

Legal risk and climate change.

What rising global temperatures
mean for business



A new front in the fight against climate change

The last four years have been the hottest on record. Since the start of 2018 there have been blazes inside the Arctic Circle, record high temperatures in Europe and the deadliest wildfire season in California's history. The science linking global warming and greenhouse gases continues to grow, yet so does global carbon output. It is against this backdrop that businesses are being hit by lawsuits demanding greater disclosures on climate risk, strategy change to reduce future environmental impact – and compensation for historical emissions.

The risks to business from climate change can be bracketed into four broad groups. The first is physical – the threat to assets posed by more intense storms, floods and fires that are associated with rising global temperatures.

This risk is growing as the world's population expands and more wealth is accumulated in low-lying coastal areas. According to Aon's latest weather, climate and catastrophe insight report, 2017 and 2018 were the costliest back-to-back years for weather-related losses on record. This direct economic impact is magnified by the associated disruption to supply chains – if temperatures continue to increase at current rates, whole regions could soon be waterlogged or suffer prolonged droughts, threatening agricultural outputs, public health, labour supplies and social stability.

Then there is transition risk associated with decarbonising society. We have been dependent on fossil fuels for so long that too rapid a withdrawal could destabilise the global economy and undermine investments in renewable energy and emissions-reducing technologies. But switch too slowly

and the world will be subject to even greater climate-related threats. The most recent report from the UN's Intergovernmental Panel on Climate Change (IPCC) concluded that the 2°C limit on global temperature rises – established for decades as a line humanity crossed at its peril – is both too high to prevent serious environmental consequences and unattainable at current rates of progress. In the IPCC's view we cannot go beyond 1.5°C, and we have just over a decade to act before we reach the point of no return.

Sir Nicholas Stern described climate change as 'the greatest market failure the world has ever seen' in a 2006 study that helped focus political debate on the cost of climate change. But today, economic forces are starting to offer a glimmer of hope. Partly in response to consumer demand, companies are building more sustainable portfolios and pouring money into emissions-reducing technologies. Research from the Global Commission on the Economy and Climate estimates that if the \$90tn expected to be invested in infrastructure between now and 2030 were spent on sustainable infrastructure, an additional \$26tn in economic growth could be unleashed.





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2017 and 2018 were the costliest back-to-back years for weather-related losses on record.

Flooding caused by Hurricane Harvey in Southeast Texas on 31 August 2017



Delegates and experts attend the opening ceremony of the 48th session of the Intergovernmental Panel on Climate Change in Incheon on 1 October 2018

Investors are also beginning to exert their influence. Research from McKinsey shows that more than a quarter of the \$88tn assets under management are now channelled according to ESG (environmental, social and governance) principles. This dynamic has brought with it demands for businesses to release more detailed information on their climate-related risk profile. With access to better data, the logic goes, funds can make more accurate investment decisions; climate risk will be better priced into asset valuations; insurance products will evolve; and, ultimately, the market will act to drive emissions down. A recent climate summit at the Vatican ended with a commitment from the world’s biggest oil companies to publish the carbon and methane intensity of their businesses at regular intervals. The announcement built on publicised efforts by the Oil and Gas Climate Initiative to develop a standardised reporting methodology that enables these figures to be benchmarked.



**The City of New York
litigated in an attempt to
make the oil industry cover
the cost of preparing the
city for the impact of
man-made climate change.**



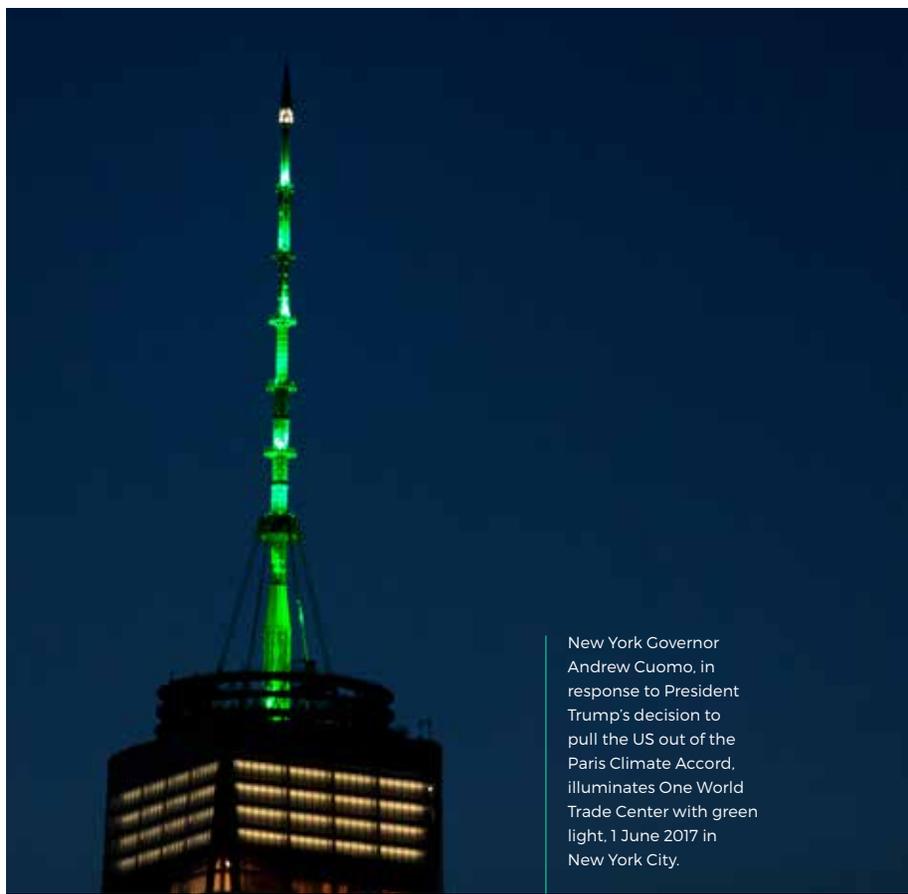
Policy pressure

Pressure, too, is being applied by policy. Huge volumes of legislation have been introduced around the world in a bid to reduce carbon emissions. All existing international laws can be traced back to the 1992 Rio Earth Summit, from which the United Nations Framework Convention on Climate Change emerged. The UNFCCC set the ground rules for all subsequent international treaties, from the 2005 Kyoto Protocol to the 2016 Paris Agreement. The latter is the most ambitious accord of its kind and is intended to limit global temperature rises to less than 2°C above pre-industrial levels. All 176 signatories to the treaty have at least one law in place designed to limit global warming, with more than 100 introduced since the agreement came into force. But Paris imposes no hard commitments on the speed or scale of emissions cuts, leading to a significant variation in responses at national level. And governments have so far found it impossible to reach an international consensus on the measure many of the world's biggest energy companies believe is essential to drive change – a global price for carbon.

The rise of litigation risk

Alongside physical threats, energy transition and policy change, businesses face another fast-evolving risk.

According to analysis from Columbia Law School, there are more than 1,100 climate-related lawsuits in play around the world, with more than 120 – and counting – aimed directly at companies. These cases can be split into two groups. The first are a series of common law tort- and public nuisance-based cases that target corporates in relation to past environmental conduct. The second try to influence their future conduct by demanding greater transparency over climate-related risks and changes in strategic direction around things like greenhouse gas (GHG) emissions. Rather than seeking to prove individual companies are responsible for future climate-related damage, these suits instead test corporate conduct by reference to things like disclosure requirements and obligations under human rights laws.



New York Governor Andrew Cuomo, in response to President Trump's decision to pull the US out of the Paris Climate Accord, illuminates One World Trade Center with green light, 1 June 2017 in New York City.

The tort and nuisance suits – particularly those in the US – have received significant media coverage. Some were launched before President Trump's withdrawal from the Paris Agreement in 2017, but the decision led to a spike in litigation from New York to Oakland. More than a dozen claims were filed in 2018 alone. The New York case took aim at five of the world's biggest oil companies, alleging that for years they continued to promote fossil fuels and discredit climate science despite accepting in private that GHG emissions contributed to global warming, allegations they strenuously denied. As a result, it argued, they should have to cover the cost of preparing the city for the impact of man-made climate change. At the launch of the suit, the city government also announced its pension fund was to sell its fossil fuel holdings.

There is clearly concern in coastal cities about the risk of rising sea levels, but this rush of litigation must also be seen against the backdrop of America's increasingly polarised politics and a lawyer-led litigation culture. In the White House sits a president who has reversed many of his predecessors' climate policies, while each of the cities, counties and states that have filed suits against energy companies since the start of 2018 has a Democrat attorney general and a Democrat-led government.



Steve Holliday

Former chief executive of National Grid and president of the Energy Institute

In 2050, something like 50 per cent of the energy mix will still come from fossil fuels. That means society clearly needs some businesses to be active in oil and gas – predominantly moving towards gas from oil over time. The challenge is how to ensure these businesses are not seen as pariahs.

Energy firms shouldn't apologise for producing something that the world still needs but they must also play a major role in helping wean society off fossil fuels, particularly via the decarbonisation of oil and gas.

Let's hold the production companies to the highest technical standards of behaviour but remember they are also well placed, because of both their financial resources and world-leading technical and project management skills, to play their part in driving the energy transition.

Their position is not the same as a business that knowingly leaks chemicals into waterways. They were creating a fuel that when used by customers created CO₂, and the world had not yet appreciated the impact on the climate over a long period of time.



Shareholders raise their voice

The possibility of shareholder litigation presents a further complication. Oil companies that prioritise investments in emissions-reducing technologies over immediate profits run the risk of shareholder suits from short-term investors. They therefore face the twin risk of being sued, including via class action litigation, whatever they do. They are, in a sense, damned if they do and damned if they don't, and argue that this is not a dynamic that helps accelerate the transition to a lower-carbon future.

Plaintiffs bringing common law tort and public nuisance claims are now seeking to rely on academic studies that attempt to quantify individual actors' contribution to man-made emissions since the start of the industrial era. Researchers are developing models in a bid to tie climate change to extreme weather at a local level – and to predict where those events might strike next. The federal judge hearing a case in San Francisco was so intrigued by developments in causation and attribution science that he staged a day-long 'teach-in' to prepare for legal arguments. While he ultimately ruled his court was not the right forum for such a case (and stated in his judgment that the current slew of nuisance suits could harm attempts to reach international consensus



United States
Supreme Court

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**Claims against
 businesses in the US
 are constrained by
 a Supreme Court
 decision that places
 management of
 emissions in the
 hands of the EPA.**

on climate change), it brought these developing theses into the spotlight.

No climate-related public nuisance case has yet reached trial in the US, largely due to the pre-emption doctrine, the legal principle that federal law takes precedence over state legislation. In federal courts, such claims are constrained by the Supreme Court decision *AEP v Connecticut*, the first global warming case based on a public nuisance claim, which was brought to court in the Southern District of New York in 2004. The unanimous ruling states that the management of emissions is the responsibility of the Environmental Protection Agency, not corporations.

Advances in Europe

In Europe, however, a case has reached a more substantive phase. In 2015 Saúl Luciano Lliuya, a Peruvian farmer, filed a suit against German energy company RWE arguing that it must pay to help protect his property from the risks of glacial flood. The case – funded by the NGO Germanwatch – has its roots in the US geographer Richard Heede’s Carbon Majors study, which attempts to calculate individual entities’ GHG emissions since the start of the industrial revolution. Mr Lliuya’s case alleges that because the risk of flooding in the Andes has been heightened by

global warming – and because the Heede study claims RWE is responsible for 0.47 per cent of post-industrial emissions, RWE should cover 0.47 per cent of his mitigation costs.

A district court dismissed the claim in 2016 on legal grounds. But the following year the German Court of Appeal held that it was possible to bring the suit under broad principles in national tort and nuisance law (in essence that if a neighbour’s actions are causing a threat to your property, you have the right to seek damages). The court is now appointing experts to look at the extent of the risk to Mr Lliuya’s land and whether that risk can be directly tied to RWE. The sum in dispute may be less than €20,000 but the precedent-setting potential is clear.

The current make-up of the Supreme Court means any US nuisance suit is unlikely ultimately to succeed, but merely taking such claims to court keeps business in the spotlight. Whether the cases are brought in the US or elsewhere, one thing is clear – any claimant would have to overcome very significant and multidimensional hurdles in order to succeed, involving the detailed testing (initially at a threshold level) of theories of liability, causation, attribution and loss.

Cost consensus proves elusive

Calculating the future cost of climate change has long confounded economists. Arriving at a consensus figure is seen by many as an essential step towards energy transition, helping policymakers set a price for carbon and define fuel efficiency standards. But agreement on the ‘social cost of carbon’ – that is, what it’s worth paying now to avoid a bigger financial hit in the future – has so far proved elusive. The range of variables that inform the modelling is so vast and complex that estimates range between tens of dollars and thousands of dollars per tonne of CO₂. And without agreement on the cost of climate change, is it possible to determine how much individual actors should pay?

It is questions like these that run to the heart of the debate. Plaintiffs have aimed their fire at the corporations they believe have the deepest pockets and bear the greatest responsibility for historical emissions. But is it fair to view multinational energy companies as disproportionate contributors to this effort? And if not, who else should be in the frame?

These questions are controversial. Those that answer ‘yes’ will argue that what constitutes lawful, regulated activity has been influenced by targeted advocacy efforts. Those that say ‘no’ will point to the fact that energy *production* accounts for around 15 per cent of GHG emissions, with the remainder released by downstream *consumption* by every person who drives a car or travels by plane – and every industry that uses power.

Then there are issues around the mechanisms being used to bridge the funding gap. Are the courts – and the legal concept of civil liability – the right way to arrive at a figure? Is the plaintiff, lawyer-led litigation model, where cases can take years to reach a resolution, the most efficient approach? And does drawing corporations into fighting suits on multiple fronts focus minds or distract them from investment and research that could have a greater impact?

Just like the scientific processes that drive it, tackling climate change requires a complex and multifaceted response in which governments, businesses and citizens all have a role to play. The challenge will be finding a way for them to do that together.





Amanda Young

Head of global ESG research at Aberdeen Standard Investments



As we move to a cleaner-energy world the transition issues are complex, driven by government legislation, politics and economics.

Climate change is a pressing problem for the world with significant consequences and challenges, and energy is relevant to almost every environmental and social issue the world faces. Holding energy companies solely accountable for climate change raises many issues, as fossil fuel companies were founded on energy needs at a time when the effect of fossil fuels on the climate was unknown. As we move to a cleaner-energy world the transition issues are complex, driven by government legislation, politics and economics, and led in large part by continued demand and supply.

Litigation risk is certainly a consideration for investors with regard to ESG issues, including climate change. One problem though is around accountability, particularly for activity undertaken decades ago when climate change wasn't on the agenda. That said, investors do expect management to have risk frameworks in place to control and monitor the environmental impact of their operations.

Companies in all sectors have a central role to play in developing alternative, affordable solutions and products that reduce climate change impacts, and in making their own operations as resource efficient as possible. Major fossil fuel producing and consuming countries are implementing stringent environmental regulations to address these challenges.

Energy efficiency makes economic and environmental sense and the world's dependence on oil and gas will continue to reduce as alternatives are sourced and developed. But we would caution that the new development of fossil fuels needs to take into account the risks that developing those reserves may pose. For investors it is about the mitigation of risk and harnessing the power of capital markets to invest in companies that are forward-looking, embrace new technology and are adapting their business models to be more sustainable. As active long-term investors, we believe that engagement with management teams is vital to influence corporate strategy and hold companies to account, and work to enhance disclosure around the impact a company has on the environment.

On fossil fuel disinvestment, the impact will be different depending on what areas you are looking at. From an investment perspective, the cost of capital could rise as more of our clients wish to move out of oil and coal. It will also be dependent on which types of fossil fuel the disinvestment is focused on. For long-term investors, such as fixed-income investors who hold bonds until maturity, the risk parameters may affect the decision on which bonds to buy, and therefore where to allocate capital. Equity investors may see less impetus initially, given the trading ability in and out of stocks. However, in general it may be harder for companies to raise capital in certain markets and from certain asset classes.

What does the future hold?

More claimants, more funding and more creative legal strategies all add up to a complex litigation environment for business, write partners Jonathan Isted and Tim Wilkins.

The litigation landscape is developing quickly. As the data on pages 12 and 13 shows, the number of climate-related claims against business is rising. Alongside the increasing volume of suits, the general outlook is more complex than ever, with new litigants emerging, greater litigation funding available and claimants deploying more creative legal strategies in pursuit of their goals.



We can expect more ‘behaviour-moderating’ cases, with litigants expanding the scope of their emissions-reduction claims beyond corporates’ revenue-generating activities.

The claims that have been brought against companies can, in the main, be bracketed into three groups. The first are common law tort and public nuisance cases of the type that emerged in the US around 20 years ago and have since begun to spread around the world. The underlying basis for these claims has morphed over time, but they are primarily designed to hold companies accountable for allegations surrounding their past environmental conduct. With some exceptions these suits have failed to progress beyond initial hearings. In the US this is largely because of the legal principle that federal law and regulators like the Environmental Protection Agency take precedence over state legislation, and because the US courts view the issue of climate change as a matter for government policy. In other countries, litigants have generally been unable to satisfy the causation and other legal tests required to bring these types of claim.

The second group are more recent and take aim at future corporate (and state) conduct, for example by demanding improved disclosures around climate-related risk and/or changes in strategic direction in relation to carbon emissions. On paper these claims may be more attractive to claimants and their funders – although they still face very substantial hurdles – because they do not require litigants to satisfy strict causation tests.

The third group involve challenges to the granting of industrial permits on the grounds that climate change impacts (for example Scope 3 emissions) have not been properly taken into account. These are less high profile than the first two groups, but nevertheless have the potential to be significant.

No longer, too, is it just NGOs bringing claims. We have seen individuals launch shareholder suits, while institutional investors are adding their voice to calls for greater transparency.

Claims and investigations are also emerging that test constitutional laws and statutes with no direct link to climate change. While not aimed at business, the case launched by Greta Thunberg and 15 other young people at the UN Climate Summit is an example of this trend, targeting as it does five governments over their environmental performance by reference to their obligations under the UN Convention on the Rights of the Child.



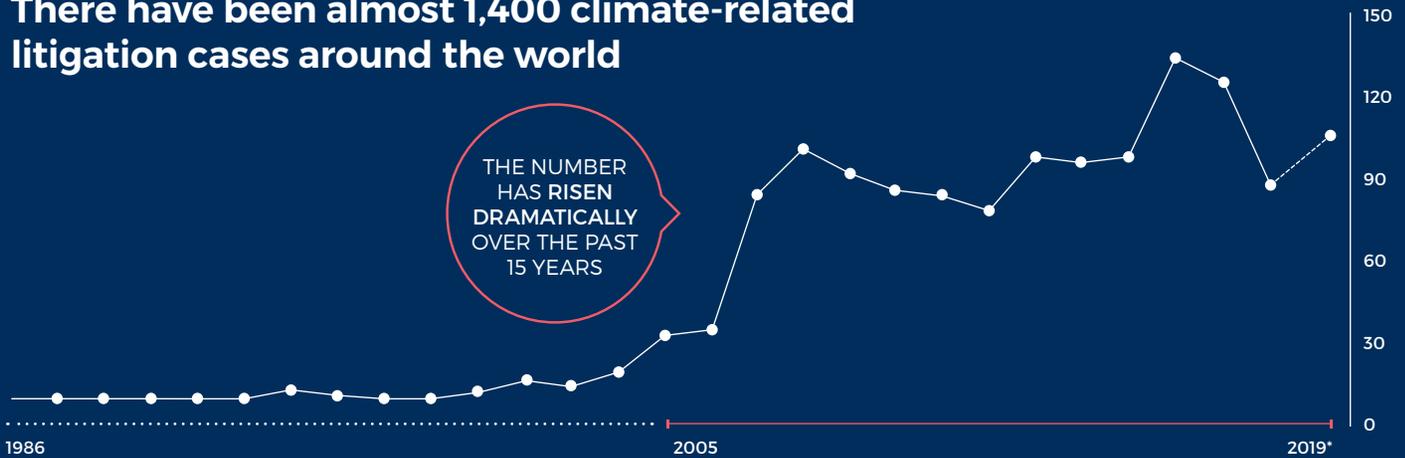
Teen activist Greta Thunberg poses for a picture after an interview ahead of the Global Climate Strike march on 20 September 2019 in New York City

How might the litigation landscape develop over time? We can expect more ‘behaviour-moderating’ cases, with litigants expanding the scope of their emissions-reduction claims beyond corporates’ direct revenue-generating activities into things like business travel, procurement practices and water use. Shareholders, too, are likely to play an ever-more vocal role in the climate debate as they seek to protect long-term value. And the battle to land a tort-based claim has not gone away, however big the hurdles to success. Corporates need to be nimble and prescient in how they approach these evolving litigation challenges, in terms of both anticipating where the next wave will come from and developing ‘best-in-class’ defensive strategies in response.

Climate-related litigation.

By numbers

There have been almost 1,400 climate-related litigation cases around the world



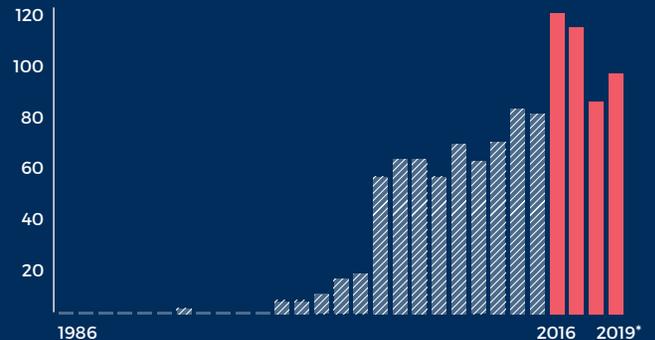
More than 1,000 have been in the US



US

AUSTRALIA	104
BRAZIL	4
CANADA	14
COLOMBIA	4
EU	42
GERMANY	3
NEW ZEALAND	18
NIGERIA	2
UK	54
REST OF THE WORLD	42

Where the number of cases since 2016 has risen sharply

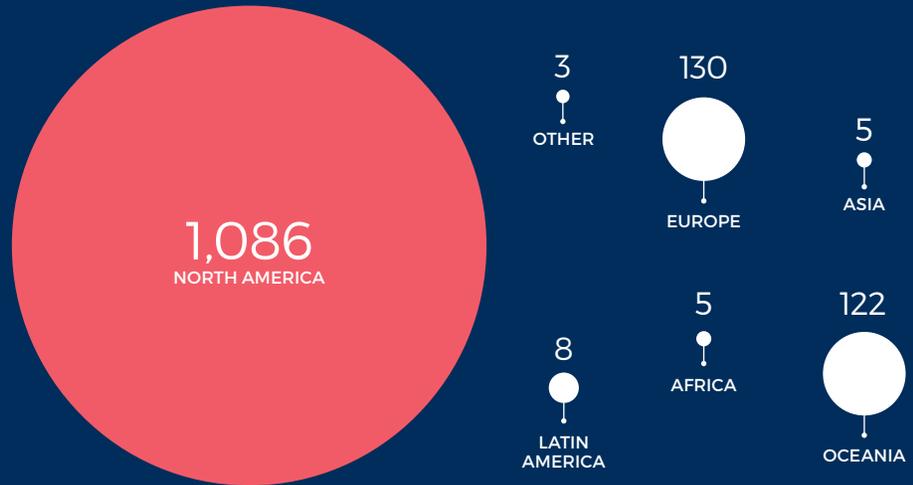


*2019 figures are until December 2019.

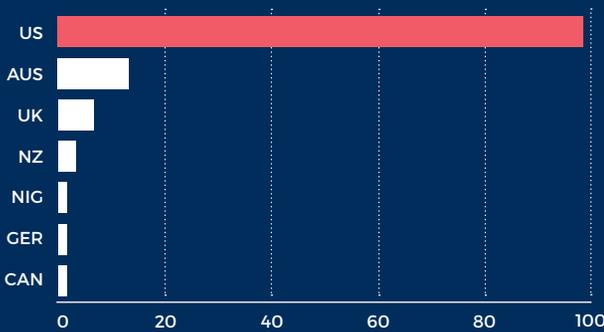
Sources: Sabin Center for Climate Change Law, Columbia University; Grantham Research Institute on Climate Change and the Environment, London School of Economics

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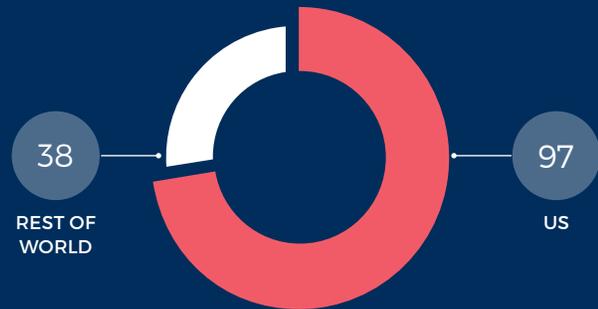
The bulk of all climate-related cases have been brought in the West, although more are emerging in Africa, Latin America and Asia



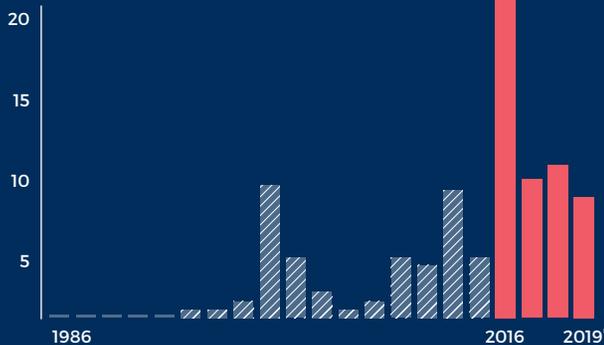
With most brought in US courts



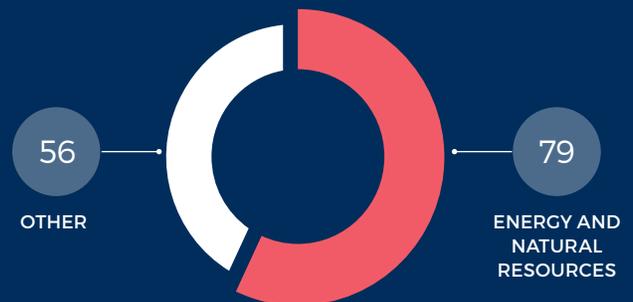
Businesses have been the targets of litigation in 135 cases



Where again, there has been a rise since 2016



Globally, most corporate cases involve defendants in the energy and natural resources industry



*2019 figures are until December 2019.

Sources: Sabin Center for Climate Change Law, Columbia University; Grantham Research Institute on Climate Change and the Environment, London School of Economics

‘When regulation eases, litigation grows’

Experts, *Dean Hari Osofsky* of Penn State Law and the School of International Affairs and *Professor Jacqueline Peel* of the University of Melbourne, survey past experience and emerging trends and assess their implications for governments and business.



Dean Hari Osofsky
Penn State Law
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International Affairs



Professor Jacqueline Peel
University of Melbourne

Climate change litigation is growing globally and now encompasses more than 1,200 claims across 29 countries, as well as cases before regional and international tribunals.

The US has been the epicentre of this activity with more than 1,000 claims. But there are now significant bodies of case law in Australia and Europe, and it is emerging, too, in developing countries across Asia, Latin America and Africa.

In the US it is generally the case that pro-regulatory litigation grows during administrations that are less inclined to regulate climate change, and anti-regulatory litigation increases during administrations that take the opposite approach.

Pro-regulatory litigation has largely involved claims brought under environmental statutes such as the Clean Air Act, Clean Water Act and National Environmental Policy Act against government decisions or policies that favour carbon-intensive development. The most high-profile example is the 2007 US Supreme Court decision in *Massachusetts v EPA*; the basis for the

Obama administration’s motor vehicle and power plant emissions regulations that are now being wound back by the Trump administration. There have been numerous cases involving the environmental review process for coal-fired power plants. Some have also raised common law claims such as nuisance, although federal public nuisance claims have been constrained by the Supreme Court decision in *AEP v Connecticut*. In terms of anti-regulatory litigation, the Clean Power Plan and other key components of the Obama administration’s regulatory agenda faced legal challenges, as have some state renewable energy and climate change laws.

Climate change litigation is undergoing renewed expansion in response to the Trump administration’s actions to roll back federal greenhouse gas (GHG) emissions regulation and promote fossil fuel development, as well as international drivers such as the Paris Agreement and high-profile decisions like the *Urgenda* case.

Some of the litigation follows standard statutory pathways challenging government action. Other cases are pursuing different routes, including:

- Claims in nuisance and negligence against major GHG emitters such as coal, oil and gas companies (for example, those brought by Californian municipalities against oil and gas majors seeking compensation for damage to coastal property and infrastructure caused by climate change-related sea level rise and storms).
- Claims under corporate and securities law requirements by regulators, investors and shareholders against companies such as ExxonMobil and Peabody Coal seeking improved disclosure of climate risk to their businesses.
- Claims pursuing arguments under constitutional law, human rights or the public trust doctrine against corporates and governments to hold them to account for the climate change impacts of their emissions and climate policies (for example, the ongoing *Juliana* litigation in which a group of youth plaintiffs is suing the US government alleging breaches of their constitutional rights and the public trust as a result of the government's inadequate GHG mitigation policies).

These trends are also evident in other parts of the world.

For example, in 2015, the environmental non-profit organisation, Urgenda, successfully sued the Dutch government to force it to strengthen the Netherlands' 2020 emissions reduction target. That decision was upheld on appeal in October 2018, with the Dutch appeal court finding that stronger emissions reduction targets were required to safeguard the rights and interests of Dutch citizens. The *Urgenda* litigation has inspired similar claims in Belgium and Norway, as well as cases challenging governments' implementation of climate change

legislation in New Zealand and the UK. In addition, Our Children's Trust – the US non-profit group behind the *Juliana* case – has been instrumental in seeding this litigation model in other countries from Colombia to Uganda.

The Paris Agreement is in force and will take effect from 2020. However, uncertainties created by the US administration's decision to withdraw from it – and inadequate action by parties to date to reduce emissions to safe levels – suggest that litigation by environmental groups, individuals and private interests will continue to play an important gap-filling role.

Current trendlines suggest litigants will continue to experiment with a range of legal avenues to take forward – and resist – climate claims. In the short to medium term, more climate change litigation in the US seems probable, with challenges by environmental groups, states and others to the actions of the Trump

administration to wind back federal GHG emissions regulation. Another clear trend is the continuing experimentation of litigants with novel legal actions such as claims focused on government and corporate accountability brought under tort law and corporate law.

In the next few years we would expect to see greater growth in climate litigation beyond traditional centres like the US, including continued expansion in Europe and in developing countries such as India.

And while the majority of climate change cases to date have focused on emissions reduction (mitigation), there is the potential for growth of cases focused on the need for adaptation to climate change and compensation for climate change-related damage as impacts become more severe and manifest. Early adaptation litigation in Australia and the US suggests this case law could encompass challenges against governments, companies and insurers designed to improve the future climate change resilience of development and infrastructure.



In the US, pro-regulatory litigation tends to grow during administrations that are less inclined to regulate climate change.



‘Business is taking a pragmatic approach, driven by transparency – and responsibility’

Leo Burke, director of the Climate Investing Initiative at Notre Dame's Mendoza College of Business, on why a new way of thinking is required to drive energy transition.

Anyone currently working to address climate change is swimming upstream. There's been a significant breakdown in trust between citizens, investors, governments and business, and that trust needs to be rebuilt if we are to stand any chance of success.

There's no getting away from the fact that we need to get to zero emissions by mid-century if we are to meet the Paris goals and avoid the worst consequences of climate change. Unfortunately, we're going in the wrong direction. So we've got to find a new way to address the challenge.

Some governments are helping to drive change, although notably not the current US administration. Businesses, however, are taking a more pragmatic approach. Some of that is driven by the trend

towards greater transparency – we're moving into a new era where the type of financial reporting recommended, for example, by the Task Force on Climate-Related Financial Disclosures will, over time, become a set of standards. At the moment the regime is voluntary, but it won't remain so.

However, it's also driven by a sense of responsibility. Shell CEO Ben van Beurden put it well when he said that climate change is 'the defining issue of our time', and most senior executives I've spoken to want to play their part in reducing emissions. However, I am yet to meet a scientist, a business leader, a policy specialist or a climate expert who believes that we're going to hold global temperature rises below 2°C, not one. And once that ceiling is breached, the impact of climate change on markets, supply chains, the availability of labour and social stability will grow, making it even harder for business to reverse the tide.

Shell's announcement that it is willing to set specific CO₂ emission targets and link these to executive pay is heartening. And, hopefully, in my view, this will set a precedent that other oil and gas companies will follow. It's in everybody's interests for corporations to be able to publicly commit to specific percentage reductions and then be transparent on their performance. Key to the Shell commitment was the engagement of investors, who are increasingly outspoken. The investor consortium Climate Action 100+, for example, now represents over \$32tn in assets; it advocates that corporations demonstrate they are Paris compliant. To the extent that energy companies and investors learn to collaborate on addressing CO₂ emissions in a timely way, we have a chance of forging a future where the worst effects of climate change can be avoided.



Investors are increasingly outspoken. The consortium Climate Action 100+ now represents over \$32tn in assets and advocates that corporations demonstrate they are Paris compliant.



The Eiffel Tower is illuminated with the words 'Paris Agreement is done'



The mere mention of tax often provokes a negative reaction, so we have to educate people that the proceeds from such a levy would be distributed in an equitable way that will reduce carbon emissions...

Education and leadership

Both energy companies and investors also need to do a better job of educating civil society about what they do and why they do it. An asset manager, for example, might be criticised for holding stakes in carbon emitters while promoting its sustainability ethos, but that investor might see maintaining a stake as the best way to effect change. Education is also needed around some of the more controversial policies required to reduce CO₂ emissions, such as a carbon tax. The mere mention of tax often provokes a negative reaction, so we have to educate people that the proceeds from such a levy would be distributed in an equitable way

that will reduce carbon emissions and ease the financial impact on those who can least afford it, rather than simply filling a general budget coffer. We live in a time when people are suspicious of the integrity of the information they receive, so effective communication is essential for policies such as these – and the parties that propose them – to win widespread support.

All of this requires a new kind of leadership where both private and public sector leaders step forward to embrace an uncommon destiny of putting the interests of the planet and its inhabitants above everything else.

At Notre Dame we have been working on a structural model to drive energy

transition, which covers seven areas that are relevant to business. Working within this framework will require a different way of thinking; all of its elements need to be considered within the construct of our inherent unity. We are one species, we have one planet, and we cannot build a wall high enough to keep out CO₂ emissions. So how do we take the wellbeing of the totality into account? How do we demonstrate a willingness to co-operate that goes beyond traditional boundaries of nation state, politics or religion? It's very clear that no business can do this on its own. It's a huge challenge but we have to maintain a sense of optimism if we are to get there. We have no other option.

Seven steps to energy transition – the Notre Dame model

by Leo Burke



1

Fiduciary responsibility

Senior executives will need to be really smart about how they manage their fiduciary responsibilities through the energy transition period because they're going to have to make trade-offs that will have financial implications. They're going to have to stretch their perspectives.

2

Decarbonisation

Decarbonisation can happen in three ways – through greater energy efficiency, substitution (switching to renewable energy rather than fossil fuel-generated supplies) and carbon capture. There's a lot of innovation in this space – techniques have been developed, for example, that enable more carbon to be captured in cement than is generated producing it.

3

Involvement of civil society

This is very important. Businesses can help educate citizens and civil society about what's needed to drive energy transition. We have to get people working together in a much broader way than we do now.

4

Universal access to electricity

Today there are more than one billion people around the world without access to electricity. This locks them into poverty, so we have to find ways of creating access in the most carbon-neutral way possible. The fact that the world's population will rise by more than two billion over the next 30 years only adds to the challenge.

5

Deconsumption

We need to rethink the role consumption plays in society. The level of waste – particularly in OECD countries – is way too high. So we have to reconsider how every aspect of our lives is moderated, without sacrificing the intangible values that we hold as being necessary for a high quality of life.

6

Innovative policy

We need an equitable carbon pricing that is interoperable between countries. Until we have policies that price in the externality of CO₂ emissions, tackling climate change will continue to elude us.

7

'Care for our common home'

All of this requires us to buy into the concept of 'care for our common home', which includes everything from environmental stewardship to looking after the disadvantaged. Climate change will disproportionately affect island nations and create refugees in different regions. So how do we take that into account in the way decisions are made? This is an important issue for all elements of society, including business.



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