Business and the Environment

- Moderator: **Forest L. Reinhardt**, *John D. Black Professor, Unit Head, Business, Government, and the International Economy*
- Panelists: **James Barry**, *CEO, NTR PLC*
  David W. Blood, *Managing Partner, Generation Investment Management*
  James J. McCarthy, *Alexander Agassiz Professor of Biological Oceanography, Harvard University*

Overview

An environmental crisis exists, almost certainly due to human action. Temperatures and sea levels are rising; ice is melting. If the causes for these problems are not addressed—and fast—the consequences for the planet are likely to be disastrous.

Governments, business, and consumers must act to address climate change. The actions must deal with resource supply issues and renewable energy, as well as with demand issues. Ultimately, these actions will lead to a transition from a high-carbon to a low-carbon society, a transition of enormous magnitude that could happen very quickly. This transition will be a journey that will bring attractive investment and business opportunities, but won't be without peril.

Context

These experts shared their perspectives on global climate change. Professor McCarthy discussed scientific findings; Mr. Blood provided an investor's point of view; and Mr. Barry provided the perspective of an executive with a portfolio of environmentally focused businesses.

Key Takeaways

- **The earth has experienced significant human-driven climate change over the past hundred years.**

  Professor McCarthy outlined scientific evidence for climate change. Key findings of a recent Intergovernmental Panel on Climate Change (IPCC) assessment show temperature increases from 1850 to present and rising sea levels. Were it not for the accumulation of greenhouse gases over the past half century, the earth's temperature today would be similar to that of 1900.

  While temperature increase is a result of both natural and human factors, the human role cannot be minimized. In 2007, IPCC stated with 90% confidence that *"emissions of heat trapping gasses from human activities have caused most of the increase in temperatures since the mid-20th century."* This statement has been echoed by numerous scientific bodies. Further, the projected temperature of the earth in 2100 will be higher than any known temperature in the past 25 to 30 million years, representing uncharted scientific territory. Results of a warmer earth include:

  — Less ice, snow, and frozen ground. This is already underway. From the late 1970s to 2005, summer Arctic Sea ice declined at the rate of 1% a year. But in 2007, it dropped by 20% in one year. Ice is also being rapidly lost in Greenland, which possesses 10% of the earth's fresh water.

  — Shrinking glaciers on all continents.

  — Rising sea levels of up to two meters, which will have devastating impact on coastal cities.

- **In the United States, climate change is becoming a priority.**

  The need to reduce greenhouse gas emissions is on the forefront of the national agenda. Both presidential candidates supported a CO_2 cap-and-trade system and several bills have been proposed in Congress to reduce CO_2 emissions by 80% by 2050. (The 80% figure is based on calculations by intergovernmental agencies regarding what is necessary to avoid mid-range climate change scenarios.) Although greater progress may have been achieved by 2012 had the United States ratified the Kyoto Protocol, the proposed legislation is a positive step in the right direction.

  > *"If you had told me in 2004 that in 2008 the serious contenders for the presidency would all say we need to get the nation on an agenda to reduce CO_2 emissions by 80% by 2050, I would have laughed."*
  > — James J. McCarthy

- **Sustainability will drive business in the next 25 years.**

  David Blood discussed the impact of climate change on the investment environment, emphasizing the significant investment opportunities that sustainability will present.

  Weighing sustainability as a factor in investment decisions is not "socially responsible investing" and is not a matter of "trading value for values." It is also not focused solely on clean energy or other related businesses. Instead, it is a new way of investing which is based on the view that the fundamental context for business is changing. Sustainability-focused investing considers sustainability as a critical part of a company's long-term business strategy and a factor in a company's ability to create value.

  In defining sustainability as *"the explicit recognition that environmental, social, governance, and long-term economic factors affect business,"* Mr. Blood highlighted its significance in driving revenues, profitability, and competitive positioning.

  In considering sustainability-focused investments, it is important to keep in mind:

  — *The ripple effects of climate change.* Climate change doesn't take place in isolation, and it doesn't just affect the environment. Climate change has an impact on health, poverty, and demographics. The poor are most likely to be adversely affected by climate change.

— *Second- and third-generation impacts.* When biofuels were introduced, the second- and third-degree impacts such as the impact on food prices were not considered. It is important to think through these impacts.

— *Placing a price on carbon.* Creating a price for carbon—forcing the world to internalize its externalities—is the most important objective in addressing environmental challenges. From an economics perspective, it makes no sense to allocate capital without truly understanding its impact both financially and on the long-term health of the planet. Financial institutions, regulatory agencies, and research organizations all play a role in building a low-carbon economy.

- **The transition to a low-carbon economy will bring about significant investment opportunities.**

A massive transformation will take place as we transition from a high- to a low-carbon world. In Mr. Blood's view, this transition will surpass any economic event ever experienced. As the world realizes what must be done to preserve the planet, and as governments, businesses, and consumers work to bring about the changes that are necessary, there will be tremendous investment opportunities. These opportunities go far beyond just clean or alternative energies. One major opportunity is in the area of "demand destruction" (meaning demand reduction) which includes making buildings more energy-efficient; buildings currently represent 20% to 25% of CO_2 emissions.

> *"The transition from a high-carbon economy to a low-carbon economy will be the most significant economic transformation in history. It will be as significant in scope as the industrial revolution and as fast as the technology revolution."*
> — David W. Blood

- **It is a perfect storm: climate change, security of energy resources, and resource depletion.**

James Barry, CEO of NTR, a developer and operator in renewable energy and sustainable waste management, explained that tremendous change has occurred globally in a short time and even more change will occur.

> *"The scale of change will be unbelievable."*
> — James Barry

In addition to climate change, other major changes are:

— *Resource depletion.* While the supply side of resources gets most of the attention, the demand side is just as important. Worldwide oil consumption is presently about 85 million barrels per day. Of this, 25 million barrels per day are consumed in the United States and just 2.6 million barrels per day in China and 1.3 million barrels per day in India. As these economies grow, their levels of oil consumption will as well. Anticipated consumption in 2025 is estimated to be 120 billion barrels daily.

— *Energy security*. Projections show that by 2025 Europe will be completely dependent on Russia for natural gas.

In assessing the changes underway, Mr. Barry offered the following observations:

— *There is no silver bullet and no standard template.* How countries adapt to these challenges will differ by country.

— *Cost economics are dynamic.* Most renewable energy investments are capital intensive with high fixed costs and low variable costs.

— *There is increasing geopolitical tension*. The issues being faced are complex and require unprecedented geopolitical cooperation.

— *Coal and CCS have to be addressed*. The amount of carbon thrown into the atmosphere by coal is enormous, and China is building huge numbers of coal power plants. There is not currently a solution, but one is urgently needed.

— *Efficiency of energy use*. Efficiency is 40% to 50% of the answer.

— *Don't ignore water*. The limited amount of water is often overlooked, and utilities use tremendous amounts of water.

The future holds both promise and peril. The scale of the requirements for renewable energy is enormous. Early movers will be rewarded, but incumbents don't have a natural advantage. Also, caution needs to be shown around irrational exuberance in this area.

Other Important Points

- **Environmental movement.** Just as Harvard Business School was started one hundred years ago, so was the first environmental movement, by Teddy Roosevelt and Gifford Pinchot.
- **Pricing carbon.** The panelists feel that among the most important steps that must be taken to move to a low-carbon world is putting a price on carbon.
- **Chinese commitment.** Despite the criticism levied on the Chinese, they are showing some commitment, such as removing sulfur. Their ability to clean the air in Beijing for the Olympics shows they have the know-how and capability. If China wants to make environmental progress, they can.
- **Eleven countries**. The G8 countries plus China, India, and Brazil represent more than 80% of all of the environmental issues in the world. It is these countries that need to come together to forge solutions.
- **Porter article.** A recent article by strategy guru Michael Porter asserted that sustainability should be part of a company's strategy.

Speaker Biographies

Forest L. Reinhardt, MBA 1987, Ph.D. BE 1990 (Moderator)
John D. Black Professor, Unit Head, Business, Government, and the International Economy

Forest Reinhardt is the John D. Black Professor at HBS. He heads HBS's Business, Government, and the International Economy unit, a group of 15 faculty from various academic disciplines who study and teach about the economic, political, social, and legal environment of business.

Reinhardt teaches an elective MBA course on energy, which examines the strategies of firms that produce oil and gas, generate and distribute electricity, or play other important roles in the delivery of energy services. He also teaches an elective MBA course on Business and the Environment. He teaches regularly in the HBS Agribusiness Seminar and other Executive Education programs. He also recently served as course head for the required MBA course Strategy, which covers topics in industry analysis, competitive advantage, and corporate strategy. He is now the faculty chair of HBS's European Research Initiative.

Reinhardt is interested in the relationships between market and nonmarket strategy, the relations between government regulation and corporate strategy, the behavior of private and public organizations that manage natural resources, and the economics of externalities and public goods. He is the author of *Down to Earth: Applying Business Principles to Environmental Management*, published in 2000. Like that book, many of his articles and papers analyze problems of environmental and natural resource management. He has written numerous classroom cases on these and related topics, used at Harvard and many other schools in MBA curricula and in executive programs.

Reinhardt received his Ph.D. in business economics from Harvard University in 1990. He also holds an MBA from HBS, where he was a Baker Scholar, and a BA cum laude from Harvard College.

James Barry, MBA 1994
CEO, NTR PLC

Jim Barry is CEO of NTR PLC, an international environmental and energy company based in Dublin, Ireland. He was appointed CEO in June 2000, after having served as assistant CEO and general manager of development.

As CEO, Barry is chairman of NTR subsidiaries Wind Capital Group (a leading North American wind-farm developer), Greenstar (an international recycling operator), Stirling Energy Systems (an international solar thermal generation company), and National Toll Roads Ltd. (Ireland's leading toll-road operator). He was also chairman of the NTR subsidiary Airtricity, an international wind-farm developer, from its formation in 1999 to its sale in early 2008. Before joining NTR in 1998, Barry worked at Bain and Company, a global consulting firm, and in the investment-banking division of Morgan Stanley.

Barry has a bachelor of commerce degree from University College, Cork, and an MBA from HBS. He is 41 and is married with four children.

David W. Blood, MBA 1985
Managing Partner, Generation Investment Management

David Blood is the managing partner of Generation Investment Management, a London-based fund management company dedicated to long-term investment and integrated sustainability research. Before cofounding Generation, Blood served as the co-CEO and CEO of Goldman Sachs Asset Management from 1999 to 2003. His responsibilities included all aspects of the global business, including portfolio management, sales and client service, risk management, and infrastructure (about 1,600 people and $325 billion in assets under management). From 1985 to 1999, he served in various positions at Goldman Sachs Group Inc., including head of European asset management, head of international operations, technology, and finance, treasurer of Goldman Sachs Group LP, and head of global private capital markets. Blood was the first recipient of the John L. Weinberg Award in 1990, which is given to the professional in the investment-banking division who best typifies Goldman Sachs's core values.

Blood received a BA from Hamilton College and an MBA from HBS. He is a member of the boards of Hamilton College, Social Finance, New Forests, and SHINE and a member of the investment committee of the Acumen Fund.

James J. McCarthy
Alexander Agassiz Professor of Biological Oceanography, Harvard University

James McCarthy is the Alexander Agassiz Professor of Biological Oceanography at Harvard University. From 1982 to 2002 he was director of Harvard's Museum of Comparative Zoology. He holds faculty appointments in the Department of Organismic and Evolutionary Biology and the Department of Earth and Planetary Sciences. He was one of the architects of Harvard's undergraduate degree program in environmental science and public policy and head tutor for degrees in this field of study. He is also the master of Harvard's Pforzheimer House.

McCarthy received his undergraduate degree in biology from Gonzaga University and his Ph.D. from the Scripps Institution of Oceanography. His research interests are in the regulation of plankton productivity in the sea and in recent years have focused on regions that are strongly affected by seasonal and interannual variation in climate. He has written many scientific papers and now teaches courses on biological oceanography and biogeochemical cycles, marine ecosystems, and global change and human health.

McCarthy has served on national and international planning committees, advisory panels, and commissions relating to oceanography, polar science, and the study of climate and global change for federal agencies, intergovernmental bodies, and international organizations. From 1986 to 1993, he served as the first chair of the international committee that establishes research priorities and oversees implementation of the International Geosphere-Biosphere Programme. From 1986 to 1989, he served as the founding editor for the American Geophysical Union's *Global Biogeochemical Cycles*. For the past two decades he has worked as an author, reviewer, and cochair with the Nobel Peace Prize-winning Intergovernmental Panel on Climate Change (IPCC). For the third IPCC assessment, he headed Working Group II, which had responsibility for assessing impacts of and vulnerabilities to global climate change. He was also one of the lead authors on the Arctic Climate Impact Assessment and a vice chair of the 2007 Northeast Climate Impacts Assessment.

McCarthy has been elected a fellow of the American Association for the Advancement of Science (AAAS), a fellow of the American Academy of Arts and Sciences, and a foreign member of the Royal Swedish Academy of Sciences. He is the recipient of the New England Aquarium's David B. Stone Award for distinguished service to the environment and the community. McCarthy is the current president of the AAAS, the largest scientific association in the United States.