

CLIMATE CHANGE: SOME ECONOMIC AND CORPORATE ASPECTS

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Salón de Grados

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Some general economic aspects of climate change

- Climate change is a result of the externalities associated with greenhouse-gas emissions. It entail costs that are not paid for by those who create the emissions.
- Key features of the greenhouse-gas externality are:
 - A) It is global in its causes and consequences.
 - B) The impacts of climate change are persistent and develop over time.
 - C) Uncertainties and risks in the economic impacts are pervasive.
 - D) The analysis has to consider potentially non-marginal changes to societies.

(Stern, 2007)

Ways in which negative externalities can be adressed (Stern, 2007)

- A tax can be introduced so that emitters face the full social cost of their emissions.
- Quantity restrictions can limit the volume of emissions, using a “control and command” approach.
- A full set of property rights can be allocated among those causing the externality and/or those affected, which can underpin bargaining or trading.
- A single organization can be created which brings those causing the externality together with all those affected. (not a practical option in relation to climate change).

In practical, cap-and-trade systems tend to combine aspects of the second and third approach above.

Delivering carbon reductions efficiently (I)

Two conditions:

- A) Abatement should take place up to the point where the marginal social cost of carbon is equal to the marginal cost of abatement.
- B) To deliver reductions at least cost, a common price signal is required across countries and different sectors of their economies at a given point in time.

Delivering carbon reductions efficiently (II)

- In ideal conditions – perfectly competitive markets, perfect information and certainty, and no transaction costs- both taxes and quantity controls, if correctly designed, can meet both criteria, and be used to establish a common price signal across countries and sectors.
- Without market imperfections and uncertainty, and with an appropriate specification of taxes and quotas, both approaches would produce the same price level and quantity of emissions.

Efficiency under uncertainty

- Substantial uncertainty exists around the timing and scale of impacts, as well as the costs of abatement.
- Prices and quantity controls are no longer equivalent.
- Prices are preferable when the marginal damage curve is relatively flat, compared to the marginal abatement cost curve, as pollution rises.
- Quantity controls are preferable when the marginal abatement cost curve is relatively flat, compared to the marginal damage curve.

At the international level, the key policy objectives for tackling climate change should include:

- Choosing a policy regime that:
 - I) In the long term, will stabilise the concentration of greenhouse gases in the atmosphere, and establishing a long-term quantity goal to limit the risk of catastrophic damage.
 - II) In the short term, uses a price signal (tax or trading) to drive emission reductions, thus avoiding unexpected high abatement costs by setting a short-term quantity constraints that are too rigid.
- Establishing a consistent price signal across countries and sectors to reduce GHG emissions. This price signal should reflect the damage caused by carbon emissions

Technological changes

- New or improved technology en key sectors.
- Diffusion of low-carbon technologies.
- Technological changes require targeted investments.
- We need simultaneously to promote technologies with currently different maturity levels.
- Low carbon technologies benefit from a carbon price, but is unlikely to encourage the immature low carbon technologies. Thus it needs to be complemented with technology specific policies.

(Del Río, 2010)

How companies think about climate change: A McKinsey Global Survey

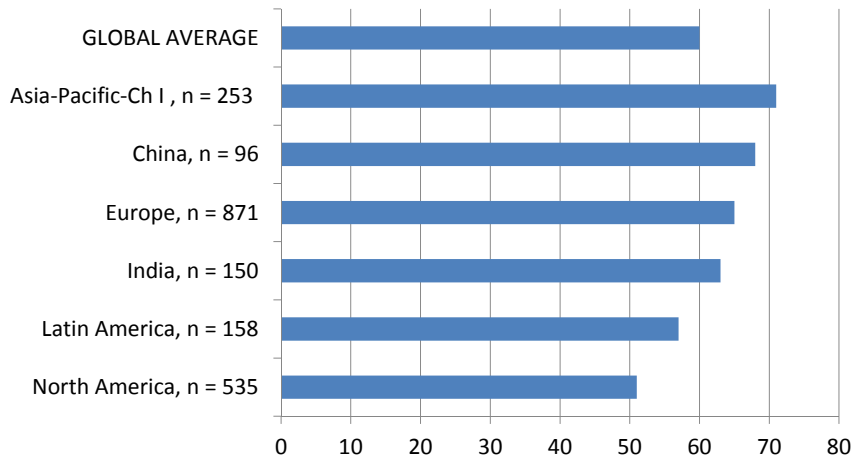
Importance:

For your company, how important is it to consider climate change issues in each of the following?

	Very important	Somewhat important	Somewhat unimporta	Very unimporta	Don't know
Managing corporate reputation	36	32	12	17	3
Managing environmental issues	30	33	16	19	3
Overall corporate strategy	20	40	20	18	2
Devel./mark. new products or serv	30	29	12	25	3
Planning investments	18	35	19	23	4
Purchasing, supply chain managem	14	35	22	24	5
Developing regulatory strategy	18	29	20	28	6
Trading, eg, trad in carb-emi rights	13	19	17	42	10

n = 2192

Role of climate change in overall corporate strategy considered very, somewhat important



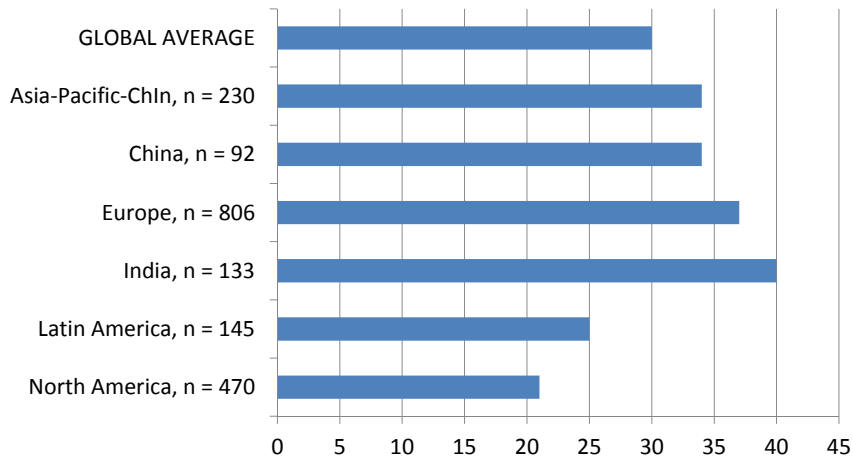
How companies think about climate change: A McKinsey Global Survey

Accion:

How often does your company currently take climate change into consideration in each of the following?				
	Always, frequently	Occasionally	Seldom, never	Don't know
Managing corporate reputation	41	24	31	4
Managing environmental issues	35	24	36	5
Overall corporate strategy	30	31	36	4
Devel./mark. new products or serv	33	23	39	4
Planning investments	26	26	42	6
Purchasing, supply chain managem	23	27	44	7
Developing regulatory strategy	25	23	45	8
Trading, eg, trad in carb-emi rights	17	15	56	12

n = 1983

Climate change taken into consideration in overall corporate strategy always, frequently



Which of the following factors influenced your company in take climate change into consideration?

Corporate reputation	54
Customer requests or preferences	35
Media attention to climate change	34
Senior executives personal convictions	30
Regulation	25
Investment opportunity	21
Competitive pressure	17
Employee value proposition	17
Physical threats to assets	7

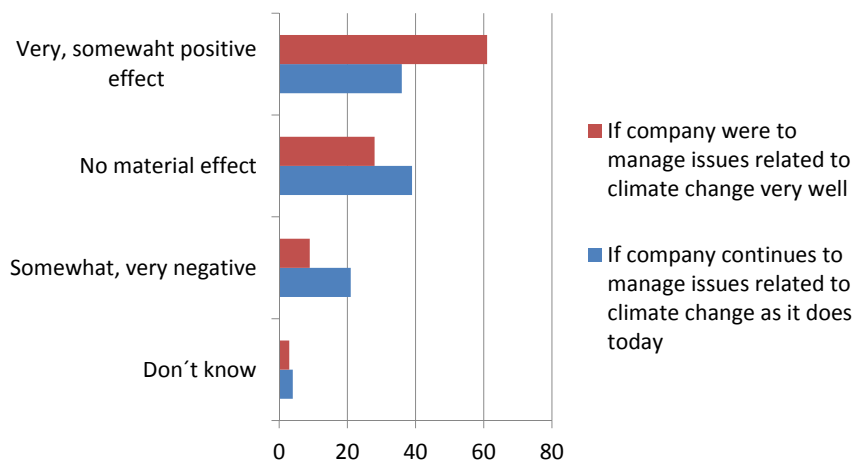
n = 1927

How is the impact of climate change viewed without your company?

CLIMATE CHANGE CREATES:	
An equal balance of risks, opportunities	32
Mostly risks, limited opportunities	21
Mostly opportunities, limited risks	20
No impact	15
Only risks	4
Only opportunities	3
Don't know	4

n = 2192

What effect, if any, do you think climate change will have on your company's profits over the next 5 years?



n = 2192

THE IMPACT OF THE FINANCIAL- ECONOMIC CRISIS ON CLIMATE CHANGE POLICIES

As Geels (2013) stresses, many Western countries face difficult times:

1. Immediate financial crisis (collapse of the banking system, the private and sovereign debt and the deflation of the housing bubble).
2. Medium-term (5-10 years) socio-economic problems: high unemployment, austerity programs, growing inequality, welfare cutbacks and weak industrial competitiveness.
3. Long-term (10-50 years) environmental problems (climate change, biodiversity loss, ocean acidification, chemical pollution, freshwater and land use problems), which are transcending planetary boundaries.

IT IS INEVITABLE THAT ALL THESE IMMEDIATE PROBLEMS SHOULD AFFECT BOTH THE SOCIAL PERCEPTION OF CLIMATE CHANGE AND THE CLIMATE CHANGE POLICIES.

- In his empirical research, Geels shows that immediately after the start of the crisis, the economic stimulus initiated in many countries caused a significant rise of green investments, but with the implementation of austerity programs since May 2010 environmental and climate policy goals have been neglected

GLOBAL GREEN NEW DEAL (UNEP, 2009)

- To stimulate economic recovery and create jobs.
- Promote sustainable and inclusive growth (especially ending extreme poverty by 2015).
- Reduce carbon dependency and ecosystem degradation.

The fiscal stimulus to be applied over 2009 and 2010 should prioritize energy-efficient buildings and investments in sustainable transport and renewable energy.

An expenditure of 1% of global gross domestic product on green initiatives was recommended.

By April 2010, nations had spent \$463.3 billion on green stimulus during the recession
(15% of total fiscal stimulus (about 3 trillion))

- South Korea's New Deal plan allocated 95% of its \$38.8 billion fiscal stimulus to green initiatives (3% of its GDP).
- China: 1/3 of its \$647.5 bill (3% of its GDP).
- USA: 12% of \$787 billion (0.7% of its GDP).
- EU: more than 50% to low-carbon investments (0.2% of its GDP).

Without supportive policies to ensure the long term economic viability of sustainable practices, some global green spending will ultimately go to waste (Barbier, 2010).

Conclusions of Geels (2013)

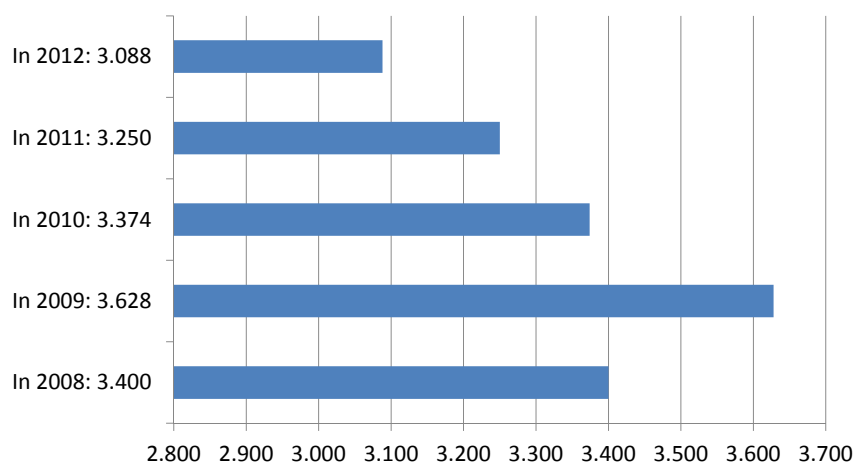
As the global environmental problems (and climate change in particular) will not go away (and they are likely to get worse), this slowdown is unlikely to permanently disrupt sustainability transitions. Future accelerations of sustainability transitions may happen in various ways:

1. The first possibility is that bold governments stimulate private spending by creating certainty about future green markets using a mix of policies such as pricing, regulation and institutional reform.
2. City initiatives provide opportunities for unleashing private investment. Possible infrastructures are waste treatment works, water and sewerage pipes, electricity and gas networks, communication networks and rail networks. Many of these infrastructures suffered from under-investment in recent decades and need upgrading. Legitimization can come from sustainability issues and quality of life improvement.
- 3.- A third possibility is that some renewable options become cost-competitive in the next few years, which enables them to compete with fossil fuel and nuclear options.
- 4.- A fourth possibility is that public attention and concern may increase again in a few years' time, which creates pressure on policy makers to take daring actions. Future increases in public attention may be related to new scientific findings, shock events or enhanced activity from social movements.

CARBON DISCLOSURE PROJECT (CDP)

- CDP is an international collaboration of institutional investors concerned about the business implications of climate change.
- Launched in 2000. Maintains a London-based coordinating secretariat.
- 2003: 35 investors with \$4.5 trillion in assets.
- 2007: 385 investors with \$40 trillion in assets.
- 2012: 655 investors with \$78 trillion in assets.
- **CDP Global Climate Change Report 2012** . The global 500 are the largest companies by market capitalization included in the FTSE Global Equity Index Series.

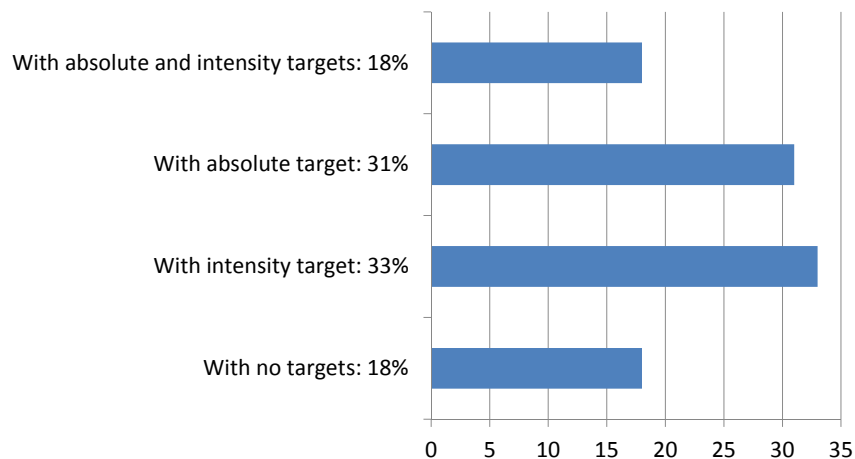
Total (direct) emissions reported by responding G500 companies (Billion tCO₂e)



Reasons for decreases in emissions

Reductions exclusively due to emissions reduction activities	40%
Reductions due to emissions reduction activities and changes in business conditions	20%
Reductions due to changes in business conditions	9%
No reductions	31%

Companies disclosing emissions targets



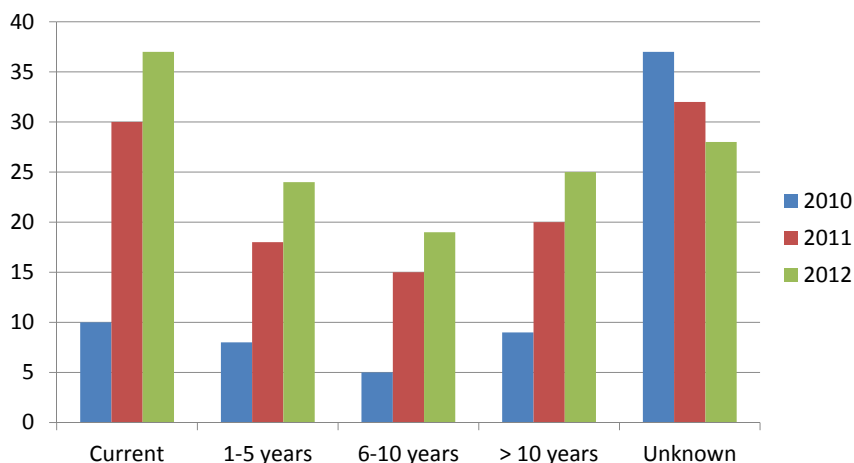
Climate change hasn't dropped off the board agenda during the downturn

- 96% reported that they have board or senior executive oversight of climate change (2011: 93%).
- 78% have integrated climate change into their business strategy (68% in 2011).
- 65% report climate change is influencing their near-term strategies (63 % in 2011).
- 54% report report climate change is influencing their long-term strategies (48 % in 2011).
- 65% report they make available monetary incentives to their staff for meeting climate change-related targets (65% in 2011).

Physical risks

- Recent extreme weather and natural events are raising awareness of climate risks: 81% of companies now report physical risks (71% in 2011). Companies are increasingly able to define both the immediate and long-term timeframes of these risks.
- Physical risks are viewed as tangible and real: this includes destructive weather events, the rise in temperature and sea level and, increasingly, water scarcity.

Timeframe for expected physical risk impact (number of companies) (In %)



Companies need clarity on regulation

- While clear government regulations can drive action, policy uncertainty is a barrier and can increase costs. The lack of clarity surrounding regulation after UN summits is a real barrier to action. 83% see risks related to regulation (73% in 2011).
- Companies require a long-term, stronger price signal in order to make their return on investments more predictable.

Stakeholder pressure is driving companies to act

- Reputation and positive stakeholder engagement are seen as key drivers for action on climate change.
- 68% note the opportunities associated with customer behaviour changes, enhancing their reputation, or both (58% in 2011).
- Companies are aware of how their revenue can be affected by customer behaviour and investor interest.
- Some companies see longer-term financial opportunities in developing a “low carbon” brand.

Risks identified by sector

	Physical	Regulatory	Reputation & consumer behavior
Consumer Discretionary	76%	76%	57%
Consumer Staples	87%	84%	74%
Energy	87%	92%	74%
Financials	87%	79%	68%
Healthcare	64%	70%	36%
Industrials	72%	78%	44%
Information Technology	73%	79%	48%
Materials	89%	97%	74%
Telecommunication Services	95%	95%	75%
Utilities	81%	100%	76%
ALL SECTORS	81%	83%	63%

Opportunities identified by sector

	Physical	Regulatory	Reputation & consumer behavior
Consumer Discretionary	50%	74%	59%
Consumer Staples	74%	76%	68%
Energy	56%	85%	67%
Financials	73%	83%	71%
Healthcare	39%	52%	48%
Industrials	59%	84%	68%
Information Technology	58%	79%	67%
Materials	71%	94%	69%
Telecommunication Services	95%	90%	90%
Utilities	67%	90%	86%
ALL SECTORS	64%	80%	68%

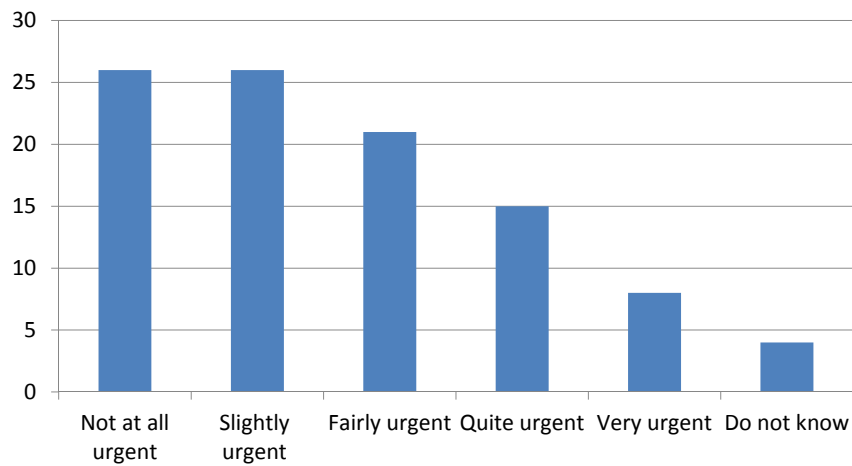
Methods to drive investments in emissions reduction activities

Dedicated budget for energy efficiency	51%
Compliance with regulatory requirements/standards	49%
Employee engagement	44%
Internal incentives/recognition programs	30%
Financial optimization calculations	28%
Dedicated budget for other emissions reduction activities	23%
Dedicated budget for low carbon product R&D	21%
Partnering with governments on technology development	20%
Lower return on investment (ROI) specification	15%
Internal finance mechanisms	14%
Internal price of carbon	11%
Marginal abatement cost curve	11%
Other	25%

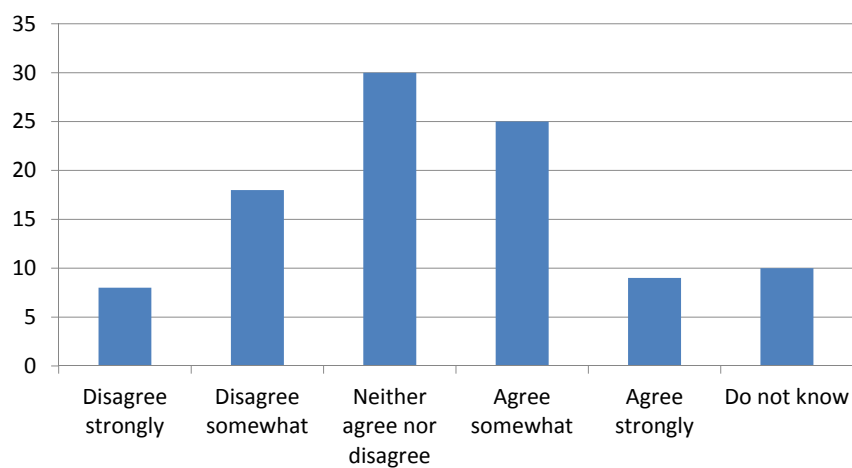
Fifth annual survey on sustainability and innovation

- Conducted in June 2013 by the MIT Sloan Management Review and Boston Consulting Group.
- More than 1800 managers from different countries gave their opinions on how climate change is influencing their corporate strategies.

How urgent are climate change issues to your company



I believe my company is prepared for climate risks



Another results of the survey

- A majority of the respondents who believe climate change is a very or quite urgent issue for their companies also believe their corporations are somewhat or strongly prepared for climate change. The less urgent climate change is for a company, the less prepared the company is likely to be for its effects.

Another results of the survey

- Companies that measure their effectiveness or environmental issues such as energy efficiency or waste management, are more likely to consider climate change an urgent issue.
- The more that climate change is perceived as urgent by a company, the more likely survey respondents are to report that the organization has changed its business model in response to sustainability issues and has successfully developed a business case for sustainability.

UK Corporate Leader's Group on Climate Change (UK CLG)

- UK CLG was established in 2005.
- The group's mission statement is to "trigger the step-change in policy and action needed both to meet the scale of the threat posed by climate change and to grasp the business opportunities created by moving to a low-climate-risk economy".
- Members: Anglian Water Group, BT, Doosan, EDF Energy, GlaxoSmithKline, Heathrow, Land Rover, Johnson Matthey, King Fisher, Lloyds Banking Group, Philips, Shell, Sky, Tesco, Thames Water, Uniliver.

7 key areas where government and business must work together

1. Adequate and sustained ambition at all levels.
2. A clear, long-term, simple and effective policy framework.
3. Support innovation.
4. Encourage behavior change to promote efficiency and a shift to sustainable consumption.
5. Build a resilient economy.
6. Action in the context of globalization and an interconnected world.
7. Invest in the transformation.

Adequate and sustained ambition at all levels.

- Given the slow progress towards a global deal, the international community should also take other opportunities to progress the low carbon transition. The EU and UK should pursue other viable avenues of international cooperation that support the key goals, including energy efficiency across all sectors, low-carbon energy systems, emissions capture and storage, reducing emissions from non CO₂ greenhouse gases, and urban planning, land-use management and land-use change.

A clear, long-term, simple and effective policy framework.

- Fewer, clearer and smarter interventions that are both targeted and integrated.
- The Government should introduce a strong carbon price signal across much of the economy as possible.
- Alternative policy instruments that go beyond the carbon price signal should be deployed where the carbon price signal will not or can not deliver.

Support innovation.

- The new carbon economy will be built off the back of innovation. There is a strong case for government support for new industries, technologies and practices, particularly given the urgency of achieving a low-carbon transition.
- Sector specific regulations that, without selecting winners, provide long term certainty that low carbon solutions will be required and that current high carbon practices will be phased out to underpin the investment in new technologies that take many years to reach widespread deployment.

Encourage behavior change to promote efficiency and a shift to sustainable consumption.

- Put efficiency at the heart of any low-carbon transition plan.
- A combination of measures is needed to promote low-carbon choices to consumers: fiscal incentives such as lower VAT on green products, clear labelling, transparent and appropriate minimum standards for products efficiency and resource intensity.
- Business and government working together.

Build a resilient economy.

- A clear, long-term and economy wide adaptation plan.
- Deal with uncertainty.
- The government, together with UK businesses and communities, must decide on the acceptable threshold of risk and plan to ensure risks are kept below these thresholds.

Action in the context of globalization and an interconnected world.

- There may be innovative ideas that the UK can adopt to incentivise reduced embedded carbon for key products and services.
- One key indicator of the level of business action on climate change is the levels of carbon disclosure. Mandatory reporting could be introduced for direct corporate emissions.

Invest in the transformation.

- While the clean energy economy is one of the great global economy and environmental opportunities of the 21st century, there are immediate costs in dealing with climate change.
- Much of the upfront investment will be repaid and the total costs will be dwarfed by the costs of failing to act but there is a bill that needs to be paid.
- Appropriate and strategic new sources of funds for public policy.

EU Corporate Leader's Group on Climate Change (EU CLG)

- Established in 2007.
- Members: 3M, Acciona, Anglianwater, BT, Coca Cola, Doosan, DSM, EDF, Ferrovial, GlaxoSmithKline, Heathrow, Interface, Jaguar. Land Rover, King Fisher, Lloyds Banking Group, Philips, Shell, Skanska, Sky, Tesco, Thames Water, Unilever, United Technologies.
- Mission: "To communicate the support of business to move to a low carbon society and low climate-risk economy and to work in partnership with the institutions of the EU to make this a practical reality".

Coalition for Environmentally Responsible Economies (CERES)

- Six months after the Exxon Valdez oil spill in 1989, a group of investors launched an organization to tackle the following problem:

Some companies were not doing enough to account for the environmental and social impacts of their operations.

- CERES is an advocate for sustainability

CERES

- Is a non-profit organization which mobilizes a network of investors, companies and public interest groups to accelerate and expand the adoption of sustainable business practices and solutions to build a healthy global economy.
- In 2007, CERES was named one of the 100 most influential players in corporate governance by Directorship magazine.

In 2013 Ceres launched **The Climate Declaration**

- By December 2013 more than 700 leading companies had signed on.
- “Tackling climate change is one of America’s greatest economic opportunities of the 21st century (and it’s simply the right thing to do)...

... But just as America rose to the great challenges of the past and came out stronger than ever, we have to confront this challenge (climate change), and we have to win. And in doing this right, by saving money when we use less electricity, by driving a more efficient car, by choosing clean energy, by inventing new technologies that other countries buy, and creating jobs here at home, we will maintain our way of life and remain a true superpower in a competitive world. In order to make this happen, there must be a coordinated effort to combat climate change, with America taking the lead here at home...”

THANK YOU VERY MUCH