EXECUTIVE SUMMARY The oil and gas industry will have to deal with two major environmental issues in the next decade—(i) the prospect of policies to combat climate change ("global warming") and (ii) constrained access to oil and gas reserves. These issues have the potential to affect companies' sales, operating costs, asset values, and shareholder value.

This report assesses the financial impact of these two issues for the following 16 companies: Amerada Hess (**AHC**), Apache (**APA**), BP (**BP**), Burlington Resources (**BR**), ChevronTexaco (**CVX**), ConocoPhillips (**COP**), Eni (**E**), Enterprise Oil (**ETP**), ExxonMobil (**XOM**), Occidental Petroleum (**OXY**), Repsol YPF (**REP**), Royal Dutch/Shell Group (**RD**), Sunoco (**SUN**), TotalFinaElf (**TOT**), Unocal (**UCL**), and Valero Energy (**VLO**).

The major findings are as follows:

■ Companies will have very different exposure to climate and access issues and their financial consequences by virtue of their unique asset bases. This differentiation is a source of competitive advantage and disadvantage within the industry.

■ The corporate impact of these issues may be substantial, but it is not yet reflected in stock prices. Figure A reveals the possible implications for shareholder value. The lines reflect the range of outcomes for each company in light of uncertainty about the way that these issues will develop. The "most likely" outcome for each company is indicated by the squares.

■ **BR** and **SUN** are least affected by these environmental issues. **OXY**, **REP**, and **UCL**—the most severely exposed to these issues—are likely to lose more than 6 percent in shareholder value.

■ Few companies have disclosed the degree to which they are financially exposed to these issues, and no company has attempted to quantify the financial implications for its shareholders.

CLIMATE CHANGE

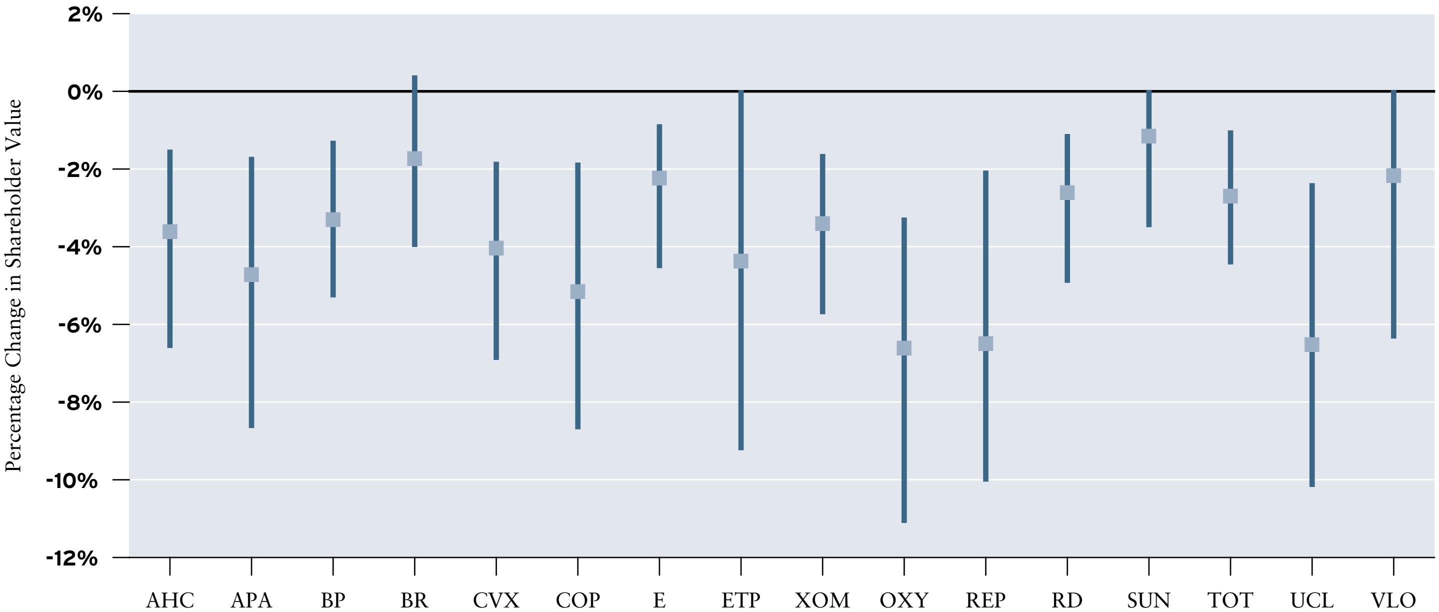
International concern is growing that rising greenhouse gas (GHG) emissions, derived mainly from combustion of fossil fuels, is causing the Earth's climate to change. Over 180 countries have worked together in drafting the Kyoto Protocol, which commits developed countries to reduce GHG emissions to 5.2 percent below 1990 levels by 2010. The Protocol will likely go into force, but probably without the participation of the United States, and possibly without Australia. Even without these countries, the Protocol could have significant impacts on market demand and producer prices for crude oil, natural gas, and petroleum products.

■ Across several different scenarios, ranging from no action to widespread adoption of the Protocol, future climate policies could create "most likely" financial impacts for companies, ranging from a 5 percent loss in shareholder value to a slight gain.

■ One likely scenario is that Canada, Europe, Japan, and Russia will adopt the Kyoto Protocol, while the United States pursues its own measures to limit GHG emissions. Under this scenario, **BR**'s shareholder value could increase slightly. **ETP**, **OXY**, and **REP** could lose about 4 percent of shareholder value.

■ Under some scenarios, two companies with significant natural gas assets—**APA** and **BR**—could face upside opportunities from a substitution trend toward natural gas.

FIGURE A: Financial Consequences of Climate Policies and Restricted Access to Reserves
(Range of possible outcomes and most likely impact)



■ Even without U.S. participation in the Protocol, U.S.-based companies could be affected by it. Changes in the global oil market, transmitted by price, will be felt throughout the industry. In addition, many U.S.-based companies have extensive assets abroad that could be impacted.

RESTRICTED ACCESS TO OIL AND GAS RESERVES

The industry also faces growing constraints in accessing oil and gas reserves, as increased efforts are made to protect pristine areas and preserve ecosystems. Community opposition puts production in a number of countries at growing risk, especially where population growth increases competition for land.

■ Past troubles encountered by Texaco (in Ecuador), Shell (in Nigeria), and other companies may be a precursor to future, more systematic difficulties. The debate over the Arctic National Wildlife Refuge foreshadows similar obstacles the industry could face around the world.

■ Companies' exposure to future resource accessibility pressures differs markedly. **APA**, **CVX**, **COP**, **TOT**, **REP**, **OXY**, and **UCL** have a larger than average share of their upstream reserves in areas identified as ecologically important by the environmental community and the United Nations. **BR**, **E**, **XOM**, and **RD** have relatively few reserves in environmentally sensitive areas, while none of **ETP's** reserves lie in these areas.

■ Future access policies could create "most likely" financial impacts for companies averaging a 2 percent loss in shareholder value across several different scenarios. Non-integrated producers were the most affected. **APA**, **OXY**, and **UCL** had a "most likely" loss of 3 percent in shareholder value.

■ One likely scenario is that communities living in or near environmentally sensitive areas will increase their opposition to oil and gas development, either through a political process or other means, such as protests and sabotage. Under this scenario, **ETP** was unaffected. **APA**, **OXY**, and **UCL** lost more than 3 percent of shareholder value.