THE SYSTEMS CHANGE LAB
A MAKE OR BREAK DECADE
THE SYSTEMS CHANGE LAB

NUDGING AND CAMPAIGNING
For the Transformations at Greatest Risk

MONITORING
The Required Transformations

LEARNING AND SHARING
About the Ingredients for Change
THE SYSTEMS

- Power
- Industry
- Transport
- Agriculture & Food
- Forest & Land Management
- Freshwater Management
- Ocean Management
- Cities & Built Environment
- Circular Economy
- Carbon Removal
CROSS-CUTTING TRANSFORMATIONS

Finance

New Economics for Nature and Climate

Social Inclusion and Equity

Good Governance
Power
- Rapidly scale up renewable electricity generation
- Phase out unabated coal and gas electricity generation
- Modernize grids, scale storage, manage demand
- Guarantee reliable access to electricity to all

Transport
- Reduce non-essential travel by car and plane
- Shift to public, shared, and non-motorised transport
- Phase out the internal combustion engine
- Transition to zero-carbon shipping and aviation
- Guarantee reliable access to safe and modern mobility

Industry
- Reduce demand for carbon-intensive steel, cement, and plastics and increase demand for zero-carbon alternatives
- Electrify industry
- Develop new solutions for zero-carbon steel, cement, and plastics
- Reduce methane emissions from oil and gas production

Circular Economy
- Increase material efficiency in production
- Decrease consumption
- Regenerate material flows
- Extend the useful life of products and materials
- Recycle and recover resources at their highest value

Cities & Built Environment
- Adopt compact urban design
- Build only zero-carbon buildings
- Make all existing buildings zero-carbon
- Guarantee access to safe, resilient transport and modern shelter
- Transition to zero-waste cities

Carbon Removal
- Scale up technological carbon removal sustainably
Food
- Increase crop productivity sustainably and without expanding farmland
- Increase livestock productivity sustainably and without expanding pastureland
- Increase aquaculture productivity sustainably
- Reduce food loss and waste
- Shift to healthier, more sustainable diets for all
- Reduce GHG emissions and other harmful impacts from agricultural production

Freshwater Management
- Protect freshwater systems
- Restore freshwater systems
- Sustainably manage freshwater demand
- Strengthen water governance to allocate water equitably and ensure universal access to clean water for all
- Sharply reduce chemical pollution and litter
- Halt the overexploitation of freshwater species
- Dramatically slow the spread of invasive, alien species

Land and Forests Management
- Protect forests and other natural landscapes ecosystems
- Restore deforested and degraded lands
- Sustainably manage forests and other natural landscapes
- Sharply reduce chemical pollution and litter
- Halt the overexploitation of terrestrial species
- Dramatically slow the spread of invasive, alien species

Ocean Management
- Protect marine and coastal ecosystems
- Restore marine and coastal ecosystems
- Sustainably manage marine and coastal ecosystems
- Sharply reduce chemical pollution and litter, particularly for land-based activities
- Halt the overexploitation of marine species, particularly by managing wild fisheries within biologically sustainable limits and environmental thresholds
- Dramatically slow the spread of invasive, alien species
Finance

- Measure, disclose, and manage climate and other types of environmental risks
- Scale up public finance for climate and nature
- Scale up private finance for climate and nature
- Extend financial services to underserved groups
- Price GHG emissions and other environmental externalities
- Eliminate harmful subsidies and financing

Social Inclusion and Equity

- Provide reliable, universal access to basic services and opportunities
- Reduce social, political, and economic inequities
- Facilitate a just transition to a net-zero, nature-positive future
- Redistribute income and wealth to ensure that they are not concentrated in the hands of the very few

New Economics for Nature and Climate

- Advocate for and accept new measures of prosperity
- Shift from a growth-centered economy to one that meets society’s needs without compromising the well-being of people and the planet

Good Governance

- Safeguard environmental rights
- Ensure participatory, inclusive, transparent, and accountable decision-making processes at all levels of government
- Center local expertise in decision-making processes
- Strengthen institutions across sectors and at all levels of decision-making
- Reduce corruption and corporate influence in government
- Effectively and responsibly regulate new technologies, while protecting human rights
THE SYSTEMS CHANGE LAB

MONITORING
The Required Transformations

2 Knowledge Products:
SoCA Report & SCL Data Platform
THE STATE OF CLIMATE ACTION 2021

Published ahead of COP26, the State of Climate Action 2021:

• Translated systemwide transformations that IPCC finds are needed to hold global warming to 1.5°C into concrete, actionable targets toward which we can measure progress.

• Analyzed how much progress the world is (or is not) making across key systems.

• Identified what levers of change we can pull to spur durable, transformational change.
**KEY FINDINGS:**

**PROGRESS TOWARD 2030 TARGETS**

<table>
<thead>
<tr>
<th>ON TRACK: Change is occurring at or above the pace required to achieve the 2030 targets</th>
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<td>None</td>
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<tr>
<th>OFF TRACK: Change is heading in the right direction at a promising, but insufficient pace</th>
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<tr>
<td>Share of renewables in electricity generation</td>
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<tr>
<td>Share of electricity in the industry sector’s final energy demand</td>
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<td>Share of electric vehicles in light duty vehicle sales</td>
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<tr>
<td>Share of battery and fuel cell electric vehicles in bus sales</td>
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<td>Crop yields</td>
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<td>Ruminant meat productivity</td>
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<td>Ruminant meat consumption in the Americas, Europe, and Oceania</td>
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<td>Total public financing for fossil fuels</td>
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<th>WELL OFF TRACK: Change is heading in the right direction, but well below the required pace</th>
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<tr>
<td>Share of unabated coal in electricity generation</td>
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<tr>
<td>Carbon intensity of electricity generation</td>
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<tr>
<td>Energy intensity of building operations</td>
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<tr>
<td>Low-carbon steel facilities in operation</td>
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<tr>
<td>Green hydrogen production</td>
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<tr>
<td>Share of electric vehicles in the light duty vehicle fleet</td>
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<tr>
<td>Share of battery and fuel cell electric vehicles in annual medium- to heavy-duty vehicle sales</td>
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<tr>
<td>Share of low-emissions fuels in the transport sector</td>
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<th>STAGNANT: Change is stagnating, and a step change in action is needed</th>
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<tr>
<td>Carbon intensity of global cement production</td>
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<tr>
<td>Carbon intensity of global steel production</td>
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<td>Share of global emissions covered by a carbon price of at least $135/tCO₂e</td>
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<tr>
<th>WRONG DIRECTION: Change is heading in the wrong direction, and a U-turn is needed</th>
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<tr>
<td>Share of trips made by private light duty vehicles</td>
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<td>Deforestation rate</td>
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<td>Agricultural production GHG emissions</td>
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Pace of Change

WELL OFF TRACK: Change is heading in the right direction, but well below the required pace

**POWER**

- **5.2x**
  - Lower the share of unabated coal in electricity generation to 0–2.5%

**POWER**

- **3.2x**
  - Reduce carbon intensity of electricity generation to 50–125 gCO₂/kWh

**BUILDINGS**

- **2.7x³**
  - Decrease the energy intensity of operations in key countries and regions by 20–30% in residential buildings and by 10–30% in commercial buildings, relative to 2015

Indexed to 2015; 2015 = 100

**HISTORICAL DATA**

- 2010: 38.1%
- 2018: 0–2.5%
- 2030: 50–125 gCO₂/kWh
- 2010: 98.1
- 2019: 70–90
- 2030: 70–80

WORLD RESOURCES INSTITUTE
THE STATE OF CLIMATE ACTION 2022

Tentatively scheduled to launch a week before COP27, the State of Climate Action 2022 will provide an update to last year's report, with a few key additions:

• **A refined methodology**, which we will publish as a standalone technical note alongside the report to reduce the overall length of the report, avoid repeating the same text each year, and improve readability.

• **An emphasis on system-level insights**, with more real estate given to assessing progress across indicators within a particular system. This will allow us to explain the relationships between indicators (e.g., progress made on reforestation is good, but these secondary forests cannot replace the biodiversity that will be lost should deforestation continue unabated).

• **An effort to integrate just transition considerations into each chapter**, rather than include them all in a standalone chapter at the end of the report.

• **A greater attempt to include data on enabling conditions**.
GLASGOW BREAKTHROUGH REPORT

Announced at COP26, 42 world leaders representing 70% of world GDP established high-level 2030 goals for power, road transport, steel, hydrogen, and agriculture

Annual **State of the Sectoral Transition** report starting in 2022

- SCL is involved in all five breakthroughs and ensuring alignment with SCL indicators and targets
- 2022 report will be released in September ahead of CEM/MI
The Glasgow Breakthroughs aim to make:

• **Clean power** the most affordable and reliable option for all countries to meet their power needs efficiently by 2030.

• Zero emission **vehicles** the new normal – accessible, affordable and sustainable in all regions by 2030.

• Near-zero emission **steel** the preferred choice in global markets, with efficient use and near-zero emission steel production established and growing in every region by 2030.

• Affordable renewable and low carbon **hydrogen** globally available by 2030.

• Climate-smart, sustainable **agriculture** the most attractive and widely adopted option for farmers everywhere by 2030.
**SCL DATA PLATFORM 2022**

### Key Moments

- **June**
  - "Alpha" Release 0.5: June 30
  - SCL framework and 1 system:
    - Finance

- **September**
  - Release 1: September 6
  - Full launch (homepage, dashboard, etc.) and first set of systems:
    - Power
    - Industry
    - Transport
    - Cities & Built Environment
    - Carbon removal

- **October**
  - Release 2: Early October
  - Circular Economy
    - 1 Week before WCEF 2022

- **November**
  - Release 3: November 1
  - Biomes
    - Agriculture & Food
    - Oceans
    - Land & Forests
    - Freshwater
SCL DATA PLATFORM 2023

Key Moments

SCL Release Moments

Q1 '23

Release 3: March 26
Cross-Cutting Systems
- Social inclusion & Equity
- New economics
- Good governance

Q2 '23

Release 4+
- Connections
- Mitigation Potential
- More to come!

Q3 '23

Q4 '23

COP28 UAE
It’s time to change the way we think about changing the world.

The Systems Change Lab is monitoring, learning from and accelerating the transformational changes required to protect both people and the planet.

EXPLORE THE DATA  LEARN HOW
Land & Forests

Transformations at a Glance

Of the 35 indicators we've assessed in the Land & Forest Sector, 7 are on track to the needed outcome.

0.29%

96%

50%

Improved protection, management, and restoration of forests, peatlands, coastal wetlands, and grasslands are essential for limiting warming to 1.5°C by the end of the century. This includes stopping deforestation as a top priority, and then increasing reforestation. These efforts can also help communities better adapt to the impacts of climate change by building resilience and reducing vulnerabilities to extreme weather events. For example, mangrove forests protect coastal lands against rising seas and tidal surges, while tropical forests moderate temperature fluctuations and streamline water supplies (Latha et al. 2023).

Actions to protect and restore carbon-rich forest ecosystems come with tremendous co-benefits and are often linked with the achievement of several SDGs. For example, forests support the livelihoods of millions of people across the globe, through the use and sale of forested, non-timber products (e.g., fruits, and medicinal herbs) (Latha et al. 2023). Forests also help ensure water availability, by capturing rainfall and stabilizing water supplies for drinking and irrigation (Latha et al. 2023).

Global Climate Watch

At the same time, some difficult trade-offs can emerge in the land sector, which must be considered and managed responsibly (IADB 2018, Kwesi et al. 2018). With an increasing global population, there is a growing demand for food, fuel, and fiber, which has resulted in the ongoing expansion of agriculture land at the expense of forests (e.g., it is estimated that nearly 290 million hectares of forests and savannas were degraded for agricultural purposes between 1990 and 2010). Recent work conducted by IADB, the World Bank, and The Nature Conservancy indicates that this trend is not sustainable (Latha et al. 2023). It concludes that it is possible to feed 8 billion people by 2050 while halting deforestation and reducing land emissions on new agricultural lands (IADB 2020).
Transformation Pages
Dashboard views
Dashboard views
Connections
(Coming 2023)
Decarbonize power generation

Outcomes
- Benchmark: Total CO2 emissions from electricity generation fall by around 45% from 2010 levels by 2030; Net zero emissions by 2050
  - Indicator: CO2e emissions from electricity generation
- Benchmark: Carbon intensity for electricity generation globally falls to 50–125 gCO2/kWh in 2030 and to below zero in 2050
  - Indicator: Carbon intensity of electricity generation (gCO2/kWh)
- [...]~10 benchmarks & indicators

Drivers
- Driver: Technology advancements
  - Indicator: Electricity storage energy capacity in stationary applications by sector (Battery - Utility scale, Rooftop PV, other technologies (e.g., pumped hydro)) (GWh)
  - Indicator: Annual capacity additions of RE (GWh) [Miquel - grid connected. If VRE, looks like what you need to compensate the variable part]
  - Indicator: % Annual change in generation costs for each technology (by country/region) OR % annual change in levelized cost OR % change in average installed costs
- Driver: Investments in desired technologies to increase their market share
  - Indicator: Annual investment in renewables (by technology) (by country) (and as % of all energy investments) (USD, %)
- Driver: Enabling policies and laws and regulations
  - [...]
THE SYSTEMS CHANGE LAB

About the Ingredients for Change
Innovations in technology, practices, and approaches

Strong institutions

Behavior change and shifts in social norms

Leadership from change agents

Regulations and incentives

EXOGENOUS CHANGE
THE SYSTEMS CHANGE LAB

NUDGING AND CAMPAIGNING
For the Transformations at Greatest Risk
Partners

Convened by

WORLD RESOURCES INSTITUTE

BEZOS EARTH FUND

RACE TO ZERO

RACE TO RESILIENCE

Funders & Partners

CENTER FOR GLOBAL COMMONS

Climate Action Tracker

climateworks FOUNDATION

GLOBAL ENVIRONMENT FACILITY

GLOBAL COMMONS ALLIANCE

JUST CLIMATE

UN WCMC