Climate Risk: Opportunities, Liabilities and the Need for Business Adaptation

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AmCham
Santiago, Chile
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Global Temperature and Carbon Dioxide

- Temperature Anomaly
- CO₂ Concentration

Global temperature data averaged and adjusted to early industrial baseline (1881-1910).
Source: NASA GISS, NOAA NCEI, ESRL
Global temperature and the Holocene safe-climate zone

- **Holocene maximum**
- With warming of 0.8°, current temperature is ~0.1°C above the Holocene maximum
- The Holocene temp. range of human civilisation
- The temperature reconstruction of Shakun et al. (green – shifted manually by 0.25°C); Marcott et al. (blue); combined with the instrumental period data from HadCRUT4 (red) and model average of IPCC projections for the A1B scenario up to 2100 (orange)

Chart by Jos Hagelaars, adapted by David Spra
Climate change impacts
Stern Commission

<table>
<thead>
<tr>
<th>Global temperature change (relative to pre-industrial)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0°C</td>
</tr>
<tr>
<td>---</td>
</tr>
<tr>
<td><strong>Food</strong></td>
</tr>
<tr>
<td>Falling crop yields in many areas, particularly developing regions</td>
</tr>
<tr>
<td><strong>Water</strong></td>
</tr>
<tr>
<td>Small mountain glaciers disappear – water availability in many areas, including Mediterranean and Southern Africa</td>
</tr>
<tr>
<td><strong>Ecosystems</strong></td>
</tr>
<tr>
<td>Extensive Damage to Coral Reefs</td>
</tr>
<tr>
<td><strong>Extreme Weather Events</strong></td>
</tr>
<tr>
<td>Rising intensity of storms, forest fires, droughts, flooding and heat waves</td>
</tr>
<tr>
<td><strong>Risk of Abrupt and Major Irreversible Changes</strong></td>
</tr>
<tr>
<td>Increasing risk of dangerous feedbacks and abrupt, large-scale shifts in the climate system</td>
</tr>
</tbody>
</table>

From UK Stern Commission Economics of climate change 2006
Climate Risks to Sustainable Development

• Existential Risks
• Slow Onset Risks
• Disaster Risks
• Cross-cutting Risks
  – Food security
  – Poverty eradication
Existential Risks
Slow Onset Risks: Gradual Degradation of Land and Habitats
Slow Onset Risks: Drought and Desertification
Disaster Risks

Climate change and the wildfires in Chile
Cross-Cutting Risks: Food Security and Poverty Eradication
Nations Unies
Conférence sur les Changements Climatiques
COP21/CMP11
Paris, France
2100 WARMING PROJECTIONS
Emissions and expected warming based on pledges and current policies

- **Warming projected by 2100**
  - Baseline: 4.1 – 4.8°C
  - Current policies: 3.1 – 3.7°C
  - Pledges: 2.6 – 3.2°C
  - 2°C consistent: 1.5 – 1.7°C
  - 1.5°C consistent: 1.3 – 1.5°C

Global greenhouse gas emissions GtCO₂e/year

Historical
Individual country assessments

Select a country from the map below to view their individual assessment

CRITICALLY INSUFFICIENT
Commitsments with this rating fall well outside the fair share range and are not at all consistent with holding warming to below 2°C let alone the Paris Agreement’s stronger 1.5°C limit. If all government targets were in this range, warming would exceed 4°C.

HIGHLY INSUFFICIENT
Commitsments with this rating fall outside the fair share range and are not at all consistent with holding warming to below 2°C let alone the Paris Agreement’s stronger 1.5°C limit. If all government targets were in this range, warming would reach between 3°C and 4°C.

INSUFFICIENT
Commitsments with this rating are in the least stringent part of their fair share range and not consistent with holding warming below 2°C, let alone the Paris Agreement’s stronger 1.5°C limit. If all government targets were in this range, warming would reach over 2°C and up to 3°C.

2°C COMPATIBLE
Commitsments with this rating are consistent with the 2009 Copenhagen 2°C goal and therefore fall within the country’s fair share range, but are not fully consistent with the Paris Agreement. If all government targets were in this range, warming could be held below, but not well below, 2°C, and still be too high to be consistent with the Paris Agreement’s 1.5°C limit.

1.5°C PARIS AGREEMENT COMPATIBLE
This rating indicates that a government’s efforts are in the most stringent part of its fair share range. It is consistent with the Paris Agreement’s 1.5°C limit.

ROLE MODEL
This rating indicates that a government’s efforts are more ambitious than what is considered a fair contribution. It is more than consistent with the Paris Agreement’s 1.5°C limit.
Timeline: How countries plan to raise the ambition of their climate pledges

The Paris “ratchet mechanism” is designed to steadily increase ambition over time, ensuring that the world reaches net zero emissions in the second half of the century and keeps temperature rise “well below 2°C.”

1. **Climate plans submitted**
   - Countries submit their first round of climate pledges (NDCs). Some cover the period up to 2025, some up to 2030.

2. **Facilitative dialogue**
   - To take stock of collective efforts of countries in relation to the long-term goal of the agreement and to inform the preparation of the next round of pledges.

3. **By 2020**
   - Countries with 2025 targets communicate their second round of climate pledges, while countries with 2030 targets communicate or update their pledge.
   - New climate pledges will then be submitted every 5 years.

4. **Global stocktake**
   - On mitigation, adaptation and finance.

5. **By 2025**
   - Countries submit their third round of climate pledges.

6. **Second stocktake**
   - 2025  2026  2027  2028  2029  2030
Three Pillars of Deep Decarbonization

Pathways to Deep Decarbonization in the United States, Mixed case results
How each technology area contributes to CO2 emissions reductions

ETP 2DS Scenario. Click a technology in the legend to show/hide.

© OECD/IEA
Development Opportunities in Climate Action

- Renewable energy
  - Industrial scale
  - Distributed generation
- Energy efficiency
  - Buildings/Materials
  - Cookstoves
- Carbon Markets
  - REDD+, Article 6
  - ICAO
- Climate-related finance
  - Private sector
  - Green bonds
  - International financial institutions
  - International development assistance
Into the Trillions
Investment in power generation technologies, 2017 to 2040

Source: Bloomberg New Energy Finance New Energy Outlook 2017
Note: "Everything else" includes geothermal, biomass and oil-fired power.
The Problem for Investors

“The climate change is occurring. It has important implications for economic activity and therefore corporate performance. The effects of climate change are beginning to play out within and among industries and regions. They are likely to grow in significance in the years to come, becoming an increasingly important factor in the relative performance of firms, industries and investment portfolios.”

CDSB Statement on Fiduciary Duty and Climate Change Disclosure
The Problem for Investors (cont.)

“... financial markets do not yet take sufficient account of climate-related corporate performance, risks and opportunities relevant to future shareholder value because of a lack of comprehensive and comparable information in ‘mainstream’ corporate reports for the investment community. This information gap undermines the efficiency by which markets are able to allocate capital to its most productive uses over the medium to long term....”

_CDSB Statement on Fiduciary Duty and Climate Change Disclosure_
Climate Risk for Companies

- Regulatory Risk
- Transition Risk (and Opportunity)
- Climate Impacts Risk (and Opportunity)
- Litigation Risk
- Reputation Risk
Regulatory Risk

Current Laws and Regulations

• GHG emissions
• Natural resources management
  • Fossil fuel extraction
• Energy efficiency standards
• Securities and/or Blue Sky Laws
Regulatory Risk

Future Law and Regulation

- Carbon tax
- GHG emissions limits
- Cap-and-trade programs
- Fossil fuel bans
- Energy efficiency standards
- Process or product standards
Transition Risk and Opportunity

- Impact on Business Prospects
- New Business Opportunities
- Stranded Assets
Climate Impacts: Physical Risk (and Opportunities)

- Climate Impacts
  - Changing weather patterns
  - Sea level rise
  - Shifts in species distribution
  - Changes in water availability
  - Changes in temperature
  - Variation in agricultural yield and growing seasons
- Impacts on Infrastructure and Real Property
- Impacts on Supply Chains
- Impacts on Operations
- Impacts on demands for services and products
# Climate Impacts: Physical Risk and Investment Implications

**Table 1. Examples of physical climate risks and related implications along the finance value chain**

<table>
<thead>
<tr>
<th>Physical Climate Risk</th>
<th>Impacts on Corporates</th>
<th>Impacts on Credit Institutions/Banks</th>
<th>Impacts on Investors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute risk: Increased severity of extreme weather events like hurricanes, cyclones &amp; floods</td>
<td>Damages to production facilities or logistics infrastructures</td>
<td>Increased credit risk resulting from deterioration in the creditworthiness of corporate client</td>
<td>• Reduced or more volatile yields on the corporate debt&lt;br&gt;• Possible changes in stock valuation&lt;br&gt;• Breach of fiduciary duty</td>
</tr>
<tr>
<td>Chronic risk: Variations in precipitation &amp; temperatures resulting in changes in water availability and droughts</td>
<td>Reduced availability of and changes in price of raw materials</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


Litigation Risk

Failure to disclose

- “Corporations and their management and directors are facing more risks in connection with climate change-related financial disclosures and the potential for shareholder and derivative suits based on alleged climate change-related financial nondisclosures.” (Anderson, Kill & Olick, 2011)
Litigation Risk

Significant Disclosure-related Lawsuits

- People of the State of New York v. ExxonMobil
- Massachusetts Attorney General investigation
- Ramirez v. ExxonMobil (N.D. TX)
- Abrahams v. Commonwealth Bank of Australia
- ClientEarth v. Enea (Poland)
Litigation Risk

Third Party Actions

• Failure to mitigate
  • Injunctions against business activities
  • Compensation for damages

• Failure to adapt
  • Injunctions to undertake adaptation
  • Compensation for damages
<table>
<thead>
<tr>
<th></th>
<th>Public Nuisance</th>
<th>Private Nuisance</th>
<th>Trespass</th>
<th>Failure to Warn</th>
<th>Design Defect</th>
<th>Unjust Enrichment</th>
<th>Civil Conspiracy</th>
<th>State Statutory Claims</th>
<th>Public Trust</th>
</tr>
</thead>
<tbody>
<tr>
<td>New York City</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
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<tr>
<td>Oakland</td>
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<tr>
<td>Santa Cruz County</td>
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<td>✔</td>
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<tr>
<td>King County</td>
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<td></td>
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<tr>
<td>Boulder County</td>
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<td></td>
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<tr>
<td>Rhode Island</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
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<td>✔</td>
<td>✔</td>
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<tr>
<td>Baltimore</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td></td>
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</tr>
</tbody>
</table>

CLIMATE NUISANCE CLAIMS
<table>
<thead>
<tr>
<th>Location</th>
<th>Sea level rise</th>
<th>Hydrologic Cycle</th>
<th>Public Health</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>San Mateo, Marin, Imperial Beach</td>
<td>✔</td>
<td></td>
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<tr>
<td>San Francisco, Oakland</td>
<td>✔</td>
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<tr>
<td>Santa Cruzes, Richmond (CA)</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
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<tr>
<td>New York City</td>
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<tr>
<td>Colorado</td>
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<td>✔</td>
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<td>✔</td>
</tr>
</tbody>
</table>
Litigation Risk for Failure to Adapt Energy & Industrial Sector

**Potential Areas of Intervention:**

1. Lawsuits Filed Under Environmental Statutes
2. National Environmental Policy Act (NEPA) & “Little NEPA” Opportunities to Integrate Climate Considerations into Environmental Review
3. Petitions to State Public Utility/Service Commissions (PUCs/PSCs) to Require Utilities to Understand and Prepare for Climate Change Impacts
CLF Litigation: Failure to Adapt Lawsuits for Clean Water Act Violations

➢ 15 Causes of Action Listed: 14 under the Clean Water Act (CWA) and 1 under the Resource Conservation & Recovery Act (RCRA)

➢ 21 Causes of Action Listed: 20 under the CWA, 1 under the RCRA

Map based on data from the “SLOSH” model (Sea, Lake, and Overland Surges from Hurricanes), developed by NOAA's National Weather Service.
Failure to Adapt Litigation: Hurricane Harvey Lawsuits Against Arkema Chemical Plant

**Issue:** During Hurricane Harvey, the Arkema chemical plant flooded and lost power. When refrigeration was lost volatile chemicals exploded, releasing a toxic cloud.

**Selected Lawsuits:**

1. **Harris County & the State of Texas v. Arkema Inc., No. 2017-76961-7 (Tex. Dist. Ct., Nov. 16, 2017).**
   - Claims filed alleging violations of the Texas Clean Air Act, Texas Water Code, and Harris County Floodplain Regulations

   - Negligence claims in civil suit

   - Criminal charges
Failure to Adapt Litigation: Utility Liability for Wildfires Sparked by Electric Transmission Lines

**Issue:** California’s deadliest wildfire, (the Campfire of 2018), was determined by the California Department of Forestry and Fire Protection, or Cal Fire, to be caused by “electrical transmission lines owned and operated” by the utility PG&E.

**Selected Lawsuits:**

1. **In re: PG&E Corp., Ch. 11 No. 3:19-bk-30088 (Bankr. N.D. Cal. filed Jan. 29, 2019)**
   - PG&E has filed for bankruptcy through a Chapter 11 proceeding as it faces $30 billion in anticipated damages.

2. **York County v. Rambo, No. 3:19-cv-00994 (N.D. Cal. filed Feb. 22, 2019)**
   - Federal securities class action brought by bond investors in PG&E in connection with California wildfires in 2017 and 2018.
### Emerging Disclosure Requirements

<table>
<thead>
<tr>
<th>Regulatory-related pressures</th>
<th>Target audience</th>
<th>Requirements</th>
<th>Year of application</th>
</tr>
</thead>
</table>
| • GLOBAL: Task Force on Climate-related Financial Disclosures (TCFD) | • Financial and non financial organizations with public debt and/or equity       | • Recommends voluntary consistent disclosure of climate-related financial risk  
• Provides a framework for disclosure in financial filings, including suggestions on how to practically assess forward-looking climate-related risk through scenario analysis | Recommendations released in 2017                                                                               |
| • EUROPE: Institutions for Occupational Retirement Provision Directive (IORP II) - 2016/2341 | • Institutions for occupational retirement provision (i.e. all registered EU pension funds) | Requires to  
• Consider climate and environmental matters in governance, risk and investment decisions  
• Evaluate environmental, social & governance risks, including climate change-related risks, resource scarcity and stranded assets  
• Disclose | In effect since January 2017, Member States have until January 2019 to transpose the Directive into national law |
| • FRANCE: Energy Transition Law Art 173 on climate risk reporting | • Publicly traded financial and non financial French organizations | • Sets out mandatory disclosure requirements of climate risk – including physical risk  
• Requires all French institutional investors to assess and disclose the climate risk to their investment portfolios (including physical risks) | In effect since January 2016  
• First reporting due in 2017 |
FOCUS ON FINANCIAL IMPACT

The Task Force focused on financial impact of climate-related risks and opportunities on an organization, rather than the impact of an organization on the environment.
## Climate-Related Risks and Opportunities

<table>
<thead>
<tr>
<th>Type</th>
<th>Climate-Related Risks</th>
<th>Type</th>
<th>Climate-Related Opportunities</th>
</tr>
</thead>
</table>
| **Transition Risks** | - Increased pricing of GHG emissions  
  - Enhanced emissions-reporting obligations  
  - Mandates on and regulation of existing products and services  
  - Exposure to litigation  
  - Substitution of existing products and services with lower emissions options  
  - Unsuccessful investment in new technologies  
  - Costs to transition to lower emissions technology  
| **Markets**    | - Changing customer behavior  
  - Uncertainty in market signals  
  - Increased cost of raw materials  
| **Reputation** | - Shifts in consumer preferences  
  - Stigmatization of sector  
  - Increased stakeholder concern or negative stakeholder feedback  
| **Acute**      | - Increased severity of extreme weather events such as cyclones and floods  
| **Chronic**    | - Changes in precipitation patterns and extreme variability in weather patterns  
  - Rising mean temperatures  
  - Rising sea levels  

| **Resource Efficiency** | - Use of more efficient modes of transport  
  - Use of more efficient production and distribution processes  
  - Use of recycling  
  - Move to more efficient buildings  
  - Reduced water usage and consumption  
| **Energy Source**       | - Use of lower-emission sources of energy  
  - Use of supportive policy incentives  
  - Use of new technologies  
  - Participation in carbon market  
  - Shift towards decentralized energy generation  
| **Products and Services** | - Develop and/or expand low emission goods and services  
  - Development of climate adaptation and insurance risk solutions  
  - Development of new products or services through R&D and innovation  
  - Ability to diversify business activities  
  - Shift in consumer preferences  
| **Markets**             | - Access to new markets  
  - Use of public-sector incentives  
  - Access to new assets and locations needing insurance coverage  
| **Resilience**          | - Participation in renewable energy programs and adoption of energy-efficiency measures  
  - Resource substitutes/diversification  

**TCFD** TASK FORCE ON CLIMATE-RELATED FINANCIAL DISCLOSURES
DISCLOSURE RECOMMENDATIONS

The Task Force developed **four widely-adoptable recommendations** on climate-related financial disclosures that are applicable to organizations across sectors and jurisdictions.

The recommendations are structured around four thematic areas that represent core elements of how organizations operate:

- **Governance**
  - The organization’s governance around climate-related risks and opportunities

- **Strategy**
  - The actual and potential impacts of climate-related risks and opportunities on the organization’s businesses, strategy, and financial planning

- **Risk Management**
  - The processes used by the organization to identify, assess, and manage climate-related risks

- **Metrics and Targets**
  - The metrics and targets used to assess and manage relevant climate-related risks and opportunities
The four recommendations are supported by **specific disclosures** organizations should include in financial filings or other reports to provide decision-useful information to investors and others.

<table>
<thead>
<tr>
<th>Governance</th>
<th>Strategy</th>
<th>Risk Management</th>
<th>Metrics and Targets</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Disclose the organization’s governance around climate-related risks and opportunities.</strong></td>
<td><strong>Disclose the actual and potential impacts of climate-related risks and opportunities on the organization’s businesses, strategy, and financial planning where such information is material.</strong></td>
<td><strong>Disclose how the organization identifies, assesses, and manages climate-related risks.</strong></td>
<td><strong>Disclose the metrics and targets used to assess and manage relevant climate-related risks and opportunities where such information is material.</strong></td>
</tr>
</tbody>
</table>

**Recommended Disclosures**

- **a)** Describe the board’s oversight of climate-related risks and opportunities.
- **b)** Describe management’s role in assessing and managing climate-related risks and opportunities.
- **c)** Describe the resilience of the organization’s strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario.

**Recommended Disclosures**

- **a)** Describe the climate-related risks and opportunities the organization has identified over the short, medium, and long term.
- **b)** Describe the impact of climate-related risks and opportunities on the organization’s businesses, strategy, and financial planning.
- **c)** Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organization’s overall risk management.

**Recommended Disclosures**

- **a)** Describe the organization’s processes for identifying and assessing climate-related risks.
- **b)** Describe the organization’s processes for managing climate-related risks.
- **c)** Describe the targets used by the organization to manage climate-related risks and opportunities and performance against targets.
Operational Risks

Natural disasters, changes in climate, and geo-political events could materially adversely affect our financial performance.

The occurrence of one or more natural disasters, such as hurricanes, tropical storms, floods, fires, earthquakes, tsunamis, cyclones, typhoons, weather conditions such as major or extended winter storms, droughts and tornadoes, whether as a result of climate change or otherwise, severe changes in climate and geo-political events, such as war, civil unrest or terrorist attacks in a country in which we operate or in which our suppliers are located could adversely affect our operations and financial performance.

Such events could result in physical damage to, or the complete loss of, one or more of our properties, the closure of one or more stores, clubs and distribution facilities, the lack of an adequate work force in a market, the inability of customers and associates to reach or have transportation to our stores and clubs affected by such events, the evacuation of the populace from areas in which our stores, clubs and distribution facilities are located, the unavailability of our digital platforms to our customers, changes in the purchasing patterns of consumers and in consumers' disposable income, the temporary or long-term disruption in the supply of products from some local and overseas suppliers, the disruption in the transport of goods from overseas, the disruption or delay in the delivery of goods to our distribution facilities or stores within a country in which we are operating, the reduction in the availability of products in our stores, the disruption of utility services to our stores and our facilities, and disruption in our communications with our stores.

We bear the risk of losses incurred as a result of physical damage to, or destruction of, any stores, clubs and distribution facilities, loss or spoilage of inventory and business interruption caused by such events. These events and their impacts could otherwise disrupt and adversely affect our operations in the areas in which they occur and could materially adversely affect our financial performance.
Global Climate Issues

On August 31, 2018, the EPA published a proposed rule known as the Affordable Clean Energy (ACE) Rule, which is intended to replace a regulation enacted in 2015 known as the Clean Power Plan (CPP), that would limit CO2 emissions from existing fossil fuel-fired electric generating units. The CPP has been stayed by the U.S. Supreme Court since 2016. The ACE Rule would require states to develop GHG unit-specific emission rate standards based on heat-rate efficiency improvements for existing fossil fuel-fired steam units. As proposed, combustion turbines, including natural gas combined cycles, are not affected sources. As of January 1, 2019, Alabama Power has ownership interests in 20 fossil fuel-fired steam units to which the proposed ACE Rule is applicable. The ultimate impact of this rule to Alabama Power is currently unknown and will depend on changes between the proposal and the final rule, subsequent state plan developments and requirements, and any associated legal challenges.

On December 20, 2018, the EPA published a proposed review of the Standards of Performance for Greenhouse Gas Emissions from New, Modified, and Reconstructed Stationary Sources: Electric Utility Generating Units final rule (2015 NSPS rule). The EPA's final 2015 NSPS rule set standards of performance for new, modified, and reconstructed electric utility generating units which included stationary combustion turbines and fossil-fired steam boilers. This proposal reduces the stringency of the 2015 NSPS rule by not basing the new and reconstructed fossil-fired steam boiler and IGCC standards on partial carbon capture and sequestration. The impact of any changes to this rule will depend on the content of the final rule and the outcome of any legal challenges.

The EPA's GHG reporting rule requires annual reporting of GHG emissions expressed in terms of metric tons of CO2 equivalent emissions for a company's operational control of facilities. Based on ownership or financial control of facilities, Alabama Power's 2017 GHG emissions were approximately 37 million metric tons of CO2 equivalent. The preliminary estimate of Alabama Power's 2018 GHG emissions on the same basis is approximately 36 million metric tons of CO2 equivalent.

Through 2017, the Southern Company system has achieved an estimated GHG emission reduction of 36% since 2007. In April 2018, Southern Company established an intermediate goal of a 50% reduction in carbon emissions from 2007 levels by 2030 and a long-term goal of low- to no-carbon operations by 2050. To achieve these goals, the Southern Company system expects to continue growing its renewable energy portfolio, optimize technology advancements to modernize its transmission and distribution systems, increase the use of natural gas for generation, complete ongoing construction projects, invest in energy efficiency, and continue research and development efforts focused on technologies to lower GHG emissions. The Southern Company system's ability to achieve these goals also will be dependent on many external factors, including supportive national energy policies, low natural gas prices, and the development, deployment, and advancement of relevant energy technologies.
### Emerging Disclosure Requirements

**CURRENT RESOLUTIONS**

As You Sow regularly introduces shareholder resolutions that empower shareholders to drive companies toward a sustainable future.

<table>
<thead>
<tr>
<th>Company</th>
<th>Initiative</th>
<th>Resolution</th>
<th>Filing Documents</th>
<th>Year</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIG</td>
<td>Climate Change</td>
<td>BE IT RESOLVED: Given the profound societal impacts of climate change and our company's potentially critical role in mitigating harm to society shareholders request that AIG with board oversight publish an assessment at reasonable cost and omitting proprietary information of the plausible impacts of a climate change scenario consistent with a globally</td>
<td>Resolution 2019</td>
<td>Agreement Reached; Resolution Withdrawn</td>
<td></td>
</tr>
</tbody>
</table>
Gracias!

mburger@law.columbia.edu
(212) 854-2372
@profburger

Important Links

- www.columbiaclimatelaw.com
- www.climatecasechart.com
- blogs.law.columbia.edu/climatechange/
- twitter.com/columbiaclimate
- www.facebook.com/ColumbiaClimateLaw