Transitioning to a Carbon Constrained Future – What it Means to Business

1. Where are we as a nation in addressing greenhouse gas (GHG) emissions?

   a) Industrial America through the leadership of many of the companies in this room, the Pew Center, and many others has made a strong effort to reduce GHG emissions.

      i. In 2004 CO_2 emissions from industrial facilities were only 2% above 1990 levels

   b) These results, however, have not been matched in other economic sectors. Overall U.S. CO_2 emissions are up 16% from 1990 levels and this number is increasing – in 2004 CO_2 emissions increased by 2%.

   c) Thus, we are falling further and further behind each year. If emission regulations were passed this year, it is likely that they would be reacting to emission levels that are 16% above 1990 levels, not 2%, and each year we wait is likely to widen the gap.

   d) Moreover, we are about to see a large increase in new major sources of CO_2 emissions due to normal economic growth, increased purchases of homes and cars, and a new generation of power plant construction, particularly coal plants.

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2. The inability of the country to slow down the rate of increase of CO_2 emissions will have a number of significant impacts.

    a) It could affect the type and severity of regulations and the ability of the country to base GHG regulations on an "economically rationale foundation"

        i. Obviously, if emissions keep increasing and it looks like progress is not being made, then the political situation is likely to become more difficult and regulations could become more severe than under the current legislative proposals.

        ii. As we wait, there are likely to be more events that will influence public opinion such as storms, evidence of melting ice caps, and a growing scientific consensus that climate change must be addressed

        iii. This resulting uncertainty about the nature of possible GHG regulations could have an increasing impact on business decisions. The Report concludes that climate change is altering the competitive environment with certain companies industries and sectors at more risk than others, but these are hard risks for companies to evaluate because of the uncertainty as to how and when GHG regulations will be implemented

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b) The continuing increase in CO_2 emissions will have a major impact on many proposed new projects and industrial facilities. Three examples are.

1) Oil shale facilities

A. Oil shale has tremendous potential to reduce U.S. imports of oil. It is estimated that there is several times more recoverable oil in U.S. oil shale reserves than in Saudi Arabia.

B. Extraction of oil from shale, however, will result in a significant increase in $C0_2$ emissions compared to traditional extraction of oil. The recently completed OSEC oil shale EIA, for example, estimates that a 50,000 barrel per day oil shale retort complex will produce 3 million tons per year of CO_2, and competing in situ technologies will require tremendous amounts of power and thus produce CO_2 at the power plant.

C. The question is whether this generation of CO_2 will adversely affect the ability of the oil shale industry to get off the ground. It is particularly an issue since oil shale technology is probably 6-10 years from commercialization and thus is likely to go into service at a time when GHG regulations are in place or the subject of increasing discussion. In the OSEC project we were concerned enough about the CO_2 emissions to have committed to trying to capture and sequester the CO_2.

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2) Accelerating new technology - new coal plants –

   A. From 1990 to 2003 about 11 Gigawatts of new coal-fired plants were built in the U.S. with almost no new construction from 2000-2005

   B. The National Energy Technology Laboratory of the Department of Energy now estimates that 154 Gigawatts of new-coal fired plants will be built in the U.S. by 2030. Utilities and other power plant developers have already announced plans to build 153 coal-fired plants with a capacity of 93 Gigawatts. Worldwide, it is expected that between 1000 and 1400 Gigawatts of new coal-fired plants will be built.

   C. These plants could have a significant impact on CO_2 emissions, since each gigawatt of coal-fired generation using supercritical pulverized coal technology produces about 6 million tons a year of CO_2. There are new clean coal technologies, such as IGCC plants, that gasify the coal and could capture and sequester these CO_2 emissions. These technologies are not yet fully proven and to date only a relatively small percentage of these plants are planned as gasification facilities (24 out of the 153 announced plants), but the magnitude of the emissions is likely to lead to proposals to fund, accelerate and even require the use of clean coal technologies.

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3) Internalizing the cost of CO_2 emissions even in the absence of regulations

A. Some utilities, as well as some of the companies in the Report, are setting phantom prices for CO_2 in deciding whether to build new coal plants and whether those plants should use a particular technology.

B. The issue is that even relatively high prices, like $20 per ton of CO_2 emissions, may still lead a company to conclude that the current pulverized coal technology could be utilized. The question is whether the phantom prices are giving an accurate signal. The risks that they may not be include: the cost could be higher than $20; technology mandates could be imposed; or the plants will one day have to be retrofitted which would be prohibitively expensive utilizing current technology.

c) The risk that there may come a point where GHG regulations may be more severe than expected could effect many of the issues discussed in the Report.

i. How pro-active should a company be in addressing CO_2 emissions today? Should it, as the Report recommends, "not get out too far in front of competitors?" or "you should always remain one step ahead of the competition, but if you are two steps ahead, you lose the crowd"

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1) Or should it be more aggressive following recommendations in the Report, such as DuPont's advice for any company undertaking a climate change program to "get passionate people engaged and challenge them to do something extraordinary" or Alcoa's CEO pushing the company to change a process despite the skepticism of his engineers that they could succeed and their statements that any change would be cost prohibitive.

2) These are difficult issue because with no formal carbon constraints a company cannot undertake action that makes it non-competitive. Nevertheless, it appears that one way to reconcile the views expressed above is to push the envelope as far as possible without crossing a line that make the company uncompetitive.

d) Another key issue is what baseline will regulators ultimately adopt in a cap and trade system against which to measure emission reductions.

1) The Report makes it clear that this is an important issue to many companies

2) Achieving a reasonable baseline may depend on when regulations go into effect and how far behind the U.S. is perceived to be in controlling emissions.

3) Are some indications that it will be difficult to achieve a reasonable baseline.

4) What are the consequences of not achieving a reasonable baseline?

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e) Delay and uncertainty creates legal risks.

   i. California has sued automobile companies on a nuisance theory. The suit will face difficult questions of causation, but these lawsuits will eventually become more dangerous because (i) plaintiffs will find experts supporting their position and (ii) if the plaintiffs can survive motions to dismiss, these become typical tort cases where the risks of a loss, even if remote, are still significant.

   ii. Sarbanes-Oxley also raises difficult issues.