TO: MII MANAGERS

FROM: PAUL CHEN

SUBJECT: LONG POSITION – DOMINION RESOURCES

DATE: NOVEMBER 25, 2007

Financial and valuation metrics

<table>
<thead>
<tr>
<th>Year</th>
<th>12/06A</th>
<th>12/07E</th>
<th>12/08E</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPS (CS adj., US$)</td>
<td>5.12</td>
<td>5.33</td>
<td>6.23</td>
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<tr>
<td>P/E (x)</td>
<td>17.9</td>
<td>17.2</td>
<td>14.7</td>
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<tr>
<td>P/E rel. (%)</td>
<td>107.7</td>
<td>111.7</td>
<td>106.4</td>
</tr>
<tr>
<td>Revenue (US$ m)</td>
<td>16,513.0</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>EBITDA (US$ m)</td>
<td>5,553.9</td>
<td>5,099.2</td>
<td>4,661.7</td>
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<tr>
<td>OCFPS (US$)</td>
<td>11.39</td>
<td>-2.20</td>
<td>11.05</td>
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<tr>
<td>P/OCF (x)</td>
<td>7.4</td>
<td>-41.8</td>
<td>8.3</td>
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<tr>
<td>EV/EBITDA (current)</td>
<td>8.3</td>
<td>8.6</td>
<td>9.0</td>
</tr>
<tr>
<td>Net debt (12/06A, US$ m)</td>
<td>19,463.0</td>
<td>17,119.8</td>
<td>16,866.9</td>
</tr>
<tr>
<td>ROIC</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Number of shares (m)</td>
<td>207</td>
<td>IC (12/07E, US$ m)</td>
<td>—</td>
</tr>
<tr>
<td>BV/share (current, US$)</td>
<td>32.71</td>
<td>EV/IC (x)</td>
<td>—</td>
</tr>
<tr>
<td>Net debt (current, US$ m)</td>
<td>17,119.8</td>
<td>Dividend (current, US$)</td>
<td>3.16</td>
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<tr>
<td>Net debt/Total cap. (current)</td>
<td>63.0%</td>
<td>Dividend yield</td>
<td>3.5%</td>
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Source: Company data, Credit Suisse estimates.

◆ Business Overview

Dominion Resources operates through four main units, including Dominion Delivery, Dominion Energy, Dominion Generation and Dominion Exploration and Production (E&P). Dominion Delivery entails the distribution of electric and gas to customers in Virginia, North Carolina, Pennsylvania, Ohio, and West Virginia. Dominion energy includes electric and gas transmission businesses, gas storage and the Cove Point liquefied natural gas facility. Dominion Generation oversees the electric generating plants for Dominion Virginia Power, Dominion North Carolina Power and Dominion Energy. Dominion operates four nuclear power plants. The North Anna and Surry Power Stations have two reactors each and are the regulated utility in Virginia. The Millstone Power Station is an unregulated (merchant) two reactor station in Connecticut. The Kewaunee Power Station is a single reactor unregulated station in Wisconsin.

◆ Investment overview

Dominion will be a profitable long option because:

◆ Advancement in nuclear technology that has not been realized by popular conception
◆ Nuclear power plants demonstrate superior economic and environmental efficiency
◆ Competitive position in the industry creates significant entries to barriers
◆ a multifaceted power asset portfolio spreads investment risks
◆ Offers low volatility, stable and growing earnings
**Investment Thesis:**

1. **Psychological paranoia among popular conception has impeded the progress for nuclear energy**

   Nuclear energy received the highest attention during the oil crunch in the 1970s. Governments in developed countries, led by U.S., implemented numerous measures to encourage alternative energy sources. Nuclear power is one such innovation born in that era. However, the oil dump by OPEC in an effort to prevent discovery of alternative energy sources has tarnished the progress in this area. Furthermore, the events such as Three Mile Island (TMI) and Chernobyl altogether crippled the development for nuclear technology. The media, government, and citizens have amassed a tremendous fear of nuclear energy.

   Despite these early obstacles, physicists and engineers revisited nuclear energy, with an especially meticulous attention to safety issues this time. As a result, over the course of nearly three decades, nuclear power has become a highly reliable and efficient energy output. In fact, when the World Nuclear Association was studying deaths due to accidents among different forms of energy production, deaths per TW-yr of electricity produced from 1970 to 1992 are 885 for hydropower, 342 for coal, 85 for natural gas, and 8 for nuclear. According to numerous medical studies, TMI, the worst domestic accident, has caused minimal health effects and yielded radiation doses to people similar to what a person would get by sitting for a few hours on the steps of the Capitol Building (marble is measurably radioactive).

   In particular, Dominion’s nuclear program adheres to the highest safety standard in the industry. Surry and North Anna Power Stations are consistently ranked among the most cost-effective and safe plants by numerous organizations including the Institute of Nuclear Power Operations, a third party research institute. The Waste Heat Treatment Facility at North Anna Power Station converts water from Lake Anna to steam during the power generating process. The water is then returned to the lake slightly warmer, a change that actually helps temperature-sensitive species of fish thrive during winter. Dominion nuclear plants are operated in a conservative manner, with an emphasis on maintaining safety margins. Therefore, once the market starts to recognize the reliability of nuclear engineering, Dominion stands to benefit the most given its track record of commitment to operational excellence.

2. **Rising cost for fossil fuels makes nuclear energy more competitive.**

   As mentioned before, once Cartels like OPEC kept the prices for crude oil kept low, alternative energy makes little sense. Yet as oil gets more scarce and harder to find, Wall Street has reached a consensus on the permanence of high oil prices. The increasing cost for conventional fossil fuel therefore makes alternative energy sources much more attractive today. In comparison to ethanol, hydrogen, or wind,
Nuclear alone is profitable for businesses and sufficient to cover the world’s energy demand.

Nuclear power plants require high initial capital cost, roughly 20% higher than the cost for coal plants and 150% higher than natural gas plants. However, nuclear plants’ variable cost, including uranium, is much cheaper than that of coal and natural gas. Thus, in the long run, nuclear plants remain price competitive. In addition, uranium, the fuel nuclear energy, consists less than 5% of the total nuclear production cost. As a result, energy prices will become less volatile even when uranium prices are fluctuating. For example, doubling the natural gas price would add 70% to the price of electricity from that source, whereas doubling the uranium market price would increase the electricity cost about 7%.

Nuclear energy is also exceptionally efficient and eco-friendly. One pound of uranium used during a nuclear fission releases the same amount of energy as one million gallons of gasoline. Currently, about a third of the world’s CO2 emission comes from electricity generation. Power plants generated by coal and oil usually release about 1000 g/kWh. In contrast, nuclear power plants emit virtually no CO2. Many OECD countries already started rigorous programs to curtail CO2 emission. Therefore, it is only a matter of time when nuclear energy replaces its conventional counterpart.

![Figure 59. Levelized electricity costs for new plants by fuel type, 2015 and 2030 (2005 cents per kilowatthour)](image)

3. **Dominion’s superior market position offers near monopoly status.**

The first nuclear plant started operating in the 1970s when people where first introduced to nuclear power. Today, Dominion’s four nuclear stations have capacities of 568, 2020, 1786, and 1598 megawatts each, constituting about half of Dominion’s total energy production. Meanwhile, information from the management indicates that continued safe reliable operation of the nuclear units is a key to its future success. Dominion is rigorously seeking to aggregate its nuclear capacity with numerous investment efforts. More recently, the federally commissioned Nuclear Regulatory Commission authorized its Office of New Reactors to issue an Early Site Permit (ESP) to Dominion Nuclear North Anna on Nov. 20, 2007. Although the
ESP does allow Dominion to build a new plant, it completes the review of several environmental issues and gives the determination that the site is acceptable for construction of a new plant. North Anna is applying for the Construction and Operating License (COL), which gives permission for building new plants. Thus, Dominion is one step ahead of its competitors in this episode.

In addition, estimates show that at least 4000-5000 MW of new generation are required by 2015 in Virginia. North Anna 3, the potential new reactor, would be an important part of meeting that need. There are significant incentives for new generation in the new regulatory structure passed by the Virginia legislature earlier this year. On top of that, the 2005 federal energy bill added significant incentives and loan guarantees for new nuclear construction.

Dominion’s excellent reputation is nationally renowned. In addition to the excellent reputation of Dominion's North Anna and Surry nuclear stations mentioned before, U.S. Department of Labor’s Occupational Safety & Health Administration awarded "Star" safety status to three Dominion nuclear stations.

Furthermore, Dominion has solid operations, a favorable regulatory structure for the regulated assets in Virginia, and a very healthy and profitable merchant generation portfolio. Its market cap is $26.30 billion, which generates $16.09 billion in revenue. With this much asset, Dominion Resources can readily construct new nuclear power plants, which are very capital intensive. Dominion also offers solid total shareholder return, with rising dividends as the company increases the payout ratio for the next couple of year, revealed by one Dominion executive. While the demand for more energy has provided many business opportunities, the high cost of nuclear powers keeps many companies from entering this expensive industry. Dominion, along with Exelon and Entergy, has effectively constructed a high barrier to entry to this lucrative business.

4. Diversified investment strategy helps to spread risks and capture market opportunities

In addition to nuclear energy, Dominion Generation manages a portfolio that encompasses various energy sources. Dominion owns 950 billion cubic feet of gas storage and manages 7800 miles of natural gas pipeline, the largest in the nation. The Exploration and Production division holds 1.1 trillion cubic feet equivalent of gas reserves in Appalachian.

Dominion’s fossil-fuel facilities (plants using oil, coal, and natural gas) provide about 40% of the services to its customers. Dominion’s strategy in this segment concentrates on utilizing advanced technologies, providing top-quality training, and cultivating a dedicated workforce. As a result, major Wall Street banks projected optimal earnings growth for D. A recent report issued by Deutsche Bank in particular estimates that the earnings for 2007 and 2008 to be 5.17 and 6.12 respectively, an annual increase of 18%.
Thus, Dominion’s combination of nuclear and conventional fossil power plants enables the company to capture profits in different sectors.

◆ **Risks**

Most risks are specific to the entire industry and political in nature.

1. **Political impediment**

Public relations stand out as the major obstacle to wider utilization of nuclear technology in the utilities industry. Scientists believe that no serious technical problems exist. France produces 80% of its energy on nuclear technology, and has had none major incident. Because of the zero CO2 emission from nuclear plants, the air quality in France is the best in Europe. The challenge is how to convince most Americans about the safety of nuclear technology. After Three Mile Island (TMI) and Chernobyl, the media dramatized the negative effects of nuclear energy. The image of nuclear hazard has been haunting the American people since. However, significantly improved technology and rising fossil fuel cost have triggered an invigorated interest in nuclear power. In fact, the Nuclear Energy Institute finds in a survey that 70% of Americans are in favor of nuclear power and approve of building new nuclear plants at existing sites.

According to Larry Peck, the VP for British Petroleum, the majority of the politicians are not demonstrating leadership when it is needed to inform the public further about nuclear technology. Peck laments that too many of the government officials are concerned with “politically hot” issues, such as War in Iraq and gay marriage. Yet very few politicians care to address the energy issue, which is the root of many diplomatic and domestic problems that Americans face. Thus, if politics do not work out in favor of nuclear technology, the prospect of an U.S. that achieves energy independence remains dim. And the nuclear sector will see little progress.

2. **Shortage of nuclear experts**

Since the TMI and Chernobyl incidents, many universities, including UVA, shut down their nuclear engineering programs because of an irrational fear of the reactors used for experiments. All but two universities no longer have nuclear chemistry programs, which offer the best training for people who want to work in nuclear power plants. If U.S. decides to build new nuclear plants in the foreseeable future, there might be a dearth of qualified experts to execute the nuclear reactions necessary to generate electricity. Radioactive material, like poisons, corrosive chemicals, germs, etc., is dangerous and must be treated properly. Trying to jump right into a sensitive area without committing to rigorous training will
3. **Exposure to commodity prices, especially potential natural gas prices**

Dominion is exposed to regulatory risk pertaining to its operations in Virginia. If the Virginia state government enacts new legislations that limit the growth of Dominion, the earnings projection will be lower than expected. Additionally, Dominion will also potentially be affected by commodity risk with respect to its merchant generation. Despite of Dominion’s effort to minimize its exposure to commodity prices, its merchant generation segment remains a bit exposed to declines in natural gas prices.

4. **Competition**

Dominion is currently the third largest nuclear producer in the U.S. after Exelon and Entergy Corp.

Exelon focuses heavily on nuclear energy and has invested billions of dollars to build new plants. As a result, Exelon now owns 11 stations and 19 plants, generating 66% of its 33000 megawatts electricity. Most of the customers that Exelon targets reside in Midwestern and Northeastern states, especially Illinois and Pennsylvania. Given the high market saturation by Exelon, Dominion Resources will find it difficult to enter these particular regional markets.

Entergy’s nuclear segment includes 9 power stations and 11 plants. Entergy grew to its present size through a series of M & A. Its acquisition of Gulf States Utilities in 1993 made Entergy one of the United States' largest utility companies with over 2.3 million retail customers. In 1998, Entergy invested heavily in nuclear energy, making several strategic acquisitions. Another strength of Entergy is its international investment. The Energy Policy Act of 1992 allowed Entergy to expand its international operations. As a result, Entergy currently operates on four continents.

◆ **Recent news**

The sale of exploration-and-production assets boosted Dominion's third-quarter earnings nearly four-fold from a year earlier, to $2.24 billion. During the quarter, Dominion completed the sale of most of its gas E&P assets outside the Appalachian region for $13.9 billion (GD 8/14). That resulted in a net benefit of $1.4 billion and enabled the company to eliminate $3.3 billion of debt and repurchase $5.8 billion of common stock. (Gas Daily, 2/11/2007)

In a recent press conference, the CEO of Dominion Generation responded to the Early Site Permit issued to North Anna power plant. “The NRC has determined that the North Anna site is
suitable for an additional reactor, allowing us to maintain the nuclear option for future customers. The ESP is an important step in ensuring that not only will be safe, reliable nuclear energy be available as we plan for future growth, but we will have an electrical generating source that can produce a significant amount of electricity with no greenhouse gas emissions. The NRC gave this application a rigorous review and considered the comments it received from the public in making its final decision. We appreciate the thoroughness of the NRC staff’s work.” (Dominion Generation, 11/20/07).

◆ One Year Chart

![One Year Chart]

◆ VAR

I focus my VAR on delving into the business incentives and technology of nuclear engineering. Besides digesting analyst reports on Dominion, I have contacted a number of my personal acquaintances who are executives in the energy industry. I have obtained frontier information that the market has not fully embraced.

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4. Jim Gilmore
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