

Rating: Buy  
S&P 500: 1065

## **Norsk Hydro ASA** **Tempered by Taxes**

<i>Symbol</i>	NHY	<i>Ebitda Next Twelve Months ending 3/31/05 (\$mm)</i>	4,900
<i>Rating</i>	Buy	<i>North American Natural Gas/Ebitda (%)</i>	0
<i>Price (\$/sh)</i>	62.42	<i>Natural Gas and Oil Production/Ebitda (%)</i>	61
<i>Pricing Date</i>	8/9/04	<i>Adjusted Reserves/Production NTM</i>	9.4
<i>Shares (mm)</i>	256	<i>EV/Ebitda</i>	4.2
<i>Market Capitalization (\$mm)</i>	15,900	<i>PV/Ebitda</i>	5.6
<i>Debt (\$mm)</i>	4,400	<i>Undeveloped Reserves (%)</i>	36
<i>Enterprise Value (EV) (\$mm)</i>	20,400	<i>Natural Gas and Oil Ebitda (\$/boe)</i>	14.50
<i>Present Value (PV) (\$mm)</i>	27,400	<i>Present Value Proven Reserves(\$/boe)</i>	7.00
<i>Net Present Value (\$/share)</i>	90	<i>Present Value Proven Reserves(\$/mcf)</i>	1.20
<i>Debt/Present Value</i>	0.16	<i>Earnings Next Twelve Months (US\$/sh)</i>	6.21
<i>McDep Ratio - EV/PV</i>	0.74	<i>Price/Earnings Next Twelve Months</i>	10
<i>Dividend Yield (%/year)</i>	2.5	<i>Indicated Annual Dividend (US\$/sh)</i>	1.59

Note: Estimated cash flow and earnings tied to one-year futures prices for oil.

Reported results may vary widely from estimates. Estimated present value per share revised only infrequently.

The Norwegian government owns 44% of the shares in Norsk Hydro.

### **Summary and Recommendation**

We continue to recommend current purchase of the American Depositary Shares of **Norsk Hydro ASA (NHY)** for representation in growing volume and rising value of politically safe Norwegian oil and gas production. Those characteristics come with an unusually high marginal tax rate of some 78%, the effect of which we underestimated temporarily. As a result we have scaled back our recent increase in present value to a level that still implies 44% appreciation potential in a year or two from current stock price. The fact of the high tax speaks to the underlying quality of oil and gas production offshore Norway, mitigates the risk of oil price decline, shifts the financial burden of new investment to the government and restricts competition from new entrants.

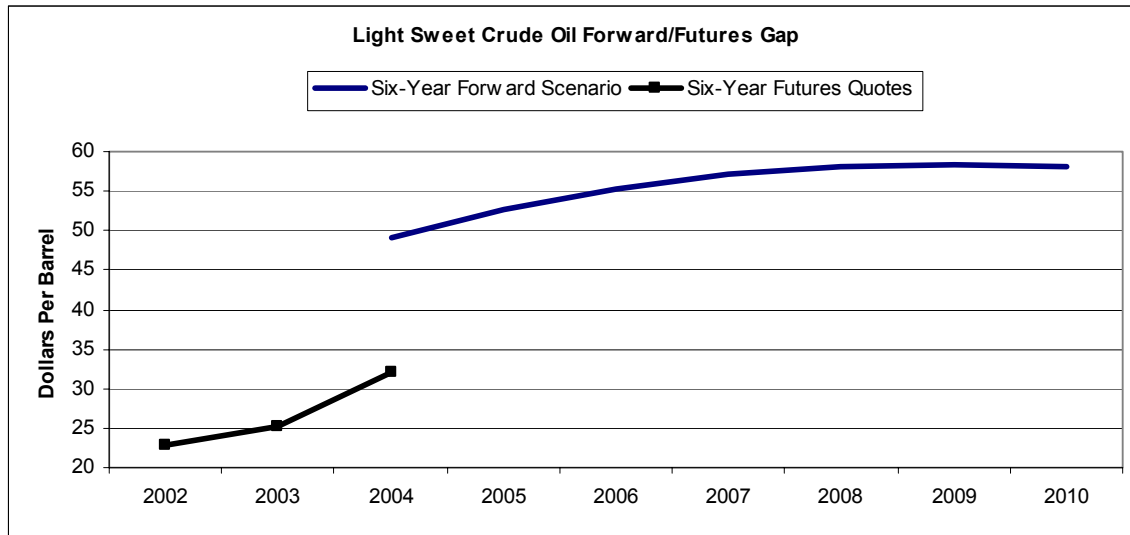
### **Oil Price Moving Sharply Higher**

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).

To construct the scenario we assumed oil would peak in 2010 at \$50 in 2003 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 is tight as the Middle East is showing maturity with the workhorse giant fields on the verge of peaking.

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Monetary factors favor oil investment as interest rates below inflation drive investors to real assets for protection against currency debasement. 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. In consuming countries, many view the use of military force as an attempt to hold down oil price at what we would term an artificially low level. Thirty years ago some of the same political leaders directed price controls in a failed attempt to hold oil price artificially low.

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.

There may be a risk of oil stock price decline even if oil price remains firm. That happened in 1974 when economic activity and the stock market declined severely. We think the current parallel occurred in 2002 and is now behind us. Nonetheless the stock market may have begun a new moderate downward phase of its cycle. We liken that to the mid to late 1970s when oil price held and then took off again.

### **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 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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**Norsk Hydro**  
**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</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>Twelve</i>
								<i>Months</i>
								<i>6/30/05</i>
<b>Volume</b>								
Natural Gas (mmcf/d)	1,038	882	696	996	<b>902</b>	1,038	882	<b>902</b>
Oil (mbd)	442	422	380	422	<b>416</b>	422	422	<b>411</b>
Total gas & oil (mbd)	615	569	496	588	<b>567</b>	595	569	<b>562</b>
<b>Price</b>								
Natural gas (NOK/mcf)	31	28	28	28	<b>29</b>	28	28	<b>28</b>
Natural gas (NOK/Sm3)	1.10	0.98	0.98	0.98	<b>0.81</b>	0.98	0.98	<b>0.79</b>
<b>Oil</b>								
WTI Cushing US\$/bbl)	35.23	38.34	43.19	43.93	<b>40.17</b>	42.25	40.88	<b>42.56</b>
Kroner/\$	6.91	6.85	6.76	6.76	<b>6.82</b>	6.76	6.76	<b>6.76</b>
WTI Cushing (NOK/bbl)	243	263	292	297	<b>274</b>	286	276	<b>288</b>
NHY (NOK/bbl)	218	238	265	269	<b>247</b>	259	250	<b>261</b>
Total gas & oil (NOK/bb	209	220	242	240	<b>227</b>	232	229	<b>235</b>
<b>Revenue (NOKmm)</b>								
Natural Gas	2,911	2,253	1,778	2,544	<b>9,485</b>	2,594	2,253	<b>9,168</b>
Oil	8,684	9,240	9,249	10,448	<b>37,621</b>	9,830	9,724	<b>39,251</b>
Other	30,914	29,010	29,010	29,010	<b>117,944</b>	29,010	24,010	<b>111,040</b>
Total	39,598	38,250	40,037	42,001	<b>159,886</b>	41,434	35,986	<b>159,458</b>
<b>Expense</b>								
Production	5,663	6,929	6,788	7,393	<b>26,772</b>	7,231	7,101	<b>28,514</b>
Other	27,176	25,703	25,703	25,703	<b>104,286</b>	25,703	20,703	<b>97,813</b>
Total	32,838	32,632	32,491	33,096	<b>131,058</b>	32,935	27,804	<b>126,327</b>
<b>Ebitda (NOKmm)</b>								
Exploration and Production	5,932	4,564	4,239	5,599	<b>20,334</b>	5,192	4,875	<b>19,905</b>
Other	3,738	3,307	3,307	3,307	<b>13,658</b>	3,307	3,307	<b>13,226</b>
Total Ebitda	9,671	7,871	7,545	8,905	<b>33,992</b>	8,499	8,182	<b>33,131</b>
Exploration	249	199	199	199	<b>846</b>	199	199	<b>796</b>
Deprec., Deplet., & Amort.	3,696	3,592	3,592	3,592	<b>14,472</b>	3,592	3,592	<b>14,368</b>
<b>Ebit</b>	5,726	4,080	3,754	5,114	<b>18,674</b>	4,708	4,391	<b>17,967</b>
Interest	433	434	434	434	<b>1,735</b>	434	434	<b>1,736</b>
Foreign Exchange	454	226						
<b>Ebt</b>	4,839	3,420	3,320	4,680	<b>16,259</b>	4,274	3,957	<b>16,231</b>
Income Tax	1,694	1,197	1,162	1,638	<b>5,691</b>	1,496	1,385	<b>5,681</b>
<b>Net Income (NOKmm)</b>								
Exploration and Production	7,082	7,184						
Other Operations	1,629	1,371						
Non operating deductions	(5,566)	(6,332)						
Total	3,145	2,223	2,158	3,042	<b>10,568</b>	2,778	2,572	<b>10,550</b>
<b>Shares</b> (millions)	256	256	256	256	<b>256</b>	256	256	<b>256</b>
Per share (NOK)	12.30	8.70	8.45	11.91	<b>41.35</b>	10.87	10.07	<b>41.29</b>
Ebitda Margin (E&P)	51%	40%	38%	43%	<b>43%</b>	42%	41%	<b>41%</b>
Tax Rate	35%	35%	35%	35%	<b>35%</b>	35%	35%	<b>35%</b>

Offsetting higher price expectations, we make a more realistic allowance for the oil tax. For global comparability, we calculate Ebitda as though tax rate were a more normal 35%. Taxes beyond that, particularly the special oil tax in Norway, we include as production expense.

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 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 one barrel equivalent of reported proven reserves, 0.64 barrel developed and 0.36 barrel undeveloped. As a result, total present value, the number in the box, is also present value per barrel of proven reserves.

While there are many assumptions that could be discussed the most important may be discount rate, oil price and the quantity of reserves. 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.

On discount rate we presume that earning a 5% real return per year on an unlevered basis is a decent achievement. That compares to the 2% real return per year offered by U.S. Treasury Inflation Protected Securities. For good measure we bump that up to 7%.

While 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.

Natural gas is particularly important at Norsk Hydro accounting for 56% of reserves compared to 26% of NTM production. Because we combine oil and gas in the calculation we escalate the oil equivalent price as natural gas price catches up to oil and eventually exceeds oil.

### **Oil Tax May Reduce Present Value by a Third**

The standardized calculation would place present value near \$10.50 a barrel for equivalent reserves. When we include the Norwegian Petroleum Tax, present value drops to \$7.00 a barrel. Our estimates can only be approximate. The company discloses a great deal of information on operations and then confines tax to little more than a single line item.

We should not be surprised about the impact of the special tax even though we temporarily understated it. We met in Oslo with the Norwegian Finance Minister thirty years ago when the tax was first introduced.

### **Present Value per Barrel Leads to Net Present Value**

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). The price of \$35 a barrel corresponds to our standardized present value \$90 a share.

Reported reserves that we use in the calculation understate likely future volumes. Contrary to our projection of decline from proven reserves, the company historically has grown production and expects to continue to do so. Moreover, natural gas production is likely to last longer than the period of our calculation. Also the reporting standard presumes a high probability that the stated numbers will actually be achieved. A more relevant standard for equity investors would be "expected reserves" at a probability of 50% of being achieved, if that number could be estimated reliably.

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For the time being we discuss little about the aluminum business that accounts for 40% of our estimated value of the company. Management promises a detailed presentation in early September.

Different oil price assumptions imply that a change of five dollars a barrel may be worth eleven dollars a share.

Kurt H. Wulff, CFA

**Norsk Hydro**  
**Present Value of Oil and Gas Reserves**

Volume Decline (%/yr):	13	Nymex Oil Price Post 2005 (\$/bbl)	35
Volume Enhancement (%/yr):	9	Real Discount Rate (%/yr):	7.0
Capex/Cash Flow (%):	20	Variable Cost (%):	26

Year	Basic (bbl)	Enhanced (bbl)	Total (bbl)	Price (\$/bbl)	Revenue (\$)	Fixed Cost (\$)	Var. Cost (\$)	Oil Tax (\$)	Cash Flow (\$)	Cap Ex (\$)	Free CF (\$)	Disc Factor	Present Value (\$)
Total 2005 through 2024; years ending on 6/30													
	0.640	0.360	1.001	34.26	34.29	5.99	8.91	7.15	12.23	1.50	10.73	0.65	7.00
2005	0.087	0.000	0.087	34.83	3.03	0.30	0.79	0.70	1.24	0.25	1.00	0.97	0.96
2006	0.076	0.008	0.084	31.71	2.66	0.30	0.69	0.62	1.05	0.21	0.84	0.90	0.76
2007	0.066	0.015	0.081	32.09	2.61	0.30	0.68	0.60	1.03	0.21	0.82	0.84	0.69
2008	0.058	0.021	0.079	32.47	2.55	0.30	0.66	0.59	1.00	0.20	0.80	0.79	0.63
2009	0.051	0.025	0.076	32.86	2.50	0.30	0.65	0.57	0.98	0.20	0.78	0.74	0.58
2010	0.044	0.029	0.073	33.26	2.44	0.30	0.64	0.56	0.95	0.19	0.76	0.69	0.52
2011	0.039	0.033	0.071	33.66	2.39	0.30	0.62	0.54	0.93	0.25	0.68	0.64	0.44
2012	0.034	0.035	0.069	34.06	2.34	0.30	0.61	0.53	0.90	0.00	0.90	0.60	0.54
2013	0.029	0.031	0.060	34.47	2.07	0.30	0.54	0.46	0.78	0.00	0.78	0.56	0.44
2014	0.026	0.027	0.052	34.88	1.83	0.30	0.48	0.39	0.66	0.00	0.66	0.53	0.35
2015	0.022	0.023	0.046	35.30	1.62	0.30	0.42	0.33	0.56	0.00	0.56	0.49	0.28
2016	0.020	0.020	0.040	35.72	1.43	0.30	0.37	0.28	0.48	0.00	0.48	0.46	0.22
2017	0.017	0.018	0.035	36.15	1.26	0.30	0.33	0.23	0.40	0.00	0.40	0.43	0.17
2018	0.015	0.016	0.030	36.59	1.12	0.30	0.29	0.19	0.33	0.00	0.33	0.40	0.13
2019	0.013	0.014	0.027	37.03	0.99	0.30	0.26	0.16	0.27	0.00	0.27	0.37	0.10
2020	0.011	0.012	0.023	37.47	0.87	0.30	0.23	0.13	0.22	0.00	0.22	0.35	0.08
2021	0.010	0.010	0.020	37.92	0.77	0.30	0.20	0.10	0.17	0.00	0.17	0.33	0.06
2022	0.009	0.009	0.018	38.38	0.68	0.30	0.18	0.08	0.13	0.00	0.13	0.31	0.04
2023	0.008	0.008	0.015	38.84	0.60	0.30	0.16	0.05	0.09	0.00	0.09	0.29	0.03
2024	0.007	0.007	0.014	39.30	0.53	0.30	0.14	0.03	0.06	0.00	0.06	0.27	0.02

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**Norsk Hydro**  
**Net Present Value Calculation**

Constant Oil Price (\$/bbl):	30	35	40	50
Present Value per Barrel (\$):	5.80	7.00	8.10	10.30
Oil and Gas reserves (million barrels equivalent):	2,366	2,366	2,366	2,366
Present Value of Oil and Gas Reserves (\$mm):	13,700	16,600	19,200	24,400
Present Value of Other Businesses (\$mm):	10,900	10,900	10,900	10,900
Total	24,600	27,500	30,100	35,300
Debt (\$mm):	4,400	4,400	4,400	4,400
Present Value of Equity (\$mm):	20,200	23,100	25,700	30,900
Shares (mm):	256	256	256	256
Net Present Value (\$/sh):	79	90	101	121

**Research Methodology/Ratings Description:** McDep Associates is an independent research originator focused on oil and gas stocks exclusively. The firm applies the thirty years of experience of its analyst to estimate a present value of the oil and gas resources and other businesses of covered companies. That value is compared with a company's stock market capitalization and debt. Stocks with low market cap and debt relative to present value tend to outperform stocks with high market cap and debt relative to present value. Buy recommendations are expected to deliver a total return better than 7% per year above inflation. Hold recommendations assume the attributes of the underlying business are reflected in the current price of the stock. Sell recommendations are expected to deliver a negative total return less than 7% per year including the effects of inflation.

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