Corporate Governance and Climate Change:

The Banking Sector

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A Ceres Report

Ceres

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Ceres is a national coalition of investors, environmental groups and other public interest organizations working with companies to address sustainability challenges such as global climate change. Ceres directs the Investor Network on Climate Risk, a group of more than 60 institutional investors from the U.S. and Europe managing over $4 trillion in assets.

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Acronyms

AAU – Assigned Allocation Unit

ADEME – Agency for Environment and Energy Management (France)

BREEAM – Building Research Establishment Environmental Assessment Method

CaCX – California Climate Exchange

CCFE – Chicago Climate Futures Exchange

CCX – Chicago Climate Exchange

CDM – Clean Development Mechanism

CDO – Collateralized Debt Obligation

CDP – Carbon Disclosure Project

CER – Certified Emission Reduction

CO_2 – Carbon Dioxide

CO_2e – Carbon Dioxide Equivalent

CR – Corporate Responsibility

CSR – Corporate Social Responsibility

Defra – Department for Environment, Food and Rural Affairs (U.K.)

EAI – Enhanced Analytics Initiative

ECX – European Climate Exchange

EHS – Environment, Health & Safety

EMS – Environmental Management System

EPA – Environmental Protection Agency (U.S.)

ERU – Emission Reduction Unit

ESCO – Energy Service Company

ESG – Environmental, Social and Governance

EUA – EU Emission Allowance

EU ETS – European Union Emissions Trading Scheme

FTE – Full Time Equivalent

GHG – Greenhouse Gas

GRI – Global Reporting Initiative

HVAC – Heating, Ventilation & Air Conditioning

ICE – Intercontinental Exchange

IETA – International Emissions Trading Association

IPCC – Intergovernmental Panel on Climate Change

IPO – Initial Public Offering

ISO – International Standards Organization

JI – Joint Implementation

KW – Kilowatt

KWh – Kilowatt hour

LEED – Leadership in Energy and Environmental Design

MDG – Millennium Development Goals

MW – Megawatt

MWh – Megawatt hour

NRE – Nouvelles Régulations Économiques (New Economic Regulations)

NGO – Non-Governmental Organization

OTC – Over The Counter

PPM – Parts Per Million

REC – Renewable Energy Certificate

RMB – Renminbi

SME – Small & Medium Enterprise

SRI – Socially Responsible Investment

UNEP – United Nations Environment Programme

UNFCCC – United Nations Framework Convention on Climate Change

VER – Verified Emission Reduction

Foreword

Banks are the backbone of the global economy, providing capital for innovation, infrastructure, job creation and overall prosperity. Banks also play an integral role in society, affecting not only spending by individual consumers, but also the growth of entire industries.

As the impacts of global warming from the heat-trapping gases released by power plants, vehicles and other sources take root in everyday life, banks have never been more important to chart the future. The companies that banks decide to finance will be a linchpin in slowing Earth's warming and moving the world economy away from fossil fuels and into cleaner technologies.

There is now overwhelming scientific evidence that worldwide temperatures are rising, glaciers are melting, and drought and wildfires are becoming more severe. Scientists believe most of the warming in the last 50 years is human-induced. This confluence of evidence has galvanized public attention and governments worldwide to take action to avert a possible climate catastrophe.

This report is a comprehensive assessment of how 40 of the world's largest banks are preparing themselves to face the colossal climate change challenge

With nearly $6 trillion in market capitalization, the global financial sector will play a vital role in supporting timely, cost-effective solutions to reduce U.S. and global greenhouse gas emissions. As risk management experts, it is essential that banks begin now to consider the financial risk implications of continued investment in carbon-intensive energy technologies.

This report is the first comprehensive assessment of how 40 of the world's largest banks are preparing themselves to face this colossal challenge. It pays particular attention to how corporate executives and board directors are addressing the governance systems that will be needed to minimize climate risks while maximizing investments in solutions that mitigate and help society adapt to climate change.

The report employs a "Climate Change Governance Index" to evaluate how 16 U.S. banks and 24 non-U.S. banks are addressing climate change through board oversight, management execution, public disclosure, greenhouse gas emissions accounting and strategic planning. In addition to the U.S. banks, the study includes 15 European, five Asian, one Brazilian and three Canadian banks in several different classes of financial services to provide a global cross-sectional analysis of the banking sector.

The results provide some basis for encouragement. The report finds evidence that many banks are responding to climate change, with European banks being in the forefront and many U.S. banks following closely behind. Many of the positive actions have come in the past 12 to 18 months, especially in regard to overall disclosure, research and financial support for clean energy. Among the highlights:

- The banks have issued nearly 100 research reports on climate change and related investment and regulatory strategies, more than half of them in 2007 alone.
- Thirty-four banks responded to the latest climate-disclosure annual survey conducted by the Carbon Disclosure Project, a non-profit organization that seeks information on climate risks and opportunities from companies on behalf of an investor coalition of 315 firms with a combined $41 trillion in assets under management.
- Twenty-four of the banks have set some type of greenhouse gas reduction target for internal operations.
- Twenty-nine of the banks have reported on their financial support for alternative energy projects; eight of these banks have provided more than $12 billion of direct financing and investments in renewable energy and other clean energy projects.

Yet for all of the positive momentum, many of the 40 banks have done little or nothing to elevate climate change as a governance priority—a trend that cuts across European, North American and Asian banks alike. For example, only a dozen of the 40 banks have board-level involvement in climate change, and all but one of those firms are non-U.S. based. Only 14 banks have adopted risk management policies or lending procedures that address climate change in a systematic way. Only a half-dozen banks say they are formally calculating carbon risk in their loan portfolios, and only one of the 40 banks—**Bank of America**—has announced a specific target to reduce the rate of greenhouse gas emissions associated with the utility portion of its lending portfolio. And no bank has set a policy to avoid investments in carbon-intensive projects such as coal-fired power plants.

While many banks have made improvements, the actions to date are the tip of the iceberg of what is needed

While many banks have made improvements, the actions to date are the tip of the iceberg of what is needed to reduce greenhouse gas emissions consistent with targets scientists say are needed to avoid the dangerous impacts of climate change. In this regard, more banks should:

- elevate climate change as a governance priority for board members and CEOs, especially at U.S. banks where direct board involvement has been virtually non-existent;
- provide better disclosure about the financial and material risks posed by climate change, their own emissions reduction strategies, and emissions resulting from financing and investment;
- explain how they are factoring carbon costs into their financing and investment decisions, especially for energy-intensive projects that pose financial risks as carbon-reducing regulations take hold worldwide;
- set progressively higher targets to shrink the carbon footprint of their lending and investment portfolios, and be more transparent about how they intend to meet these objectives.

As one of the world's largest economic sectors, and as one that reaches virtually every consumer and business, the financial services industry must be involved in mitigating climate change and its impacts. At the same time, banks face an immense but as yet largely untapped opportunity to enter new markets and develop more efficient and environmentally sound industries that will benefit generations to come, while preserving their longstanding leadership role in wealth and capital formation.

Banks have the reach, influence and access to capital required to lead the changes needed to expeditiously address global warming.

Mindy S. Lubber
President, Ceres
Director, Investor Network on Climate Risk

I. Executive Summary

This report analyzes the corporate governance and strategic approaches of 40 of the world's largest banks[1] to the challenges and opportunities posed by climate change. With delegates of 190 nations meeting in Bali, Indonesia, in December 2007 to decide whether to extend or replace the 10-year old Kyoto Protocol after 2012, climate change has become not just a future political consideration, but also a key driver of how global business is being conducted today.

Banks will play a vital role in finding timely, practical and cost-effective solutions to mitigate climate change

The financial community is at the center of this economic transformation. With nearly $6 trillion in market capitalization, banks are the world's major capital providers and risk management experts. As such, banks have a vital role in finding timely, practical and cost-effective solutions to mitigate climate change and adapt the economy to its already apparent effects. Bringing greenhouse gas (GHG) emissions under control presents a formidable technological and financial challenge that will require an effective "de-carbonization" of the global economy over the next 50 years. Banks can begin by factoring a market price for carbon dioxide (the main greenhouse gas) in lending and investment decisions, while helping to build new markets through GHG emissions management, trading and brokerage.

Yet the responsibility of banks does not end there. New global energy supply is expected to require more than $20 trillion of capital investment over the next-quarter century. If GHG emissions are to be brought on a downward path—and soon—banks must begin to systematically address a re-balancing of corporate and project financing away from carbon-intensive energy sources and technologies toward more efficient and low-carbon alternatives. At the same time, banks must account for the effects of a warming climate and emerging GHG-reducing regulations that will alter the costs of production, the pricing of securities, the size of liabilities and the assignment of credit and asset valuations. Growing demand for "climate friendly" financial products and services will also lead banks into whole new markets.

Banks and Climate Governance

Clearly, banks that have strong governance structures in place to address climate change and take early action on the attendant risks and opportunities will be at an advantage. The broad reach of climate change requires a holistic and forward-looking management approach. To stay ahead of the curve, banks will need to combine practical considerations of managing their own GHG emissions with the broader implications of how climate change affects the competitive marketplace, lending and investment strategies, and ultimately, their financial bottom lines.

This report is designed as a benchmarking tool that highlights climate change best practices within the financial sector. It employs a "Climate Change Governance Index" to evaluate the 40 selected banks in their approaches to climate change in five governance areas: board oversight; management execution; public disclosure; GHG emissions accounting; and strategic planning. Because the 40 banks are varied and are not all engaged in the same financial service offerings, scores for asset managers and investment banks were adjusted to account for their particular lines of business. Therefore, analysis of sector peers offers the most useful basis for comparison of leaders and laggards *(see p. 7 for rankings)*.

1. The banking sector includes a diverse group of financial services firms, including investment banks and brokerages, diversified commercial banks, and custodial banks and asset managers. For purposes of this report, these firms are described generically as "banks."

Leading the Way

This report provides fresh evidence that banks are responding to the climate challenge. However, the report also finds a divergence in strategies and priorities being employed by the 16 U.S., 15 European, five Asian, three Canadian and one Brazilian bank included in this study. Most leading banks are addressing climate change as a risk management issue as they would other credit, operational and reputation issues. European banks are at the forefront of integrating climate change into environmental policies, risk management and product development. The majority of other banks in this study, including many of the leading U.S. banks, are working towards better disclosure of climate risks as an essential first step toward embracing a changing regulatory and economic environment. Asset managers that do not offer traditional banking services and banks based in emerging markets like China and Brazil have the most catching up to do in terms of climate risk disclosure and management practices.

Leading banks are addressing climate change as they would other risk management issues

This study finds that climate change is a rapidly growing topic of interest and concern in the banking community:

- Of the 40 banks profiled in this study, 23 include a reference or discussion of climate change in their latest annual shareholder reports.
- Collectively, these banks have written nearly 100 research reports on climate change and related investment and regulatory topics; *more than half of these reports were issued in 2007 alone*.
- In addition, 26 of these banks are signatories to the Carbon Disclosure Project (CDP), which seeks information on climate risks and opportunities from companies on behalf of an investor coalition of 315 firms with $41 trillion in assets under management; 34 of these banks responded to the latest annual survey conducted by CDP.
- However, only nine of the 40 banks mentioned climate change or related issues in their latest Form 10-K or comparable regulatory filings. This suggests that most banks have yet to evaluate and disclose their own material risks and opportunties posed by climate change.

Board Oversight

Leading banks are beginning to view climate change as an issue that corporate board directors have a fiduciary duty to address:

- Of the 40 banks examined in this study, nine banks have assigned a board member to oversee the company's climate-related policies and initiatives.
- Twenty-two of the banks conduct periodic board reviews of the company's environmental affairs, and 12 integrate climate change as part of this review process.
- Notably, 11 of the 12 banks with board-level involvement on climate change are non-U.S. firms—seven in Europe, three in Canada, and one in Japan. This indicates a need for U.S. banks in particular to re-examine the emerging role of boards in climate change oversight, policy formation and risk management.

Board Oversight Leaders

ABN AMRO
Deutsche Bank
HBOS
HSBC
Royal Bank of Scotland
UBS

Management Execution

Management Execution Leaders

ABN AMRO
Citi
Crédit Agricole
Goldman Sachs
HBOS
HSBC
Royal Bank of Canada

At the management level, climate change is commanding more attention of senior executives and is translating into more formal policies and governance programs.

- Thirteen of the 40 banks in this study have developed specific climate-related policies and/or strategies.
- In addition, 13 banks have created executive-level committees, working groups or task forces focused on climate change. In some instances, new executive positions and departments are being defined around climate change specifically.
- Sixteen banks have also made formal public policy statements on climate change—ranging from basic expressions of support for GHG cap-and-trade mechanisms to active membership in organizations lobbying for near-term government controls.

Internal Greenhouse Gas Management

Many banks are altering their energy procurement policies in favor of renewable energy sources and integrating energy efficient, green building principles into real estate management.

- Twenty-eight of the 40 banks have calculated and disclosed their GHG emissions from operations.
- At the same time, 24 of these banks have set some type of GHG emissions reduction target.
- A growing number of banks are declaring targets to achieve "carbon neutrality." Ten banks say they have either achieved or are committed to carbon neutrality for their operations.

Risk Management and External Financing

Twenty-three of the banks in this study have adopted the Equator Principles to incorporate environmental, social and governance (ESG) factors for development projects in emerging markets. Some leading banks are going further to institute climate-specific lending policies and alternative energy investments throughout their institutions:

Risk Management Leaders

ABN AMRO
Bank of America
Citi
Fortis
HBOS
HSBC
Goldman Sachs
Merrill Lynch
Mizuho Financial Group
Royal Bank of Canada
Royal Bank of Scotland

- Thirteen of the 40 banks have adopted risk management policies or lending procedures that address climate change in some form. Most of these policies are process oriented and focused on due diligence research; many apply to the power sector specifically.
- A small but growing number of banks also are formally calculating carbon risk in their loan portfolios, including **Citi**, **Mitsubishi UFJ Financial Group**, **Mizuho Financial Group**, **Royal Bank of Canada** and **Wells Fargo**.
- **Bank of America** is the only one of the 40 banks to announce a specific target to reduce GHG emissions associated with its lending portfolio. Its policy applies to its utility corporate finance portfolio, for which it is seeking a 7 percent reduction in the rate of GHG emissions by 2009, as represented by the carbon-intensity mix of utilities in the portfolio.
- Additionally, 29 banks document their involvement in the burgeoning renewable energy and "clean tech" market. Several U.S. and European banks have made multi-billion dollar investments or financing commitments in this growing sector.

Investment and Retail Products

Climate change also offers an opportunity for banks to diversify their investment and retail product lines. Growing client interest in climate risk management, carbon offsets and socially responsible investing is fueling interest in these businesses.

- Twenty-one of the banks evaluated offer climate-related products, including 10 with climate-specific funds and index offerings. Many of these products have been launched in 2007, and most are coming out of European banks.
- Twenty-two of the banks examined offer climate-related retail products—from preferred-rate "green" mortgages to climate-focused credit card programs and "green" car loans.

Investment Product Leaders

ABN AMRO
Credit Suisse
Deutsche Bank
HSBC
ING
JPMorgan Chase
Merrill Lynch
UBS

Retail Product Leaders

Bank of America
Barclays
BNP Paribas
Fortis
HBOS
ING
Société Générale
Wells Fargo

Carbon Trading Leaders

Bank of America
Barclays
BNP Paribas
Credit Suisse
Deutsche Bank
Fortis
Merrill Lynch
Mitsubishi UFJ
Morgan Stanley

Carbon Trading

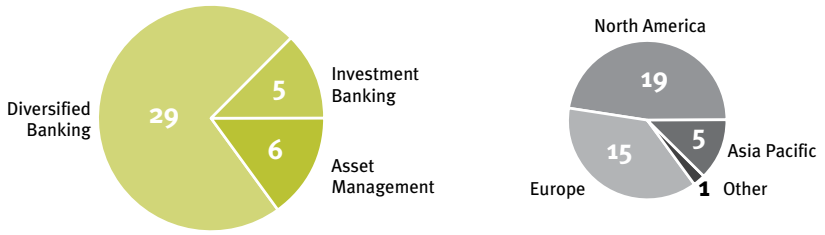
Banks that engage in commodities trading and brokerage services are recognizing a huge growth opportunity presented by GHG emissions trading.

- Seventeen banks are actively trading under the European Union Emissions Trading Scheme, while seven banks in this study are involved with voluntary emissions trading exchanges, such as the Chicago Climate Exchange (CCX) and the new "Green Exchange" announced by the New York Mercantile Exchange in December 2007.
- Many banks are also involved in the financing of Clean Development Mechanism (CDM) and Joint Implementation (JI) projects under the Kyoto Protocol to generate tradable emissions reduction credits. Nineteen banks have participated and a smaller number are developing risk management, derivative and guarantee products to support this market.

How Companies Were Selected

This report analyzes 40 of the largest publicly traded banks and financial services firms in the world. The firms were selected mainly on the basis of market capitalization and assets under management. As of June 30, 2007, these 40 banks had a market capitalization of $3.6 trillion, representing more than 60 percent of the total market capitalization of the global publicly traded banking sector.

A further objective of this report was to analyze a cross-section of banks across geographic regions and financial sectors. Banks were selected on the basis of General Industrial Classification (GIC) codes for the largest publicly traded companies classified as Diversified Banks, Diversified Capital Markets, Other Diversified Financial Service Firms, Asset Management and Custody Banks, and Investment Banking and Brokerage. For purposes of this report, the diversified firms have been grouped together under the label of "Diversified Banking."



Sector and Regional Distribution of Banks

The 40 banks in this study represent about 60 percent of the market capitalization of the global banking sector

The regional distribution is oriented toward the largest banks based in North America and Europe. The five largest Asian banks and largest South American bank are also included to provide a more global survey sample.

To analyze these banks, information was gathered and reviewed from securities filings, company reports, company websites, media accounts and third-party questionnaires. Each of the 40 banks in this report was given an opportunity to comment on the draft profiles, and 33 companies offered comments.

During the evaluation period in the fall of 2007, one of the banks—**ABN AMRO**—was subject to a takeover by other banks included in this study. Its company profile remains in this report for purpose of comparison with other banks.

How Companies Were Scored

RiskMetrics Group, in consultation with Ceres and the Investor Network on Climate Risk (INCR), has developed the Climate Change Governance Index (below) to analyze corporate responses to climate change. This index has 14 indicators to evaluate corporate climate change activities in five main governance areas of board oversight, management execution, public disclosure, emissions accounting and strategic planning. Within each of these areas, many sub-factors are considered to produce a score of pro-active company measures to address climate change. (See the Profile Key on p. 40 for examples of these sub-factors.)

The Climate Change Governance Index is designed to be flexible and apply to a broad range of industries. For the banking sector, the index has been adapted in terms of weightings and specific areas of analysis to reflect the particular circumstances of this industry. For example, this application of the index to banks places less weight on accounting for and controlling energy use and direct GHG emissions than in other sectors that are larger direct GHG emitters. Conversely, this application places more emphasis on board and management strategies to address climate change and to integrate the associated risks and opportunities in lending, investment and brokerage operations. (For examples of banking sector best practices for each of the 14 indicators in the Climate Change Governance Index, see the illustrated checklist on pp. 8–10.)

Banks' individual scores have been determined according to a 100-point scale. Because not all banks are engaged in the full spectrum of financial service offerings assessed by the Climate Change Governance Index, however, scores are weighted differently for each of the three classes of financial services firms included in the study. Companies classified as asset managers were scored according to an 80-point scale, with points removed for scoring metrics related to activities that fall outside the purview of the companies' traditional business operations. The scores listed for these banks reflect the company's raw score calculated as a percentage of the maximum 80 points. Similarly, investment banks were assessed according to 97-point scale. Diversified banks, whose range of traditional business operations cover all "best practice" indicators addressed in the Climate Change Governance Index, were scored according to the full 100-point scale.

A 14-point 'Climate Change Governance Index' has been used to evaluate banks in this report

Due to these variations within the financial sector, analysis of sector peers forms a more useful basis for comparison of leaders and laggards than analysis of banks across financial sectors.

Climate Change Governance Index — Banking Sector

	Board Oversight	Points
1	Board is actively engaged in climate change policy and has assigned oversight responsibility to board member, board committee or full board.	Up to 16
	Management Execution	
2	Chairman/CEO assumes leadership role in articulating and executing climate change policy.	Up to 22
3	Top executives and/or executive committees assigned to manage climate change response strategies.	
4	Climate change initiatives are integrated into risk management and mainstream business activities.	
5	Executive officers' compensation is linked to attainment of environmental goals and GHG targets.	
	Public Disclosure	
6	Securities filings disclose material risks and opportunities posed by climate change.	Up to 18
7	Public communications offer comprehensive, transparent presentation of response measures.	
	Emissions Accounting	
8	Company calculates and registers GHG emissions savings and offsets from operations.	Up to 14
9	Company conducts annual inventory of GHG emissions and publicly reports results.	
10	Company has an emissions baseline by which to gauge future GHG emissions trends.	
11	Company has third-party verification process for GHG emissions data.	
	Strategic Planning	
12	Company sets absolute GHG emission reduction targets for facilities, energy use, business travel and other operations (including indirect emissions).	Up to 30
13	Company participates in GHG emissions trading programs.	
14	Company pursues business strategies to reduce GHG emissions, minimize exposure to regulatory and physical risks, and maximize opportunities from changing market forces and emerging controls.	

Scores by Banking Sector

ASSET MANAGERS*	State Street Corp.	36
	Northern Trust Corp.	14
	BlackRock, Inc.	4
	T. Rowe Price Group, Inc.	4
	Legg Mason, Inc.	3
	Franklin Resources, Inc.	1
DIVERSIFIED BANKS	HSBC Holdings PLC	70
	ABN AMRO Holding N.V.	66
	Barclays PLC	61
	HBOS PLC	61
	Deutsche Bank AG	60
	Citigroup Inc.	59
	Bank of America Corp.	56
	Royal Bank of Scotland Group PLC	55
	Fortis N.V.	54
	ING Groep N.V.	52
	UBS AG	52
	Credit Suisse Group	50
	Royal Bank of Canada	49
	BNP Paribas	48
	Crédit Agricole SA	47
	Société Générale	46
	JPMorgan Chase & Co.	43
	Wells Fargo & Co.	41
	Mitsubishi UFJ Financial Group, Inc.	39
	Sumitomo Mitsui Financial Group, Inc.	33
	Wachovia Corp.	27
	The Bank of Nova Scotia	26
	Intesa Sanpaolo S.p.A.	26
	TD Bank Financial Group	25
	Mizuho Financial Group, Inc.	24
	Banco Santander, S.A.	22
	Banco do Brasil	14
	Industrial & Commercial Bank of China	8
	Bank of China Ltd.	4
INVESTMENT BANKS*	Goldman Sachs Group, Inc.	53
	Merrill Lynch & Co., Inc.	52
	Morgan Stanley	49
	Lehman Brothers Holdings Inc.	26
	The Bear Stearns Companies Inc.	0

Scores for All Banks

HSBC Holdings PLC	70
ABN AMRO Holding N.V.	66
Barclays PLC	61
HBOS PLC	61
Deutsche Bank AG	60
Citigroup Inc.	59
Bank of America Corp.	56
Royal Bank of Scotland Group PLC	55
Fortis N.V.	54
Goldman Sachs Group, Inc.	53
ING Groep N.V.	52
Merrill Lynch & Co., Inc.	52
UBS AG	52
Credit Suisse Group	50
Morgan Stanley	49
Royal Bank of Canada	49
BNP Paribas	48
Crédit Agricole SA	47
Société Générale	46
JPMorgan Chase & Co.	43
Wells Fargo & Co.	41
Mitsubishi UFJ Financial Group, Inc.	39
State Street Corp.	36
Sumitomo Mitsui Financial Group, Inc.	33
Wachovia Corp.	27
The Bank of Nova Scotia	26
Intesa Sanpaolo S.p.A.	26
Lehman Brothers Holdings Inc.	26
TD Bank Financial Group	25
Mizuho Financial Group, Inc.	24
Banco Santander, S.A.	22
Banco do Brasil	14
Northern Trust Corp.	14
Industrial & Commercial Bank of China	8
Bank of China Ltd.	4
BlackRock, Inc.	4
T. Rowe Price Group, Inc.	4
Legg Mason, Inc.	3
Franklin Resources, Inc.	1
The Bear Stearns Companies Inc.	0

* Scores weighted (see pg. 6 for explanation)

Source: Ceres and RiskMetrics Group

Climate Change Governance Index — Banking Sector Best Practices

	Board Oversight	16 Total Points
1	*Board is actively engaged in climate change policy and has assigned oversight responsibility to board member, board committee or full board.* **HSBC** has assigned environmental and climate change oversight to its board's Corporate Responsibility Committee. In addition, Group Chairman Stephen Green has been designated as having ultimate responsibility for climate change matters. The Group Management Board is also involved in climate change policymaking, including the firm's decision to become carbon neutral and new business expansion relating to carbon market opportunities. Finally, the board assesses social, ethical and environmental risks and receives training on corporate responsibility issues. • *For full credit, would need climate change-specific training and explicit board oversight of climate change as a risk management issue.*	Awarded 13 out of 16 points

	Management Execution	22 Total Points
2	*Chairman/CEO assumes leadership role in articulating and executing climate change policy.* **ABN AMRO**'s former Managing Board Chairman Rijkman Groenink has publicly advocated for a complete regulatory framework to address climate change, stating: "We as a private sector cannot do that alone. We need long-term policy guarantees and incentives to achieve carbon reduction." At the end of 2006, Groenink co-signed a letter to the Dutch government urging for more government action towards combating climate change. ABN AMRO has also co-signed letters on climate change policy to the President of the European Commission and the Prime Minister of the United Kingdom.	Awarded 4 out of 4 points
3	*Top executives and/or executive committees assigned to manage climate change response strategies.* At **Goldman Sachs**, Mark Tercek, Managing Director and Head of the Environmental Strategy Group and Center for Environmental Markets, reports directly to the CEO. In addition to the Environmental Strategy Group, business area heads oversee investment, capital markets advisory and other business activities in environmental markets. In addition, Goldman Sachs has carried out global due diligence training with respect to its Environmental Policy Framework and training for the Corporate Services and Real Estate team on green building standards.	Awarded 6 out of 6 points
4	*Climate change initiatives are integrated into risk management and mainstream business activities.* **Royal Bank of Canada** established an Environmental Risk Management Group in 1992 (the group is now incorporated into Corporate Environmental Affairs). RBC utilizes a suite of environment credit risk policies to address ESG issues in its lending and investment activities. In addition, in May 2002, RBC launched its Carbon Risk Management Project, which has involved a carbon risk profile of the firm's lending portfolio and a review of the potential physical impacts of climate change to North American business sectors and regions. RBC has also integrated ESG analysis into its wealth management division. • *For full credit, would need a detailed explanation of integration of climate change issues into investment and business opportunity planning.*	Awarded 9 out of 10 points
5	*Executive officers' compensation is linked to attainment of environmental goals and GHG targets.* **Credit Suisse** Information Technology (IT) is promoting energy conservation internally by evaluating managers according to how well they have reduced energy use. The IT department recently introduced green scorecards - an evaluation tool that provides metrics around green computing. • *For full credit, would need a climate change specific link to wider executive compensation policies.*	Awarded 1 out of 2 points

	Public Disclosure	18 Total Points
6	*Securities filings disclose material risks and opportunities posed by climate change.* **Bank of Nova Scotia**'s 2006 40-F includes an overview of environmental risk management policies, including monitoring of climate change policy developments. • *For full credit, would need identification of material risks and strategic business opportunities posed by climate change and further discussion of climate change and/or GHG regulations in the context of risk management.*	Awarded 4 out of 8 points
7	*Public communications offer comprehensive, transparent presentation of response measures.* **Bank of America** announced in March 2007 a $20 billion ten-year climate change initiative, detailing the company's emissions reduction targets and energy efficiency efforts. In May 2004, the company released a Climate Change Position Paper and the firm's Sustainability Report is in accordance with GRI reporting standards. In addition, the firm's 2006 Annual Report Letter to Shareholders discusses climate change and Bank of America has publicly responded to the Carbon Disclosure Project. Finally, Bank of America has advocated for a U.S. cap and trade system and federal emissions regulations; the firm's Investment Strategies Group also distributes materials to clients on the economic transitions posed by climate change and potential legislation.	Awarded 10 out of 10 points

	Emissions Accounting	14 Total Points
8–11	*Company calculates and registers GHG emissions savings and offsets from operations. Company conducts annual inventory of GHG emissions and publicly reports results. Company has an emissions baseline by which to gauge future GHG emissions trends. Company has third party verification process for GHG emissions data.* **Citi** has conducted a GHG emissions inventory that measures direct (Scope 1) emissions as well as indirect (Score 2 and 3) emissions resulting from electricity purchase and business travel. In addition, the company has calculated the CO_2 emissions associated with power plant financing. Citi has calculated emissions savings associated with its renewable energy purchases, and has set 2005 as a baseline by which to compare current/future emissions in setting its targets. The company's GHG inventory was conducted according to the GHG Protocol and was verified by consultants designated by the EPA Climate Leaders program. • *For full credit, would need to set emissions baseline prior to 2004 and estimate forward projection of emissions trends. Would also need to estimate savings from energy efficiency measures and banking/lending variations.*	Awarded 10 out of 14 points

	Strategic Planning	30 Total Points
12	*Company sets absolute GHG emission reduction targets for facilities, energy use, business travel and other operations (including indirect emissions).* **Barclays** has achieved carbon neutrality in the United Kingdom. In addition to this carbon neutrality target, the company has also set an absolute emissions target (20% total emissions reduction by 2010 in the U.K.), two energy use targets (for both the U.K. and global operations), and an emissions intensity target (12.6 tonnes CO_2 per €1 million U.K. income). Barclays has also made a commitment to increase its renewable energy purchase from 3% to 50% of its U.K. operations. • *For full credit, would need to set an emissions reduction target for financing/ lending operations.*	Awarded 7 out of 10 points
13	*Company participates in GHG emissions trading programs.* **Fortis** has been active in the European Union Allowance (EUA) trading market since 2003. Today, Fortis trades in all existing carbon contracts and provides services to over 100 carbon clients globally. Apart from carbon trading services, Fortis provides various carbon finance, clearing, trust and fund services. Fortis is also a co-sponsor of the European Carbon Fund and is the financial services provider for the UNDP's Millennium Development Goals Carbon Facility.	Awarded 5 out of 5 points

Strategic Planning (continued)		
14	*Company pursues business strategies to reduce GHG emissions, minimize exposure to regulatory and physical risks, and maximize opportunities from changing market forces and emerging controls.* **HSBC** participates in a variety of climate-related third party initiatives and coalitions, including the Climate Group, the Institutional Investors Group on Climate Change, and the G8 Gleneagles CEO Roundtable on Climate Change. The company also ranked first in the Low Carbon Finance and Investment Leaders category in a survey by BusinessWeek and the Climate Group (December 2006) for its debt financing for low carbon projects and technologies, as well as equity capital for early stage project development. In June 2007, HSBC launched a Global Environmental Efficiency Program, a commitment to reduce the firm's direct environmental impacts. The $90 million commitment over five years will support renewable energy technology, water and waste reduction programs and employee engagement. In addition, HSBC offers a variety of climate-related investment products, including the HSBC Global Climate Change Benchmark Index (and four sub-indices) and a climate change fund that aims to outperform the index. HSBC is also developing risk consultancy services to help customers assess and manage their physical exposures to climate change and insurance products to facilitate the development of renewable energy projects and carbon markets. • *For full credit, would need to currently offer climate-related retail products.*	**Awarded 14 out of 15 points**

To view a sample bank profile, go to p. 36. To view all 40 bank profiles, go to www.ceres.org.

II. Overview

The Climate 'Mega-Trend'

Climate change is changing the world of banking in many ways. One investment bank described climate change recently as "the next global mega-trend," after the fall of the Iron Curtain and the Internet revolution.[2] From a macro-economic standpoint, a carbon-filled atmosphere is joining capital and labor as a new resource constraint in production. Moreover, cost impacts from extreme weather events and greenhouse gas (GHG) regulation are emerging as risk factors in pricing securities and assigning credit and asset valuations.

For a global economy already faced with $100-barrel oil and a projected 50 percent increase in energy demand over the next 25 years, the climate change "mega-trend" may bring the global economy to a historic tipping point. While globalization and the spread of market-based economies have created wealth for a fast-growing human population, they have also hastened a day of reckoning when fossil fuel shortages and excess climate-changing emissions could combine to spawn a global climate and energy crisis. As Theodore Roosevelt IV, a managing director for Lehman Brothers, stated recently, "The economic transformation driven by climate change, we believe, will be more profound and deeper than globalization, as energy is so fundamental to economic growth."[3]

From a macro-economic standpoint, a carbon-filled atmosphere is joining capital and labor as a new resource constraint in production

A new report from the United Nations Intergovernmental Panel on Climate Change (IPCC) makes the strongest case yet for near-term, concerted action to combat global warming.[4] The report concludes that as a result of rapid consumption of fossil fuels since the start of the Industrial Revolution, "There is very high confidence that the net effect of human activities since 1750 has been one of warming." This extensively peer-reviewed report—whose authors share in the 2007 Nobel Peace Prize—finds:

- Earth's surface temperature has increased 1.33 degrees Fahrenheit since 1900 (0.74 degrees Celsius), mostly in the last 50 years, likely making this the warmest period of the last 1,300 years.
- Eleven of the last 12 years have been the warmest in the instrumental record, dating back to 1850.
- Recent temperature and carbon dioxide (CO_2) emission trends are at the high end of the range forecast by the IPCC, with the global average temperature now rising about one-half degree F per decade.
- The frequency of heat waves, forest fires and heavy precipitation events has increased globally since 1950.
- Areas affected by drought have spread globally since the 1970s.
- The incidence of coastal flooding has increased since 1975.
- Arctic sea ice cover has shrunk 20 percent since 1978, when satellite measurements began.
- The rate of sea level rise has jumped 70 percent since 1993, compared to the prior 30-year measurement period. Rapid melting of the Greenland ice sheet is now raising new concerns that the amount of sea level rise that might occur this century will be measured in meters, not inches.

Climate change is already taking a discernible human and financial toll, with an increase in heat-

2. Elga Bartsch, "The Economics of Climate Change—a Primer," Morgan Stanley Research Europe, Morgan Stanley, Oct. 3, 2007.
3. Clive Horwood, "The new colour of money," *Euromoney*, September 2007.
4. "Summary for Policymakers of the Synthesis Report of the IPCC Fourth Assessment Report," Intergovernmental Panel on Climate Change, Geneva, Switzerland, Nov. 16, 2007.

related mortality in Europe, drought-induced famine in Africa, and spread of infectious disease vectors and allergenic pollen across the Northern Hemisphere. Receding mountain glaciers and snow cover are shrinking the water supply of some major population centers, including California; transforming Arctic communities that depend on hunting and travel over snow and ice; and threatening the livelihood of winter resort communities in some lower-elevation alpine areas, such as the European Alps and northeastern United States.

Ominously, the IPCC warns of "abrupt or irreversible" damage that might occur as a result of delays in curbing GHG emissions. Left unchecked, global temperatures could rise fully 10 degrees F by the end of this century, with thermal expansion of the oceans causing at least two feet of sea level rise. Such global temperatures, if sustained, could set in motion irreversible melting of the Greenland ice sheet, resulting in 23 feet of sea level rise over a matter of centuries, inundating the world's coastal cities and wasting trillions of dollars of urban infrastructure.

As the main providers of capital and with their expertise in risk management, banks can do much to combat climate change

Even more modest temperature increases—on the order of 3 to 5 degrees F—are expected to accelerate the trend toward more frequent heat waves, flooding rainstorms, rising sea level, severe hurricanes and a poleward shift of extra-tropical storms. The consequences for the global economy could be devastating. One study commissioned by the U.K. Treasury Department estimated that if CO_2 emissions are left unabated, climate change could cause a 5 to 20 percent reduction in the projected global gross domestic product by 2050.[5] Damage from catastrophic storms and sea level rise, rising agricultural and forestry losses, growing food and water shortages, and massive refugee problems could bring about economic losses equivalent to those suffered during the Great Depression, this report found. In presenting the study's findings, Sir Nicholas Stern, the report's lead author and a former chief economist at the World Bank, cast climate change as "the greatest market failure the world has ever seen."

Banks' Leadership Role

Can banks correct this market failure? Not by themselves. But as the main providers of capital to the global economy, and with their expertise in risk management, banks can do much to combat climate change.

First and foremost, banks can start factoring in a market price for CO_2 as carbon-reducing regulations and carbon emissions trading expand globally. With the start of emissions trading in Europe in 2005, CO_2 has become a fungible commodity that could eclipse the value of oil over time.[6] This puts banks in a pivotal position to help build new markets through carbon emissions management, trading and brokerage. At the same time, through lending and investing, banks can help lead a "clean energy" revolution in energy efficiency technologies and renewable resources that could spur hundreds of billions of dollars in new annual revenue streams in the decades ahead.

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Whether banks will seize these opportunities—and this report finds preliminary evidence that they are pursuing at least some—banks will come to realize that climate change affects all facets of their business and all classes of investing. On the way toward a warmer, carbon-constrained world, equity valuations will be shaped by everything from new regulatory schemes and incentives, to physical damage to facilities, and shifts in consumer preferences toward "climate friendly" products and services. The ability of companies to adjust to this fast-changing physical and regulatory environment—by mitigating climate risks and capitalizing on new investment opportunities—will become

5. *Stern Review Report on the Economics of Climate Change*, U.K. Treasury Department, October 2006.

6. "Emissions Trading Expert Peter Fusaro: Carbon Trading is going to be Bigger than Oil Trading." July 31, 2007. *See http://energytechstocks.com.previewmysite.com/wp/?p=120*

increasingly central to banks' financing of corporations, equity research and portfolio management.

At the same time, banks will need to re-examine their treatment of fixed-income assets, many of which are designed to last for decades but which may come under rising inflationary pressure from weather-related losses and carbon regulations that will make carbon emissions more costly. Demand for "climate protection" products and services could lead banks into whole new markets to support efficient risk sharing of increasingly vulnerable infrastructure. In addition, government securities may be called upon to backstop climate-related risks that the private sector is no longer willing or able to finance and insure. Even global trade and currency valuations will be affected, with countries lacking the necessary financial resources and adaptive capacity seeing their currencies weakened, as others benefit from new international trade and capital flows spurred by carbon-related emissions trading and project development.

$500 billion	Value of low-carbon energy markets by 2050 *(Stern)*
$100 billion	Demand for projects generating GHG emissions credits by 2030 *(UN)*
$100 billion	Worldwide investment in clean energy by 2009 *(New Energy Finance)*
$18.6–$23.1 billion	Estimated solar industry revenuse by 2010 *(Solar Buzz)*
$15 billion	Global fuel cell and distributed hydrogen market by 2015 *(The Climate Group)*
$84 billion	Cumulative net savings from energy efficient products in US by 2012 *(The Climate Group)*

Size of the Opportunity

Source: Deutsche Bank. "Investing in Climate Change." October 2007

Need for Action

While the transition to a lower-carbon economy will take decades, "What we do in the next two or three years will determine our future," says Rajendra Pachauri, an economist and scientist who heads the the Intergovernmental Panel on Climate Change. If no further action is taken to control GHG emissions before 2012, "it's too late," Pachauri believes. "This is the defining moment."[77]

Bringing GHG emissions under control presents a formidable challenge for the global economy. In the last 35 years, anthropogenic emissions of CO_2, the most important greenhouse gas, have increased 80 percent, mainly as a result of rapid increases in the rate of combustion of fossil fuels. The atmospheric concentration of CO_2 now stands at 380 parts per million—far above the natural range over the last 650,000 years.

Since 2000, even the amount of carbon *per unit of energy produced* has increased, reversing a trend toward use of lower-carbon energy sources since the start of the Industrial Revolution. This reversal is mainly the result of emerging economies like China and India that are relying heavily on coal and oil—the most carbon-intensive energy sources—to fuel their economic booms. But it is also because fossil energy developers elsewhere have begun to tap unconventional sources that require far more energy to refine and produce, such as tar sands and oil shale in Canada and the western United States. From a carbon emissions standpoint, expanded use of these carbon-rich fuels has canceled out the sizeable gains made in production from non-carbon resources like wind and solar since 2000.

If current trends continue, a climate and energy crisis is virtually unavoidable. Between now and

7. Elizabeth Rosenthal and James Kanter, "Grim Report on Climate Change Described as Too Rosy," The New York Times, Nov. 17, 2007.

2030, CO_2-equivalent (CO_2e) emissions are expected to nearly double under business as usual forecasts. Even with more optimistic assumptions about gains in energy efficiency and expansion of renewables, emissions are expected to rise by at least 25 percent. Such forecasts make it virtually impossible to achieve what scientists say is needed by 2050 to avoid "dangerous human interference" with the climate system—a 60 to 80 percent reduction in CO_2e emissions below current levels.

Tipping Point?

To keep major GHG reductions by 2050 in the realm of possibility, the IPCC is recommending an emissions path where global energy-related CO_2 emissions peak by no later than 2020 and return to current levels by 2030. In that time frame, more than $20 trillion of energy-related capital investment is projected to occur. With an additional net investment of 5 to 10 percent a year to speed the penetration of non-carbon based fuels, the IPCC believes it would be possible to return emissions to current levels by 2030, even as the global economy grows virtually unabated. This places an enormous responsibility on energy companies and the banks that finance them to make sound investment decisions, since most of the energy stock added now will still be in use in 2030. Yet there must be a substantial shift away from carbon-based fuels over the period if these emissions goals are to be achieved.[8]

Only one of the banks in this report has made a formal, but modest, commitment to shift the balance of its financing in the power sector in favor of lower-carbon companies

One piece of good news in this report is that banks are stepping up their investments in "clean technology" to make this possible. Of the 40 banks profiled, 29 document their involvement in the renewable energy and clean tech market through everything from private equity and fund investments, to underwriting of initial public offerings, debt financing and even direct ownership stakes in some companies. Altogether, annual investment in renewable energy globally passed the $100-billion mark in 2006, according to the United Nations Environment Programme.[9]

Even so, the amount of investment in traditional fossil fuels far exceeds that of renewables, and few banks have yet given any indication that they are willing to scale back their funding of carbon-intensive energy sources like tar sands and new conventional coal-fired power plants. Only one of the banks evaluated in this report—**Bank of America**—has made a formal, but modest, commitment to shift the balance of its financing in the power sector in favor of lower-carbon utilities, so that its lending portfolio will have reduced carbon exposure over time. (See Section VI for details.) Yet even this bank along with others has come under fire for its continued role in financing large coal-based utilities.[10] In any event, more banks will need to follow this precedent of tracking the relative flow of capital into carbon vs. non-carbon energy sources—and place increasingly aggressive limits on the proportion going into carbon sources—if there is to be any prospect of halting the atmospheric buildup of GHGs by 2050.

What this report can say with certainty is that climate change has galvanized the attention of the banking community. A growing number of banks recognize the challenges and opportunities posed by global warming, and some of the leading banks are treating this as a risk management issue—as they would other credit, operational and reputation issues:

- Of the 40 banks profiled in this study, 23 include a reference or discussion of climate change in their latest annual shareholder reports.
- Twenty-six of these banks were signatories to the latest annual survey conducted by the Carbon Disclosure Project, a non-profit organization that seeks information on climate risks and

8. Successful commercialization of carbon capture and storage technology could offset the need for some fossil fuel replacement, but not eliminate the need for this shift toward new energy sources.

9. "Global Trends in Sustainable Energy Investment 2007," United Nations Environment Programme, June 2007.

10. "Banks, Climate Change and the New Coal Rush," Rainforest Action Network, October 2007.

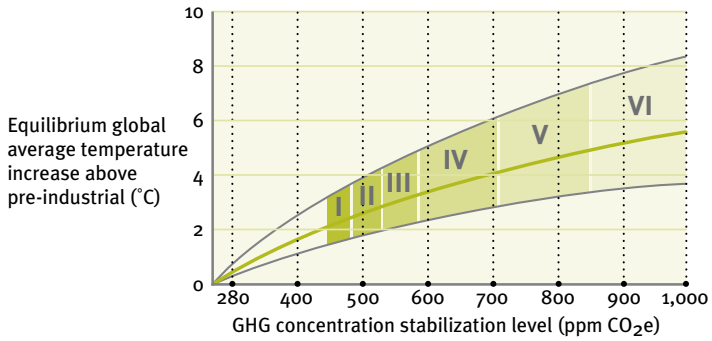
opportunities from companies on behalf of an investor coalition of 315 firms with $41 trillion in assets under management, and 34 of the banks filled out the latest survey.

- Collectively, these banks have produced at least 97 research reports on climate change—58 in 2007 alone. The reports run the gamut from broad assessments of climate change, to specific analyses of public policy and carbon emissions trading, to investments in renewables and other "clean" technologies.

The question now is how this growing understanding of climate change will spur the banking industry to take a leadership role in driving a low-carbon economy. Without substantial investment flows and effective technology transfer, it will be difficult to achieve timely carbon emission reductions at significant scale. By factoring carbon prices into equity valuations and lending decisions now, banks can promote more rapid diffusion and commercialization of advanced low-emissions technologies and reduce the total costs of GHG mitigation.

Early analytical results presented by the IPCC suggest that the net macro-economic effect of achieving a stable atmospheric level of CO_2 by 2050 would be a 0.12 percentage-point reduction in average annual GDP growth—practically a rounding error in the field of economic forecasting. This is a small price to pay to avert a possible climate catastrophe, and to put the planet on a sustainable course where the development needs of the present do not compromise the ability of future generations to meet their needs. And in doing so, banks can spur new business for themselves, lessen the liabilities associated with financing climate-damaging technologies and preserve their leadership role in wealth management and capital formation.

CATEGORY	I	II	III	IV	V	VI
CO_2 concentration at stabilization (ppm) *(2005 = 379 ppm)*	350–400	400–440	440–485	485–570	570–660	660–790
Peaking year for CO_2 emissions	2000–2015	2000–2020	2010–2030	2020–2060	2050–2080	2060–2090
Change in global CO_2 emissions in 2050 (% of 2000 emissions)	-85 to -50	-60 to -30	-30 to +5	+10 to +60	+25 to +85	+90 to +140
Global average temperature increase above pre-industrial at equilibrium, using "best estimate" climate sensitivity (˚F)	3.6–4.3	4.3–5.0	5.0–5.8	5.8–7.2	7.2–8.8	8.8–11.0
Global average sea level rise above pre-industrial at equilibrium from thermal expansion only (Feet)	1.3–4.5	1.6–5.5	1.9–6.2	1.9–7.8	2.6–9.4	3.2–12.0



CO_2 emissions and equilibrium temperature increases for a range of stabilization levels

Source: Intergovernmental Panel on Climate Change Fourth Assessment Report

III. Findings: Climate Governance

Today's bankers and business leaders must recognize that Earth's climate is no longer a static boundary condition for conducting their affairs. The strategic investment decisions they make have a direct bearing on the climate and the natural environment that underpins economic growth. New governance principles must emerge that take this into account.

Increasingly, boards of directors and company CEOs see climate change as an issue they have a duty to address. In a recent survey of 390 CEOs whose firms have endorsed the United Nations Global Compact, 69 percent said they believe that companies should "have the board, as part of its risk-management and fiduciary responsibilities, discuss and act on" environmental, social and governance (ESG) issues. Moreover, 61 percent of these CEOs identified "increasing environmental concerns" as the greatest influence on society's expectations of business. And fully one-third identified responding to climate change as "critical" to addressing the future success of their businesses.[11]

Corporate directors and CEOs who disagree with these statements may find themselves increasingly on shaky ground. As one attorney who advises corporate boards observed recently, "Shareholder litigation against officers and directors who fail to respond to climate change... may be on the horizon. Expectations flowing from the board's duty of care—including its obligations to inquire, to be informed and to employ adequate internal monitoring mechanisms—may create new consequences for boards and modify the standards by which their conduct is judged."[12]

Eleven of the 12 banks with board-level involvement in climate change initiatives are non-U.S. firms—seven in Europe, three in Canada and one in Japan

Board Oversight

Corporate directors in the banking sector are waking up to this changing set of expectations. Of the 40 banks examined in this study, 22 now have board reviews of the company's environmental affairs, and 12 integrate climate change as part of their review processes. Nine banks have also assigned a board member to oversee the company's climate-related initiatives. Four banks have implemented training programs for directors on sustainability issues.

In terms of regional distribution, board involvement in environmental issues is relatively uniform. (This study includes 19 banks based in North America, 15 in Europe, five in Asia and one in South America.) Three U.S. banks, four European banks and two Canadian banks report having a board-level committee charged with oversight of the company's environmental affairs. However, none of the Asian banks reviewed for this study have followed this trend.

The regional differences widen, however, as the oversight focus narrows to climate change. Eleven of the 12 banks with board-level involvement in climate change initiatives are non-U.S. firms—seven in Europe, three in Canada, and one in Japan. **HSBC**, for one, has an extensive climate governance structure involving the company's board of directors. The General Management Board, chaired by the Group Chief Excecutive, is responsible for HSBC's 2004 decision to become the world's first "carbon neutral" bank. The board also oversees the company's investments in emission-reducing projects and other carbon market opportunities. A board-level Corporate Responsiblity Committee also oversees the company's social responsibility and sustainability policies.

At **ABN AMRO**, the Managing Board acts as the governing and strategic decision-making body for the bank's sustainable development activities. Like HSBC, this board approved the bank's decision

11. Debby Bielak, Sheila M. J. Bonini, and Jeremy M. Oppenheim, "CEOs on Strategy and Social Issues," *The McKinsey Quarterly*, October 2007.

12. Jeffrey A. Smith and Mathew Morreale, Cravath, Swaine & Moore LLC, Boardroom Climate Change, *New York Law Journal*, Vol. 238, no. 10, July 16, 2007.

to become carbon neutral, and it receives regular updates from the company's Sustainability Department.

Management Execution

At the executive level, management of climate change issues has started to move beyond the purview of government relations and public affairs departments and into the realm of traditional risk management. The broad reach of climate change compels a holistic and forward-looking management approach. It combines practical considerations of how banks manage their own energy use and associated greenhouse gas emissions with the broader implications of how climate change affects their lending and investment operations, competitive positioning, reputations and, ultimately, financial bottom lines.

Twenty-six of the banks in this study have established general environmental policies, and 13 have specific climate-related policies and/or strategies

Senior-level support and engagement are the most critical components of any successful climate strategy, according to a recent report from the Pew Center on Global Climate Change.[13] Among survey respondents for this report, CEO leadership was identified as a key driver at all stages of climate program development and implementation. CEO leadership is also key indicator in the Climate Change Governance Index featured in this report.

Environmental Management

Increasingly, senior-level management attention to climate change is translating into formal company-wide environmental policies. Twenty-six of the banks reviewed in this study have established general environmental policies, and 13 have specific climate-related policies and/or strategies. Of the banks with climate-specific policies, eight are based in Europe, four are in the United States and one is in Canada—and all are diversified banks. None of the banks in the asset management and investment banking sectors, or the five Asian banks examined in this study, have thus far developed climate-specific policies or strategies. These figures are likely to rise, however, as much of the corporate policy focus on climate change has come only recently. Of the 13 banks with formal policies, nine created or updated them in just the past two years.

Morgan Stanley, for example, updated its Environmental Policy Statement in 2007. The policy commits the bank to helping clients in GHG intensive industries to develop financial strategies for responding to emerging regulatory mandates, devoting resources towards sustainable and renewable sources of energy, continuing to provide investment research that enhances understanding of the impacts of climate change and carbon constraints on businesses, and encouraging clients to evaluate the issue of GHG emissions and to consider investing in and making use of emerging environmental technologies.

Royal Bank of Canada (RBC) unveiled an Environmental Blueprint in October 2007 that is focused on climate change, biodiversity and water issues. Among other things, this policy commits the bank to reducing its environmental footprint, providing a suite of environmental credit risk policies for its clients and offering new climate-focused products and services. This is the latest outgrowth of a Carbon Risk Management Project that RBC began in 2002. As part of this project, RBC undertook a carbon risk profile of its lending portfolio in order to assess potential credit risk impacts, and undertook a review of the potential physical impacts of climate change to North American business sectors and regions.

Barclays PLC adopted its Environmental Policy in January 2005, which includes a five-point Climate Action Program. The goals are to increase energy efficiency, purchase renewable energy, achieve carbon neutrality for its U.K. operations, offer climate products and services to customers, and actively

13. Andrew Hoffman, "Getting Ahead of the Curve: Corporate Strategies to Address Climate Change," Pew Center on Global Climate Change, October 2006.

engage in the climate change policy debate. Several other banks have adopted similar climate-related goals as part of their environmental policies in recent years.

Risk Management

For some banks, however, climate change is not merely an extension of environmental policy; it is an important component of the company's risk management. "Take the issue of CO_2 emissions and climate change," **Barclays** wrote in its 2005 Corporate Responsibility Report. "We have already seen how business is responding commercially to the challenge. But we also have to deal with it as a risk management issue."[14] In Barclays' case, the firm has established an Environmental and Social Impact Assessment Policy to ensure that "lending proposals are thoroughly assessed to identify any environmental and social risks." The policy is implemented through its lending managers and credit teams as well as a specially designated Environmental and Social Risk Policy team. The Brand and Reputation Committee, a subcommittee of Barclays' Executive Committee, oversees the process.

> ***"We have already seen how business is responding commercially to the [climate] challenge. But we also have to deal with it as a risk management issue."***
>
> **~Barclays PLC**

Several other European banks have variations on this risk management scheme. **ABN AMRO**'s Group Risk Committee (GRC) is mandated to include environmental, social and ethical (ESE) considerations in decision-making on client and transaction engagements. To help fulfill this mandate, a Sustainable Risk Advisory (SRA) team works within the Group Risk Management division to assess ESE risks and advise the GRC on business engagement decisions. With respect to climate change and project finance, the company identifies regulatory risk from emerging GHG emissions policies, cash-flow risks from volatile costs and physical risks from weather events.

HSBC also has an Environmental Risk Standard, established in 2003, and has since adapted it into a Sustainability Risk Framework. HSBC is upgrading its risk approval systems to include sustainability risk ratings, which will be gradually assigned to clients globally. The risk ratings will enable the firm to differentiate deal approval levels, the type of facility it would offer a client and provide portfolio information. HSBC has a network of 27 environmental risk managers that support its Sustainability Risk team in London. It also recently hired a dedicated climate change executive who heads a Climate Change Center for Excellence. "Over the next five years," Group Chairman Stephen Green stated in 2007, "HSBC will make responding to climate change central to our business operations and at the heart of the way we work with our clients across the world."[15]

Executive Task Forces

As climate change evolves as a risk management issue, banks must consider how it will affect their diverse lines of business and operations that often span several continents. One way banks are coordinating their governance responses at the executive level is by establishing climate-focused committees or task forces led by the CEO or other top-ranking executives. Twenty-five of the banks analyzed in this study have established general environmental/sustainability executive committees, task forces or working groups; 13 have created working groups focused specifically on climate change.

Crédit Agricole has organized a top-down climate governance response that reaches from the CEO all the way to lending officers within its regional development banks. The three-tiered structure includes a top-level Sustainable Development Committee, a Sustainable Development Mission and a network of Sustainable Development officers. The Sustainable Development Committee is chaired by the CEO and includes several top executives who are responsible for drafting the main guidelines for the

14. Barclays PLC, 2005 Corporate Responsibility Report.

15. News conference to announce the HSBC Climate Partnership, London, U.K., May 30, 2007.

Sustainable Development Mission. Crédit Agricole has also established a 12-member specialized Environmental Unit responsible for developing the company's carbon assessment tools and new climate-related products. This unit reports directly to the Sustainable Development Committee.

Other companies have implemented climate governance strategies with a more decentralized structure, where working groups operate within different business units. At **UBS**, the primary responsibility for implementing environmental policies lies within its business groups, each of which has appointed an environmental representative to act as sponsor of environment-related initiatives within that group. UBS also has an executive-level Environmental Committee, chaired by the Group Chief Credit Officer, which consists of each group's environmental representatives and other senior executives. A Group Environmental Policy unit supports the Environmental Committee's work.

Adhering to the philosophy that environmental issues should be incorporated as a standard business consideration by all business lines and operating areas within the company, **Bank of America** has also taken a more decentralized approach. An Environmental Council with executive representation meets periodically throughout the year to help business lines drive their performance objectives. In addition, cross-functional teams have been developed to address environmental issues and opportunities. These teams focus on areas such as credit risk, reporting and tracking, operations and supply chain management, procurement and corporate services, energy management and associate engagement.

Fortis utilizes a hybrid climate governance structure combining these centralized and decentralized approaches. At the corporate level, it has a Corporate Social Responsibility (CSR) department, with CSR managers deployed in each of the company's businesses. The CSR department coordinates and synthesizes broad sustainability policies in line with the company's overall global strategy, while the CSR managers integrate specific climate-related issues into their business units. In addition, Fortis has established a Corporate Sustainability Steering group, comprised of 10 senior managers from various parts of the organization to "embed sustainability deeper within the organization." In 2007, Fortis also set up a CSR Advisory Board, comprised of external experts, to offer additional perspective on the company's CSR initiatives.

Public Disclosure

The lack of climate risk disclosure in securities filings continues to be of particular concern to many shareholders

Corporate disclosure of climate change risk is growing steadily in response to investor and other stakeholder initiatives—and the banking industry is no exception. Twenty-six of the 40 banks in this study were signatories to the latest annual survey of climate-related risks conducted by the Carbon Disclosure Project.[16] In addition, 34 of the banks completed this survey and shared the results with other CDP signatories.

However, banks have a spottier record when it comes to direct communication with their shareholders on climate change. Only 23 of the 40 banks analyzed in this report included a reference to climate change in their latest annual reports. And only nine of the banks mentioned climate change or related issues in their latest Form 10-K or comparable regulatory filings. The lack of disclosure in securities filings continues to be of particular concern to many shareholders:

- In September 2007, 22 institutional investors and other organizations filed a petition requesting that the U.S. Securities and Exchange Commission issue interpretive guidance on what material climate-related information should be included in corporate disclosures.[17]

16. Carbon Disclosure Project Report 2007: Global FT500 and USA S&P500 reports, September 2007.

17. Rebecca Smith, "SEC Pressed on Climate Change Disclosure," *Wall Street Journal*. Sept. 18, 2007. See http://sec.gov/rules/petitions.shtml.

- Also in September, New York Attorney General Andrew Cuomo, acting to protect investors including New York state's public employees, filed subpoenas against five large U.S. power companies for failing to "evaluate or quantify" the possible effects of future GHG regulations in their most recent Form 10-K filings. "Selective disclosure of favorable information or omission of unfavorable information concerning climate change is misleading," Cuomo wrote in his letters to the companies.[18]
- In October 2007, the U.S. Senate Banking Committee's Subcommittee on Securities, Insurance and Investment held a hearing in which leading institutional investors reiterated their calls for more detailed climate risk disclosure in securities filings. In his opening remarks, Subcommittee Chairman Sen. Jack Reed (D-R.I.) argued that more Form 10-K disclosure would help financial markets "to price climate risks and opportunities efficiently."[19] If the SEC fails to clarify disclosure requirements, Sen. Robert Menendez (D-N.J.) said an alternative course of action might be to insert additional language in a climate bill that the Senate is now considering.

Bank of America, Citi, Goldman Sachs, JPMorgan Chase, Lehman Brothers and Merrill Lynch have all spoken out about the need for federal climate change legislation in the United States

The outcome of the SEC petition, New York subpoenas and possible legislative action all bear close watching in 2008. At the same time, investors plan to file up to 50 shareholder proposals with U.S. corporations on climate change during the 2008 annual meeting season, including several resolutions filed with U.S. banks. This shareholder campaign is entering its nineteenth year. In 2007, a record 47 shareholder resolutions were filed with U.S. companies seeking, among other climate-related actions, greater disclosure on the financial risks and opportunities associated with climate change. The proposals that came to votes received average support of nearly 20 percent, also a record.

Public Policy Statements

Like many private enterprises, banks were for many years leery about government intervention to regulate GHG emissions. However, as new opportunities emerge in carbon emissions trading and clean technology investments, banks are starting to advocate a more pro-active government role. Increasingly, they see that uncertainty over the form of regulatory controls is getting in the way of substantive financial decisions that will be a boon to their industry.

Seventeen of the 40 banks in this study now have made formal public policy statements on climate change. These range from basic expressions of support for cap-and-trade mechanisms in their annual or CSR reports to active membership in organizations lobbying for government controls. Notably, U.S. banks have been very active in this area, reflecting the lack of U.S. government action to address climate change.[20]

Bank of America, **Citi**, **Goldman Sachs**, **JPMorgan Chase**, **Lehman Brothers** and **Merrill Lynch** and have all spoken out in recent years about the need for federal climate change legislation in the United States. Citi's Position Statement on Climate Change, issued in February 2007, is typical: "U.S. national action and leadership are critical elements of a global solution because of the size of the U.S. economy and our emissions and because a global solution is highly unlikely without U.S. action. We believe that the United States must act now to create a national climate change policy to avoid the economic, social, and environmental damage that will result if GHG emissions are not reduced."

18. Felicity Barringer and Danny Hakim, "New York Subpoenas 5 Energy Companies," The New York Times, Sept. 16, 2007.
19. "Investors Push Congress for Full Corporate Dislcosure on Climate Risk." www.incr.com. Oct. 31, 2007.
20. With Australia's approval of the Kyoto Protocol on Dec. 3, 2007, the United States is now the only major industrialized country that has not endorsed this international agreement.

Merrill Lynch has taken the further step of joining a group of 65 companies and institutional investors organized by Ceres. In March 2007, the group, whose members manage more than $4 trillion in assets, called on the U.S Congress to adopt a mandatory, market-based policy, such as a cap-and-trade system. The group's Call to Action statement recommends achieving GHG emissions reductions of 60-90 percent below 1990 levels by 2050, as well as establishing an economy-wide carbon price. The group also called on the SEC to require better corporate disclosure of climate risks.

European banks, meanwhile, have been advocating for GHG emissions trading as the key climate change policy solution over imposing carbon taxes or other command-and-control government policies. Many of these are joint initiatives. **ABN AMRO** has participated in several policy forums and has co-signed letters on climate change to the President of the European Commission and the Prime Minister of the United Kingdom. **Barclays** Chairman Marcus Agius is a member of the Confederation of British Industry's Climate Change Taskforce, a group of chairmen and CEOs from some of the U.K.'s biggest companies who are trying to frame a business policy agenda to tackle climate change. **HBOS** is a member of the Institutional Investors Group on Climate Change, which has explicitly supported the U.K. government's policy target of a 60 percent reduction in U.K. GHG emissions below 1990 levels by 2050.

Additionally, in November 2007, **ABN AMRO**, **Barclays**, **Fortis**, **HBOS** and **HSBC** signed the Bali Communiqué, organized by the Prince of Wales's UK and EU Corporate Leaders Groups on Climate Change. The Communiqué calls for a comprehensive, legally binding United Nations framework to tackle climate change and was announced at the start of the Bali, Indonesia negotiations for a post-2012 Kyoto Protocol agreement.

Findings: Internal Greenhouse Gas Management

While banks are not large GHG emitters on the scale of utilities or industrial firms, they still have a vital role to play in managing their emissions. Since the building sector accounts for up to 40 percent of GHG emissions in some countries, banks can set an important example for their clients by adopting formal emissions accounting and management systems. Many banks are altering their energy procurement policies in favor of renewable energy sources and integrating green building principles into real estate management. In addition, banks are expanding their GHG management programs to include limits on business travel, which in some cases rivals emissions from company-owned buildings.

Twenty-four banks in this study have some type of GHG emissions reduction target

Moreover, large multinational banks with thousands of branch offices around the world can influence local uptake of energy efficiency and clean energy technologies. Some banks are looking beyond their own properties to include financing of other energy efficiency initiatives in urban areas. For example, five banks—**ABN AMRO**, **Citi**, **Deutsche Bank**, **JPMorgan Chase** and **UBS**—each have pledged $1 billion to support an Energy Efficiency Building Retrofit Program under the Clinton Foundation's Climate Initiative. This program is being conducted in partnership with 16 large city governments around the world to arrange financing for cities and private building owners to undertake retrofits that pay for themselves through energy savings over the life of the investments. The $5 billion being committed by these banks will double the global market to finance energy retrofits in buildings.[21]

21. President Clinton Announces Landmark Program to Reduce Energy Use in Buildings Worldwide," May 16, 2007. See http://www.clintonfoundation.org/051607-nr-cf-pr-cci-president-clinton-announces-landmark-program-to-reduce-energy-use-in-buildings-worldwide.htm

Emissions Inventory

The first step for most banks in managing their GHG emissions internally is to conduct a formal inventory of energy-related emissions from their office buildings and retail branches. In this study, 28 of the 40 banks reported that they have calculated and disclosed their GHG emissions. Most of these banks use an inventory accounting method called the Greenhouse Gas Protocol (GHG Protocol) developed by the World Resources Institute and the World Business Council for Sustainable Development, and most report their emissions annually to the Carbon Disclosure Project.

Since banks have few direct emissions from on-site power generation (referred to as Scope 1 emissions in the GHG Protocol), most of their emissions come indirectly through power purchases for their facilities. These Scope 2 emissions account for the lion's share of banks' emissions disclosure. However, 23 of the banks also report Scope 3 emissions (indirect emissions) from business travel and sometimes employee commuting. Air travel, in particular, is a large source of Scope 3 emissions for banks. Six banks also report Scope 3 indirect emissions in areas beyond business travel, as follows:

- **Crédit Agricole:** materials and services purchased
- **Credit Suisse:** products (waste management) and supply chain (paper/water input)
- **Morgan Stanley:** products (waste production/disposal)
- **Royal Bank of Canada:** supply chain
- **Société Générale:** supply chain
- **UBS:** products (waste disposal) and supply chain (paper)

Emissions Management and Carbon Neutrality

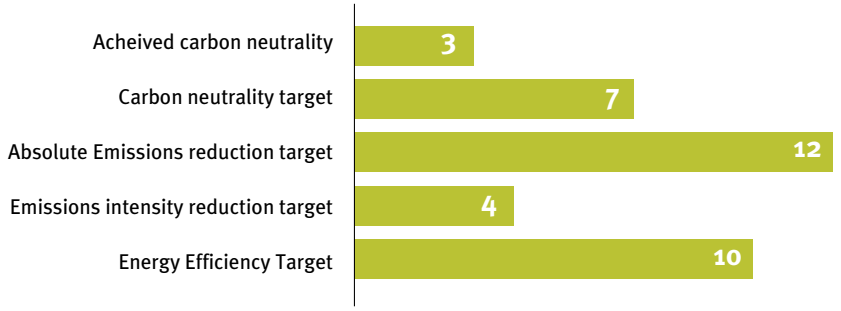
Many banks have gone beyond conducting GHG emission inventories to setting emission reduction targets and regularly reporting on their progress to interested stakeholders. Twenty-four banks in this study have set some type of GHG emissions reduction target. This includes 12 banks that have set targets for absolute reductions in their total emission inventories (not including banks with commitments to carbon neutrality). Ten banks have also set targets for reductions in energy use. Finally, four banks have set targets to reduce the intensity of their GHG emissions (i.e., without setting absolute reduction targets), and two have set energy use-intensity reduction targets.

Bank	Target Reduction	Baseline Year	Target Year
Bank of America	9%	2004	2009
Barclays	20%	2000	2010
Citigroup	10%	2005	2011
Goldman Sachs	7%	2005	2012
HSBC	5%	2004	2007
Industrial & Commercial Bank of China	5%	2004–2006	2009–2011
JPMorgan Chase	7%	2005	2012
Morgan Stanley	7–10%	2006	2012
State Street	5%	2006	2011
Sumitomo Mitsui	6%	2001	2012
UBS	40%	2004	2012
Wachovia	10%	2005	2010

Absolute Emissions Reduction Targets from Facilities and Energy Use

In addition, 22 banks in this study are purchasing renewable energy to reduce their emission footprints, and 19 are purchasing certified emissions reduction offsets. Some of these bank programs are not company-wide, but are limited to certain countries of operation or facilities.

A growing number of banks are declaring targets to achieve "carbon neutrality" for their operations. Ten banks in this study say they have either achieved or are committed to carbon neutrality. In each instance, this includes commitments to purchase renewable energy to help power their facilities and other means of offsetting their emissions.



Emissions Reduction Targets

While carbon neutrality can be an appealing concept to bank customers, how banks define and go about achieving neutrality is drawing further scrutiny. In particular, questions have been raised about the efficacy of certain offset programs in stimulating additional renewable energy production and bringing about actual emissions reductions. In November 2007, a Voluntary Carbon Standard (VCS) was announced to provide more investor confidence and transparency around the offset process, which has lacked standardized verification methods.[22] The VCS could help maintain the momentum of the voluntary carbon offset market, which by some estimates could reach $4 billion over the next five years.

Several banks with carbon neutrality commitments have identified measures beyond offsets to achieve this goal. Key to these efforts is improvement in energy efficiency at bank facilities. Twenty-one banks in this study cite the use of programs such as EPA's ENERGY STAR and the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) green building rating system to document their commitment to achieving cutting-edge energy efficiency improvements at one or more of their facilities.

Goldman Sachs has developed uniform green building standards for use in the construction and major renovation of its facilities. The standards are designed to ensure that the firm meets the intent of Leadership in Energy and Environmental Design (LEED) Gold certification or other whole building standards on all future projects. The firm has a LEED-certified building in Jersey City, N.J., and is working towards LEED Gold certification for its new world headquarters in New York City, scheduled to be completed in 2009. Following the completion of this building, Goldman Sachs will be the largest owner of LEED-certified commercial office buildings in the world.

22. "New Carbon Standard Guarantees Environmental Integrity and Transparency for Global Offset Market," May 16, 2007. See http://www.ieta.org/ieta/www/pages/getfile.php?docID=2713.

Findings: External Financing

If climate change is the next "mega-trend" that a growing number of bankers believe it will be, it will have a profound effect on the asset values and credit ratings of corporations and, ultimately, how banks engage companies through financing. According to Michael Klein, chairman and co-CEO of Citi Markets and Banking, "The sectors that will be most affected [by climate change] are infrastructure, transport, energy and technology. These can account for up to half the global financing needed in any given year. The impact on financing could be hundreds of billions of dollars."[23]

As discussed in Section IV of this report, banks increasingly see climate change as a risk management issue. Their lending to extractive industries like oil, gas and mining has always carried considerable operational, credit and political risks. Now climate change is exacerbating these risks—while adding reputational risk to the mix as banks face greater scrutiny of the environmental impacts of their lending operations.

> ***"The impact on financing could be hundreds of billions of dollars."***
>
> **~Michael Klein, Citi Markets and Banking**

Thirty of the banks in this study have a general environmental risk assessment policy in place, including several that have created specialized environmental risk management teams or integrated environmental issues into mainstream risk assessment processes. However, such assessments often are confined to traditional environmental risks, such as site contamination, or assessing high-polluting sectors. Such processes do not necessarily address emerging environmental risks like climate change or involve any public disclosure requirements.

Equator Principles

Mindful of the lack of transparency guiding financing decisions for development projects in emerging markets, four banks—**ABN AMRO**, **Barclays**, **Citigroup** and **WestLB**—worked with the World Bank's International Finance Corporation to launch the Equator Principles in 2003. These principles are intended to help banks assess, mitigate, document and monitor the credit risk and reputation risk associated with financing such development projects, and through collaboration establish industry best practices. Although the Equator Principles do not directly address climate change mitigation, they are a first step at integrating environmental considerations into project finance, and signatory banks may be more likely to develop robust climate change governance policies going forward. To date, 54 banks have signed on to the Equator Principles, including 23 of the 40 banks included in this study. Some banks that are not involved in project finance also say they refer to the principles to help guide their financing decisions on sensitive projects.

As part of an annual review process, banks are supposed to report on development projects they have considered for financing, ranking the degree of social and environmental impact the projects might have. Signatories are asked to disclose the number of projects they declined to finance due to their negative effects, as well as the projects they did support. As part of the most recent update of the principles in July 2006, the threshold for project-finance reporting was dropped from $50 million to $10 million.

Whether the Equator Principles will set a precedent for evaluating broader financing programs by commercial and investment banks remains to be seen. **Royal Bank of Canada**, for one, now analyzes carbon intensity as part of a broader social and environmental review that is included in its assessment of a firm's exposure to credit risk. But some critics of the Equator Principles and other like-minded initiatives say these evaluation processes do not translate into any actual requirements for mitigation of climate change impacts. However, as discussed at the end of this section, some new ideas are emerging that could point a new way forward.

23. Clive Horwood, "The new colour of money," *Euromoney*, September 2007.

Climate Considerations in Lending

Thirteen of the 40 banks in this study have adopted risk management policies or lending procedures that address climate change in some way. Most of these policies are process oriented and focused on due diligence research; many apply to the power sector specifically:

- **Citi** says it incorporates the potential costs of carbon in the firm's financing of power generation.
- **Merrill Lynch** has a specific policy on financing coal-fired electricity generation (see box).

> **Merrill Lynch**'s coal financing policy recognizes that GHG emissions associated with coal have become a significant environmental concern and that incentives are needed to commercialize a cost-effective technological solution. The firm says it prefers to "finance electrical generation when the producer is a recipient of effective initiatives to reduce GHG and other pollutants, subject to the current state-of-the-art, including energy conservation." Where the producer has not received such incentives, Merrill Lynch will advocate best practices.

In addition, some banks are assisting clients in analyzing carbon exposure and developing emissions reduction strategies:

- **Crédit Agricole**'s Chevreux, the bank's European brokerage and research arm, has hired a full-time carbon analyst to measure the financial impact of carbon constraints on European companies subject to the E.U. Emissions Trading Scheme.
- **HSBC** has called on clients to disclose their carbon emissions and mitigation strategies in a consistent way.
- **Fortis**, as part of its due diligence process, says it discusses with borrowers whether they have taken carbon pricing into account.
- **Citi**, **Royal Bank of Scotland** and **TD Bank Financial Group** have also said that they will encourage clients that are large GHG emitters to develop carbon mitigation plans.

A small but growing number of banks also say they are formally calculating carbon risk in their loan portfolios:

- **Mitsubishi UFJ Financial Group** and **Mizuho Financial Group** have developed "carbon accounting" methodologies that take into account GHG emissions in project financing.
- **Royal Bank of Canada** has undertaken a carbon risk analysis of its lending portfolio, and has developed a proposal to incorporate carbon risk into the credit and risk rating methodologies of the entire firm.
- **Wells Fargo** has conducted a GHG assessment of three key lending portfolios—agriculture, primary energy production and power generation.

> **HBOS** considers climate change risk under five main categories: credit, market, liquidity, insurance and operational risks (the latter including reputation and regulatory risks). The firm's asset management business, Insight Investment, also helped develop the Investor Statement on Climate Change, sponsored by the U.K. Institutional Investor Group on Climate Change. The Statement, issued in October 2006, follows the United Nations Principles for Responsible Investment and directs pension funds and asset managers to incorporate climate change risks and opportunities in their investment analysis and selection.

Constraints on Lending?

Whether the emergence of these climate policies will have a tangible effect on lending decisions remains to be seen. To date, only one bank—**Bank of America**—has announced a specific target to reduce GHG emissions associated with its lending portfolio. Its policy applies to its utility corporate finance portfolio, for which it is seeking a 7 percent reduction in the rate of GHG emissions by 2009, relative to electricity produced. To accomplish this goal, Bank of America is changing its portfolio mix to add customers with lower-carbon emission profiles.

While Bank of America's policy is precedent setting, it still leaves ample room to finance traditional carbon-intensive power suppliers. Some environmental organizations are calling on banks to adopt tougher lending restrictions—or even outright bans—on companies with high-carbon intensity profiles and projects. In 2007, Rainforest Action Network, an environmental group that focused early attention on the impact of banks' lending policies on the environment, launched a new campaign against **Bank of America** and **Citi** for their involvement in corporate and/or project financing of coal-fired power generation. BankTrack, a European group of non-governmental organizations focused on ethics in finance, has also taken aim at banks like **ABN AMRO** for its funding of the huge Shell-led Sakhalin II oil and gas project in Siberia and **Royal Bank of Scotland**, which until recently promoted itself as "the oil and gas bank."

Thus, a big question for banks going forward is the extent to which they should be held to account for their financing of new carbon-based energy projects. After withdrawing its "oil and gas bank" advertising campaign in July 2007, **RBS** Chairman Sir Tom McKillop questioned, "Are we really saying that banks should take on the entire carbon footprint of the world? It's preposterous."[24]

> ***"To be effective, risk management needs to minimize the overall carbon footprint of the project-financing portfolio and to work in the context of the newly emerging carbon markets."***
>
> **~ABN AMRO, 2006 Sustainability Report**

To be sure, banks are hardly in a position to halt all financial support of the fossil fuels industry and carbon-intensive energy projects. This would not only be bad for business, but also would leave the global economy in a lurch as the transition from fossil fuels may take decades to complete. Yet banks no longer are in a position to carry on with "business as usual," either, if real progress is to be made in curbing GHG emissions.

So what can banks do? **ABN AMRO** offers one preliminary answer in its 2006 Sustainability Report, stating, "To be effective, risk management needs to minimize the overall carbon footprint of the project-financing portfolio and to work in the context of the newly emerging carbon markets."[25] This would entail tracking GHG emissions from lending operations and factoring in a meaningful price for carbon emissions.

BankTrack, for one, believes banks could do much more. It is recommending that banks adopt the "Kiribati Principles," named after a Pacific atoll threatened by sea level rise. The Kiribati Principles would address all forms of bank lending, not just project finance. As part of this "collective commitment to deal with the climate crisis," banks would pledge to move away from fossil fuel financing and instead increase renewable energy investments, agree on portfolio level GHG reduction targets, prioritize preservation of forests and encourage energy efficiency.[26]

Renewable Energy Finance

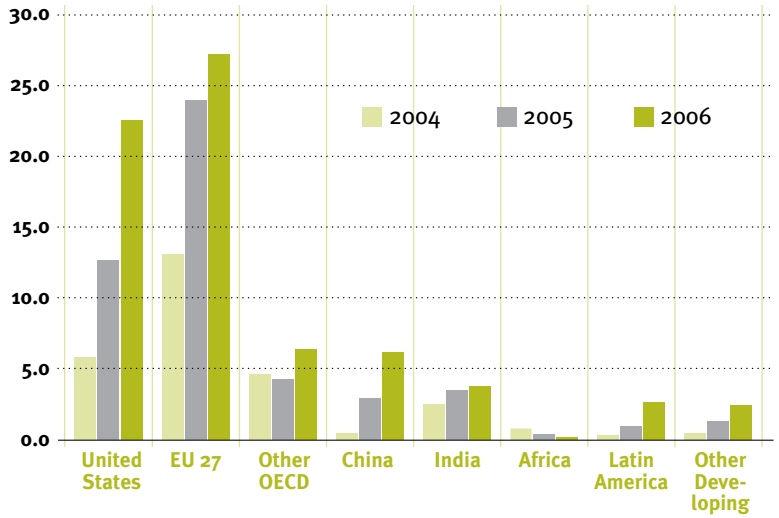
While most banks remain relatively quiet about their continued support of the fossil fuels industry, many have been eager to advertise their growing involvement in the burgeoning renewable energy industry. The United Nations Environment Programme reported in June 2007 that investment capital flowing into renewable energy reached a record $100 billion in 2006. In total, 29 banks of

24. Ed Crooks and Paul J Davies, "Bank seeks climate change credentials," Financial Times, July 10, 2007.

25. ABN AMRO, 2006 Sustainability Report.

26. "The Equator Principles: A toddler finds its feet, but still takes an occasional tumble," Ethical Corporation, Nov. 17, 2007.

the 40 banks in this study have highlighted their involvement in the renewable energy market. Banks are participating through direct ownership stakes in renewable energy companies, debt financing, private equity and fund investments, underwriting of initial public offerings and offering financial advisory services.



Worldwide Investment in Clean Energy (US$ billions)

Source: New Energy Finance

The following banks have made multi-billion dollar commitments to the renewable energy sector, with the scale of financing rising substantially in the last year:

While most banks remain quiet about about their financing of the fossil fuels industry, 29 of the 40 banks in this study have highlighted their involvement in the burgeoning renewable energy market

- **Fortis** has provided almost $2 billion in financing for renewable energy projects over the last 10 years.
- **Royal Bank of Canada**'s transactions in the renewable energy sector have totaled approximately $4.5 billion since 2003.
- **Royal Bank of Scotland** gained the leading global market share of renewable energy finance in 2006, providing $2.6 billion of capital, according to Infrastructure Journal magazine.
- **BNP Paribas** ranked fourth globally in renewable energy finance in 2006, with more than $1 billion financed through eight projects, according to New Energy Finance.
- **JPMorgan Chase** raised $1.5 billion of equity for the wind power market in 2006, and its own portfolio of investments in renewable energy totals $1 billion.
- **Goldman Sachs** has made significant investments in renewable energy technologies through its Principal Investments division, totaling more than $2 billion as of year-end 2007.
- **Wells Fargo** has made a five-year commitment to lend or invest more than $1 billion for environmental businesses. Since mid-2006, Wells Fargo has invested more than $125 million in renewable energy projects.
- **Bank of America** in March 2007 announced a $20 billion, 10-year initiative to support the growth of environmentally sustainable business activity to address global climate change. The broad-based initiative, encompassing its real estate banking, corporate and investment banking and consumer finance divisions, encourages development of environmentally sustainable business practices and low-carbon technologies.
- **Citi** in May 2007 announced plans to invest in and finance more than $31 billion in clean energy and alternative technology over the next 10 years, as part of a $50 billion commitment to address global climate change.

Some banks have developed financing specializations in renewable energy technologies such as wind power. **BNP Paribas** is considered the world's top wind financier. **Santander** is another leading wind banker, having financed nearly one-third of Spain's installed wind power. Santander is also active in ethanol project financing in the United States and Europe. **Goldman Sachs** has invested in other emerging technologies, such as cellulosic ethanol. **RBS** is the only bank in this study that mentioned financing carbon capture and storage (CCS) technology for fossil fuels; the firm is supporting one of the largest pilot projects to demonstrate CCS in coal beds.

Fortis Venturing has initiated the Start Green Sustainable Innovation Fund I to help entrepreneurs who have sustainable new technology ideas in the Netherlands. The fund is a joint venture between Fortis, DOEN Participaties and Triodos Innovation Fund. Fortis also has its own 'Green Bank'—Fortis Groenbank—to serve the sustainable energy financing field in the Netherlands.

Findings: Investment/Retail Products

As the climate mega-trend unfolds in the banking industry, it is also revealing itself through a growing number of investment and retail products aimed at environmentally conscious customers. An August 2007 United Nations Environmental Program - Finance Initiative (UNEP-FI) study found that rising environmental awareness and media coverage of climate change, combined with growing support for regulatory and legislative action, is spurring rapid growth in green financial products. The study finds:[27]

> *In interviews, most banks currently consider climate change as the most important environmental issue they face. In response, carbon commodity products and services are developing at an extraordinary pace, particularly among European and Japanese banks. The innovation displayed by the front-runners in carbon finance is based on their capacity to identify opportunities for carbon asset generation across all types of financing activities... We are in the midst of a promising drive towards 'green' financial product development into mainstream banking.*

The findings of this report parallel those of the UNEP-FI study. Twenty-seven of the 40 banks examined now offer climate-related investment and/or retail products to clients.

Intesa Sanpaolo announced in October 2007, with the Association of Producers of Energy from Renewable Sources (APER), preferential financing terms for producers of solar photovoltaics and other renewable energy sources. The firm has designed incentive schemes for small and medium enterprises to reduce initial capital costs and take advantage of government subsidies. Intesa has signed an agreement with a local electrical services operator, whereby government incentives can be used both as a loan guarantee and as direct payment for the loan installment.

27. Green Financial Products and Services: Current Trends and Future Opportunities in North America, United Nations Environment Programme—Financial Initiative, August 2007.

Investment Products

21 of the banks evaluated offer climate-related investment products, including 10 with climate-specific funds and indices

Most notable are the trends in the asset management business. Twenty-one of the banks evaluated offer climate-related investment products, including ten with climate-specific funds and indices (see Appendix II for a complete list). Notably, nearly all the banks with climate-focused funds and indices launched the products within the past two years—and of the 15 climate-specific funds/indices, ten were launched in 2007. Only four of these products come from the United States.

In September 2007, **HSBC** Corporate, Investment Banking and Markets (CIBM) launched the HSBC Global Climate Change Benchmark Index, together with a family of four investable global climate change sub-indices. The Benchmark Index is designed to provide exposure to companies that are best positioned to profit in the face of climate challenges. HSBC now offers a climate change fund based on this index.

Also in 2007, **UBS** launched five different climate-specific products, including several indices, structured products and investment funds (see box).

UBS has launched several indexes, structured products and investment funds that take into account the increasing demand for climate change related products. These include:

- UBS Investment Bank's UBS Global Warming Index (UBS-GWI). The index is a tradable benchmark for global investments in the weather derivatives market.
- UBS World Emissions Index (UBS-WEMI). These index-linked products offered by the Investment Bank allow clients to participate in the index's performance, which is linked to tradable derivative instruments referencing emissions allowances.
- UBS Investment Bank 's UBS Diapason Global Biofuel Index, the world's first biofuel index.
- UBS Climate Change Strategy Certificate. This actively managed basket of around 25 stocks, launched in February 2007, includes companies developing solutions in renewable energy and energy efficiency.
- UBS Global Asset Management's UBS (Lux) Equity Fund—Global Innovators. The fund's investment themes include renewable energy, mobility, water, nutrition and healthcare.

Retail Products

The retail banking sector has also become involved in climate product development. Green products in this sector span a diverse and innovative suite of offerings—from "green" mortgages to climate-focused credit card programs and "green" car loans. As Richie Prager, **Bank of America**'s Head of Global Rates, Currencies and Commodities, observed recently, "We have 57 million clients in the U.S. domestic market, and they have gone beyond the tipping point in terms of environmental awareness. We're going to see more credit cards, auto financing and home loans aimed at making a contribution to combating climate change."[28]

This study confirms such trends. Twenty-two of the banks examined currently offer a diverse array of climate-related retail investment products. **Bank of America** introduced a credit card in November 2007 that allows customers to earn carbon offset credits through their purchases. Several other banks have similar cards available. **Wells Fargo** was the first U.S. financial services firm to offer Renewable Energy Certificates through credit and debit card reward programs. **Barclays** has launched several

28. Clive Horwood, "The new colour of money," *Euromoney*, September 2007.

innovative products linked to its credit and debit card programs, including a carbon neutral debit card that the company is rolling out to all of its clients (see box).

> **Barclays** launched Barclaycard Breathe in July 2007, a credit card that donates 50 percent of net profits after tax to projects that address climate change. Barclays also developed the first carbon neutral debit card in the United Kingdom, and is in the process of rolling out the card out to the company's 11 million debit card users. All carbon credits used to offset the manufacturing of the cards are generated from emission reduction projects located in the U.K. Barclaycard Business Commercial Cards has launched a Carbon Offset corporate charge card that provides customers with offsetting services.

Fortis offers an Energy Saving Credit program, a credit facility with lower interest rates for consumers that are financing the purchase of energy saving products. The company also offers a Clean Car Credit program, a car-financing arrangement to encourage motorists to cut CO_2 emissions, and a Clean Car Insurance product, which offers a 10 percent discount on coverage for hybrids and bio-fuel models. In France, **Société Générale** has partnered with ADEME, the French Agency for Environment and Energy Management, to offer "ecological mortgages," loans that offer preferential rates to customers in financing and renovations of energy-efficient/low-impact homes.

The three Japanese banks examined in this study—**Mitsubishi UJF Financial Group**, **Mizuho Financial Group** and **Sumitomo Mitsui Financial Group**—in the last two years have also started to offer preferred rate loans (typically 0.5 percent below posted rates) for small and medium enterprises that meet specific environmental standards. Mizuho has extended this loan program to residential customers installing photovoltaic generation equipment, and it is providing Life Cycle Assessments of environmental products for its corporate clients. Through their asset management businesses, all three banks have also established "eco-funds" that invest in Japanese companies with pro-active environmental management policies.

> **Santander**, through its Company Banking division, has launched "Crédito IDi," a financing line that allows clients to finance the cost of both the energy audit and the investment needed to achieve emissions savings in private residences/facilities.

American banks have fewer retail offerings focused on climate change than their European and Japanese counterparts. Just four of the 22 banks offering climate-related retail products are U.S.-based. As climate change continues to rise on the social and political agenda, however, it is expected that U.S. banks will seize the opportunity to provide more climate-related offerings. As the UNEP-FI observed in its recent study, the true challenge of banks is no longer "the introduction of new green niche products, but the integration of environmental incentives into mainstream offerings."[29]

Findings: Carbon Trading

Banks that engage in commodities trading and brokerage services have another huge growth opportunity presented by climate change—GHG emissions trading. With the advent of cap-and-trade regulatory schemes in Europe that soon may be adopted in the United States and elsewhere, the carbon emissions trading market is "going to be bigger than the credit derivatives market," predicts Louis Redsahw, head of environmental markets at **Barclays Capital**.[30] Already, trading volume on the European Union Emissions Trading Scheme (EU-ETS)—the one regulated exchange for GHG

29. Green Financial Products and Services: Current Trends and Future Opportunities in North America, United Nations Environment Programme—Financial Initiative, August 2007.

30. Clive Horwood, "The new colour of money," *Euromoney*, September 2007.

emissions trading—has increased from approximately €5 billion in 2005 to €14.6 billion in 2006, a threefold increase. As the EU-ETS enters an expanded, second phase in 2008, trading volume by some estimates could see another sevenfold increase, rising to 140 million tonnes of CO_2e by 2010 from an estimated 2 million tonnes in 2007. The UNFCCC estimates that with a truly global carbon market demand for GHG reduction credits could increase to six billion tons of CO_2e, worth as much $300 billion, in 2030.[31]

The three main areas of opportunity for banks presented by emissions trading are: the brokerage of GHG emissions allowances and credits; the financing and development of carbon offseting projects; and speculative investing and derivative offerings in emissions credits.

Seventeen banks included in this study are actively trading under the EU-ETS. Barclays was the first U.K. bank to establish a carbon trading desk for the EU-ETS, and today Barclays Capital's Emissions Trading Desk is the largest intermediary in the carbon market. As GHG emissions trading goes global, further expansion of this commodities market will be enormous, with the value of carbon trades likely to eclipse that of oil in coming decades.

	2005		2006	
	Volume ($MtCO_2e$)	Value (MUS$)	Volume ($MtCO_2e$)	Value (MUS$)
Allowances				
EU ETS	321	7,908	1,101	24,357
New South Wales	6	59	20	225
Chicago Climate Exchange	1	3	10	38
UK-ETS	0	11	N/A	N/A
Sub total	**328**	**7,971**	**1,131**	**24,620**
Project-based transactions				
Primary CDM	341	2,417	450	4,813
Secondary CDM	10	221	25	444
JI	11	68	16	141
Other compliance	20	187	17	79
Sub total	**328**	**2,894**	**508**	**5,477**
TOTAL	**710**	**10,864**	**1,639**	**30,098**

Carbon Market at a Glance, Volumes & Values in 2005–6

Source: The World Bank. "State and Trends of the Carbon Market 2007", Washington, D.C., May 2007.

Emissions Trading Exchanges

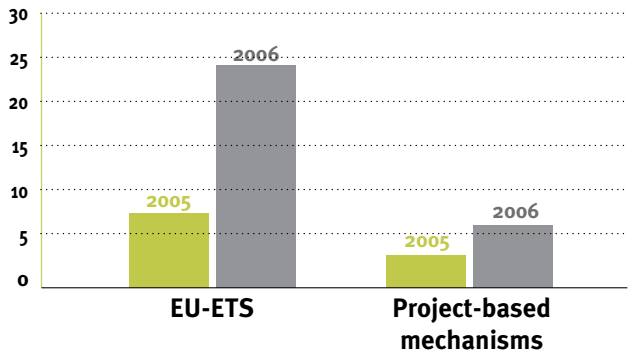
Many companies are beginning to develop GHG emission-trading strategies in anticipation of regulation in the United States and elsewhere. Banks can assist these companies in sourcing offset projects and hedging against future regulation. Seven banks in this study are active in voluntary exchanges like the Chicago Climate Exchange (CCX). The CCX has seen significant growth in trading volume in recent years, though not on the scale of the EU-ETS.

Recognizing the growth potential of such exchanges, **Goldman Sachs** in September 2006 took a minority equity stake in the Climate Exchange PLC (CLE). The CLE owns the Chicago Climate Exchange and the European Climate Exchange (ECX) as well as the newly created California Climate Exchange (CaCX). **Bank of America** has also taken a 0.5 percent investment stake in CLE. In addition, Bank of America has joined the CCX as a full, emissions-reducing member and as a liquidity provider. Soon Bank of America will launch CLE-linked offset products and services for retail and institutional customers.

In December 2007, NYMEX announced the formation of the Green Exchange, a new exchange to offer

31. "Carbon Crunch: Meeting the Cost," United Nations Environment Programme—Financial Initiative, December 2007. Assumes a price of $50 per ton of CO_2 in 2030.

a range of environmental futures, options and swap contracts for climate change-focused markets. Products are expected to begin trading during the first quarter of 2008 and a U.S. Commodity Futures Trading Commission (CFTC)-regulated exchange is expected to launch in 2009. **Morgan Stanley**, **Credit Suisse**, **JPMorgan Chase** and **Merrill Lynch** are founding partners of the venture, along with four other firms.



EU Emissions Trading (US $ billions)

Source: Deutsche Bank, "Coping with Climate Change", November 15, 2007, citing The World Bank, 2007.

Kyoto Protocol Mechanisms

Nineteen of the banks in this study are also involved in Clean Development Mechanism (CDM) and Joint Implementation (JI) project development or financing under the Kyoto Protocol. These mechanisms allow for emissions abatement projects, such as landfill methane gas capture and replacement of diesel generators with solar power, to generate credits that can be used toward meeting overall Kyoto Protocol emission reduction targets. Although project registration can be a lengthy and complicated process, the number of CDM projects has quadrupled in the last two years. Certified emission reductions (CERs), resulting from CDM projects, equal to more than 2.3 million tonnes of reductions have now been certified for 2012.

> ***Carbon trading is "going to be bigger than the credit derivatives market."***
>
> **~Louis Redshaw, Barclays Capital**

Thus far, CDM project development for the most part has been left to specialized consulting firms and large corporations with technical expertise. Some banks are investing directly in offset project developers, however. **Credit Suisse**, **UBS**, **Goldman Sachs** and **Morgan Stanley** have all bought shares in EcoSecurities, a CDM project developer and consultancy. As a sign of growing pains in this still-nascent market, EcoSecurities' shares fell by nearly 50 percent in November 2007 after the firm announced a delay in its CDM project pipeline and lower-than-expected earnings. **Morgan Stanley** holds a 38 percent stake in MGM International, another leader in CDM project development.

Some banks are pursuing the option of partnering directly with local project developers. In September 2007, **ING Bank** and the Chinese government co-launched the Sino-Dutch CDM Capacity Building Program in Jiangxi Province, China. The program will establish technical service centers for CDM projects in five provinces in China. **ABN AMRO** has cultivated similar relationships in the Brazilian market. Through subsidiary Banco Real, ABN AMRO conducted €9.7 million in carbon credit trades in Brazil in 2006, and assisted the Brazilian Central Bank in building capacity for carbon trading.

Because project completion and credit delivery are key risks in emissions trading, some banks are starting to address these issues with various risk management, derivative and guarantee products. **BNP Paribas**, **Deutsche Bank** and **ING** all offer derivative emissions products, such as "guaranteed delivery" CER and Emission Reduction Unit (ERU) contracts. Leading Japanese banks, meanwhile, have specialized in CDM/JI project consulting for clients and emissions credit-backed trust accounts. **Mitsubishi UFJ Trust and Banking** and **Sumitomo Mitsui** both offer trust accounts that provide corporate clients with CER credit purchase services and additional market liquidity.

Additional Opportunities

Some banks are also becoming involved in specialized carbon funds that buy forward CER streams of abatement projects at a discount and sell them as prices rise. While hedge funds continue to lead in this space, **Fortis** and Caisses d'Epargne have set up the European Carbon Fund (ECF). The original €142 million investment holds 5 million tonnes of issued CERs and 20 million tonnes in forward contracts. The ECF plans to launch a second fund with a target size of €300–500 million. Société Générale purchased a €10 million stake in the ECF in 2004, and now sits on the fund's board.

Morgan Stanley is also positioning itself as a major player to source an ongoing stream of carbon credits. The firm has committed $3 billion over the next five years to emission reduction initiatives globally; 90% of this will go towards the purchase of CERs and other carbon credits.

Carbon trading has also developed as a complement to traditional project finance. For smaller projects, CER credits rarely contribute more than a 1–3 percent improvement in a project's internal rate of return. However, this can increase to 30 percent for a landfill gas project, where methane is extracted and burned as fuel, offsetting the emission of a highly potent greenhouse gas.[32] **BNP Paribas**' view is that carbon should be considered a new asset class that is integrated into existing lines of project finance. The firm's Carbon Finance Solutions team is expanding its CER portfolio, which surpassed the $25 million mark in December 2006. However, the main obstacle to integrating carbon finance further with project finance is the low value of carbon credits because of uncertainty surrounding a post-Kyoto regulatory agreement.

Standardization for voluntary offset markets remains another key challenge. As noted earlier, the Climate Group, the International Emissions Trading Association and the World Business Council for Sustainable Development launched a new global carbon offset standard at the London Stock Exchange in November 2007 to increase participation and confidence in voluntary offsets. While a minimum project quality benchmark has been set and the public will be able to access information on all approved projects, the World Wildlife Fund has criticized the initiative for insufficient verification mechanisms. As verification standards are sorted out, banks can assist in building market liquidity and offering credibility to transactions. In August 2007, **Morgan Stanley** announced that it would partner with Det Norske Veritas (DNV) to establish an integrated carbon verification and offsetting service. In this service, clients get to choose the carbon credit sources that will be purchased by Morgan Stanley's Commodities Group.

32. Peter Koh, "Carbon markets: Hot times for emissions trading," *Euromoney*, September 2007.

IV. Conclusions

Climate change is a "mega-trend" that will affect all facets of the financial services industry and all classes of investing. This report provides fresh evidence that the banking sector is beginning to respond to the climate challenge, but hard work and difficult choices still lie ahead. "De-carbonization" of the global economy will require banks not only to manage their own GHG emissions, but also to consider how climate change affects the competitive marketplace, lending and investment strategies, and ultimately, their financial bottom lines. To date, banks have said relatively little in securities filings to suggest that they fully appreciate the material risks and opportunties posed by climate change.

A warming climate and emerging carbon-control regulations will alter the costs of production, the pricing of securities, the size of liabilities and the assignment of credit and asset valuations. Leading banks are starting to factor a market price for carbon dioxide in lending and investment decisions, while helping to build new markets through GHG emissions management, trading and brokerage. Yet none of the banks in this report have committed to a fundamental re-balancing of corporate and project financing away from carbon-intensive technologies toward more efficient and low-carbon alternatives. A key test going forward is whether banks will begin to turn down financing opportunities representative of business-as-usual, carbon-intensive development strategies.

A key test going forward is whether banks will continue financing business-as-usual, carbon intensive development strategies

The 40 banks evaluated in this study have a divergence of interests, programs and priorities when it comes to addressing climate change. European banks are at the forefront of integrating climate change into environmental policies, risk management and product development. The majority of other banks in this study, including many of the leading U.S. banks, are working towards better disclosure of climate risks as an essential first step toward embracing a changing regulatory and economic environment. Asset managers that do not offer traditional banking services and banks based in emerging markets have done the least to embrace climate change in their business practices.

Four key findings of this report are as follows:

- **Disclosure:** Banks are increasingly discussing climate change business opportunities in their annual reports, and they have more than doubled the volume of climate change-related research reports issued in the last year. Yet banks' securities filings still have a dearth of disclosure—only nine of the 40 banks in this study mentioned climate change-related issues in their latest filings, and none have cited climate change as a material risk.
- **Emissions Management:** Twenty-eight of the 40 banks in this study have calculated and disclosed their GHG emissions from operations, and 24 have set some type of GHG emissions reduction target. However, only six banks are formally calculating carbon risk in their loan portfolios, and only one bank has set a specific target to reduce GHG emissions associated with a portion of its lending portfolio.

- **Investment Opportunities:** Growing demand for "climate friendly" financial products and services is leading banks into whole new markets. Twenty-nine of the 40 banks document their involvement in the burgeoning renewable energy and "clean tech" market. Twenty-one of the banks offer climate-related investment products, while 22 offer climate-related retail banking products. However, more than three-quarters of the banks offering these new products are based outside of the United States.
- **Emissions Trading:** In this rapidly growing market, investment banks have taken a leading role in supporting emissions trading mechanisms and introducing new risk management products. Twenty-three of the banks in this study are actively involved in GHG emissions trading, and six have taken equity stakes in GHG commodity exchanges.

In addressing climate change, banks can spur new business, lessen liabilities for climate damage, and preserve their leadership role in wealth and capital formation

The broad reach and high stakes of climate change requires banks to take a holistic and forward-looking management approach. Banks that have strong governance structures and that take early action on climate risks and opportunities will be at an advantage over time. Ultimately, all banks will gauge their success or failure to some degree on their ability to adjust to this fast-changing physical, regulatory and competitive environment.

While the transition to a lower-carbon economy will take decades, this is a defining moment. If current trends in fossil energy use continue, a climate and energy crisis is virtually unavoidable. Banks must start now to track the relative flow of capital into carbon vs. non-carbon energy sources—and place increasingly aggressive limits on the proportion going into carbon sources—if there is to be any prospect of halting irreversible climate-related damage.

By factoring carbon prices into equity valuations and financing decisions, banks can promote more rapid diffusion and commercialization of advanced low-emissions technologies and reduce the total costs of GHG mitigation. While this would result in huge capital swings relative to business-as-usual forecasts, the net effect on global economic growth would be vanishingly small and would help achieve a stable atmospheric level of CO_2 by 2050. This seems a small price to pay to avert a possible climate catastrophe. In the process, banks can spur the growth of new industries and new business for themselves, while lessening the liabilities associated with financing climate-damaging industries, and preserve their leadership role in wealth and capital formation.

Appendix I. Sample Profile

HSBC Holdings

NYSE: ***HBC***

In December 2004, HSBC made a commitment to become the world's first major bank to achieve carbon neutrality. The firm met this target in October 2005, and now believes it is well-positioned to offer clients new climate change-related products and services based on its own experience. In September 2007, the firm announced the launch of several investable climate change indices and plans for its own climate change fund. HSBC has also recently announced the appointment of Sir Nicholas Stern, former chief economist at the World Bank and lead author of a U.K. Treasury Department report on climate change, as its Special Advisor on Economic Development and Climate Change.

Summary Score: 70

Company Information	
	The second-largest bank in the world by assets, HSBC Holdings is active in more than 80 countries, providing consumer and commercial banking services, credit cards, asset management, private banking, securities underwriting and trading, insurance, and leasing. Its North American operations include HSBC USA, consumer lender HSBC Finance, and HSBC Bank Canada.
Contact Information	
Chairman	Stephen K. Green (Group Chairman)
CEO	Michael F. Geoghegan (Group CEO)
Contact	Tel: 44-20-7991-8888 • Web: www.hsbc.com
Address	8 Canada Square London, E14 5HQ United Kingdom
Board Oversight	***Score: 13***
Board Committee: Environmental Oversight	Corporate Responsibility Committee
Committee Chair	The Right Honorable Lord Butler of Brockwell
Board Committee: Climate Change	Corporate Responsibility Committee
Board Member: Climate Change	Stephen Green, Group Chairman
Board Role	Stephen Green, Group Chairman, has ultimate responsibility for climate change matters. At the board level, there are two committees that have responsibility for climate change matters. The Group Management Board (GMB), which is chaired by the Group Chief Executive, operates as a general management committee under the direct authority of the board. GMB responsibilities include the firm's 2004 decision to become carbon neutral, emissions reduction project investments and new business expansion relating to carbon market opportunities. The second committee with board representation is the Corporate Responsibility Committee, which is responsible for overseeing corporate responsibility and sustainability policies. Additionally, reputation risks, including social, ethical and environmental (SEE) risks, are considered and assessed by the board, the Group Management Board, subsidiary company boards, board committees and/or senior management during policy formulation.
Board Training	The Corporate Responsibility (CR) Committee gives guidance on the CR component of directors' induction and training programs and provides the board with assurance that relevant executive training programs, including credit officer training courses, contain appropriate CR training.
Management Execution	***Score: 17***
CEO Leadership/ Statements	Speaking at a May 2007 news conference to announce HSBC's Climate Partnership, discussed below, Group Chairman Green said, "We believe we can tackle the causes and impacts of climate change. Over the next five years HSBC will make responding to climate change central to our business operations and at the heart of the way we work with our clients across the world."
Company Policy	In June 2006, HSBC announced its Carbon Finance Strategy. While the firm said it would continue to support fossil fuel electricity generation, it pledged to seek out new opportunities in key low carbon technologies (wind, solar, biofuels, energy/ transport efficiency, landfill gas/methane capture, geothermal energy) in priority countries where government policy and fiscal regimes support early adoption. Jon Williams, Head of Group Sustainable Development, stated at Ethical Corporation's September 2007 Sustainable Finance Summit, "We can finance a wholesale shift to a low carbon economy... Climate change can be tackled at minimal economic cost if we do it today."
Chief Environmental Officer	Jon Williams, Head of Group Sustainable Development In addition, Simon Martin is Head of Group Corporate Sustainability. Francis Sullivan is Deputy Head of Group Sustainable Development and Advisor on the Environment, Group Corporate Sustainability.
Levels to CEO	0

HSBC Holdings

Climate Change Executive	Nick Robins, Head, Climate Change Center of Excellence In July 2007, HSBC announced the appointment of Nick Robins as head of its newly created Climate Change Center of Excellence. Robins is based in HSBC's London office and reports jointly to David Burnett, Head of Global Research, and Jon Williams, Head of Group Sustainable Development. Also in July 2007, HSBC appointed Sir Nicholas Stern as Special Adviser to the Chairman on Economic Development and Climate Change. Stern is the former World Bank Chief Economist and author of the *Stern Review on the Economics of Climate Change*. For HSBC, Stern serves as an advisor on strategic issues, contributes to management development programs and provides client advice related to climate change and sustainable business strategies.
Executive Committee	The Group Corporate Sustainability function is responsible, among other things, for addressing risks and opportunities derived from climate change and for embedding sustainability within the firm's mainstream operations from both a risk and business development perspective. Group Corporate Sustainability has five focus areas: business development, risk management, footprint management, communications/reporting and internal sustainable development advisory. In 2006, HSBC also created a Climate Change Center of Excellence, based in Bangalore, India, to evaluate the implications of climate change for the HSBC Group, its Global Research division and other business units. The Center is intended to be HSBC's central source of climate knowledge and will support the implementation of the firm's Carbon Finance Strategy.
ESG Factors in Risk Management/ Financing	HSBC established an Environmental Risk Standard in 2003, which has been adapted into a Sustainability Risk Framework. HSBC is upgrading its risk approval systems to include sustainability risk ratings, which will be gradually assigned to clients globally. It is working with a third party to develop the underlying sustainability risk decision support tool. The risk ratings will enable it to differentiate deal approval levels, the type of facility it would offer a client and provide portfolio information. HSBC has a network of 27 environmental risk managers that support the Sustainability Risk team in London. In financing, HSBC has issued five sector lending guideline reports on forest lands and forest products, freshwater infrastructure, the chemicals industry, the metals & mining industry, and the energy industry. The Energy Sector Risk Policy report, issued in May 2006, states that "HSBC supports a transition to a lower carbon economy." It says it expects its clients to abide by regional or national laws to implement greenhouse gas (GHG) reductions under the Kyoto Protocol and the EU ETS. HSBC has also called on clients to disclose their carbon emissions and mitigation strategies in a consistent manner.
Staff Training/Education	In 2006, HSBC added a climate change module in the Group Graduate Development Program to inform participants about climate change and the role of HSBC in the issue. Climate change issues are also considered in other HSBC training courses, including the Chairman's Strategic Forum and Group Credit and Risk training. All project and export finance teams have been trained in the Equator Principles. In 2006, HSBC also staged a road show in mainland China, Hong Kong SAR, India, Malaysia and Singapore to educate more than 100 employees on carbon finance and other issues. The firm is also conducting a benchmarking survey of employee engagement on sustainability issues and planning e-learning forums. In 2007, HSBC launched the HSBC Climate Partnership, a five-year, $100 million partnership between HSBC, The Climate Group, Earthwatch Institute, Smithsonian Tropical Research Institute and WWF. HSBC will work in some of the world's major cities to influence climate change policy and create employee "climate champions" who will undertake field research on climate change issues. The program will involve carbon measurement in the world's forests and protection of major rivers from the impacts of climate change.
External Initiatives	• The Bali Communiqué • The Climate Group • EPA Climate Leaders • EPA Green Power Partners • Equator Principles • Extractive Industries Transparency Initiative • G8 Gleneagles Initiative CEO Roundtable on Climate Change • Institutional Investors Group on Climate Change • Principles for Responsible Investment • Roundtable on Sustainable Palm Oil (Board member) • UNEP-Finance Initiative In 2004, HSBC formed the HSBC Partnership for Environmental Innovation with Newcastle University and the University of East Anglia. This three-year global program conducts research on climate change and other environmental challenges.
Investment Research	HSBC Investments launched a new SRI team in 2006 covering environmental, social and governance issues. The team consists of six SRI analysts based in Europe, India and Brazil, plus two product specialists. HSBC Global Research, a division of HSBC's Corporate, Investment Banking and Markets group, also offers coverage of alternative energy stocks.
Climate-related Research Reports	None identified.
Compensation Link	HSBC's Group Corporate Real Estate is responsible for proposing environmental targets and with the support of Purchasing and IT Functions ensuring delivery of such targets. Incentives around sustainability performance are built into objectives and reward structures for these units. More broadly, senior managers at HSBC have Corporate Responsibility objectives — including objectives related to climate change — as part of their remit with reward schemes recognizing achievements. In addition, starting in 2007, the cost of procuring carbon offsets to maintain HSBC's carbon neutrality is being borne by the regional offices responsible for the emissions, providing an increasing incentive to manage the company's total emissions.

HSBC Holdings

Public Disclosure

Score: 9

Annual Report

HSBC's 2006 annual report does not include a discussion of climate change. However, it provides a broad overview of corporate social responsibility issues and consideration of reputational risk issues arising from social, environmental and ethical issues as part of its corporate governance policy.

Securities Filings Statement

None identified.

Sustainability Report

2006 Corporate Responsibility Report, published May 2007
http://www.hsbc.com/1/2/corporate-social-responsibility/csr-reports-and-updates

GRI Accordance: 2002: CI

Carbon Disclosure Project

Member: Yes ***2007 Signatory:*** Yes ***CDP5 (2007):*** Answered Questionnaire (Public)

CDP5 Risk Disclosure: The response states, "climate change risk will need to be increasingly factored in when performing equity valuations and making investment decisions." Customer-related risk ranges from business disruptions to slowed economic growth due to extreme climate events. To address potential physical risks, HSBC is undertaking an internal assessment of insurance coverage for facilities that may be impacted by extreme weather events or sea level changes. The firm has also established contingency plans for environmental risks. In terms of regulatory risk, HSBC notes that the firm is well-positioned to respond to future regulation regarding emissions limits and energy efficiency standards due to its voluntary implementation of its carbon neutrality policy. HSBC also recognizes the credit and reputational risk the firm may face due to client exposure to regulatory changes.

Public Policy Statements

HSBC states in its CDP5 response: "Climate change is a challenge that will require global solutions; collective action will be required from governments, business and individuals to stimulate adoption of energy efficiency and clean generation technologies to stabilize carbon dioxide (CO_2) emissions." HSBC also states that it supports an international cap and trade system to achieve global emissions reduction targets.

Jon Williams, head of Group Sustainable Development, said at Ethical Corporation's September 2007 Sustainable Finance Summit that "emissions trading needs to go global." He also suggested that a post-Kyoto global agreement could be negotiated with 20 major carbon-emitting countries.

In November 2007, HSBC signed the Bali Communiqué, organized by the Prince of Wales's UK and EU Corporate Leaders Groups on Climate Change. The Communiqué calls for a comprehensive, legally binding United Nations framework to tackle climate change.

Emissions Accounting

Score: 7

GHG Emissions Inventory

Year: 2006 ***Facility/Region:*** All internal operations ***Protocol:*** GHG Protocol

Emissions	CO_2e (Metric Tonnes)
Total Emissions	**813,000***
Scope 1 (Direct)	
Scope 2 (Indirect—Electricity)	634,000**
Scope 3	
Travel	179,000
Products	
Supply Chain	

* Total emissions offset in 2006.
** Includes Scopes 1 & 2—While the vast majority of energy use is purchased energy (Scope 2), HSBC does own some on-site electrical generation facilities, but these are currently not tracked separately.

Accounting Methods

HSBC converts data on building energy use (covering 96% of full-time employees) and employee business travel using emission factors set out by the local environmental authority or the utility supplier. If such information is not available, factors from the International Energy Agency and the DEFRA, the U.K. Government's Department of Environment, Food and Rural Affairs, are used.

Third Party Certification

Det Norske Veritas Certification BV (DNV) verifies HSBC's direct environmental performance. DNV conducted an audit of HSBC's CO_2 emissions and carbon neutrality.

Certification Year

2006

Emissions Savings & Offsets

2006 % Renewable Energy: 40%
Energy Efficiency Savings: None calculated

Certified CO_2 Offsets: 2006 was the first full year that HSBC was carbon neutral. The firm estimated the quantity of emissions that would cover all properties and buildings (i.e., 100% of full-time equivalent employees), and then applied an additional 2.5% to estimated emissions from electricity, 10% to estimated emissions from other energy sources and 5% to estimated emissions from transport to account for any uncertainty in estimates. To achieve carbon neutrality HSBC purchased verified emissions reductions (VERs) from several renewable energy projects in China and Thailand.

HSBC Holdings

Strategic Planning

Score: 24

GHG Emissions Targets

	Reduction Targets	Baseline Year	Target Year	Region
Total Emissions	5%	2004	2007	All internal operations
Energy Use	7%	2004	2007	All internal operations

Target Details

HSBC's carbon neutrality is achieved through a Carbon Management Plan, which involves reducing direct emissions, buying green electricity and offsetting remaining emissions (these costs are now included as part of the firm's normal operating budget). HSBC has set three-year reduction targets for energy, water and waste, as well as CO_2 emissions, covering 90% of its product portfolio. HSBC is setting new targets in 2007 for the 2008–2010 period, including emissions intensity targets. The firm also issued environmental target progress reports in 2005 and 2006. Its 2006 Corporate Responsibility Report states, "During 2006, our CO_2 emissions per person, our key CO_2 measure, increased due to a change in the type of energy we were able to purchase and an increase in air travel. We have programmes in place to reverse this trend. For a growing business, it is a challenge to reduce emissions consistently."

Emissions Trading

All emission reductions, including the bank's carbon neutrality goal, have been made on a voluntary basis. HSBC is also exploring options for participation in the CDM and JI markets under the Kyoto Protocol. In addition to traditional project financing structures, HSBC will increasingly look at new structures incorporating carbon as a stream of repayment. HSBC also plans to apply its own experience in the voluntary carbon markets to address client needs in this area.

Renewable Energy

HSBC ranked first in the Low Carbon Finance and Investment Leaders category in a survey by BusinessWeek and the Climate Group in December 2006. The firm provides debt financing for low carbon projects and technologies, as well as equity capital for early stage project development.

For its own operations, HSBC currently purchases green electricity in the U.K., the U.S., Australia, Brazil, Ireland, Luxemburg, Sweden and Switzerland. The firm has installed solar power panels at offices in the U.K. and France, introduced a bio-diesel plant at its Global Technology Centre in Pune, India, and installed micro wind turbines in the U.K. In 2006, HSBC was awarded the U.S. EPA "Green Power Partner of the Year" recognition for renewable energy purchases.

Energy Efficiency

In June 2007, HSBC launched a Global Environmental Efficiency Program, a commitment to reduce the firm's direct environmental impacts. The $90 million commitment over five years will support renewable energy technology, water and waste reduction programs and employee engagement. Initiatives will include:

- Developing flagship buildings to benchmark environmental standards;
- Footprint management and innovation;
- Environmental Management Systems to optimize process efficiency.

Achievements to date include building HSBC's first "zero carbon" branch in Greece, New York; the building achieved Leadership in Energy and Environmental Design (LEED) Gold certification and optimizes energy efficiency using a ground-source heat pump. HSBC is also committed to reducing the environmental impact of business travel. The firm has conducted an employee green travel survey and invested in video-conferencing technology. Going forward, the cost of carbon will be more explicitly factored in real estate capital expenditure projects and energy procurement decisions.

Other Climate-Related Investment Products

In September 2007, HSBC Corporate, Investment Banking and Markets (CIBM) launched the HSBC Global Climate Change Benchmark Index, encapsulating a family of four investable global climate change sub-indices. The Benchmark Index is designed to provide exposure to companies that are best positioned to profit in the face of climate change challenges. The sub-indices include:

- HSBC Climate Change Index
- HSBC Low Carbon Energy Production Index (including: solar, wind, biofuels, geothermal)
- HSBC Energy Efficiency & Energy Management Index (including: fuel efficient autos, energy efficient solutions and fuel cells)
- HSBC Water, Waste & Pollution Control Index (including: water recycling, waste technologies, environmental pollution control)

In November 2007, HSBC Investments launched a climate change fund that invests in clean energy, energy efficiency, water, waste and pollution control companies. The fund aims to outperform the HSBC Global Climate Change Index. Structured products based on the new fund and index family are also being developed by HSBC Global Markets in partnership with HSBC Investments.

HSBC's insurance broking division is developing risk consultancy services to help customers assess and manage their physical exposures to climate change. The division is also developing insurance products to facilitate the development of renewable energy projects and carbon markets.

HSBC has launched green marketing campaigns for its retail products in both the United Kingdom and the United States. Additionally, HSBC has conducted an international survey of public attitudes on climate change—the HSBC Climate Confidence Index. The firm's research shows more optimistic markets in Asia and Latin America, which could mean that new products, such as green mortgages, are launched first in emerging markets.

APPENDIX II: *Profile Key*

Board Oversight

Board Committee – Environmental Oversight: Board of Directors designates a board-level committee with explicit oversight of the company's environmental affairs.

Board Committee – Climate Change: Board designates a board-level committee with explicit oversight of the company's climate change policy and initiatives.

Board Member – Climate Change: Board designates a specific board member with explicit oversight of the company's climate change policy and initiatives.

Board Role: Board has taken specific actions to initiate, approve and/or monitor the company's environmental affairs and climate change initiatives.

Board Training: Board receives training and education addressing environmental, climate change and/or sustainability issues.

Management Execution

CEO Leadership/Statements: Chairman/CEO assumes leadership role in articulating the company's climate change strategy, including shareholder communications and participation in external initiatives.

Company Policy: Company produces a policy statement addressing climate change and/or broader sustainability issues.

Chief Environmental Officer: Company designates a corporate-level executive with explicit responsibility for managing environmental affairs.

> **Levels to CEO:** Company discloses the number of reporting levels between the chief environmental officer and CEO (0 = reports directly to CEO).

Climate Change Executive: Company designates a corporate-level executive with explicit responsibility for managing climate change policy and initiatives (may be same person as chief environmental officer).

Executive Committee: Company has executive-level committee, task force or working group to address climate change issues (including environmental/CSR/sustainability departments or committees).

ESG Factors in Risk Management/Financing: Company issues formal policy and governance procedures to incorporate environmental, social, and governance (ESG) factors in its risk management function and/or financing decisions.

Staff Training/Education: Staff receives training and education addressing environmental, climate change and/or sustainability issues.

External Initiatives: Company participates in external coalitions, working groups or initiatives to mobilize action on climate change and incorporation of ESG factors in financing decisions.

Investment Research: Company publishes research and analysis of climate-related issues for shareholders and/or clients.

Compensation Link: Company explicitly links executive officers' compensation to attainment of environmental and/or climate-related goals.

Public Disclosure

Annual Report: Company discusses climate change risks, opportunities and initiatives in most recent Annual Report (e.g., CEO letter to shareholders, front section or Management Discussion & Analysis).

Securities Filings Statement: Company discusses material climate change risks and opportunities in Form 10-K or equivalent securities filings.

Sustainability Report: Company publishes a Sustainability Report or equivalent public document that discusses climate change risks, opportunities and initiatives.

GRI Accordance: Company's Sustainability Report is "in accordance" with independent standards established by the Global Reporting Initiative (GRI).

Carbon Disclosure Project: The Carbon Disclosure Project (CDP) is a nonprofit organization that conducts an annual climate change survey on behalf of institutional investors.

- **Member:** Company actively supports CDP survey and on-line data collection instrument.
- **2007 Signatory:** Company signed letter requesting corporate responses to CDP5 survey.
- **CDP5 (2007):** Company completed CDP5 survey and did (or did not) publicly release results.
- **CDP5 Risk Disclosure:** Company assesses climate change-related risks in CDP5 response.

Public Policy Statements: Company expresses its views on climate change regulatory proposals and related public policy measures.

Emissions Accounting

GHG Emissions Inventory: Company conducts an inventory of GHG emissions from its operations.

- **Scope 1:** Direct GHG emissions from combustion in company-owned or controlled sources (boilers, furnaces, vehicles, etc.)
- **Scope 2:** Indirect GHG emissions from generation of electricity purchased for use by company facilities.
- **Scope 3:** Other indirect GHG emissions from company activities (e.g., employee commuter travel; business travel by air, rail or motor vehicles; other indirect emissions from product use or supply chain).

Accounting Methods: Company do cuments accounting methods used for GHG emissions inventory.

Third party certification: Company employs third-party reviewer of GHG emissions data.

Certification Year: Most recent year of third-party review.

Emissions Savings and Offsets: Company seeks renewable energy purchases and/or energy efficiency savings to reduce GHG emissions and offset inventory totals.

- **2006% Renewable Energy:** Percent of electricity derived from renewable energy sources in 2006.
- **Energy Efficiency Savings:** Savings from energy efficiency measures (as calculated by company).
- **Certified CO2 Offsets:** Certified emission reductions and credits to offset company GHG emissions.

Strategic Planning:

GHG Emissions Targets: Company sets targets to reduce GHG emissions or related energy use.

Emissions Trading: Company engages in voluntary or mandatory GHG emissions trading programs to offset its own emissions and/or provides emissions trading services to others.

Renewable Energy: Company purchases renewable energy for its own operations and/or finances/invests in the renewable energy sector.

Energy Efficiency: Company takes measures to improve energy efficiency of its own operations and/or finances/invests in energy efficiency measures available to clients.

Other Climate-Related Investment Products: Company offers climate-related investment and/or retail products.

APPENDIX III: *Published Climate Change Research*

General Issue Reports

Barclays

Credit risk impacts of a changing climate (October 2007, published with Acclimatise)

Citi

Climatic Consequences: An Update (April 2007)

Climatic Consequences (January 2007)

Crédit Agricole

The Economy and Climate Change (Part 2); Monthly Eclairages (September 2007)

The Economy and Climate Change (Part I); Monthly Eclairages (July 2007)

Deutsche Bank

Investing in Climate Change: An Asset Management Perspective (October 2007)

Goldman Sachs

Insuring the Planet (July 2007)

Japan and Brazil: Role Models for Energy Efficiency? (July 2007)

Europe's Green Comparative Advantage (February 2007)

Why the BRICs Dream Should Be Green (February 2007)

Things Are Heating Up: Economic Issues and Opportunities From Global Warming (February 2007)

Climate Change as a Catalyst for Competitive Advantage (December 2006)

Why the BRICS Dream Won't Be Green (October 2006)

US Investment Outlook: The Bigger Picture (October 2006)

Portfolio Strategy: The growing interest in environmental issues is important to both socially responsible and fundamental investors (August 2005)

JPMorgan Chase

Air Pollution: Business Risk or Competitive Advantage (May 2007)

Lehman Brothers

Business of Climate Change II (September 2007)

Business of Climate Change (February 2007)

Merrill Lynch

Combating Climate Change – Opportunities & Risks (April 2007)

Morgan Stanley

The Economics of Climate Change (October 2007)

Doing Good: Nostra Terra, Nostra Navis (Our Earth, Our Ship) (February 2007)

UBS

Climate Change: Beyond Whether (January 2007)

Q-Series: Reacting to Climate Change (June 2007)

Need to Know – Reacting to Climate Change (June 2007)

Renewable Energy / Clean Tech Reports

Citi

Investing in Solutions to Climate Change (June 2006)

Credit Suisse

Sun Rises on Solar Energy (November 2007)

Expert Tips on Sustainable Investments (August 2005)

Investment Ideas: Wind energy – lower growth, higher earnings? (September 2003)

Deutsche Bank

Bioenergies after the petroleum age (August 2005)

Boom Industry Solar Energy (May 2005)

Energy prospects after the petroleum age (December 2004)

Goldman Sachs

European Renewable Energy – sun, wind and grain (October 2006)

ASEAN palm oil initiations: Bullish on bio-diesel (October 2006)

Americas: Energy: Alternative Energy – Searching for renewable profits (October 2006)

US: Energy: Oil: Initiating coverage of ethanol producers Aventine and VeraSun (August 2006)

Asia: Alternative Energy: A breath of fresh air (April 2006)

Japan Technology: Solar Cell Industry Looks Attractive Toward 2010 (March 2006)

Global Alternative Energy (February 2004)

JPMorgan Chase

A Review of Biodiesel Industry Trends (September 2007)

Alternative Energy Strategy (June 2007)

Sasol – Coal to Liquid in the US (May 2007)

Engineering and Construction: Nuclear Power (May 2007)

Capturing the Gains from Carbon Capture (April 2007)

Merrill Lynch

China Leads the Charge in Asia (Renewable Energy – Asia Pacific, September 2007)

Wind Turbine Manufacturers: Here Comes Pricing Power (August 2007)

Coal Bed Methane: Another Green Solution (June 2007)

Biofuels - Still Excellent Growth Prospects (March 2007)

Buy the Emerging Global Wind Force (November 2006)

Morgan Stanley

Clean Energy: Sustainable Opportunities (October 2007)

Clean Coal: Opportunities Alstom, GE and Siemens (January 2006)

Wells Fargo

Identifying the Opportunities in Alternative Energy (2005)

Other Sector Specific Reports

ABN AMRO

Eco-Markets Equity Strategy Research Note, Global Markets Equity Strategy (January 2007)

Barclays

Equity Gilt Study (2007)

Citi

CAFE and the U.S. Auto Industry: A Growing Auto Investor Issue, 2012–2020 (October 2007)

Coal: Missing the Window (July 2007)

CO_2 – A New Auto Investor Issue for 2007 (January 2007)

Crédit Agricole

Carbon Impact (2006)

Deutsche Bank

Climate Change and Sectors: Some like it hot! (May 2007)

Airline CO_2 emissions: fuel for thought (April 2007)

Technology to clean up coal for the post-oil era (February 2007)

Goldman Sachs

Insurance: GS SUSTAIN: Integrating ESG (September 2007)

Introducing GS Sustain (June 2007)

Healthcare: Pharmaceuticals: Integrating ESG (May 2007)

Global Food & Beverages: Integrating ESG (February 2007)

Global Energy: Integrating ESG (February 2004, August 2005, October 2006)

Global Mining and Steel: Integrating ESG (July 2006)

European Utilities: Carbon crazy (April 2006)

European Utilities: Carbon – Putting the fizz into European power markets (February 2006)

Europe Media: Integrating ESG (February 2006)

Global Mining and Steel: Integrating ESG (July 2006)

Europe Media ESG (February 2006)

HBOS

The Climate Change Disclosures of European Electricity Utilities (May 2006)

ING

Food and Beverages: Climate change; food versus oil (December 2006)

European Utilities: Climate change; when hell freezes over (October 2006)

Merrill Lynch

Carbon Leaders: Quality Win-Win Stocks (September 2007)

Royal Bank of Canada

Climate Change: An Examination of its Effects Upon North American Industries & Regions (August 2002)

UBS

Q-Series: Climate and Materials (September 2007)

Regulatory Policy / Carbon Trading Reports

ABN AMRO
Beyond Kyoto (2005)

Citi
Carbon Trading: The Sky's the Limit (March 2007)

Crédit Agricole
Carbon Focus (April 2006)

Credit Suisse
CO_2 is a New Commodity (January 2007)

Deutsche Bank
Carbon Emissions: Bali Bearings—Reading the Roadmap to a Post-Kyoto Deal (December 2007)

EU energy policy: High time for action! (April 2007)

EU Emission Trading: Allocation battles intensifying (March 2007)

EU Emission Trading: Kyotonomics: pricing carbon over 2008–12 (April 2006)

The US's new energy policy – barely a start (December 2005)

Intesa Sanpaolo
Kyoto and its impact on investment in the power industry (September 2003)

JPMorgan Chase
All you wanted to know about carbon trading (August 2007: four volumes)

Trading Climate Change (May 2007)

Supreme Court Greenhouse Ruling (April 2007)

Carbon Dioxide: A Commodity Market Perspective (March 2007)

Global Utilities: Trading Climate Change (March 2007)

Royal Bank of Canada
Greenhouse Gas Emission Trading: An Examination of the Markets, and the Risks and Opportunities for RBC (June 2004)

TD Bank Financial Group
Market-based Solutions to Protect the Environment (March 2007)

Carbon Risk Model Reports

JPMorganChase
Introducing the JENI Beta Carbon Index (February 2007)

Royal Bank of Canada
Carbon Risk in Credit Risk Management project (2004)

Société Générale
CREAM-ing Carbon Risk: European Carbon Winners and Losers (June 2007)

Appendix IV: *Climate Specific Indices and Funds*

(Does not include renewable energy funds)

ABN AMRO Climate Change and Environment Index **(March 2007)**
"Tracks the performance of stock directly related to businesses that are addressing climate change and other environmental issues." Renewable energy companies make up 45% of the index. ABN AMRO has already launched a certificate to track the index.

ABN AMRO Low Carbon Accelerator Fund **(October 2006)**
Fund invests in a wide portfolio of companies entirely devoted to low carbon and energy efficiency. The fund focuses on carbon credits, solar energy, fuel cells, wind energy, and bio-fuels.

Barclays Capital Global Carbon Index **(December 2007)**
The world's first index tracking the performance of carbon credits from main greenhouse gas emissions trading systems, including the Kyoto Clean Development Mechanism and the EU ETS.

Credit Suisse Clariden Leu's CO2 Certificate **(2006)**
Enables investors to participate in the price movements of European emission rights.

Credit Suisse Global Warming Index **(2007)**
Focused on 40 renewable energy and carbon controlling stocks.

Deutsche Bank DWS Klimawandel **(Climate Protection Fund)**
A retail fund that focuses on companies offering climate change mitigation and adaptation products and services

Deutsche Bank DWS Climate Change Fund
Invests globally in clean technology, energy efficiency and environmental management companies (launched by DWS Scudder, Deutsche Bank Asset Management's U.S. retail asset management division)

HSBC Global Climate Change Benchmark Index **(September 2007)**
The Benchmark Index is designed to provide exposure to companies that are best positioned to profit in the face of climate change challenges. The fund includes sub-indices:

Climate Change Index
Low Carbon Energy Production Index
Energy Efficiency and Energy Management Index
Water, Waste and Pollution

HSBC's Climate Change Fund **(November 2007)**
Aims to outperform the Global Climate Change Benchmark Index

ING Climate Focus Fund **(2007)**
The fund is managed by ING Investment Managementand offers investors exposure to various sectors such as waste management, clean water and renewable energy.

JPMorgan Environmental Index-Carbon BETA **(2007)**
The first high-grade corporate bond index designed to address the risks of climate change. A collaboration between JPMorgan and Innovest Strategic Investment Advisors, JENI-Carbon Beta is designed to enable credit investors to make return-driven investment decisions that systematically take the risks and opportunities created by climate change into account.

Merrill Lynch Carbon Leaders Europe Index **(October 2007)**
Offers exposure to low carbon footprint stocks, and two biofuels indices. Carbon data provided by Trucost.

Santander/Instituto de Credito Oficial Fondo de Carbono para la Empresa Española (FC2E) **(2005)**

The purpose of the fund is to support Spanish companies in their compliance with the targets established under the Kyoto Protocol by financing CDM and JI projects and purchasing the carbon credits generated by these projects.

UBS Global Warming Index **(April 2007)**

The index is a tradable benchmark for global investments in the weather derivatives market.

UBS Climate Change Strategy Certificate **(February 2007)**

An actively managed basket of around 20-25 stocks, was launched in February 2007 and includes companies developing solutions in renewable energy and energy efficiency.

UBS World Emissions Index **(November 2006)**

Index-linked products offered by the UBS Investment Bank allow clients to participate in this index's performance, which is linked to tradable derivative instruments referencing emissions allowances.

Appendix V: External Initiatives

The 3C Initiative

The 3C Initiative is a global opinion group consisting of 46 companies that demand an integration of climate issues into the world of markets and trade facilitated by means of a global framework coming into force in 2013. The 3C (standing for Combat Climate Change) has launched a call to action with recommendations on policy priorities for the world's politicians. These recommendations are based on an analysis of how to reduce emissions cost-effectively throughout the global economy. **www.combatclimatechange.org**

ABI Energia

ABI Energia is a consortium of Italian banks focused on sustainable energy. **http://www.abienergia.it/energia/default.jsp**

AGE

AGE is an initiative of the German Ministry for the Environment, Nature Conservation and Nuclear Safety to establish an emissions trading scheme in Germany.

The Bali Communiqué

On 30th November 2007, the business leaders of 150 global companies published a communiqué to world leaders calling for a comprehensive, legally binding United Nations framework to tackle climate change. The initiative is being led by The Prince of Wales's UK and EU Corporate Leaders Groups on Climate Change, which are developed and run by the University of Cambridge Programme for Industry. **http://www.balicommunique.com/**

Canadian Bankers Association's Environmental Issues Specialist Group

The Canadian Bankers Association Environmental Issues Specialist Group, comprised of representatives from Canadian banks, examines and comments on environmental legislation as it relates to lending practices, bankruptcy and realization, and liability issues. **http://www.cba.ca/en/default.asp**

Canadian Business for Social Responsibility (CBSR)

Founded in 1995, CBSR is a business-led, non-profit CSR consultancy and peer-to-peer learning organization that provides its members with counsel and customized advisory services as they formulate business decisions related to CSR issues. CBSR actively defines CSR in Canada through original research on CSR market trends, sector-specific programming, and information dissemination to multiple societal and industry segments. **www.cbsr.ca**

Carbon Markets Association (CMA)

CMA, formerly known as London Climate Change Services, is a City trade association representing the UK's service providers to the Global Carbon Market. The association was formed to represent businesses of the UK services sector working to reduce carbon emissions through the market mechanisms of the United Nations Kyoto Protocol. CMA has more than 40 company members, including carbon funds, project developers, consultants, lawyers, investment banking divisions, accountants, verifiers, traders, brokers, accountants, IT firms and engineers. **www.carbonmarketsassociation.net**

Ceres

Ceres is a national network of investors, environmental organizations and other public interest groups working with companies and investors to address sustainability challenges such as global climate change. **www.ceres.org**

The Climate Group

The Climate Group is an independent, nonprofit organization dedicated to advancing business and government leadership on climate change. The group, which is based the UK, the USA and Australia, was founded in 2004 by a diverse group of governments, companies, and other supporters. **www.theclimategroup.org**

Clinton Climate Initiative (CCI)

CCI was launched by President Bill Clinton in August 2006 with the mission of applying the Foundation's business-oriented approach to the fight against climate change. In its first phase, CCI is working with the C40 Large Cities Climate Leadership Group, an association of large cities dedicated to tackling climate change, to develop and implement a range of actions that will accelerate greenhouse gas emissions reductions.
http://www.clintonfoundation.org/cf-pgm-cci-home.htm

Clinton Foundation – Energy Efficiency Building Retrofit Program

The Clinton Foundation's Energy Efficiency Building Retrofit Program brings together four of the world's largest energy service companies (ESCOs), five of the world's largest banks, and sixteen of the world's largest cities in an initiative designed to reduce energy consumption in existing buildings. ABN AMRO, Citi, Deutsche Bank, JPMorgan Chase, and UBS have agreed to finance the first generation of retrofit projects. Sixteen cities have committed to work with the Foundation and its expert partners to develop programs to audit their buildings and to implement retrofits that improve their energy efficiency.
http://www.clintonfoundation.org/051607-nr-cf-pr-cci-president-clinton-announces-landmark-program-to-reduce-energy-use-in-buildings-worldwide.htm

Confederation of British Industry (CBI) – Climate Change Task Force

The CBI is the UK's leading business organization, speaking for some 240,000 businesses that together employ around a third of the private sector workforce. After ten months of intensive work by 18 Chairman and Chief Executives from some of the UK's biggest companies, the task force released a report stating that "British businesses are committed to do what it takes to tackle climate

change but the UK effort will only succeed if it becomes an urgent, shared national priority for companies, consumers and the government." **www.cbi.org.uk/climate**

Conference Board of Canada – Business Council for Sustainability

The Business Council for Sustainability is a network of senior executives from Canadian companies whose responsibilities include environmental management and sustainability performance. **http://www.conferenceboard.ca/BCS/Default.asp**

Corporate Leaders Group on Climate Change (CLG)

CLG brings together business leaders from major UK and international companies who believe that there is an urgent need to develop new and longer-term policies for tackling climate change. The first output from the group was a letter to the Prime Minister in the run up to the G8 Summit in Gleneagles. The group is currently working in partnership with the UK Government towards strengthening domestic and international progress on reducing greenhouse gas emissions. They are also working to engage other British businesses, the UK public and governments and businesses internationally to back this effort. **http://www.cpi.cam.ac.uk/programmes/energy_and_climate_change/corporate_leaders_group_on_cli.aspx**

Deutsche Energie-Agentur GmbH (dena)

The Deutsche Energie-Agentur GmbH (the German Energy Agency) is the competence centre for energy efficiency and renewable energies. Its objectives include the environmentally friendly production, conversion and use of energy, and the development of sustainable energy systems with a greater emphasis on renewable energy sources. **www.dena.de/**

Enterprises pour l'Environnement (EpE)

EpE is a coalition of forty leading companies operating in France united by a commitment to the environment and to sustainable development. **http://www.environnement.ccip.fr/acteurs/epe.htm**

Environment Canada

Through Environment Canada's Corporate Environmental Innovation (CEI) initiative, Environment Canada has engaged an informal Network of North American expert organizations working on linking environmental performance to financial value. The Network aims to identify the connection between environmental performance and business value, including shareholder value in the North American context, and to make this connection more relevant to financial sector audiences. **www.ec.gc.ca**

Environmental Bankers Association (EBA)

EBA is an association that assists the financial services industry in developing environmental risk management policies and procedures. **www.envirobank.org/entryscreen.php**

EPA Climate Leaders

EPA's Climate Leaders is an industry-government partnership that works with companies to develop long-term comprehensive climate change strategies. Partners set a corporate-wide greenhouse gas (GHG) reduction goal and inventory their emissions to measure progress. **www.epa.gov/stateply**

EPA Energy Star

ENERGY STAR is a joint program of the U.S. Environmental Protection Agency and the U.S. Department of Energy to encourage energy efficient products and practices. ENERGY STAR works with more than 9,000 public and private sector organizations to improve the energy and financial performance of their business, manufacture products to meet ENERGY STAR specifications, sell ENERGY STAR labeled products, promote ENERGY STAR qualified products or homes as a utility or state funds administrator, and build ENERGY STAR qualified homes. **www.energystar.gov**

EPA Green Power Partners

The Green Power Partnership is a voluntary program that encourages organizations to buy green power. Partner organizations voluntarily purchase green power annually and are required to submit a yearly report to verify the status of their green power purchases. **www.epa.gov/greenpower/**

Equator Principles

The Equator Principles is a set of environmental and social benchmarks for managing environmental and social issues in development project finance in the emerging markets. Once adopted by banks and other financial institutions, the Equator Principles commit the adoptees not to finance projects that fail to follow the processes defined by the Principles. The Equator Principles were developed by private sector banks – led by ABN AMRO, Citigroup, Barclays and WestLB – and were launched in June 2003. **www.equator-principles.com**

European Carbon Investors and Services (ECIS)

The ECIS is a trade association formed to represent the 'market' perspective on emissions trading and climate investments to policymakers worldwide. **http://www.greenstream.net/default.asp?docId=13120**

The EXCEL Partnership

EXCEL is a partnership of major Canadian corporations that are committed to sustainable development leadership through the continuous improvement of economic, environmental and social performance. **www.excelpartnership.ca**

Extractive Industries Transparency Initiative (EITI)

The EITI is a coalition of governments, companies, civil society groups, investors and international organizations aimed to strengthen governance by improving transparency and accountability in the extractives sector. The EITI, which was announced by UK Prime Minister Tony Blair at the September 2002 World Summit on Sustainable Development in Johannesburg, is an effort to increase transparency over payments by companies to governments and to government-linked entities, as well as transparency over revenues by those host country governments. **www.eitransparency.org**

Forum für Zukunftsenergien (Forum for Future Energies)

The Forum für Zukunftsenergien is a 250-member association dedicated to renewable and non-renewable energies as well as the rational and economical use of energy in order to promote a secure, cost-effective power supply that conserves resources and the environment. The Forum is independent from political parties and industries, providing a platform for interdisciplinary dialogue involving different interest groups and for the discussion of possibly conflicting points of view and opinions. **http://www.zukunftsenergien.de/hp2/eu-project/organizer.htm**

G8 Gleneagles CEO Roundtable on Climate Change

The G8 Gleneagles CEO Roundtable on Climate Change, first formed at the World Economic Forum's 2005 Annual Meeting in Davos, prepared a statement in response to an invitation from Prime Minister Tony Blair to provide business's perspectives on climate change in advance of the G-8 Summit that took place in Gleneagles, Scotland, in early July 2005. The group of roughly 40 CEOs wrote the leaders of the G8 urging them to take action on climate change.

Global Roundtable on Climate Change

The Global Roundtable on Climate Change, coordinated by the Earth Institute at Columbia University, brings together high-level, critical stakeholders from all regions of the world — including senior executives from the private sector and leaders of international governmental and non-

governmental organizations — to discuss and explore areas of potential consensus regarding core scientific, technological, and economic issues critical to shaping sound public policies on climate change. **www.earthinstitute.columbia.edu/grocc**

The Heinz Center Business Council

Established in December 1995, The H. John Heinz III Center for Science, Economics and the Environment is a nonprofit, nonpartisan institution dedicated to improving the scientific and economic foundation for environmental policy. The Heinz Center Business Council is a strategic partnership opportunity for leaders in global industry and regional business who are concerned about environmental issues that affect the economy and the world in which we live. **www.heinzctr.org**

Institutional Investors Group on Climate Change (IGCC)

IIGCC is a forum for collaboration between pension funds and other institutional investors on issues related to climate change. IIGCC seeks to: a) promote better understanding of the implications of climate change amongst our members and other institutional investors; b) encourage companies and markets in which IIGCC members invest to address any material risks and opportunities to their businesses associated with climate change and a shift to a lower carbon economy. IIGCC seeks to occupy the overlap between "interested investor" (aware of the implications of climate change) and "responsible investor" (acting to manage the risks climate change poses our investments). IIGCC does not seek to become a "campaigning investor" (advocating immediate or otherwise radical changes in energy and economic activity). **www.iigcc.org**

International Emissions Trading Association (IETA)

IETA is a non-profit business organization created in June 1999 to establish a functional international framework for trading in greenhouse gas emission reductions. IETA is dedicated to ensuring that the objectives of the United National convention on Climate Change and ultimately climate protection are met through the establishment of effective systems for trading in greenhouse gas emissions by business, in an economically efficient manner while maintaining society equity and environmental integrity. **www.ieta.org**

Investor Network on Climate Risk (INCR)

INCR is a $4 trillion network of investors that promotes better understanding of the financial risks and opportunities posed by climate change. **www.incr.com**

Investors and Business for U.S. Climate Action

On March 19, 2007 more than 60 leading investors, asset managers and companies released a climate policy call to action requesting prompt tangible action by US lawmakers to tackle global climate change. **www.ceres.org/pub/docs/FAQ.pdf**

Klima-Partner 2007

Klima-Partner 2007 is an association formed to promote the development of climate-neutral products and services. **www.klimaneutral-partner.de**

The London Accord

The London Accord is a co-operative research initiative supported by leading investment banks and research houses, major institutional investors and key NGOs and academics. The project will bring the insights and rigor of financial analysis to the implications of climate change for investors and corporate decision makers. **www.london-accord.co.uk**

Massachusetts Institute of Technology Joint Program on the Science and Policy of Global Change

The MIT Joint Program on the Science and Policy of Global Change was founded in 1991 as an interdisciplinary organization that conducts research, independent policy analysis, and public communication on issues of global environmental change. **www.mit.edu/globalchange**

Pew Center on Global Climate Change's Business Environmental Leadership Council (BELC)

The Pew Center is a nonprofit that brings together business leaders, policy makers, scientists, and other experts with the mission to provide credible information, straight answers, and innovative solutions in the effort to address global climate change. The Business Environmental Leadership Council, a Pew Center initiative, is the largest U.S.-based association of corporations focused on addressing the challenges of climate change, with 44 members representing $2.8 trillion in market capitalization and over 3.8 million employees. The council includes representatives from a variety of sectors. **www.pewclimate.org/companies_leading_the_way_belc**

Renewable Energy and Energy Efficiency Program (REEEP)

REEEP is a global public-private partnership that was launched by the United Kingdom along with other partners at the Johannesburg World Summit on Sustainable Development in August 2002. By providing opportunities for concerted collaboration among its partners, REEEP aims to accelerate the marketplace for renewable energy and energy efficiency. **www.reeep.org**

Roundtable on Sustainable Palm Oil

RSPO is a global multi-stakeholder initiative on sustainable palm oil formally established under Article 60 of the Swiss Civil Code in April 2004. The principal objective of RSPO is "to promote the growth and use of sustainable palm oil through co-operation within the supply chain and open dialogue between its stakeholders". The nonprofit association includes members representing major players along the palm oil supply chain, namely the oil palm growers, palm oil processors and traders, consumer goods manufacturers, retailers, banks and investors, environmental/nature conservation NGOs and social/development NGOs. **www.rspo.org**

Sustainable Energy Europe

The Sustainable Energy Europe 2005-2008 Campaign is a European Commission initiative in the framework of the Intelligent Energy - Europe (2003-2006) program, which aims to raise public awareness and promote sustainable energy production and use among individuals and organizations, private companies and public authorities, professional and energy agencies, industry associations and NGOs across Europe. **www.sustenergy.org**

United Nations Environment Program Finance Initiative (UNEP FI)

UNEP FI is a global partnership between the United Nations Environment Programme (UNEP) and the private financial sector. UNEP FI works closely with over 160 financial institutions who are signatories to the UNEP FI Statements, and a range of partner organizations to develop and promote linkages between the environment, sustainability and financial performance. Through regional activities, a comprehensive work programme, training programs and research, UNEP FI carries out its mission to identify, promote, and realize the adoption of best environmental and sustainability practice at all levels of financial institution operations. **www.unepfi.org**

United Nations Principles for Responsible Investment

The United Nations Principles for Responsible Investment (PRI) is an investor initiative in partnership with UNEP Finance Initiative (UNEPFI) and the UN Global Compact which focuses on integrating environmental, social and governance [ESG] factors into investment decisions. The PRI encourages major pension funds, investment managers and service providers in the investment industry to integrate ESG risks and opportunities into investment decisions. PRI was launched by former UN Secretary General Kofi Annan and is supported by UN SG Ban Ki-moon. Since its launch on the 27th April 2006, the PRI has been adopted by more than 240 signatories representing over US$ 10 trillion in assets under management. www.**unpri.org**

U.S. Green Buildings Council

The U.S. Green Building Council (USGBC) is a non-profit organization committed to expanding sustainable building practices. USGBC is composed of more than 12,000 organizations from across the building industry that are working to advance structures that are environmentally responsible, profitable, and healthy places to live and work. Members includes building owners and end-users, real estate developers, facility managers, architects, designers, engineers, general contractors, subcontractors, product and building system manufacturers, government agencies, and nonprofits. **www.usgbc.org**

World Business Council on Sustainable Development

The World Business Council for Sustainable Development (WBCSD) is a CEO-led, global association of some 200 companies dealing exclusively with business and sustainable development. Energy and Climate is one of the four key areas of focus for the organization. **www.wbcsd.org**

World Resources Institute – Climate Northeast Working Group

The Climate Northeast partnership, a project of the World Resources Institute, builds strategies for companies to thrive in a carbon-constrained economy. Partners develop greenhouse gas inventories, share energy management practices and invest in clean energy technologies. These corporate actions shape multi-sector policy approaches for a safe climate and sound business future in the Northeast. **www.earthinstitute.columbia.edu/grocc/**

World Resources Institute's (WRI) Corporate Council

The Corporate Council is a partnership between WRI and the corporate sector. In return for financial contributions to the organization, council members receive help from WRI in identifying environmental trends relevant to their industry. WRI also leads discussions on current issues, and provides cutting-edge information on business ideas for council members. **archive.wri.org/partners/funders_cc.cfm**

Appendix VI: Carbon Trading Glossary

Annex B Countries: The 39 emissions-capped countries listed in Annex B of the Kyoto Protocol.

Annex I Countries: The 36 countries and economies in transition listed in Annex I of the UNFCCC. Belarus and Turkey are listed in Annex I but not Annex B; and Croatia, Liechtenstein, Monaco and Slovenia are listed in Annex B but not Annex I. In practice, however, Annex I of the UNFCCC and Annex B of the Kyoto Protocol are often used interchangeably.

Annex II Countries: All original OECD member countries plus the European Union.

Assigned Amount: The quantity of greenhouse gases that an Annex I country can release during a Kyoto Protocol commitment period.

Assigned Allocation Unit (AAU): Fraction of the assigned amount equaling one metric tonne of greenhouse gas in carbon dioxide equivalent.

Carbon Dioxide Equivalent (CO_2e): The universal unit of measurement used to indicate the global warming potential of each of the six greenhouse gases. Carbon dioxide is the reference gas against which the other greenhouse gases are measured.

Certified Emission Reductions (CERs): A unit of greenhouse gas emission reductions issued pursuant to the Clean Development Mechanism of the Kyoto Protocol, and measured in metric tons of carbon dioxide equivalent.

Clean Development Mechanism (CDM): The mechanism provided by Article 12 of the Kyoto Protocol, designed to assist developing countries in achieving sustainable development by permitting industrialized countries to finance projects for reducing greenhouse gas emission in developing countries and receive credit for doing so.

Emission Reduction Units (ERUs): A unit of emission reductions issued pursuant to Joint Implementation. This unit is equal to one metric ton of carbon dioxide equivalent.

European Union Emissions Trading Scheme (EU ETS): Trading Scheme within the European Union. The first compliance phase is from 2005 to 2007, while the second compliance phase continues from 2008 to 2012.

Joint Implementation (JI): Mechanism provided by Article 6 of the Kyoto Protocol, whereby a country included in Annex I of the UNFCCC and the Kyoto Protocol may acquire Emission Reduction Units when it helps to finance projects that reduce net emissions in another industrialized country (including countries with economies in transition).

Kyoto Protocol: The Kyoto Protocol originated at COP-3 to the UNFCCC in Kyoto, Japan, December 1997. It specifies emission obligations for the Annex B countries and defines the three so-called Kyoto mechanisms: JI, CDM and emissions trading. It entered into force on 16 February 2005.

Renewable Energy Certificates: Also known as RECs, green tags, green energy certificates, or tradable renewable certificates, certificates represent the technology and environmental attributes of electricity generated from renewable sources. Renewable energy credits are usually sold in 1 Megawatt-hour (MWh) units. A certificate can be sold separately from the MWh of electricity with which it is associated. This flexibility enables customers to offset a percentage of their annual electricity use with certificates generated elsewhere.

Verified Emission Reductions (VERs): Emission reduction credits generated by small-scale projects, which are assessed and verified by third party organizations rather than through the UNFCCC.

About the Authors

The authors of this report are members of RiskMetrics' Climate Change Research Team. Doug Cogan leads this team and has more than 20 years of experience in studying investment responses to climate change. Prior to joining RiskMetrics Group, he worked with the Investor Responsibility Research Center and Institutional Shareholder Services, where he wrote several other publications for Ceres and the Investor Network on Climate Risk, including two prior editions of *Corporate Governance and Climate Change: Making the Connection*. His co-authors on this report are climate change senior analyst Megan Good and research analyst Emily McAteer, who conducted the primary research, prepared the company profiles and helped draft the Summary Report.

About RiskMetrics Group

RiskMetrics Group helps investors and other financial market participants better understand and manage the risk inherent in their portfolios so they can make more informed investment decisions. The firm covers a broad spectrum of risk to include considerations in corporate governance, compliance, accounting, legal, transactional, environmental and social risks. The firm's goal is to improve financial markets by bringing transparency, expertise and access to all market participants. RiskMetrics Group offers advanced tools to help investment managers engage and assess corporate commitment to social responsibility, environmental stewardship and climate change as a material risk and growth opportunity. For more information, visit www.riskmetrics.com.

About Ceres

Ceres is a national coalition of investors, environmental groups, and other public interest organizations working with companies to address sustainability challenges such as climate change. Ceres also directs the Investor Network on Climate Risk, a group of 60 institutional investors from the U.S. and Europe managing over $4 trillion of assets. INCR was launched at the Institutional Investor Summit on Climate Risk at United Nations Headquarters in 2003. The purpose of INCR is to promote better understanding of the risks of climate change among institutional investors. For more information, visit www.ceres.org and www.incr.com.

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