Energy

August 4, 2011

Industry Brief

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Alternative Energy - Alternative Power: Industry Tidbit

Solar EOR Keeps Advancing: Oman to Build First System In Mid-East

- In our Energy Stat of the Week from March 7, "Can Solar Thermal Technology Transform the Economics of Enhanced Oil Recovery?", we provided an introduction to the concept of solar EOR. Our report was published shortly after the world's first-ever commercial-scale solar EOR system was completed near Bakersfield, California. The technology provider was GlassPoint Solar, and the customer was Berry Petroleum. We also noted at the time that an even larger project is being built, also in central California, by BrightSource Energy under contract with Chevron. Yesterday came another milestone in the commercialization of solar EOR – the first such system in the Mid-East, and more broadly, outside North America. GlassPoint announced that it will be building a system for Petroleum Development Oman (PDO), Oman's national oil company. This 7 MW system – 27x larger than the system built for Berry – will be located at an existing EOR project in southern Oman.

- Let's recap why solar technology can be highly beneficial for EOR producers, within the context of an oil industry in which maximizing recovery of scarce resources is truly a necessity. The traditional model for EOR has been to burn natural gas to generate steam. Though it may seem counterintuitive, solar EOR can be done more cost-effectively than burning gas – even at today's depressed gas prices. The fact that it's greener is obviously true too, but what we're emphasizing is the commercial viability. Let's look at the economics. There are several subtypes of solar EOR, associated with various companies – BrightSource and GlassPoint in the U.S., Areva (France), Lotus Solar (Egypt), and others. Because all these projects are in their infancy, it's important to take cost predictions with a grain of salt. GlassPoint's target economics indicate that it is realistic to generate steam at the equivalent of $3.00/Mcf gas, though of course it can vary from project to project depending on sunlight patterns in the specific geography, the availability of solar incentives, and other factors.

- While solar EOR compares favorably with conventional EOR at today's spot price of U.S. natural gas ($4.10/Mcf), what's more important is that it provides an automatic hedge against long-term gas price escalation. The 24-month futures strip is well above the spot price, and our long-term forecast of $5.00/Mcf is also higher than our 2012 forecast ($4.25/Mcf). For an oilfield owner that's using solar EOR, there is no input cost risk. The equipment is designed to last 30 years. You think gas will be $4-5/Mcf in 30 years (or even 15)? Neither do we. Solar EOR is also a hedge against the possibility (as remote as it may seem) of future cap-and-trade legislation in Washington.

- This brings us to the news from Oman. Looking at the map of sunlight patterns on page 2, you probably notice the bright red swath across North Africa and the Middle East (places which are very much in the news these days, though, of course, for other reasons). Although there are practically no solar incentives in the countries of the Persian Gulf, exceptionally favorable insolation – in some locations, exceeding even the levels of the Mojave Desert – is one of the factors that make solar EOR very promising there. The other factor is less obvious but even more important. With the exception of Qatar, Persian Gulf countries are short of natural gas. Oman, the United Arab Emirates (UAE), and others are actually gas importers! This is especially relevant for Oman, which is aggressively pursuing EOR – for example at the Mukhaizna field, which is operated by Occidental Petroleum. Because the gas these countries are buying could have been sold into the international LNG market, the price point is commensurately high – typically, upwards of $10/Mcf. If solar EOR can compete against $4/Mcf gas, imagine how lucrative the economics would be at gas prices that are two to three times higher. Again, the key point is the direct economic savings – the technology's green aspect is merely icing on the cake.

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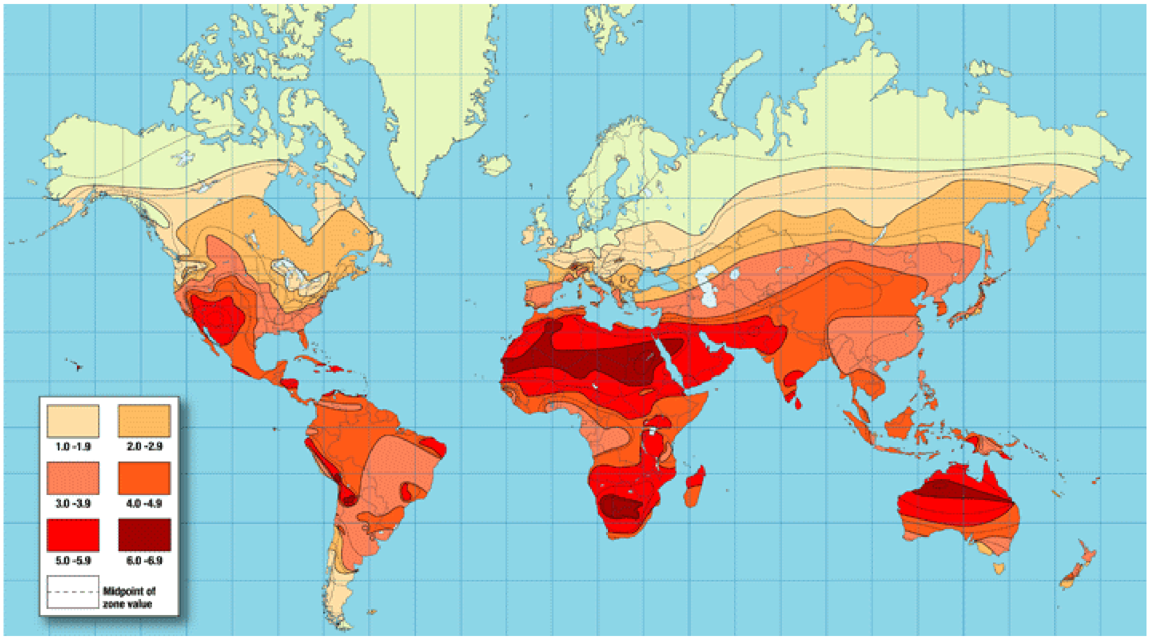

Source: SunWize Technologies

Company Citations

Company Name	Ticker	Exchange	Currency	Closing Price	RJ Rating	RJ Entity
Berry Petroleum Company	BRY	NYSE	$	57.55	2	RJ & Associates
Chevron Corp.	CVX	NYSE	$	102.76	2	RJ & Associates
Occidental Petroleum Corp.	OXY	NYSE	$	94.23	2	RJ & Associates

Notes: Prices are as of the most recent close on the indicated exchange and may not be in US$. See Disclosure section for rating definitions. Stocks that do not trade on a U.S. national exchange may not be approved for sale in all U.S. states. NC=not covered.

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Strong Buy (SB1) Expected to appreciate, produce a total return of at least 15%, and outperform the S&P 500 over the next six to 12 months. For higher yielding and more conservative equities, such as REITs and certain MLPs, a total return of at least 15% is expected to be realized over the next 12 months.

Outperform (MO2) Expected to appreciate and outperform the S&P 500 over the next 12-18 months. For higher yielding and more conservative equities, such as REITs and certain MLPs, an Outperform rating is used for securities where we are comfortable with the relative safety of the dividend and expect a total return modestly exceeding the dividend yield over the next 12-18 months.

Market Perform (MP3) Expected to perform generally in line with the S&P 500 over the next 12 months.

Underperform (MU4) Expected to underperform the S&P 500 or its sector over the next six to 12 months and should be sold.

Suspended (S) The rating and price target have been suspended temporarily. This action may be due to market events that made coverage impracticable, or to comply with applicable regulations or firm policies in certain circumstances, including when Raymond James may be providing investment banking services to the company. The previous rating and price target are no longer in effect for this security and should not be relied upon.

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Market Perform (MP3) The stock is expected to perform generally in line with the S&P/TSX Composite Index over the next twelve months and is potentially a source of funds for more highly rated securities.

Underperform (MU4) The stock is expected to underperform the S&P/TSX Composite Index or its sector over the next six to twelve months and should be sold.

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Strong Buy (SB1) Expected to appreciate and produce a total return of at least 25.0% over the next twelve months.
Outperform (MO2) Expected to appreciate and produce a total return of between 15.0% and 25.0% over the next twelve months.
Market Perform (MP3) Expected to perform in line with the underlying country index.
Underperform (MU4) Expected to underperform the underlying country index.
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Strong Buy (1) Absolute return expected to be at least 10% over the next 12 months and perceived best performer in the sector universe.
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Fair Value (3) Stock currently trades around its fair price and should perform in the range of -10% to +10% over the next 12 months.
Sell (4) Expected absolute drop in the share price of more than 10% in next 12 months.

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	Coverage Universe Rating Distribution		Investment Banking Distribution	
	RJA	**RJL**	**RJA**	**RJL**
Strong Buy and Outperform (Buy)	56%	76%	15%	59%
Market Perform (Hold)	39%	23%	5%	36%
Underperform (Sell)	5%	2%	2%	0%

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Total Return (TR) Lower risk equities possessing dividend yields above that of the S&P 500 and greater stability of principal.

Growth (G) Low to average risk equities with sound financials, more consistent earnings growth, possibly a small dividend, and the potential for long-term price appreciation.

Aggressive Growth (AG) Medium or higher risk equities of companies in fast growing and competitive industries, with less predictable earnings and acceptable, but possibly more leveraged balance sheets.

High Risk (HR) Companies with less predictable earnings (or losses), rapidly changing market dynamics, financial and competitive issues, higher price volatility (beta), and risk of principal.

Venture Risk (VR) Companies with a short or unprofitable operating history, limited or less predictable revenues, very high risk associated with success, and a substantial risk of principal.

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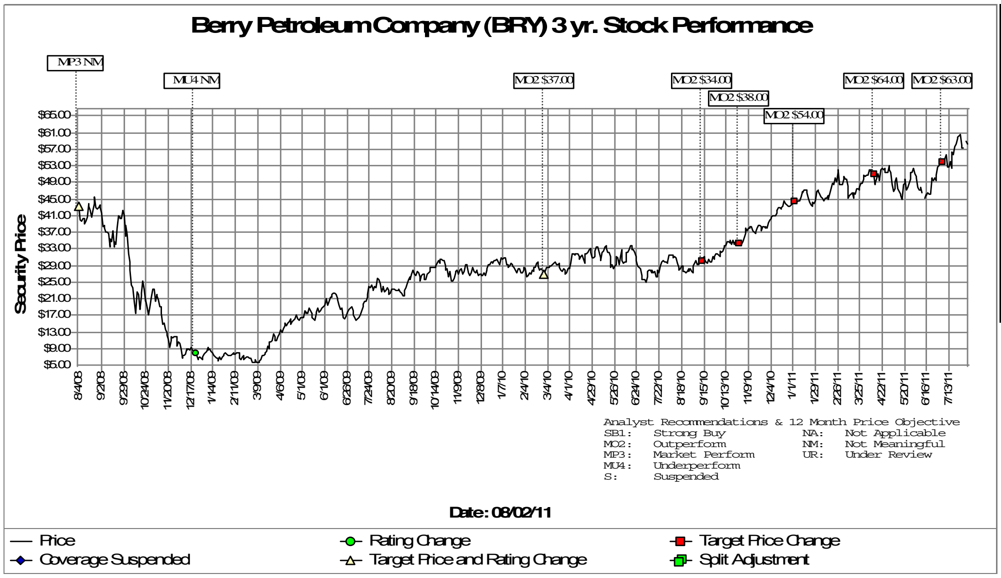
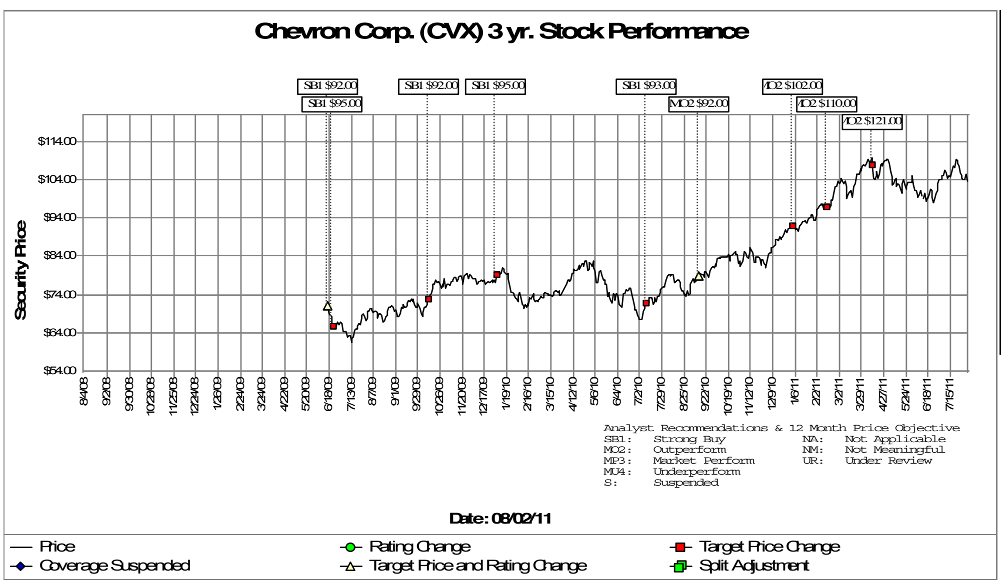
Target Prices: The information below indicates target price and rating changes for the subject companies included in this research.



Update Date	Closing Price	Target Price	Rating
7/5/11	54.01	63.00	2
4/12/11	51.00	64.00	2
1/4/11	44.52	54.00	2
10/27/10	34.54	38.00	2
9/13/10	30.12	34.00	2
3/1/10	26.80	37.00	2
12/22/08	7.86	NM	4
8/4/08	43.05	NM	3

Valuation Methodology: Our valuation methodology for Berry is centered on a target multiple of enterprise value to projected forward year EBITDA and also takes into consideration our estimate of the company's current proved reserve net asset value (NAV).



Update Date	Closing Price	Target Price	Rating
4/12/11	107.78	121.00	2
2/15/11	96.95	110.00	2
1/4/11	91.94	102.00	2
9/13/10	78.82	92.00	2
7/12/10	71.84	93.00	1
1/5/10	79.06	95.00	1
10/12/09	72.76	92.00	1
6/23/09	65.76	95.00	1
6/17/09	71.08	92.00	1

Valuation Methodology: Our valuation methodology for Chevron is centered on a target multiple of share price to projected forward-year EPS. The methodology also takes into account a target multiple of enterprise value to projected forward-year EBITDA and our estimate of the company's current proved reserve net asset value (NAV).

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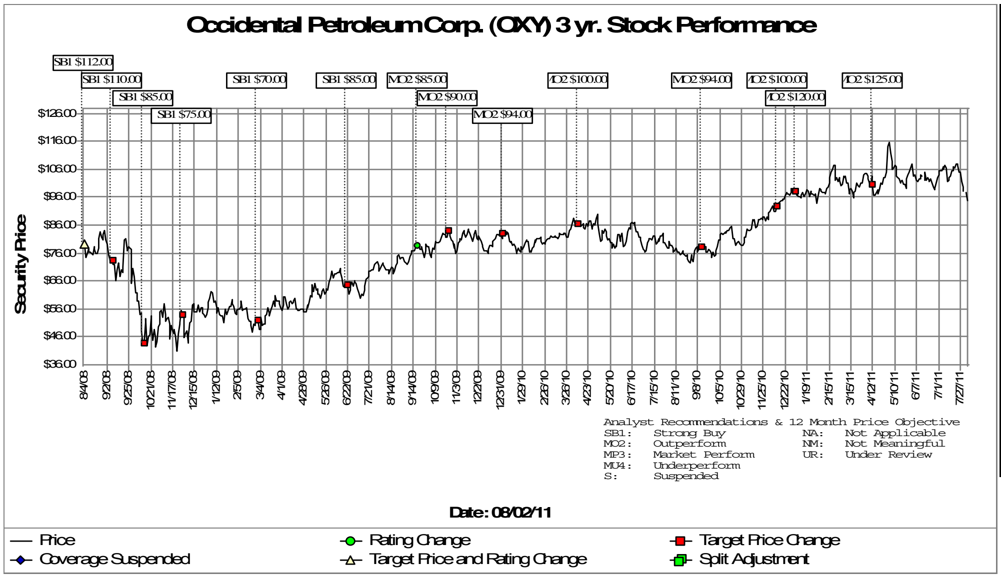

Update Date	Closing Price	Target Price	Rating
4/12/11	100.42	125.00	2
1/4/11	98.00	120.00	2
12/10/10	93.02	100.00	2
9/13/10	78.20	94.00	2
4/12/10	86.56	100.00	2
1/5/10	83.10	94.00	2
10/22/09	84.00	90.00	2
9/18/09	78.64	85.00	2
6/22/09	64.52	85.00	1
3/2/09	51.87	70.00	1
12/1/08	54.14	75.00	1
10/13/08	43.90	85.00	1
9/8/08	73.27	110.00	1
8/4/08	79.31	112.00	1

Valuation Methodology: Our valuation methodology for Occidental is centered on a target multiple of enterprise value to projected forward year EBITDA and also takes into consideration our estimate of the company's current proved reserve net asset value (NAV).

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General Risk Factors: Following are some general risk factors that pertain to the projected target prices included on Raymond James research: (1) Industry fundamentals with respect to customer demand or product / service pricing could change and adversely impact expected revenues and earnings; (2) Issues relating to major competitors or market shares or new product expectations could change investor attitudes toward the sector or this stock; (3) Unforeseen developments with respect to the management, financial condition or accounting policies or practices could alter the prospective valuation; or (4) External factors that affect the U.S. economy, interest rates, the U.S. dollar or major segments of the economy could alter investor confidence and investment prospects. International investments involve additional risks such as currency fluctuations, differing financial accounting standards, and possible political and economic instability.

Specific Investment Risks Related to the Industry or Issuer

Company-Specific Risks for Berry Petroleum Company

Gas and Oil Price Volatility
Prices for natural gas and oil fluctuate widely, and Berry's revenues, profitability, and future growth depend substantially on prevailing prices for gas and oil. Also, lower oil and gas prices can influence the company's cash flow and capital available to reinvest in drilling projects, which could impact Berry's ability to grow its operations. To manage commodity price volatility, in the normal course of its business, Berry will periodically enter into hedging transactions to secure pricing on its oil and gas production.

Potential Increases in Service Costs
Future increases in drilling and other service costs could affect Berry's profitability. As industry participants begin to accelerate drilling activity in response to higher commodity prices, costs will likely rise. However, attractive rates of return may continue to be achievable, depending on the level of future commodity prices and Berry's hedging program.

Future Acquisition Risks
Acquisitions are integral to Berry's business model, and future transactions are likely. Even though the company has previously been successful in executing and integrating several acquisitions, the success of future transactions or the availability of favorable future opportunities is difficult to predict. Ultimate transaction prices, economics, and form of consideration, future production, etc. can all affect future profitability and Berry's stock price performance.

Significant Financial Leverage
Berry currently maintains a significant degree of financial leverage. Declines in future profitability and cash flow generation could impact its ability to service debt obligations as well as its ability to reinvest cash flow in operations.

Company-Specific Risks for Chevron

OPEC Quota Risk

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Chevron has upstream operations in several countries that are members of OPEC, including Nigeria, Angola, the Neutral Zone between Saudi Arabia and Kuwait, and Venezuela. Because oil production in OPEC countries is subject to OPEC's output quotas, there is a risk that quota reductions could result in lower production from the company's properties.

Chemicals Segment Risk
Chevron's chemicals segment is exposed to risks that are inherent in this industry. These risks include sensitivity to adverse changes in market prices of chemicals that the company produces, which are not always offset by lower feedstock costs. In addition, there are environmental and liability risks arising out of the operation of chemical plants.

Ecuador Lawsuit Risk
Chevron is a defendant in a civil lawsuit in Ecuador, brought in 2003 over alleged environmental damage caused by an oil production consortium of which Texaco (since acquired by Chevron) was a minority member. In November 2008, a mining engineer appointed by the court issued a report recommending that the court assess $18.9 billion in financial compensation for purported damages and another $8.4 billion for purported unjust enrichment. Chevron will continue to defend itself in this case, but the ultimate resolution cannot be predicted.

Company-Specific Risks for Occidental Petroleum Corp.

International Risks
Occidental has significant operations outside the United States, primarily in the Middle East and Latin America. This exposes the company to political and currency risks. Political risks include adverse changes in laws and policies governing operations of foreign-based companies and/or increases in royalty and tax rates. Middle Eastern operations may be especially vulnerable to political and social instability in the region. Currency risks include the possibility of legal restrictions on currency transfers and exchange rate fluctuations. The company's international operations may also be adversely affected by laws and policies of the United States affecting foreign trade and taxation.

High Oil Weighting
A large percentage of Occidental's proved reserves are crude oil reserves, which increases the sensitivity of its asset values and revenues to changes in oil prices. This is especially relevant because Occidental, as a rule, rarely enters into commodity price hedges.

Chemicals Segment Risk
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