Dorchester Hugoton, Ltd.	DHULZ	14.24	10.7	153	11.30	-	1.26	
Cross Timbers Royalty Trust	CRT	19.20	6.0	115	17.00	-	1.13	
San Juan Basin Royalty Trust	SJT	12.47	46.6	580	14.80	-	0.84	
Hugoton RoyaltyTrust	HGT	12.40	40.0	500	15.40	-	0.81	
Energy Partners Ltd.	EPL	2	8.40	27.0	230	16.40	0.07	0.55
	<i>Total or Median</i>			<i>1,580</i>		<i>-</i>	<i>0.84</i>	
<b>Micro Cap</b>								
Abraxas Petroleum Corporation	ABP	2.30	23.6	54	1.70	0.89	1.04	
Purcell Energy, Ltd. (US\$)	PEL.TO	2.24	26.0	58	3.70	0.07	0.64	

Buy/Sell rating after symbol: 1 - Strong Buy, 2 - Buy

McDep Ratio = Market cap and Debt to present value of oil and gas and other businesses

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**Table S-2**  
**Mid Cap and Small Cap Energy Companies**  
**Rank by EV/Ebitda: Enterprise Value to Earnings Before Interest, Tax, Deprec.**

	<i>Symbol/ Rating</i>	<i>Price (\$/sh) 6-Sep 2001</i>	<i>EV/ Sales 2001E</i>	<i>EV/ Ebitda NTM</i>	<i>P/E NTM</i>	<i>Dividend or Distribution NTM (%)</i>	<i>PV/ Ebitda NTM</i>	
<b>Power</b>								
Consol Energy Inc.	CNX	26.02	2.1	7.8	9	4.3	8.0	
Sempra Energy	SRE	27.50	1.2	7.5	11	3.6	8.0	
CMS Energy Corporation	CMS	22.99	0.9	7.2	8	6.4	8.0	
Constellation Energy Group	CEG	30.05	1.8	6.3	9	1.6	8.0	
	<i>Median</i>		<i>1.5</i>	<i>7.3</i>	<i>9</i>	<i>4.0</i>	<i>8.0</i>	
<b>Natural Gas and Oil</b>								
TEPPCO Partners, L.P.	TPP	32.25	0.7	12.0	16	6.5	8.0	
Valero Energy Corp.(with UDS)	VLO	43.59	0.3	6.9	6	0.7	7.0	
Unocal Corporation	UCL	36.11	2.4	5.8	15	2.2	7.0	
Ocean Energy, Inc.	OEI	19.58	3.5	5.5	12	0.8	6.5	
Devon Energy Corp (incl MND)	DVN	42.91	2.6	4.8	11	0.5	6.5	
Petro-Canada	PCZ	25.85	1.4	4.8	10	1.0	6.0	
PanCanadian Energy	PCX_w	2	26.61	1.2	4.5	9	1.0	5.5
Marathon Oil Corporation	MRO	1	32.10	0.4	4.1	7	2.9	5.0
Norsk Hydro ASA (49%)	NHY		43.12	0.8	3.7	9	2.4	5.0
PetroChina Company Ltd (10%)	PTR	2	21.15	1.5	2.8	5	8.1	4.0
	<i>Median</i>		<i>1.3</i>	<i>4.8</i>	<i>9</i>	<i>1.6</i>	<i>6.3</i>	
<b>Small Cap</b>								
Quicksilver Resources Inc.	KWK		16.20	4.8	10.9	-	9.0	
Spinnaker Exploration Company	SKE		38.14	6.8	7.9	30	7.0	
XTO Energy Inc.	XTO		15.20	4.7	7.2	16	8.0	
Louis Dreyfus Natural Gas Corp.	LD	2	32.89	4.8	7.0	19	9.0	
Encore Acquisition Corporation	EAC		12.69	3.8	6.2	15	8.0	
Swift Energy Company	SFY		26.04	4.3	5.7	13	7.0	
Forest Oil Corporation	FST		27.39	2.1	5.1	20	7.0	
Newfield Exploration Company	NFX		34.58	3.7	4.7	16	6.0	
Penn Virginia Corporation	PVA		34.08	3.3	4.6	10	6.0	
Stone Energy Company	SGY		38.32	3.6	4.6	19	6.0	
	<i>Median</i>			<i>4.0</i>	<i>5.9</i>	<i>16</i>	<i>7.0</i>	
<b>Small Cap (Present Value Recalculated Weekly)</b>								
Dorchester Hugoton, Ltd.	DHULZ		14.24	8.8	13.2	17	10.4	
Cross Timbers Royalty Trust	CRT		19.20	7.0	11.8	13	10.5	
San Juan Basin Royalty Trust	SJT		12.47	6.8	8.7	13	10.4	
Hugoton RoyaltyTrust	HGT		12.40	5.6	8.5	12	10.5	
Energy Partners Ltd.	EPL	2	8.40	1.8	3.3	34	6.1	
	<i>Median</i>			<i>6.8</i>	<i>8.7</i>	<i>13</i>	<i>10.4</i>	
<b>Micro Cap</b>								
Abraxas Petroleum Corporation	ABP		2.30	4.9	7.3	-	7.0	
Purcell Energy, Ltd. (US\$)	PEL.TO		2.24	3.0	3.8	12	6.0	

EV = Enterprise Value = Market Cap and Debt; Ebitda = Earnings before interest, tax, depreciation and amortization; NTM = Next Twelve Months Ended June 30, 2002; P/E = Stock Price to Earnings; PV = Present Value of oil and gas and other businesses

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