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Impact of Credit Crisis on the Energy Industry - Where Are We Now?

Posted by Gail the Actuary on December 1, 2008 - 9:56am
Topic: Economics/Finance
Tags: coal, gas, oil, original, peak oil, solar voltaic, uranium, wind [list all tags]

I recently looked through news articles to see which energy sectors were being affected by the credit crisis. I was amazed at how widespread and how devastating the impact is.

There are really two closely related problems. One is reduced access to credit, making new borrowing difficult for nearly every business that requires debt. Prices for all commodities have been dropping as well. At least part of the reason for this price decline is the lack of availability of credit—many of the less credit-worth buyers drop out of the market. This leaves fewer buyers and almost the same number of sellers, so the price drops.

In this post, I examine how reduced access to credit and the concomitant decline in commodity prices is affecting energy companies.

The impact I am seeing across a wide range of energy companies is a decline in new investment and a stretched-out timeframe for new projects. In addition, many of the weaker companies in the energy supply chain are likely to be forced out of business by the credit crisis.

When energy production is viewed for all companies combined, the below analysis suggests the credit crisis will cause the production of virtually all fuels to be in decline, relative to what they otherwise would have been. I expect production of oil will decline (in absolute terms, not just relative terms) in the years ahead. Since oil production was already on a plateau, this decline is expected to bring about "peak oil". Because of long lead times, uranium production seems likely to fall short of what is needed by nuclear power plants, within the next few years.

The long-term implications of declines in energy production are very serious. Research shows that standards of living are closely tied to energy consumption. With less energy available,

standards of living are likely to decline.

Oil and Natural Gas

The oil and natural gas industry has a very long supply chain, including many small players. In order to operate smoothly, each player in the chain must either have cash or credit to buy the goods and services it needs. The bigger companies with good cash flow and a low cost of production are in a much better position than smaller more highly leveraged companies.

The credit squeeze has already put some of these smaller players out of business. For example, a shipping company, Svithoid Tankers, went into liquidation after facing an immediate liquidity shortage and a natural gas marketing company, Catalyst Energy Group Inc., filed for Chapter 11 bankruptcy, after its credit line was ended, indirectly as a result of the failure of Lehman Brothers.

Many other companies are still operating but are encountering a cash crunch, because others don't want to do business with them, or because the credit that is available is very expensive. These players are often willing to offer discounted rates for their services, in the hopes that they will be able to keep cash flow up.

Petrobas in Brazil recently ran into a problem with suppliers who promised more than they could deliver when it awarded contracts for building 20 deep-water drilling rigs to Brazilian firms with little experience in deep-water drilling. Many of these firms were not able to borrow the money they needed to finish the oilrigs they had promised. Now Petrobas has the choice of advancing these contractors the additional funds they need, or delaying the project by finding other contractors at a much higher price.

We are now hearing about companies trying to use the lower prices available from some contractors to their advantage. In Saudi Arabia, Saudi Aramco is reportedly renegotiating contracts on its $15 billion Manifa project that was originally scheduled to add 900,000 barrels per day in oil production in mid-2011. This action is intended to reduce Saudi Aramco costs, but will increase the likelihood of bankruptcy of its subcontractors and will delay the start date of new production.

Because of the credit squeeze, many oil and gas companies are finding it necessary to limit their investments to what they can finance with cash flow. In the Canadian oil sands, both Suncor and Petro-Canada have pushed back plans to purchase "upgraders," at least partly because of cash flow considerations. US natural gas producer Chesapeake Energy cut its spending plans three times within a month.

A few companies have found ways to work around their inability to find credit in ordinary markets. Russian oil company Rosneft reached an agreement with Chinese energy company CNPC Sinopec to lend it funds for a pipeline in return for a guarantee of oil from the pipeline. This arrangement gives China a long-term guarantee of the product it needs, locking others out of the market. (Note: It seems like there were later changes to this.) LUKoil, another Russian oil company, has asked the Russian Development Bank for a $1.8 billion loan to refinance its foreign debt.

Another approach for getting around the credit squeeze is merger with a better-funded partner. While few mergers have taken place to date, the oil majors would seem to be in a position where they can buy some companies with credit problems, if they choose to.

Can the credit squeeze be expected to have an impact on capital expenditure going forward? Yes, for two reasons. First, without outside sources of credit, companies are under pressure to keep capital expenditures within the funds that are generated by cash flow. Second, since the credit squeeze keeps the price of oil and natural gas low, there is no point in extracting oil and gas if the market price is too low to provide a reasonable return on investment. Because of this second limitation, the projects that are eliminated are the projects that require a higher oil or natural gas price to be profitable.

In the case of oil, the projects that become non-economic are the newer fields that are more expensive to extract, such as the Canadian oil sands, Petrobas' new deep offshore Brazilian oil, oil in the Bakken formation in the US, and oil near the Arctic Circle. In the case of natural gas, the more expensive fields are various types of unconventional gas production, such as Barnett Shale in Texas.

Other types of capital expenditure that are not directly related to production are also likely to come under pressure. For example, it is likely to be difficult to get funding for new pipelines (including the proposed natural gas pipeline from Alaska), if these have not yet been funded. In the UK, plans had been made for additional underground natural gas storage beneath Portland, Dorset, so as to have more ability to store extra gas for winter and prevent price spikes. This has now been suspended, for lack of funding.

The net impact of all these issues is that oil production has already started to decline. Plans for future investment have been cut back, so it is likely that oil production will stay low for quite some time. Even if prices should rebound, lack of credit will limit the ability of the oil supply chain to increase production. For these reasons, world oil production is likely past its peak.

Natural gas production and distribution is based more on local markets than an international market, but it too will start seeing more problems. In places where natural gas production was forecast to increase, these increases are likely to be less than previously forecast. In places where production was expected to decrease, the decreases are likely to be greater than planned. In the United States, natural gas tends to be produced by smaller, highly leveraged companies. These companies are likely to be disproportionately affected by the credit crisis. While US natural gas production has recently been increasing, future production is likely to be flatter. If credit problems persist for another two or three years, production may even start to decline, because of the rapid decline rates of unconventional gas wells, and the difficulty in funding enough new wells.

Coal

The coal industry is in many ways similar to the oil and natural gas industry. The companies that can be expected to fare best in the credit crunch are large companies, with low-cost mines and significant cash flow from current operations. These companies will be able to use their cash flow to finance future capital expenditures. Companies that depend heavily on debt and smaller service companies will have difficulty obtaining credit. Some of these companies may seek to merge with major coal companies.

As with oil and natural gas, the price of coal has dropped recently as a result of reduced demand associated with the credit crisis. The lower price will make new investments less profitable than they would otherwise have been. This will act as a deterrent to opening new mines, particularly in higher-cost areas.

The infrastructure used for transporting coal is primarily railroads and barges, plus some trucks.

With the credit crisis, it is likely to be difficult to obtain funding to upgrade this infrastructure. The lack of new infrastructure will act as another deterrent to growth of the coal industry.

Prior to the recent credit crisis, there were about a dozen Coal-to-Liquid (CTL) plants in some stage of the planning process. The products made at these plants were intended to compete with gasoline or diesel. Now these plans are being re-evaluated because at an oil price of $60 barrel or less, the cost of CTL is no longer competitive.

Ethanol and other Biofuels

Ethanol is another product intended to compete with gasoline. When oil prices were high, and adequate subsidies were in place, ethanol producers did well. Now that both oil and corn prices are down, both farmers and ethanol producers are having difficulties.

The US's largest ethanol producer, Verasun, recently sought bankruptcy protection, and there are a number of smaller companies near bankruptcy. The New York Times reports, "The industry should be consolidated — I think everybody believes that," said Mr. Horowitz of Soleil. "But who is going to finance anything right now, let alone a very low-margin business that doesn't look like it's going to get better in the near term?"

Ethanol in Brazil is encountering difficulties as well. The sector is highly leveraged. Projects which already have been funded will continue, but there is a question whether funds for new investment can be found, especially in light of the low price for gasoline. Mergers may occur because the credit crisis makes some of the projects easy takeover targets.

Ethanol from non-food sources (called cellulosic ethanol) is not at this point cost-competitive with corn or sugar based ethanol. Producers have been hopeful that additional funding for their research might become available, so as to try to lower production costs. This is looking less and less likely, with the credit crisis. In the US, President-Elect Barack Obama has indicated that some of his plans for energy investment may have to be scaled back, because of the $700 billion bailout of financial markets. Lower prices for gasoline make cellulosic ethanol even less cost competitive, discouraging new investment.

In the European Union, biofuel goals were recently pared back, so it is not as clear how much of the lessened growth in production is lowered goals, and how much is the impact of the credit crisis. Last year, the goal for biofuel production was set at 10% by 2020, but in September 2008 this was pared back to 5% of transport fuels by 2015. There is still a goal of 10% by 2020, but this is to be reviewed in 2014 depending on scientific progress.

Wind, Solar, and Geothermal

Wind, solar, and geothermal are all renewable sources of electricity. They are intended to be replacements for electricity generated by fossil fuels, partly because of climate change issues and partly to foster energy independence. Since these are long-term goals, cost is also an issue. When the price of oil and natural gas was high, there appeared to be cost savings, but these disappear when fossil fuel prices drop.

These renewable energy companies have been hit very hard by the credit crisis. Most used considerable leverage and were growing rapidly before the crisis. The credit crisis has dried up funding drying up, so new projects are off substantially.

One of the issues is that in Europe, investment in wind and solar was pushed along by climate change legislation. Now, with the financial crisis, countries are backpedalling on their promises. Back in March 2007, the European Union members pledged to cut greenhouse-gas emissions 20% below 1990 levels by 2020. Now that the costs are clearer, and the economies are running into financial difficulties, both Germany and Italy are saying that these goals are unrealistic.

In Great Britain, climate-change goals have recently been raised. Large projects backed by the larger utilities seem to be safe, but more speculative projects are running into trouble, because of the difficulty in obtaining financing. The Times quotes Ian Whitlock, a partner of Ernst & Young specializing in utilities as saying, "The market has definitely tightened up. The lending rates over Libor and the covenants on renewable energy deals in particular are being toughened up."

In the US, wind energy has been hit very hard. Prior to the credit crisis, the top financers of wind energy included Lehman Brothers, AIG, JP Morgan, and GE Energy Financial. As a result of the credit crisis, these organizations are less able to lend. Congress recently extended a 2.1 cents per kilowatt hour tax credit, but this doesn't seem to be working, partly because the banks who would normally invest in wind energy are not themselves very profitable, so get little benefit from the tax credit, and partly because of concern that the wind energy will not be very profitable, and therefore have difficulty paying back the loans.

The situation in the US for solar and geothermal is similar to that for wind. German solar-power company Schott Solar AG, for example, called off a $900 million initial public offering earlier this month, citing poor market conditions. While the US Congress extended solar tax credit for eight years rather than one, it is of limited benefit to banks and other investors who are currently not profitable.

According to Forbes, "While the good news is that solar technology is poised to continue its impressive growth streak, the bad news is that a perfect storm is on the horizon as a wave of supply converges with diminishing government subsidies and a very chilly credit market. This will require solar manufacturers to reduce prices to compete and could spell trouble for smaller module makers or companies overly reliant on credit to operate."

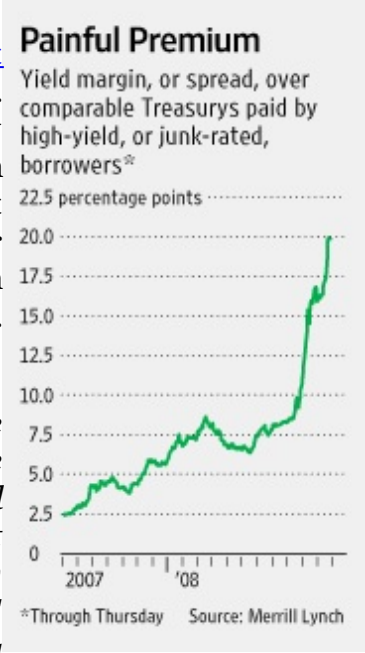
Nuclear

Even nuclear seems to be hitting headwinds with the current credit crisis.

First, with the credit crisis, it is more difficult to finance new nuclear power plants and other infrastructure. We read, "Funding 'Iffy' for Uranium Enrichment Plant". The article indicates that US's only provider of enriched uranium, USEC Inc., wants to build a new $3.5 billion facility, but cannot get public marketing financing, given the current market situation. It is hoping to get a Department of Energy loan guarantee.

Second, the spot price of uranium has dropped by more than half. While most production is sold on long-term contracts, rather than in spot markets, this, together with the lack of credit, is inhibiting new investment. Cameco, the largest uranium producer in the world, reports, "Growth will take place but at a slower and more measured pace. We will look for opportunities to reduce costs and defer projects that cannot be funded internally."

One new South African mine, which was still in pre-commercial production, has recently closed, partly due to declining uranium prices and rising costs of inputs. The company said it could not raise the required capital to fund development and subsequent production at the mine because of the global credit squeeze.



In the next few years, it is likely that uranium production will fall short of the amount needed by operating nuclear power plants worldwide. Currently, nuclear warheads are being processed, but the treaty covering this will expire in 2013, and will probably not be renewed. In addition, several mines will be reaching the ends of their lives in about the same timeframe, and new production requires eight to ten year lead times. At this point, it is likely already too late to bring enough production on to meet uranium needs in the 2013 to 2015 timeframe. The credit crisis will only make the situation worse.

I wrote this post about three weeks ago, and I don't think things have gotten much better since then. According to Merrill Lynch, the average junk bond yield is now greater than 20%. A recent Wall Street Journal article (behind pay wall) says, "The junk bond market has closed the door." The article indicates that in November, no new junk bonds were issued. It also indicates that about half of US corporations have below-investment-grade credit, and thus are being locked out of the market. It seems likely that quite a number of these companies are in the energy field.