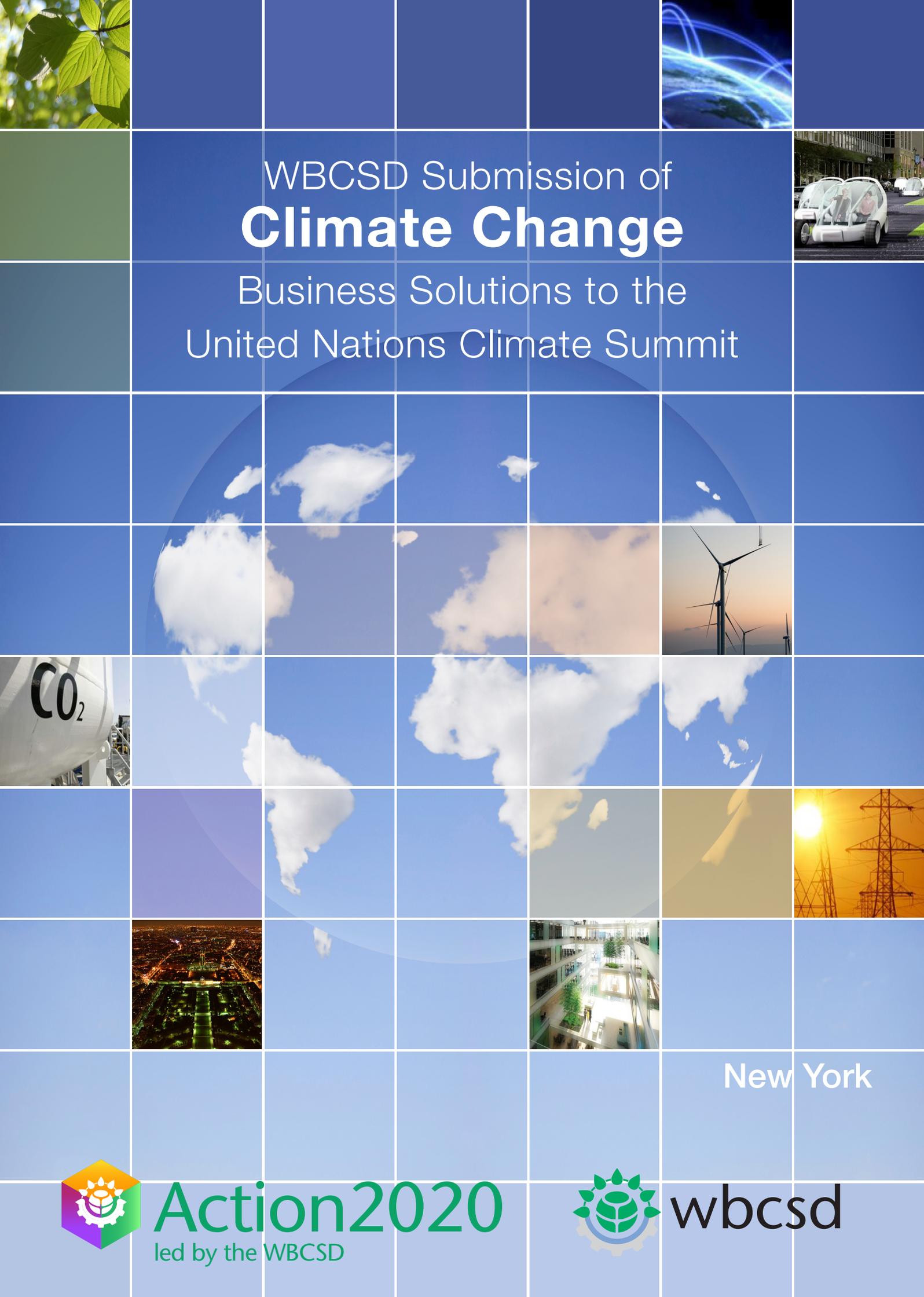


WBCSD Submission of  
**Climate Change**

Business Solutions to the  
United Nations Climate Summit



New York



**Action2020**  
led by the WBCSD



wbcasd

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# Action2020 Introduction

Led by the World Business Council for Sustainable Development (WBCSD), and based on science and the latest understanding of the social and environmental challenges we face, Action2020 is a platform for business action on sustainable development to 2020 and beyond.

## Vision 2050 to Action2020

Action2020 emerged from a study of long-term human, resource and environmental issues that the WBCSD ran with its member companies over several years. The result was Vision 2050, a wide-reaching report on priorities for business and sustainability. Vision 2050's long-term perspective frames the importance of these issues but Action2020 – with its focus on strategic solutions to meet targets over the next few years – is a timeline that resonates with business and political leaders alike.

## Action2020 - the scientific input around the natural capital Priority Areas

A critical aspect of Action2020 was an extensive consultation with scientists on their understanding of climate change, ecosystems, water and harmful substances – now referred to as Action2020 Priority Areas. This consultation, involving over 40 companies and 150 scientists, was led by the Stockholm Resilience Centre (SRC) and informed the thinking of the companies as they shaped the focus of Action2020 and, in particular, the targets set in each of the Priority Areas.

## Societal Must-Haves – Action2020 targets

Central to Action2020 is a set of societal targets - 'Societal Must-Haves'- related to climate change and other critical environmental and social areas. These are the targets we need to meet if our planet's systems are to return to a sustainable track over the next decades. Global in nature, the Societal Must-Haves can only be met by business, government and society working together. These cover the following nine Priority Areas:

## What is an Action2020 Business Solution?

A Business Solution is an operational, commercial or policy change designed so a company can contribute individually or in collaboration with other companies to an Action2020 target or targets, while improving its bottom line. Action2020 Business Solutions are **measurable, scalable, replicable** and commercially viable. Some Business Solutions require only the efforts of companies to implement; others will need to be enabled by policy and regulatory changes or partnerships.

## The role of measurement and reporting

Action2020 is designed as a platform for business to adopt and scale up solutions that contribute to reaching the targets set for 2020. The greater the number of companies and solutions, the greater the potential for impact. Measuring and reporting on progress at the collective and individual company level is an important feature of Action2020. A framework is in development that will, over time, build a picture of how companies are contributing to the Societal Must-Haves, and what remains to be done. This framework will be designed partly around company reporting and in part around a higher-level view of progress towards targets using the most recent scientific and economic information available in each Priority Area.

## What it means for the WBCSD

With approximately 200 members across all sectors and regions, the WBCSD has considerable reach and weight. Over the next few years, the WBCSD will focus its activities around Action2020's nine Priority Areas, working with and for its members to support their efforts to contribute to reaching the Societal Must-Haves: a critical measure for their success and for our sustainable future.



# Climate Change Priority Area and Must-Have

## Scaling up transformational action beyond business as usual

Central to Action2020, the Climate Change Priority Area has brought about extraordinary engagement from WBCSD member companies and has resulted in new Business Solutions that respond to the Action2020 Societal Must-Have for Climate Change, which states:

**With the goal of limiting global temperature rise to 2°C above pre-industrial levels, the world must, by 2020, have energy, industry, agriculture and forestry systems that, simultaneously:**

- **Meet societal development needs;**
- **Are undergoing the necessary structural transformation to ensure that cumulative net emissions<sup>1</sup> do not exceed one trillion tonnes of carbon. Peaking global emissions by 2020 keeps this goal in a feasible range;**
- **Are becoming resilient to expected changes in climate.**

WBCSD members, all global companies who lead and shape their sectors, are already collaborating on a set of Business Solutions that are impactful and will contribute to Action2020's Societal Must-Have for Climate Change.

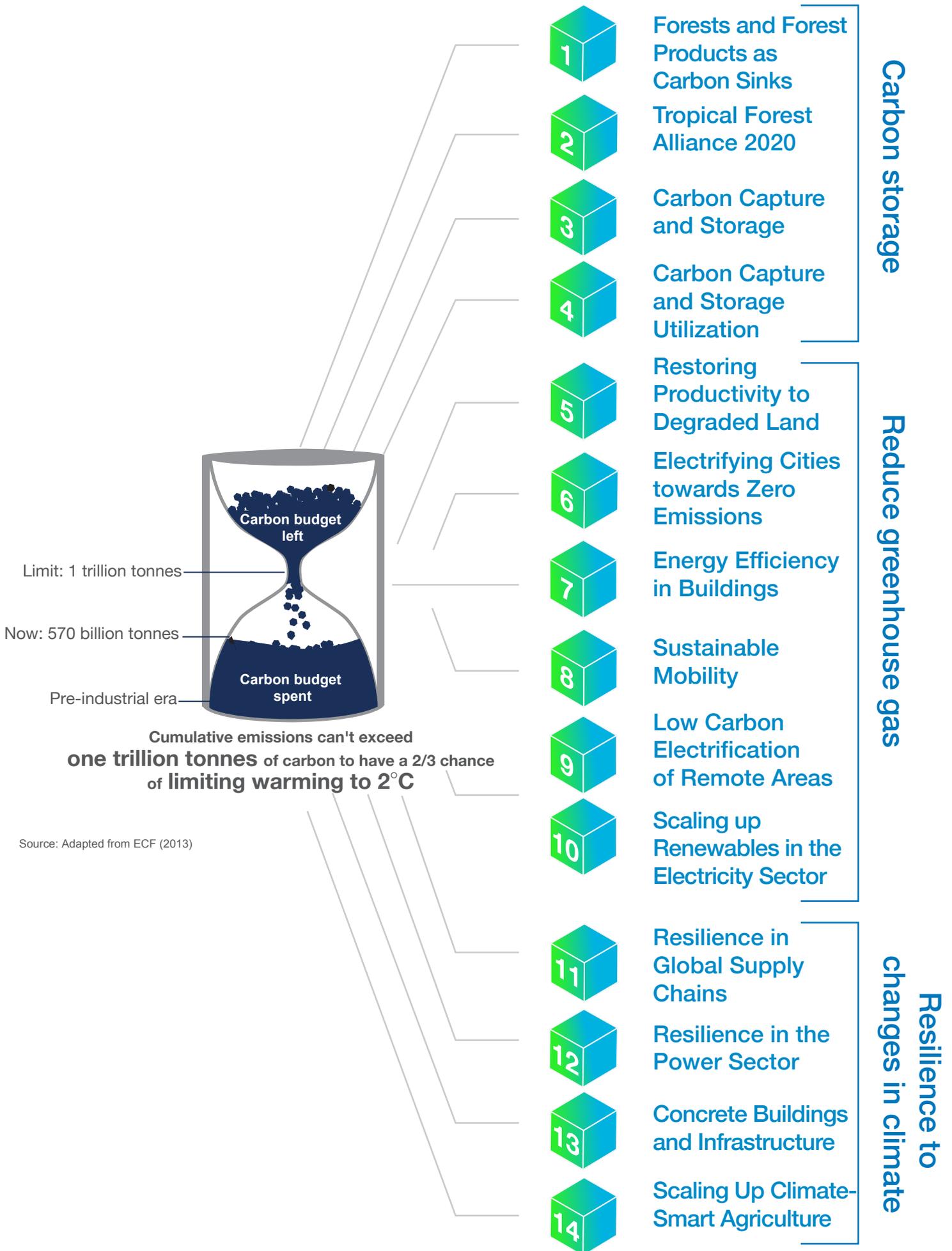
Contained herein are 14 Business Solutions that address climate change.

The targets of these solutions are measurable, scalable, replicable, and beyond business-as-usual.

As the success of some solutions will depend not only on business but also on enabling factors, such as policies, technology and finance, the WBCSD will work to develop partnerships and promote dialogue with related stakeholders.

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<sup>1</sup> Anthropogenic CO<sub>2</sub> emissions from preindustrial levels as outlined in the IPCC Working Group Fifth Assessment Report. One trillion tonnes carbon = 3.67 trillion tonnes CO<sub>2</sub>.





# Forests & Forest Products as Carbon Sinks

## Leveraging forests & forest products as nature's carbon mitigation and adaptation solution

Forests & forest products play a significant role in the global carbon cycle. Global forest carbon stocks are estimated to be 861 billion tonnes. In addition, harvested wood products store carbon at a rate of 189 million tonnes per year and growing. That's equivalent to removing 693 million tonnes of CO<sub>2</sub> from the atmosphere annually. Sustainable forest management and the responsible use of forest products present a very effective and cost-competitive way to harness this natural carbon sink. Sustainably managed forests contribute to the reduction of emissions, absorb and store carbon, reduce forest damage and help stop deforestation. Above all, it is an essential contribution to improving livelihoods and human well-being, conserving biodiversity and ecosystem services.

## Deliverables

Forests are key to global sustainability. Wood is a renewable raw material used and needed for myriad purposes and everyday products. Demand for wood is expected to triple by 2050 which must be met in a responsible way.

This solution aims to bring more of the world's forests under sustainable management and to expand markets for sustainably produced and sourced forest products - delivering carbon and more benefits. It includes concerted efforts to help stop deforestation and to expand forested area for timber production, landscape and ecosystem restoration.

To succeed, the WBCSD Forest Solutions Group will lead business to:

- Illustrate the role of forests & forest products in sustaining a low-carbon and bio-based economy – meeting societal needs and respecting environmental limits;

- Actively contribute to constructive multi-stakeholder dialogue to build relations and drive collaborative action on the highest priority issues facing the world's forests;
- Ensure that the supply of responsibly produced and independently-verified sustainable wood and other forest products continues to increase to meet growing demand;
- Demonstrate outstanding performance in sustainable forest management and share best practices along the forest products value chain;
- Scale up sustainable sourcing and procurement practices to increase supply chain transparency, improve resource efficiency and boost consumer confidence in sustainable forest product offerings.

## Leadership Group

- WBCSD's Forest Solutions Group, including 23 international companies, presents a global platform for strategic collaboration for the forest-based industry and its value chain partners.
- Business Solution led by Svenska Cellulosa Aktiebolaget (SCA)

## Supporting Partners

The Forests Dialogue (TFD), National Council for Air Stream Improvement (NCASI), World Resources Institute (WRI)

## Potential Partners

Center for International Forest Research (CIFOR), Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), International Council of Forest & Paper Associations (ICFPA); International Union for Conservation of Nature (IUCN), UN-REDD, World Bank, World Wildlife Fund International (WWF), among others.



# Tropical Forest Alliance 2020

## A public-private partnership to reduce tropical deforestation and enhance economic growth and food security

The Tropical Forest Alliance 2020 (TFA 2020) is a public-private partnership that seeks voluntary actions towards the goal of reducing the tropical deforestation associated with key global commodities, such as soy, beef, palm oil, and pulp and paper. The Alliance does so by tackling the drivers of tropical deforestation using a range of market, policy and communications approaches.

The Alliance was born out of discussions between the US government and the Consumer Goods Forum before, and during, the Rio+20 Conference. Partners that have joined since the founding of TFA 2020 include the Governments of the United Kingdom, Norway and the Netherlands; and a wide range of civil society organisations and NGOs.

## Deliverables

TFA 2020 will coordinate and mobilize actions by governments, the private sector and civil society to reduce the tropical deforestation associated with key commodity supply chains. Partner countries, companies and civil society organizations will work together to:

- Improve planning and management related to tropical forest conservation, agricultural land use and land tenure.
- Share best practices for tropical forest and ecosystem conservation and commodity production, including working with smallholder farmers and other producers on sustainable agricultural intensification and promoting the use of degraded lands and reforestation.

- Provide expertise and knowledge that would assist with the development of commodity and processed commodity markets that promote the conservation of tropical forests.

- Improve monitoring of tropical deforestation and forest degradation to measure progress.

## Leadership Group<sup>1</sup>

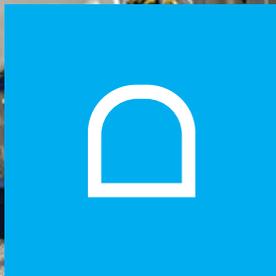
Consumer Goods Forum (CGF)  
Government of the United States of America

Members: Unilever and an additional 8-10 WBCSD companies will be involved in this initiative.

## Partners

Members will include governments, the private sector (including consumer goods companies and commodity producers and traders) and civil society. TFA 2020 welcomes participation of additional members who are ready to endorse the goals of the Alliance and agree to undertake specific actions to address commodity-driven tropical deforestation.

<sup>1</sup> This initiative is managed by the TPA Secretariat with staff from the Consumer Goods Forum and the US government



# Carbon Capture and Storage (CCS)

## A Two Degree solution: Making the Case for CCS Deliverables

The extensive deployment of CCS technology is a critical solution to limiting global temperature rise to 2°C above pre-industrial levels.

In a 2°C scenario, CCS can contribute one-sixth of all CO<sub>2</sub> emission reductions necessary in 2050 (IEA, 2012). CCS projects will capture nearly half of this CO<sub>2</sub> from industrial sources, with the remainder in electricity generation. With rapid growth in energy demand in non-OECD countries, the majority of CCS projects will need to be implemented there. To put the world on a path to realizing this mitigation potential, we need to be storing 50 MtCO<sub>2</sub> per year by 2020.

Other energy focused mitigation approaches seek to supplement the global energy system with clean energy or make energy use more efficient, but do not address emissions from the existing fossil fuel base. This fossil fuel base is still forecast to meet core global energy demand for much of this century. This makes CCS an essential and unique part of reducing global emissions.

However, CCS is poorly recognized by policymakers as a solution to climate change and is making slow political progress. CCS is a pure CO<sub>2</sub> mitigation technology in that the only reason for doing it is to reduce emissions. As such, it relies entirely on a policy construct to trigger the necessary investment. This typically takes the form of a sufficiently high carbon price, a mandate or a standard of some type.

Over time, governments are expected to implement policies that require CCS, which then argues for a robust technology, policy, legal and infrastructure pathway to be implemented now. That preparatory step to widespread deployment will require both public funding and initial policy development to attract large-scale project developers.

By 2020, this Business Solution aims to deliver improved understanding of the role of CCS, real change in the recognition of CCS in national and international policy and ideally, a Final Investment Decision (FID) on at least one major for-profit project. The Business Solution is global but with a focus on carbon intense, emerging economies, i.e., South Africa, Poland, the Middle East and India.

Key enablers to achieve these goals are:

- Widespread understanding of the case for CCS and why it is essential;
- Form partnerships that build synergies with CCS-focused organizations;
- Identify key political processes and regulations where CCS must be supported;
- Major funding mechanisms, such as GCF should focus on CCS and build key metrics around financing it;
- Engage with national and international policymakers to kick-start the industry through a programme of large-scale demonstration projects.

## Leadership Group

WBCSD Energy & Climate, Rasmus Valanko

Company Co-leads:

- Royal Dutch Shell Plc.
- Chevron

Interested member companies: ArcelorMittal, DNV, EDF, Eni, ERM, HeidelbergCement, Siemens, Statoil, Toshiba Corporation, Total, Vale and Veolia.

## Potential Partners

- Global Carbon Capture and Storage Institute (GCCSI)
- Carbon Sequestration Leadership Forum (CSLF)
- Carbon Capture and Storage Association (CCSA)
- European Technology Platform for Zero Emission Fossil Fuel Power Plants (ZEP) (CCSA)



# Carbon Capture and Storage (CCS) Utilization

## Developing an implementation project at scale to capture and use CO<sub>2</sub> emissions from cement manufacture

Beyond all possibilities to improve energy efficiency and minimize energy intensive processes, there is a need to remove some emitted CO<sub>2</sub> from the atmosphere to achieve the Societal Must-Have of limiting global temperature rise to 2 degrees above pre-industrial levels.

The cement sector, under the leadership of the WBCSD's Cement Sustainability Initiative (CSI), has developed a technology roadmap that identified CCS as one of the four levers to reduce CO<sub>2</sub> emissions. It is now time to implement existing solutions and identify opportunities for scale.

A multi-year, industry-led research project on the capture of CO<sub>2</sub> in the cement manufacturing process is currently ongoing under the leadership of the European Cement Research Academy (ECRA). Beyond capture technologies, it is important for the cement sector to develop a full-scale project to test these technologies and keep the most promising for scaling up, as well as to engage in a collaborative investigation with potential users to look at technologically and economically feasible solutions (e.g., production of algae or "renewable methanol" and methane, examples of storable renewable energy forms).

## Deliverables

CSI proposes to develop a pilot project of CCS in countries where storage can be envisaged (e.g., the US and/or China) to be fully operational before 2020. In addition, CSI proposes to develop a pilot project on algae or micro-algae to absorb the captured CO<sub>2</sub>.

## Leadership Group

WBCSD Cement Sustainability Initiative, led by Philippe Fonta (CSI), is an international platform gathering 24 leading cement manufacturers with operations in more than 100 countries and specific regional initiatives in China and India.

European Cement Research Academy

## Supporting Partners

International Finance Corporation (IFC)  
Cement Trade Associations - in US/China.

## Potential Partners

Global CCS Institute – (Board Member Claude Mandil is Chair of the CSI Assurance Group)  
Chemical industry associations  
Biofuels associations



# Restoring Productivity to Degraded Land

## Restoring degraded land for climate mitigation and food security

Land degradation is defined by the United Nations as a reduction or loss of the biologic or economic productivity and complexity of land. An estimated 24% of globally usable land is degraded, at an estimated economic loss of USD 40 billion per year. Land degradation aggravates climate change through the release of CO<sub>2</sub> from cleared and dead vegetation and through the reduction of the carbon sequestration potential of this land.<sup>1</sup> Additionally, land degradation puts additional pressure on forests and other natural ecosystems for them to be converted to agriculture, leading to additional GHG emissions. 43% of Africa's total CO<sub>2</sub> emissions come from land-clearing for agricultural use, including croplands and shifting cultivation.<sup>2</sup> At the same time, land degradation leads to food insecurity, increased pests, biodiversity loss, reduced availability of clean water as well as increased vulnerability of affected areas and their populations to climate change. Today, pressure on land has reached such a critical point that serious doubts have been raised about the capacity of land to meet the demands of increasing human population<sup>3</sup>.

However, there are an estimated 2 billion hectares of degraded and deforested land worldwide that could be transformed into resilient, multifunctional assets for rural communities<sup>4</sup>. According to the IUCN, this could sequester an additional 1 GtCO<sub>2</sub>e per year, reducing the current emissions gap by 11-17%. It could also help reduce pressure on forests and natural ecosystems for conversion to agricultural lands. This would help safeguard biodiversity and contribute to local and national economies. IUCN estimates that the annual net benefit to national and local economies of restoring 150 million hectares (which is the Bonn Challenge's 2020 objective) is approximately US\$ 85 billion/year.

What can be done?

1. Degraded land can be restored to a natural state, reintroducing and enhancing local ecosystem services and biodiversity. Large-scale land restoration can lead to increased carbon sequestration, for example in soils and forests, and can bring a wide range of benefits to business and society as a whole.
2. Companies should also prevent further land degradation, by implementing or making sure their suppliers or clients implement sustainable land management practices that reduce GHG emissions (e.g. reduced tillage, extended use of cover crops, revegetation)

Some of the degraded lands also have the potential to be utilized for cultivated crops (e.g. sugar cane, soy, palm oil, pulp and paper), to secure access to raw materials while breaking the cycle of natural ecosystem conversion for agriculture, thus limiting additional GHG emissions.

## Deliverables

This solution aims to mobilize the business community on land restoration so as to contribute to the achievement of the UN Convention to Combat Desertification's (UNCCD) target of "zero net land degradation by 2030". It also aims to contribute to the Bonn Challenge established at a ministerial roundtable in September 2011, and which calls for restoration of 150 million hectares of deforested and degraded lands by 2020.

To achieve this objective, WBCSD member companies will:

- Strengthen and communicate the business case for action;
- Clarify the climate and other costs of land degradation as well as the benefits of restoring land and implementing sustainable land management practices;
- Contribute actively to the UNCCD target by engaging in multi-stakeholder land restoration efforts.

In particular, the WBCSD is working closely with the Economics of Land Degradation (ELD) initiative and the UNCCD to develop a business toolkit for action, and capacity building programs for decision-makers.

## Leadership Group

WBCSD Ecosystem & Landscape Management,  
Violaine Berger

Company Co-chair:

- Syngenta Business Solution Members:
- Arcadis, Bayer CropScience, DuPont, Holcim, Mondi, Monsanto, Nestlé, PepsiCo, Pöyry, Syngenta, Shell in this initiative.

## Partners

- Economics of Land Degradation (ELD) Initiative
- United Nations Convention to Combat Desertification (UNCCD)
- UN Global Compact (UNGC)

## Potential Partners

Ecosystem Return Foundation (ERF)

- International Union for Conservation of Nature (IUCN)
- World Resources Institute (WRI)

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<sup>1</sup> WMO (2005). *Climate and Land Degradation*

<sup>2</sup> TerrAfrica (2009). *Sustainable Land Management in Africa*

<sup>3</sup> ELD Initiative (2013a). The rewards of investing in sustainable land management. Interim Report for the Economics of Land Degradation Initiative: A global strategy for sustainable land management. Available from: [www.eld-initiative.org](http://www.eld-initiative.org)

<sup>4</sup> The Global Partnership on Forest Landscape Restoration (GPFLR). The Bonn Challenge and Landscape Restoration.



# Electrifying Cities towards Zero Emissions

## Scaling emergent smart technology solutions to dramatically decrease the city footprint

The success of limiting climate change caused by greenhouse gas (GHG) emissions will depend on the commitment of cities because by 2030, 5 billion people (70% of the global population) will live in cities, causing 75% of total energy demand and 75% of global GHG emissions.

By 2030, total electricity generation will increase by 60%, driven by population growth. Today, 80% of the total energy supplied is based on fossil energy sources causing the equivalent of 36-39 gigatonnes of CO<sub>2</sub> emissions in a business-as-usual scenario by 2030.

Potential GHG emissions from cities can be reduced by electrifying the consuming sectors in the city and implementing high efficiency measures for mobility, buildings and industries. Energy supply and demand can be optimized and harmonized through ICT solutions and electricity supply transformed to zero-carbon with maximum efficiency for energy transmission and distribution.

Now is the time to act as the costs of key technologies have become commoditized and widespread (e.g., solar PV, electric vehicle charging infrastructure, smart phones, wireless networks). The emergence of “smart” devices and systems allows real-time automated decision-making, which increases efficiency. We are also seeing the early market growing for new and proven technologies (e.g., electric vehicles, virtual power plants), allowing companies large-scale demonstration opportunities. Finally, the private sector’s interest is high, as evidenced by efforts on standardization and the start of consolidation in sectors through the investments of global companies.

## Deliverables

The goal of this business solution is to have developed zero carbon roadmaps for up to 20 cities by 2020, with commitments from those cities to implement their roadmaps. These cities will commit to achieve zero carbon status on an ambitious timeline with significant GHG emissions reductions already achieved by 2020.

Building on the success of the WBCSD’s Urban Infrastructure Initiative, the ECZE business solution will offer cities a unique opportunity to work with a multi-sector group of leading private sector solution providers to chart an implementable, cost-effective roadmap for transforming their energy systems towards zero emissions.

## Leadership Group

WBCSD Energy & Climate, Matthew Lynch

Company Co-leads:

- Siemens AG
- DNV GL
- Toshiba Corporation

Around 10-15 WBCSD companies will be involved in this initiative.

## Potential Partners

- C40- Climate Leadership Group
- ICLEI- Local Governments for Sustainability



# Energy Efficiency in Buildings

## Scaling up energy savings in buildings

The WBCSD's Energy Efficiency in Buildings Project (EEB 2.0) builds on the WBCSD's study "Transforming the Market," which identified the sector's complexity and the barriers and enablers to greater energy efficiency, shaping the identification of solutions. Buildings represent 35% of end-use energy consumption globally.

The project's premise is that the main barrier to energy efficiency in buildings is the inability to establish the value, in the form of financial and other benefits, of efficient buildings due to the decision-making relationships and split incentives between the developers, owners, investors, building professionals and occupiers.

This results in complex transactions and stakeholder processes that often result in insufficient action. Thus, it is expected that decision-makers who control large portfolios of buildings will need an organization that can act as a convener and expert voice and can bring together the principal stakeholders to drive a successful transformational outcome.

## Deliverables

WBCSD has developed a structured stakeholder engagement process to diagnose and tackle key barriers to energy efficiency in local building markets as well as through corporate and sector initiatives. Project members and partners serve as facilitators of decisions and a technical resource to this process.

By the end of 2015, the project will pioneer six to eight market engagements to identify the real market value propositions of energy efficiency in buildings per stakeholder type and to develop and showcase "lighthouse" solutions that can then be scaled in other markets. These engagements will take place in

major energy consuming countries, both developed and emerging markets.

The primary target of the project is to work with key decision-makers who are responsible for, or have influence over, substantial building portfolios in the public and private sectors and hence offer direct scale for the implementation of solutions.

They can be large corporates (occupiers, developers, investors) who implement and showcase best practice, or actors who make decisions or influence decisions by others at building portfolio level. The project will seek commitments from 1000 decision-makers to undertake ambitious actions to cut the energy use of their buildings.

The project outcomes will be disseminated widely in order to inspire and initiate wider adoption and scale of best practice across partner networks.

## Leadership Group

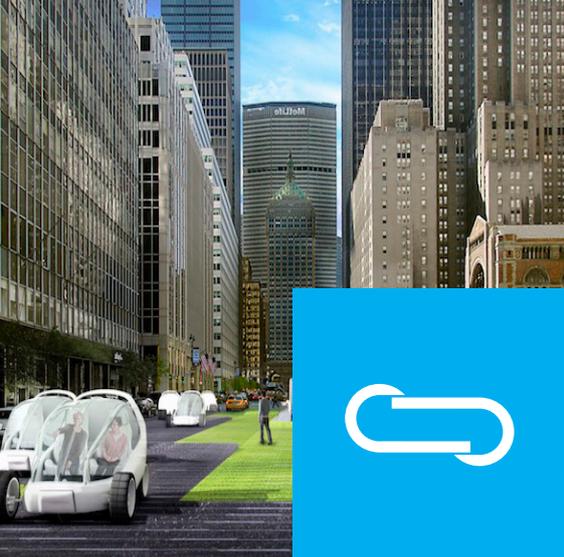
WBCSD EEB, Roland Hunziker  
Members: Lafarge (co-chair), UTC (co-chair), Akzo Nobel, ArcelorMittal, GDF Suez, Infosys, Schneider Electric, SGS, Siemens, Skanska.

## Supporting Partners

International Energy Agency (IEA), Urban Land Institute (ULI), World Green Building Council (WGBC), WBCSD Regional Network partners, Global Building Performance Network (GBPN)

## Potential Partners

Sustainable Energy for All partnership  
C40 Cities, ICLEI, UNEP FI, UNEP SBCI  
UN Special Envoy on Cities and Climate Change



# Sustainable Mobility

## Tackling the approximately 20% of GHG emissions that come from transport

The Sustainable Mobility Project (SMP) is initially a three-year program bringing together a uniquely global and cross-sectoral group of mobility-related companies and other stakeholders to accelerate progress towards delivering universal access to safe and low-impact mobility for both goods and people.

Improving mobility will extend access to the basic rights of employment, health and education for the population at large. Doing this in a sustainable manner will result in a reduction in GHG emissions from transport through a variety of different solutions.

### Deliverables

This three-year project (2013-2015) will build the foundation to scale up the implementation of sustainable mobility solutions. The ultimate goal is to accelerate and extend access to safe, reliable and comfortable mobility for all whilst aiming for affordability, zero traffic accidents, low environmental impacts, and reduced demands on energy and time. The movement of people and goods would be facilitated, contributing to a more prosperous and resilient society by changing the mobility paradigm and creating new value and businesses, with a positive impact on people's lives, on the environment and on the economic growth cycle.

The project has developed a process to address mobility in a holistic manner drawing on solutions from across the sector. The result will be a truly multi-modal society providing access to jobs, education and healthcare for all. SMP has built a set of indicators that show the health of the city mobility system. Coupled with the toolbox of best practice mobility solutions and future technological solutions

it is possible to build a solution set that improves mobility in a given city whilst having a positive effect on GHG emissions.

By working with member companies and with a group of demonstrator cities, this project will aid these cities to move towards achieving sustainable mobility for all. The cities involved will develop a roadmap that will include an action plan to improve city performance in sustainable mobility.

The Sustainable Mobility Project will demonstrate that concrete solutions can be enacted that will make a difference to the sustainable mobility of a city and inspire others to follow and implement the solution on a more global scale.

### Leadership Group

WBCSD SMP, Michael Fahy

- Project members: BMW, BP, Bridgestone, Brisa, Daimler, Deutsche Bahn, Ford, Fujitsu, Honda, Michelin, Nissan, Pirelli, Shell, Toyota and Volkswagen

### Supporting Partners

WRI/EMBARQ, SLoCaT and WBCSD Regional Network partners

### Potential Partners

- Multilateral Development Banks (MDB's)
- Chair of Working Group on Sustainable Transport



# Low-Carbon Electrification of Remote Areas

## Creating “solution packages” to electrify remote areas

More than 1.2 billion people, 20% of the world's population, are still without access to electricity. Almost all of these people live in developing countries. The majority of existing remote electricity supply is based on diesel. With Africa's population expected to double and world population to exceed 9 billion by 2050, continuing business-as-usual for remote electrification will cause an explosion in greenhouse gas emissions (GHG).

Much of the required technology for remote, low-carbon electrification exists, but there are significant barriers to implementation of these solutions and allowing innovative business models to become business as usual.

This Business Solution recognises the many successful approaches focusing on smaller scale applications (also known as the first kilowatt) and will therefor predominantly focus on the larger end of the spectrum of solutions, namely minigrids.

## Deliverables

Demonstrate technologies and innovative business models to make the case for policy recommendations which will allow business solutions to become business-as-usual and, thus, achieve the scale necessary. This business solution will offer governments, businesses, financing institutions and communities the tools to identify the solution sets which are

relevant for them and key elements which will ensure success of remote electrification projects in the numbers and scale necessary for real impact. The WBCSD will create the tools to support decision-making in this field.

In phase 1, the focus of this business solution is to demonstrate and share knowledge of the conditions needed for successful remote electrification projects. This will be delivered in the form of a report containing case studies.

After phase 1, the business solution will begin implementation of an expanded tool for decision-makers, practitioners and finance providers to enable more and better projects to be implemented through active and open sharing of knowledge and best practice.

## Leadership Group

WBCSD Energy & Climate, Rasmus Valanko

Company Co-leads:

- ABB
  - Eskom
  - Accenture Development Partnerships (ADP)
- Interested companies: Aditya Birla Group, Eni, GDF, Komatsu, Philips, Schneider Electric, Siemens, Suez, Toshiba, Total

## Potential Partners

- Alliance for Rural Electrification (ARE)
- Sustainable Energy for All (SE4All)



# Scaling Up Renewables in the Electricity Sector

## Accelerating renewable energy to reach at least 30% of the electricity mix by 2030

CO<sub>2</sub> emissions from primary energy demand in 2010 were 30.2Gt, which account for 60% of the world's greenhouse gas emissions. The electricity sector emitted 12.5 GtCO<sub>2</sub> in 2010, which was 41% of total energy emissions. In 2009, fossil fuels generated 67% of global electricity.

If we want to limit global warming to 2°C, the world should stabilize electricity emissions and then reduce them. This translates into a slight decrease by 2020 (-7% compared to 2011) and a strong decrease by 2030 (-61%). In the business as usual scenario, we would remain far from both the 2020 (+2.9 GtCO<sub>2</sub> excess) and the 2030 target (+14.1Gt excess).

Some renewable technologies have reached a sufficient technological maturity to contribute to mitigating GHG emissions immediately. However, the deployment of some technologies can be speeded up by: strong national commitments with clear goals to ensure long term legal certainty for investments, through a carbon price that incorporates environmental externalities, and with predictable support systems when needed.

The Business Case for scaling up renewables in the electricity sector is very clear:

- Renewables can be deployed in the short term: They are a proven and available technology.
- Renewables can be integrated in the electricity grid: There are clear examples of markets with a high percentage of renewables.
- Renewable energy is cost competitive: Renewables enhance social and economic development, for example by helping local economies through the creation of employment.

## Deliverables

This Business Solution will focus on renewable energy production for grid-scale power generation (e.g. wind, solar PV, hydro, concentrated solar power) in a global context.

Participating WBCSD members will:

- Develop a communication toolkit with the 10 key enablers to scale up renewable energies, supported by in depth analysis.
- Develop a publication that collects best practice and provides recommendations on how WBCSD companies can scale up the integration of renewables in their own operations or and implement green power purchasing.

## Leadership Group

WBCSD Climate & Energy, Maria Mendiluce

Co-leads: Acciona, Statkraft

Interested members: Aditya Birla Group, AGC Group, Apple, Chevron, DNV GL, EDF, Eni, Eskom, GDF Suez, Glaverbel, Honda, Pricewaterhouse Coopers, RWE, SABIC, Schneider Electric, Somo Japan Insurance, Statoil, Toshiba, Unilever, UPS, 3M

## Supporting Partners

International Renewable Energy Agency (IRENA)  
The Energy and Resources Institute (TERI)

## Potential Partners

International Energy Agency (IEA)

# Resilience in Global Supply Chains

## Building resilience to climate change across supply chains

Climate change poses complex adaptation challenges for business not only because of uncertainty associated with the timing and magnitude of projected changes, but also due to the interconnectedness between risks and impacts in today's globalized economy. Long-term climate changes will be systemic, influencing many parts of environmental, business and societal systems with a wide web of connected impacts that could bring risks (and potentially opportunities) of different scale. When risk interconnections are "unpacked," it becomes evident that there is more at stake than just what is obvious.

For example, the 2011 floods in Thailand caused a number of computer hard disk (HD) drive manufacturers to shut down. The domino effect of this incident resulted in a global shortage of HD drives, directly affecting some of the IT sector's biggest companies. The computer manufacturer Hewlett Packard lost approximately US\$ 2 billion; NEC cut 10,000 jobs worldwide amid fears for its platform business; and consumers spent \$5 to \$10 more for each hard drive and ultimately for each computer they purchased.

Modern business is globalized, interconnected and interdependent, both vertically (throughout the value chain) and horizontally (across companies within same sector). This can further influence and complicate profiling business risk for a company.

## Deliverables

Drawing on practical experience from forward-thinking WBCSD member companies, as well as published literature, this Business Solution aims to help companies understand climate risk and build

resilience. By focusing initially on a small number of supply chains as case studies, it will be possible to consider linkages and interdependencies among companies, sectors and countries. This will provide the foundation for a holistic and cross-sectoral approach to building resilience in the global business community.

This topic needs to be addressed urgently due to several gaps, including:

- A lack of common understanding of potential risks. The current state of awareness, understanding and management of these risks within business is at an early stage.
- Data availability. Scenarios require regional climate modelling data as adaptation requirements are likely to be locally specific. Companies need to become more familiar in using the data sets that are available.
- Tools to effectively assess and manage risk. Currently there is no effective assessment tool or standards that can be applied across sectors and/or supply chains.

## Leadership Group

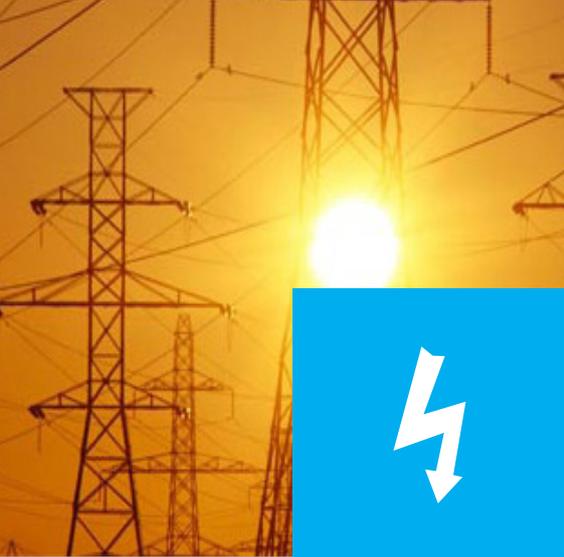
WBCSD Energy & Climate lead; María Mendiluce Company Co-leads:

- ERM
- DNV
- EDF

More than 30 WBCSD companies will be involved in this initiative.

## Potential Partners

- World Meteorological Organisation (WMO)



# Building Resilience in the Power Sector

## Strengthening the resilience of electric utilities and the communities where they operate

Climate change is creating substantial and varied risks for the electricity industry and for the customers who depend on the energy that utility companies provide. Electric utilities will continue to pursue mitigation actions but also need to consider adaptation measures in anticipation of more frequent extreme events as well as long-term changes.

Climate change will have significant impacts on generation, transmission and distribution, as well as upstream and downstream links in the value chain. The risks stem from the long-term rise in temperature and sea level as well as the increased incidence and severity of extreme weather that climate change will bring in some regions.

The impacts will vary by asset class, although all generating technologies will be affected. The most significant threats are from rising sea levels, floods, storms and water shortages. Rising temperatures will reduce the efficiency of thermal generation and heat waves will significantly increase peak demand.

### Deliverables

The ultimate goal is to build resilience in power sector companies, which will strengthen the resilience of the sector and regions in which they operate.

To achieve this goal, the activities for 2014 will

include establishing an understanding of the potential impacts of climate change, the potential vulnerabilities of the power sector by asset class and the potential solutions to mitigate climate risks and impacts both in the operation of electricity assets and in the communities served by utilities.

The report *“Building a Resilient Power Sector”* was launched this year. It describes these issues and how utilities are responding today to climate changes and are also preparing the sector for the future. Further analysis with the IEA and WMO has begun to deepen our understanding of certain hotspots such as the linkage between climate change, energy and water. The electric utilities project and the water program in WBCSD will continue working on this topic to raise awareness on resilience, share best practices and develop tools for electric utilities to build resilience in their operations.

### Leadership Group

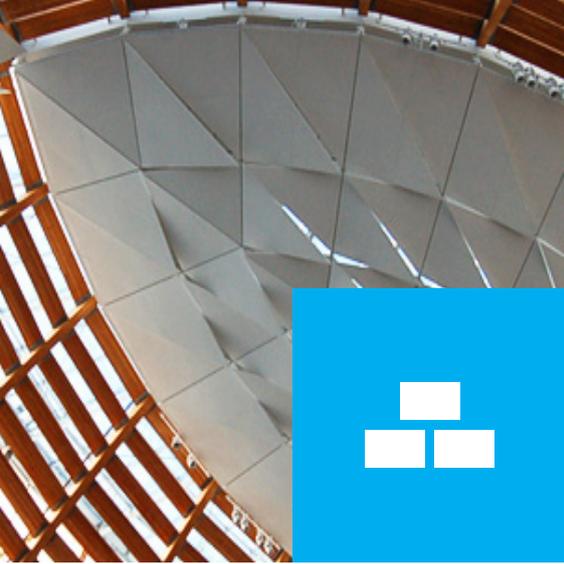
WBCSD Utilities, Maria Mendiluce  
Company co-leads: EDF, Eskom, Statkraft  
Project members: ABB, CLP, Entergy, Hitachi

### Supporting Partners

International Energy Agency  
World Meteorological Organization (WMO)  
Global Electricity Initiative

### Potential Partners

To be determined



# Resilience in Concrete Buildings and Infrastructure

## Building resilience to climate change in the built environment

Concrete is the world's most used material after water. As an abundant, economical and versatile material, concrete shapes the built environment, from schools, hospitals and housing to roads, bridges, tunnels, runways, dams and sewerage systems.

Concrete can play a major role in making housing and infrastructure more resilient to maintain the continuity of life and operations in case of very extreme events, in particular in developing countries that are most exposed to climate change.

Resilient infrastructure will increasingly be needed to mitigate impacts from events, such as extreme winds, temperatures, and prolonged dry periods as well as concentrated heavy rains.

## Deliverables

The WBCSD's Cement Sustainability Initiative (CSI) proposes to undertake an evaluation study of the resilience of concrete-based infrastructure and built environment in case of very severe climatic events. This would be done in particular in low-altitude, flood- and hurricane-prone countries.

## Leadership Group

WBCSD Cement Sustainability Initiative (CSI), led by Philippe Fonta, is an international platform gathering 24 leading cement manufacturers, with operations in more than 100 countries and specific regional initiatives in China and India.

## Supporting Partners

Universities, including; MIT, Loughborough University and Harvard  
Concrete sector associations  
Construction companies and experts

## Potential Partners

The United Nations Office for Disaster Risk Reduction (UNISDR)



# Scaling Up Climate-Smart Agriculture

## Addressing food security and climate change in an integrated way

Climate-smart agriculture (CSA) is a relatively recent approach that combines the three dimensions of sustainable development (economic, social and environmental), with a specific focus on climate change. It was first defined and presented by FAO at The Hague Conference on Agriculture, Food Security and Climate Change in 2010, and has since then been getting more international attention, with the launch of a Global Alliance for Climate-Smart Agriculture in September 2014.

Climate-Smart Agriculture aims to address both food security and climate challenges in an integrated way. It is composed of three main pillars:

1. Sustainably increasing agricultural productivity and incomes;
2. Adapting and building resilience to climate change;
3. Reducing and/or removing greenhouse gas emissions, where possible. It is based on practices, policies and institutions that are very often already established. However, the novel element is to bring them together in a harmonized and synchronized way, in order to better address the variety of challenges faced by agricultural systems.

## Deliverables

Climate-Smart Agriculture makes business sense, since it aims to increase productivity and ensure resilience of agricultural systems while also mitigating GHG emissions. WBCSD member companies are currently in the process of defining the type of actions that could bring CSA to scale. Options being considered include: strengthening the business case for action on CSA, identifying a set of CSA indicators to measure progress, working on policy advocacy at a national level, as well as catalyzing collaborative action in priority geographies and on specific crops.

## Leadership Group

WBCSD Food & Biomaterial Solutions; Violaine Berger

Company Co-Chairs:

- Monsanto
- PepsiCo

A Working Group is currently being formed to support further development of the business solution.

## Partners

- Global Alliance for Climate-Smart Agriculture



business solutions for a sustainable world

**World Business Council for Sustainable Development**

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