



Walking the Talk on Energy and Climate

Energy and Climate Focus Area



World Business Council for
Sustainable Development

The transformation to a low-carbon future

A low-carbon economy is the economy of the future. Scientific evidence and economic analysis confirm the need for rapid, radical changes in the global energy system – an enormous challenge. The stakes are high. There is a pressing need for action and for solutions in the developed and developing world alike.

The next few years are crucial to establishing policies to deal with energy security, competitiveness, greenhouse gas (GHG) mitigation and adaptation to climate impacts, and they will determine our energy infrastructure and GHG emissions for the next century. Delay will only exacerbate the challenge and increase costs to society. The solutions may require some reinvention as we adapt to the new dynamic. It will create winners and losers. It will demand international cooperation and partnerships and clear roles for government, business, the consumer and civil society to help us all understand what can business do on its own and what we need from government and civil society to fulfill our role.

WBCSD members have been focusing for over a decade on these challenges and recognize that additional scaling up is required now across several fronts. The private sector is the major source of capital and innovation that can transform the global energy system with competence, drawing on business innovation and organizational ability. Yet business cannot develop and deploy the technologies needed on such a scale without help from government. International policy efforts must align with long-range business investment cycles. A broad and efficient mix of policies and programs targeted at mitigation and adaptation and backed by supportive regulation and governance frameworks will reduce investment uncertainty and assist business in its role.

"For us, as a company, the debate about whether man-made climate change is happening is over. The debate now is about what we can do about it.

Businesses, like ours, need to turn CO₂ management into a business opportunity by leading the search for responsible ways to manage CO₂ and use energy more efficiently. But that also requires concerted action by governments to create the long-term, market-based policies needed to make it worthwhile for companies to invest.

With fossil fuel use and CO₂ levels continuing to grow fast, there is no time to lose."

Jeroen van der Veer,
Chief Executive, Royal Dutch Shell plc.

"Governments must start building the future policy frameworks, and it is necessary for us in business to begin to respond to those policies in time to meet the future emission reduction targets.

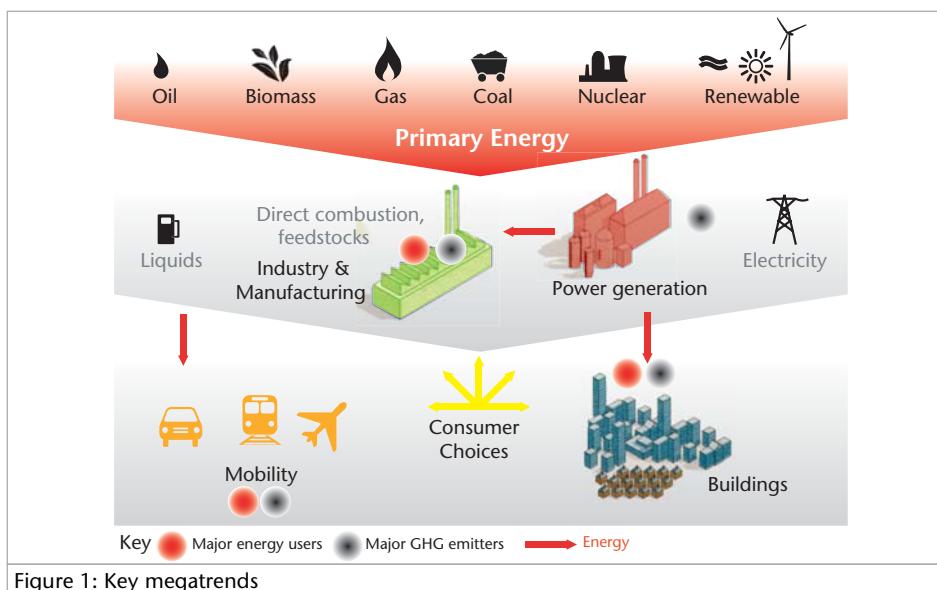
We cannot continue the 'you first' mentality. We need leadership and action by both governments and business."

Björn Stigson,
WBCSD President

"The world has reached an unsustainable trend in greenhouse gas emissions, so we now need to take action to decarbonize as much as possible the world's energy mix. Resources are to be used more efficiently at the same time as we meet growing energy needs. For that to happen one key element is to collectively define a global, long-term and quantifiable pathway for annual greenhouse gas emissions. This shared diagnosis could then be a point of reference for the development of national energy and climate policies."

Anne Lauvergeon,
Chairman of the Executive Board Areva and
WBCSD Energy and Climate Focus Area Co-Chair

Figure 1: Key megatrends





Policy directions to 2050

A global long-term goal

International efforts on climate change must accommodate a multiplicity of approaches and recognize the sovereign nature of national energy policy decisions. At the same time, these efforts must establish a global context to guide the making of such decisions.

A quantifiable, long-term (50-year) goal for the management of global GHG emissions with clear interim targets must be established as soon as possible by governments in consultation with business, the scientific community and civil society. This will assist in reducing current levels of uncertainty and build business and consumer confidence to support technological development and deployment.

The goal should be used to establish short-, medium- and long-term global targets for absolute GHG reductions. This should guide the establishment of national GHG- and energy-based objectives or targets and the use of market-based instruments to introduce true cost pricing for both carbon and ecosystems impact. Creating value for GHG reductions, elimination or avoidance will protect our ecosystems and natural capital and send the required economic signals to the capital markets.

An international framework after 2012

An international framework that builds up from local, national, sector or regional programs will help close the clean energy investment gap that would otherwise exist after the first commitment period of the Kyoto Protocol expires in 2012. The new framework would feature a global goal and recognize that integrated energy and climate policies are set, in the first instance, at the national level. National or sector programs must be able to link to evolving international GHG markets to introduce flexibility into the attainment of national or sector objectives.

Broader participation of developed and developing countries needs to be achieved through flexible national or multi-sector approaches recognizing that growth elements are necessary for developing economies.

“Because climate change is a global problem, the response to it must be international. It must be based on a shared vision of long-term goals and agreement on frameworks that will accelerate action over the next decade, and it must build on mutually reinforcing approaches at national, regional and international level.”

Stern Review 2006

“It is urgently required to initiate a social paradigm shift to a ‘low carbon energy efficient’ society. Consumers should be encouraged to select low-GHG goods and services. Businesses should be encouraged to present innovative goods and services to the markets. Governments’ role is to create common values for GHG reductions across society to effectively motivate business and consumers.”

Teruaki Masumoto,
Vice Chair, Federation of Electric Power
Companies of Japan and Director,
Tokyo Electric Power Company



Key considerations

- Reducing GHG emissions requires an economy-wide approach. A truly sustainable energy strategy must give balanced emphasis to competitiveness, energy security and the environment.
- A clear, long-term vision for the future energy mix and environmental requirements will help inspire investor confidence in innovative technologies.
- Given that fossil fuels will remain a primary source of energy for several decades, the focus must be on dramatically improving energy efficiency within the global economy and managing emissions from the energy we use. This will require increased societal awareness and understanding of energy and carbon emissions issues leading to greater demands for energy efficiency along the energy value chain.
- Much can be done with existing technologies. However, current R&D expenditures are not sufficient to address the sheer scale of needed low- and zero-GHG technologies.
- All low- and non-emitting technologies such as hydropower, non-hydro

- renewables (wind, solar) nuclear and alternative fuels will have to play a role.
- Clean coal technologies, natural gas, hydrogen and carbon capture and storage (CCS) will provide further steps toward new energy systems.
- Effective scale-up and deployment of technologies across power generation, mobility, industry, buildings and goods and services must be encouraged.
- Without economic instruments that place a price on carbon, certain technologies will not penetrate the market within the timeframe needed.



Business engagement

Climate change is one of the most critical challenges facing our world. The WBCSD's mission is to provide business leadership as a catalyst for change toward sustainable development, and to support the business license to operate, innovate and grow in a world increasingly shaped by such challenges.

It follows naturally that the WBCSD is committed to helping governments act swiftly to develop and implement energy-related measures that are benchmarked against the threefold objectives of competitiveness, energy security and environment, and that we need to:

- Encourage technology development to introduce change into the energy system;
- Further develop approaches to foster the deployment of current best practice and existing technology;
- Support a more rapid deployment for new energy technologies than would otherwise be the case.

While we believe no one entity alone can address the environmental, economic and technological issues inherent in any solutions, WBCSD members intend to lead in finding pragmatic and sustainable solutions by:

- Pursuing energy and process efficiency across our operations;
- Benchmarking the GHG impacts of our products and services;
- Promoting awareness and understanding, among our stakeholders and customers, of energy issues and GHG emissions through our product and supply chains.

In order to maintain the leadership we enjoy today, we also undertake to continue our contributions to the global debate on policy preparation, the harmonization of market-based approaches, linkages and international framework design.

We commit to being open about business challenges and dilemmas in delivering a low-carbon economy. In doing so we require continued direct engagement from governments and policy-makers with us on:

- Understanding the scale, risks and nature of transitions associated with various stabilization pathways toward a low-carbon economy;
- The possible solutions and ways to implement government ambitions;
- The design of programs that will lead to the required reductions in GHGs, at the same time delivering the long-term certainty we need to invest and do business.

"Demand for energy will increase by 60% by 2030. As demand increases, so will GHG emissions. All stakeholders, whether they are customers, shareholders, NGOs or the communities in which we work, will expect us to meet this increase in a sustainable way. But business cannot do this alone; it needs government to establish the necessary policy frameworks to get the ball rolling and put the technology into place."

Eivind Reiten,
President and CEO, Norsk Hydro and
WBCSD Energy and Climate Focus Area Co-Chair

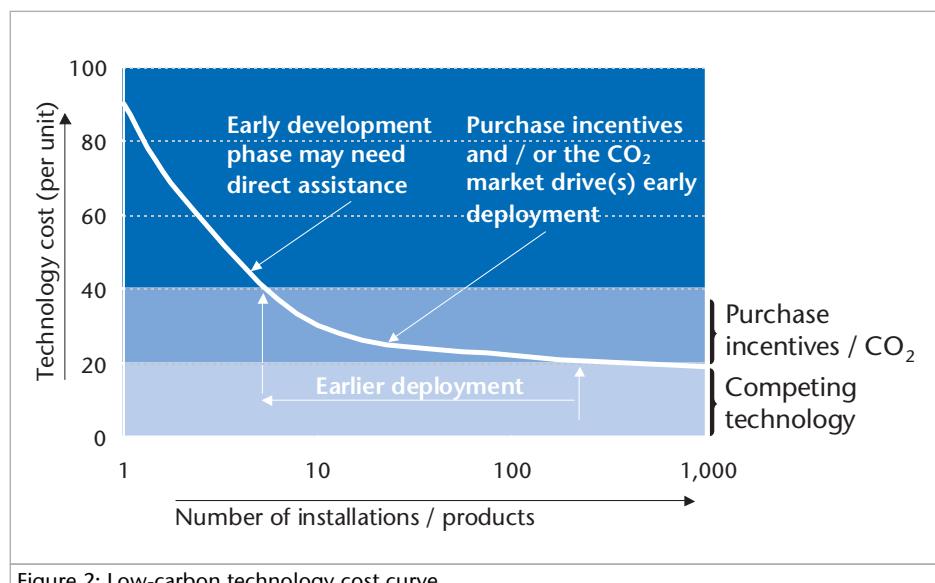
Low- and zero-GHG technologies must be developed, rapidly commercialized and deployed. Policies must be adapted to the types of technology targeted to address the technical, cost and acceptance challenges.

Technology development

- Dramatically increase investment in R&D through direct assistance and capital allowances to foster business commitment in the early stages of development cycles.
- Supplement baseline investments in innovative energy technologies with the incremental investment cost of achieving a lower GHG energy base.
- Use public private partnerships and multilateral financing mechanisms to foster R&D and large scale demonstration projects.

Technology deployment

- Encourage the development and deployment of infrastructure projects for leading-edge, low-carbon technology through incentives and programs to mitigate long-term investment risk.
- Accelerate the deployment of new technologies through education programs and consumer, government and private incentives for early purchases.
- Make best use of financial markets and access to capital to bring competitive low- and zero-GHG technologies to market.



Megatrends



Key megatrends	Objectives	Technology examples	Key policy options
Power generation 	<ul style="list-style-type: none"> Decarbonization GHG emissions management Energy efficiency Electricity as preferred final energy carrier Investment in transmission and distribution grids 	<ul style="list-style-type: none"> Renewables (wind, solar, hydro, ocean, geothermal) Nuclear (3rd and 4th generation) Clean coal technologies (including CCS) Natural gas applications 	<ul style="list-style-type: none"> Technology standards Sector-based initiatives Green electricity and feed-in tariffs Tax incentives Soft loan public finance Renewable certificates Emissions trading R&D financial assistance
Industry and manufacturing 	<ul style="list-style-type: none"> Enhanced energy efficiency Breakthrough technology development in capital-intensive sectors Rapid deployment of best available technologies Product life cycle assessment 	<ul style="list-style-type: none"> Co-generation and combined cycle systems Fuel switching applications Process emissions control Low-carbon feedstocks and materials use CCS Product innovation 	<ul style="list-style-type: none"> Sector-based initiatives Emissions trading Targets – absolute, performance standards, efficiency goals, etc. Project/program based mechanisms R&D financial assistance Tax incentives including accelerated depreciation
Mobility 	<ul style="list-style-type: none"> Vehicle efficiency Lower carbon fuels Consumer awareness concerning mobility choices 	<ul style="list-style-type: none"> High-efficiency drive trains (diesel / hybrid) Biofuels Advanced battery technology and fuel cells, electric vehicles Hydrogen (including infrastructure) Flex-fuel vehicles using non-carbon fuels 	<ul style="list-style-type: none"> Integrated approaches – government, business, consumers Performance standards Tax incentives and R&D assistance Consumer awareness programs, tax credits Procurement programs Alternative fuel and infrastructure support Integrated transport
Buildings 	<ul style="list-style-type: none"> Energy efficiency Design innovation Materials use Awareness raising Responsible urban planning 	<ul style="list-style-type: none"> Design innovation Energy efficient appliances Alternative energy systems (combined heat & power (CHP), heat pumps) Materials use 	<ul style="list-style-type: none"> Design standards and codes Awareness programs Planning approvals Product labeling Financial incentives Government procurement
Consumers 	<ul style="list-style-type: none"> Increased awareness of energy and GHG issues Marked shifts in consumer behavior 	<ul style="list-style-type: none"> Consumer demand for innovative, low-carbon products and services 	<ul style="list-style-type: none"> Robust energy efficiency programs Tax and incentive packages Recognizable price signals in product value chain Education and product labeling programs Green purchasing incentives Removal of subsidies promoting unsustainable consumption patterns

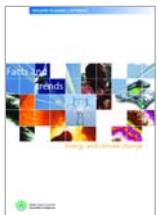
Disclaimer

This report is released in the name of the WBCSD. Like other WBCSD reports, it is the result of a collaborative effort by members of the secretariat and executives from several member companies. A wide range of members reviewed drafts, thereby ensuring that the document broadly represents the majority view of the WBCSD membership. It does not mean, however, that every member company agrees with every word.

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Energy and Climate Trilogy



Facts and Trends to 2050:

Presents key facts and trends related to energy and climate change and outlines corresponding dilemmas. Primarily designed for business, the issues are presented succinctly and illustrated by graphs and projections.

Pathways to 2050

Builds on *Facts and Trends to 2050* and provides a more detailed overview of potential pathways to reducing CO₂ emissions.

Policy Directions to 2050

Explores potential policy approaches and mechanisms that might be deployed to introduce the required changes in the energy system.

About the WBCSD

The World Business Council for Sustainable Development (WBCSD) brings together some 190 international companies in a shared commitment to sustainable development through economic growth, ecological balance and social progress. Our members are drawn from more than 30 countries and 20 major industrial sectors. We also benefit from a global network of about 60 national and regional business councils and partner organizations.

Our mission is to provide business leadership as a catalyst for change toward sustainable development, and to support the business license to operate, innovate and grow in a world increasingly shaped by sustainable development issues.

Our objectives include:

Business Leadership – to be a leading business advocate on sustainable development;

Policy Development – to help develop policies that create framework conditions for the business contribution to sustainable development;

The Business Case – to develop and promote the business case for sustainable development;

Best Practice – to demonstrate the business contribution to sustainable development and share best practices among members;

Global Outreach – to contribute to a sustainable future for developing nations and nations in transition.



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