

Managing Climate Change

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Ghosts of talks past set to loom over Doha

Progress could be slowed by the finalising of older negotiations and the wrapping up of the Kyoto protocol, reports *Pilita Clark*

This year's annual global climate talks in the Qatari capital of Doha were always going to be different. For the first time since the UN meetings began 17 years ago, the host will be a Gulf state in the heartland of the fossil fuel extraction behind the greenhouse gas emissions the talks are supposed to curb.

Qatar is the world's biggest supplier of both liquefied natural gas and per capita emissions of carbon dioxide, the main greenhouse gas. The other members of the regional alliance that it belongs to, the Gulf Co-operation Council – Kuwait, the United Arab Emirates, Bahrain, Saudi Arabia and Oman – are in the top 15 per capita carbon emitters, according to the US Department of Energy's Carbon Dioxide Information Analysis Center.

Saudi Arabia, moreover, a founding member of the Opec oil cartel, has long been considered an obstructive force in climate negotiations, making climate policy analysts unsure about what will happen in Doha.

"It is going to be very interesting to see how it plays out," says Joanna Depledge of the University of Cambridge, author of a paper on Saudi obstructionism, "Striving for No".

On the one hand, Qatar will not want to antagonise its neighbours, she says, but it is also regarded as a moderniser in the region and as president of the Doha meeting, it will want to have a good conference. "Qatar will be genuinely anxious to ensure the talks succeed," Dr Depledge says. "That's what being host is all about."

There were gasps of surprise at last year's climate conference in Durban, when it was announced Qatar had beaten South Korea in a fraught race to host this year's talks. South Korea has an ambitious green growth agenda that includes plans to spend billions of dollars on renewable energy and accelerating a shift to a low-carbon economy.

Qatar, in contrast, has not followed the lead of Papua New Guinea, the

Maldives, Sierra Leone and other developing countries that have voluntarily submitted carbon cutting plans to the UN, in line with agreements forged at past climate talks.

That has made Qatar a target for the environmental groups that closely watch each year's talks, such as Climate Action Network International, a network of NGOs with more than 700 members in some 90 countries.

"In order for Qatar to host a successful [meeting] they need to show leadership," the group says. "As a high per capita emitter and a wealthy per capita country, Qatar can afford to develop a comprehensive mitigation plan that will demonstrate how they will reduce their absolute emissions from current high levels."

The actions of the talks' host will undoubtedly be a focus of the meeting, known as COP18 because it is the 18th session of the so-called Conference of the Parties to the UN Framework Convention on Climate Change, the treaty adopted at the 1992 Rio Earth summit that spawned global climate negotiations.

Much of this year's two-week meeting, which starts today, will again be consumed by the arduous struggle to prevent what many scientists warn is the increasing likelihood of dangerous global warming in coming decades. At last year's talks in Durban, South Africa, marathon negotiations that ran more than a day overtime eventually produced an agreement to seal a new binding global climate deal by 2015.

This agreement, known as the Durban Platform, was considered a breakthrough by some because all nations – rich and poor – supported it.

One of the chief reasons that talks have been deadlocked for so long is that the US has insisted it will not be bound by any pact that does not include big emerging economic rivals such as China, the world's largest emitter of carbon dioxide.

China and other large developing countries, such as India, said they would not be a part of any deal that



Hot issue: Filipino protesters in Manila call for drastic cuts in greenhouse gas emissions following US president Barack Obama's re-election this month EPA

'Qatar will be genuinely anxious to ensure the talks succeed. That's what being host is all about'

does not include the US, the globe's richest nation. Even if the Durban Platform does produce a deal by 2015, however, countries agreed it does not have to be implemented until 2020.

Although some nations want this year's talks in Doha to produce more meaningful action on emissions before that deadline, it is by no means clear that this will happen. Instead, officials say the meeting will be dominated by finalising older negotiations that preceded Durban, and wrapping up decisions on the next phase of the Kyoto protocol, the climate treaty that binds wealthy countries to emissions cuts.

Adopted in 1997, the Kyoto agreement set binding targets for industrialised countries to reduce emissions by an average of 5 per cent, compared with 1990 levels, over the five years from 2008 to 2012. Though countries at Durban last year agreed there should be a second phase of the treaty after 2012, a lot of details remain to be finalised.

As well, the number of countries that will take part in a second phase of Kyoto keeps shrinking from the group that originally signed up to lower their carbon pollution. Japan, Canada and Russia have suggested that they will opt out of a second phase. Although Australia said this month it would join up, neighbouring

New Zealand said it would not.

The US signed but never ratified the Kyoto protocol because it did not impose obligations on China and other large developing countries. The 27 EU countries and a few others will also recommit but they represent a small and declining share of world emitters that will.

Still, developing nations insist there has to be a second phase of Kyoto because it enshrines the idea that richer countries must shoulder a larger burden of emissions reduction. A growing number of prominent public bodies, meanwhile, say the risk of dangerous climate change requires far more rapid action.

The World Bank is one of a number of normally conservative bodies that this month warned of what its president, Jim Yong Kim, says could be "devastating" climate change if average world temperatures keep rising from pre-industrial era levels. The International Energy Agency has also urged rapid action.

While some observers hold out hope that President Barack Obama's re-election in the US – and perhaps China's newly installed leaders – could boost progress in Doha, others argue that the nature of the talks themselves will always make this difficult.

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Risks to global food security increase

Essential commodities

The world must prepare for greater unpredictability, says *Sarah Murray*

The world's farmers are the canaries in the mine when it comes to climate change. What affects farmers affects the global food supply and causes the price rises that hit middle class wallets and increases the risk of hunger for the world's poor.

Climate change is certainly not the only culprit when it comes to food insecurity. A complex cocktail of demographic, economic and policy changes can be blamed for increased pressure on the food supply.

First, increasingly affluent citizens in countries such as China and India want to consume more better quality food and meat, both of which are highly resource intensive.

Competition for agricultural land has intensified, with increased biofuel production and expanding urban areas.

While coping with global food shortages demands cross-border collaboration, many nations have done

the opposite, imposing export bans on food commodities in what are effectively "beggar thy neighbour" policies.

If these were the only pressures on the global food supply, feeding the world sustainably could still be achievable, says Jerry Nelson, a senior research fellow at the International Food Policy Research Institute (IFPRI). "If you didn't have climate change, you could tell a story about how it will be challenging and how we need to invest more in productivity, reduce waste and manage international trade," he says. "But this would be something we could accomplish."

"When you throw climate change into the mix, that makes everything a lot more difficult."

Gary Toennissen, the managing director at the Rockefeller Foundation and head of its agricultural development strategy, says: "World food supplies are already tighter for a whole host of reasons."

"Under that kind of tight food situation, even a normal variability in climate causes a shortfall in supply," he says. "And all the indicators are that there will be increased variability."

Tim Gore, climate change policy adviser for Oxfam, the anti-poverty charity, cites predictions that for every degree rise in temperature during the rice growing period, yields are expected to decline by 10 per cent. "Yield productivity is going to go backwards just as we need it to increase," he says.

While few firm predictions exist, some regions will be more badly affected

Climate change is having a number of effects on food production.

First, rising sea levels increase the risk of flooding, particularly in coastal areas. Higher temperatures cause greater evaporation – and what goes up must come down, increasing land-based water volumes and changing water distribution seasonally.

All these changes have disruptive effects on crop production.

'Even a normal variability in climate causes a shortfall in food supply'

However, the effect of climate change is not only felt in steady, incremental shifts but also in volatility, unpredictability and an increase in extreme storms, floods and droughts. "You can't point to any particular weather event and call it climate change," says Mr Nelson. "But the evidence seems to be increasingly clear, with all the messy signals going on, that greenhouse gases emitted by human activity are causing changes to our climate over time."

Among the examples of how this affects agriculture are the failure of Russian wheat crops in the wake of an unusually dry and hot summer, the severe drought in the US farming belt, decimating corn and soya crops, and the 2010 Pakistan floods, resulting in \$2bn in agriculture-related losses.

than others. "The models show that southern Africa in particular is likely to be faced with increased drought and temperature," says Mr Toennissen.

In South Asia, the IFPRI predicts climate change will result in average yields in 2050 being down by about half from 2000 levels for wheat, by 17 per cent for rice and by about 6 per cent for maize.

However, the effect of climate change is not only felt in steady, incremental shifts but also in volatility, unpredictability and an increase in extreme storms, floods and droughts.

"While investment in agricultural research has increased in recent years, policy co-ordination among nations is harder to secure. Internationally, consensus can be reached on, for example, the dangers to the food supply of biofuel production. But when it comes to national concerns, governments often act to preserve narrow interests and meet the demands of powerful industry lobby groups."

While the difficulties of tackling the effects of climate change on food security are not insubstantial, a far greater barrier exists – the lack of political will.

Business fails to reduce footprint

Carbon emissions

Lack of a universal method of reporting cuts does not help, says *Sarah Murray*

Most corporate responsibility reports include information on the company's carbon footprint and an ambitious reduction goal. However, while leading companies are making progress on lowering carbon emissions, some experts argue that business as a whole is falling behind, with a vast gap between actual reductions and those that scientists estimate are needed to halt climate warming.

Judging by the results being reported, some companies are making impressive strides. This year, 78 per cent reporting to the Carbon Disclosure Project said they were integrating climate change into their



Target setters: Paul Dickinson (left), chairman of CDP, with Paul Simpson, the project's chief executive

Rosie Hallam

business strategies. This is up 10 per cent from 2011.

The CDP uses the power of 655 institutional investors with \$78tn in assets to persuade companies to disclose and manage their emissions. Targets set are publicly available on its website and elsewhere.

"The establishment of public targets does have a significant impact in focusing the mind on achieving them," says Paul Dickinson, executive chairman and one of the CDP's founders.

Recent CDP results support this view. They reveal

that companies participating in its programme had reduced reported emissions from 3.6bn metric tons in 2009 to 3.1bn metric tons this year – the equivalent of taking 138m cars off the road.

However, other figures show business falling woefully behind when it comes to reporting and reducing carbon footprint. A third of CDP companies reported no emissions reductions at all.

A study of 600 companies by Ceres, a network of investors and environmentalists, found that

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Green revolution becomes a plank of Beijing political agenda

China Change of direction aims to damp unrest and shift economy away from heavy and polluting industry, writes *Leslie Hook*

Once every five years, the head of the world's second-largest economy addresses the Communist party congress. The highly scripted speech kicks off what is China's most important political event and many elements of the speech remain the same from one congress to the next.

There are calls to reform, warnings against corruption and many references to following the "path of socialism with Chinese characteristics".

But this year party leader Hu Jintao changed the content of his address a little by adding a new section that called for greater environmental protection, including firm caps on energy, water and land use.

"We should launch a revolution in energy production and consumption," he said, acknowledging that China faced "increasing resource constraints, severe environmental pollution and a deteriorating ecosystem".

Mr Hu called for environmental measures that use prices, taxes and fees to help control resource consumption and ecological damage. He advocated trading trials in energy savings,

carbon emission rights, pollution discharge rights and water rights.

His speech in November marked the first time the environment had earned a place of its own in the 12-section report. The shift in tone was reinforced a week later when the Chinese Communist party amended its constitution to add "ecological progress" as a priority alongside other goals such as economic, political, cultural and social progress – an oblique admission of the heavy environmental toll that has come with breakneck economic growth.

Mr Hu's words are of global significance. China is the world's biggest consumer of energy and biggest emitter of carbon and other pollutants, some of which travel thousands of miles. Analysts believe the prospects for any future worldwide carbon trading scheme depend largely on China's policies. The country has emerged as a prominent voice in previous rounds of UN climate talks.

Beijing has committed to becoming more carbon efficient and cutting carbon intensity by 40 per cent by 2020 from 2005 levels. Carbon intensity refers to carbon emissions relative to

economic activity, so China's carbon emissions will still grow in absolute terms. Policy makers have firm targets for reducing emissions of sulphur dioxide and nitrous oxide by 2015.

The fight to control pollution is a central task of the new Chinese leadership for two reasons. First, environmental degradation has become a growing cause of social unrest. Second, the government sees controlling pollution as a key lever in its efforts to rebalance the economy away from energy-guzzling heavy industries towards slower, greener growth.

This year has seen some high-profile protests, as Chinese citizens become more aware of the health dangers of pollution. In July, protests over a new copper-processing facility erupted in the southern town of Shifang, prompting the local government to cancel the project. In October, rioting broke out in Ningbo over the construction of a petrochemical facility, which forced the shelving of the plan.

These protests have contributed to a growing sense of urgency expressed by Chinese leaders, who are trying to maintain social stability. Environ-

ment minister Zhou Shengxian says they "are starting to see a phenomenon called 'not in my backyard'". As a result of the rising protests, large projects will have to conduct a "social risk" assessment to gain regulatory approval in future, on top of the existing requirement for an environmental risk assessment, Mr Zhou says.

Despite strong words, implementing environmental policies is another matter. Legal enforcement of environmental policies has lagged behind, even as regulations are tougher.

Resistance from powerful state-owned enterprises has been a factor in delaying or watering down some environmental regulations. The introduction of Euro 4 diesel emission standards, originally scheduled to take effect in January 2010, has been delayed many times because of resistance from state-owned oil companies and is programmed for July 2013.

Lu Xuedu, a former climate change negotiator at the National Climate Centre of China, says Mr Hu's goals for the environment were comprehensive and challenging. "To get this job done, it is very important to have

Light and heat: an Anhui province chemical factory. China's leaders want slower but greener growth

Reuters



Legal enforcement of environmental policies has lagged behind, even as regulations are tougher

matching laws, administrative regulations, standards and law enforcement," Mr Lu says.

Others are optimistic that China's economy will slowly fall into line with the more sustainable development envisioned by Beijing. "China is still steered by the government, so people only pay attention to things after they are added to government work targets," says Guo Peiyuan, founder of environmental consultancy SynTao. He says a key issue for environmental regulation is who will bear the costs and whether the economic incentives for going green line up.

"Take green finance," he says, referring to government efforts to encourage banks to lend to sustainable projects. "Banks pursue profits but, when they implement the green finance policy, they find some firms they are not supposed to lend to can make money."

Mr Guo says profit incentives for banks need to be better aligned with environmental incentives for the government's efforts on the latter to succeed. If Mr Hu's policies are carried out, that could happen sooner rather than later.

Heat is on desert states to switch to renewables

Gulf energy sources

Growth puts pressure on oil and gas supply, writes *Michael Peel*

Saudi Arabia plans for solar power to deliver a third of its domestic energy needs by 2032, the most ambitious of a series of efforts across hydrocarbon-hungry Gulf states to promote renewable resources.

While questions remain over whether some green initiatives announced in the region are more about public relations than serious intent, a number of projects are seen as credible because they are aimed at meeting rising energy demand.

Growth in the use of renewables rests on the contrast between the region's huge oil and gas exports and the squeeze being exerted by rapid economic expansion on domestic energy supplies.

"The driver in Saudi Arabia and Dubai is very much economic and energy security," says Robin Mills, an analyst at Dubai-based Manaar Energy Consulting. "[The efforts] have quite solid foundations – they are certainly not PR affairs."

The import dependent Gulf desert states are among the world's worst greenhouse gas polluters per head of population. Intensive day-to-day energy demand from, for example, air conditioning and water desalination have been buttressed by construction projects fuelled by oil and gas income.

In a striking study based on 2009 data and published by the US government's Carbon Dioxide Information Analysis Center, Qatar produced the most carbon emissions per person of the 215 countries surveyed, with Kuwait in fourth place and the United Arab Emirates sixth. All six states in the Gulf Co-operation Council –

which also comprises Saudi Arabia, Bahrain and Oman – were among the top 15 polluters, four of them ahead of the US.

Even more pertinently, Gulf states are finding it increasingly difficult to meet local energy demand, in part due to rapid economic expansion and the arrival of large numbers of expatriates to work on building projects.

The UAE – which, like other Gulf states, is heavily gas dependent – has announced plans to install 5.6GW of nuclear power to increase electricity generating capacity from 18GW last year to as much as 40.5GW by 2030.

In Saudi Arabia, the authorities burn crude oil to meet peak electricity demand in the summer, when air conditioning use is at its highest. Each barrel used for this purpose represents about \$100 foregone on the international export market.

Faced with these economic and environmental imperatives, Saudi Arabia and several other GCC countries aim to meet more than 5 per cent of their energy needs from renewables, principally solar.

Qatar plans to install 1.8GW of solar capacity by 2014. Abu Dhabi, the UAE's political centre, wants 7 per cent of electricity-generating capacity to come from renewables by 2020, while Dubai, the UAE's commercial centre, aims for solar to account for 5 per cent of electricity-generating capacity by 2030, says Steve Griffiths, an executive director

of the Masdar Institute, a UAE-based government-established research body.

"The shift is towards the greatest and most abundant resources, solar and wind," Dr Griffiths says, pointing to the new UAE's 100MW Shams 1 solar project, which has been developed by the government in co-operation with France's Total and Abengoa Solar of Spain. But Dr Griffiths and others say the uptake of renewables depends on socioeconomic trends: if electricity demand falls or domestic hydrocarbon supplies grow, solar, wind and other green options become less attractive. One scenario is that the Gulf countries begin to use non-conventional hydrocarbons such as shale oil and gas on a large scale. These are transforming the energy position of the US and, while not yet exploited to any significant degree in the Gulf, some observers expect them to have an effect there one day, too.

But Frank Wouters, deputy director-general of the International Renewable Energy Agency, an inter-governmental body based in Abu Dhabi, says the use of unconventional hydrocarbons in the Gulf is likely to



Solar panels at the Masdar Institute's energy project Getty

be limited for the time being. There are potential problems in transporting them within the region and a lack of the fresh water that is needed in large volumes to extract them.

Another factor that could undermine renewables in the Gulf is if increases in electricity demand turn out to be lower than projected – because economic growth is slower than expected or energy conservation measures become more effective. Cuts in electricity subsidies – which, in Abu Dhabi, amount to 50 per cent for expatriates and more than 85 per cent for nationals – could also curb energy use.

Vahid Fotuhi, president of the Emirates Solar Industry Association, a not-for-profit grouping of companies, says the task facing promoters of renewables in the region is "daunting". But, pointing to moves in some countries to have solar systems installed as standard on some new buildings, he insists the obstacles of past energy habits and future uncertainties could be overcome.

"Next year is going to be a breakthrough year," he says. "It is going to be raining solar projects in Saudi – if things continue as they are."

Abdullah bin Hamad al-Attiyah may well go down in history as the main architect of Qatar's energy transformation. Appointed oil minister in 1992, the gregarious Mr Attiyah oversaw the massive natural gas export infrastructure programme that has turned the Gulf state from a regional backwater into one of the world's richest states. In the 1990s, Qatar faced fiscal crises when oil prices slumped. But under the leadership of its ruler Sheikh Hamad bin Khalifa Al Thani, who overthrew his father in 1995, Doha borrowed from capital markets to turn the country into the largest supplier of liquefied natural gas, with customers spanning US, Europe and Asia. "That will be his greatest legacy," says one observer of Mr Attiyah who stepped down as energy minister in 2011. "His job is done."

Since then, the history buff has flitted between various jobs. Mr Attiyah first moved to run the emir's court, the ruler's locus of power that, in the Gulf sometimes acts as a cabinet office, or inter-agency body. He left to take the reins of a state watchdog, Qatar's administrative control and transparency authority, a rare public acknowledgment of the corruption that affects so many regional states. Qatar's hosting of the UN climate change conference serves up another challenge for the former minister, who is now the session's president, combining his energy knowledge with

Former oil minister takes on challenge of Doha session

Profile
Abdullah bin Hamad al-Attiyah

Opec regular tackles a difficult summit, writes *Simeon Kerr*

administrative skills and diplomacy that he wielded at Opec.

Mr Attiyah hails from an influential Qatari clan that has strong links to the military. His role within the energy industry has put him firmly within the top rank of Qatari decision makers over the past couple of decades.

"By virtue of his role in establishing the modern Qatari gas industry and his close relations with the emir, Mr Attiyah retains a say in Qatar's energy decision making structure," says David Roberts, deputy director of the Royal United Services Institute in Qatar.

But some wonder whether the former oil minister is the man to marry the all-consuming, hydrocarbons-fuelled Gulf to green issues.

One analyst says Mr Attiyah hails from a generation of Gulf politicians who are unlikely to grasp climate change issues. He is not likely to accept calls for Gulf energy-producers such as Qatar to implement changes or accept penalties for their high per capita carbon usage.

The Gulf's high use of electricity, water and cars is going to provide an interesting backdrop to the sensitive UN climate change negotiations.

Despite the desert region's pleasant winter temperatures, the negotiators will probably sit in air-conditioned halls.

But Doha is not one to let the odd local quirk get in the way of a good conference. Qatar, via its cultural and sport initiatives, is seeking to make its mark on the global stage, where it has already emerged as a major investor and leading regional diplomatic force.

The Gulf state may finally be flirting with democracy via long-delayed parliamentary elections next year, but its transformation has come through the absolute

rule of the Al Thani family.

Mr Attiyah, along with others such as the finance minister, count themselves as the most influential "commoners" in the land.

He has the rank of prime minister without portfolio. That puts him, on paper, on a par with Sheikh Hamad bin Jassim bin Jabr Al Thani, the foreign and prime minister, known for his business empire and international investment portfolio as much as his diplomacy.

Mr Attiyah told friends that he left the oil job to

takes this reputation forward into this new role."

Replaced as oil minister by his understudy Mohammed al-Sada, the world has yet to readjust to Mr Attiyah's new role, so entrenched had the 60-year-old become on the international energy stage.

An Opec regular, Mr Attiyah was renowned as one of the most talkative, open ministers, prefacing his comments with his trademark verbal tic: "for sure".

His wide knowledge of ancient and contemporary history no doubt aided his skills as a raconteur, even if his English was less fluent than other ministers.

While many officials treated the marauding pack of Opec journalists with disdain, Mr Attiyah's grace as hacks fought each other for market-moving scoops never failed to surprise. The minister would sit reporters down and talk for so long that the attentive throng eventually ran out of questions and put down their notebooks – as he continued to speak.

That personable enthusiasm will no doubt lubricate what may prove to be difficult discussions in Doha.

Raconteur: Abdullah bin Hamad al-Attiyah

end the constant travel that came with it, to Vienna and other locations for Opec meetings, as well as visits to Qatar's gas customers.

But organising the high-profile UN event has generated its own share of travel and once the climate change conference is done Mr Attiyah, who developed a reputation for transparency during his time at the energy ministry, will go back to his day job at the anti-corruption watchdog.

"We are yet to see how his role establishing the transparency committee will evolve or indeed what kind of role it will have," says Mr Roberts. "He is understood to have cleared up the energy industry in Qatar from inherent corrupt practices and

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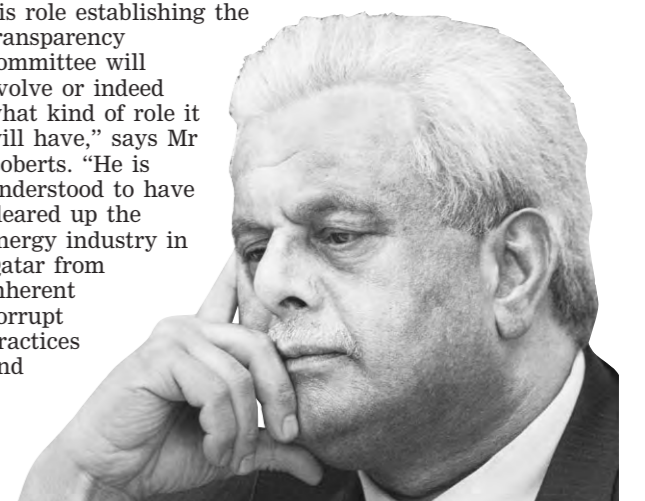
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Twitter co-founder puts his energy into clean tech

Entrepreneurship Evan Williams believes tackling climate change is not only important, it offers rich business opportunities, writes *Ed Crooks*

Shortly before going on stage to speak at the opening ceremony of this year's Climate Week in New York, Evan Williams tweeted a picture of Tony Blair at the podium, using his most famous creation to share a view of the world that he moves in.

As co-founder of two of the most successful social media platforms of the past decade, Twitter and Blogger, Mr Williams has an unassailable status as an internet entrepreneur.

At the age of 40, he is attempting something very different. In the words of the Obvious Corporation, the business incubator firm that is his principal focus, he wants "to make the world a better place".

Climate change is "the most important issue facing the world", he says, and since stepping down as chief executive of Twitter two years ago, he has had more free time to address it.

"Unfortunately climate has become a dirty word – obviously in politics, but even to some degree in my world, in venture capital," he says. "People hesitate if they see something that's purported to be green. That's not a reason to invest for many people."

He is as enthusiastic about the potential of clean technology as any

environmental campaigner but believes it has often been sold to people badly.

The way to sell products and services that are good for the environment, he says, is not to say that they are good for the environment.

"You need to bifurcate the message, and appeal to early adopters and people who care about that stuff to prove your technologies, to get scale. But that only works if what you're offering is a viable alternative. Otherwise you're just producing guilt, and that turns people off," he says.

"[Consumers] make their choice on what is the selfish thing for them. The media has been manipulated to such a degree that, even if it is better, you shouldn't say it's better and it's better for the world. Just leave that out, because then they don't believe the first part. Just say: 'it's better for you'."

The paradigm for this approach, he says, is Beyond Meat, the developer of meat substitutes made from plant protein, which is backed by Obvious. "Moral or health implications aside, turning plant protein into what seems like the very same substance, [rather than] growing a whole bird and then discarding most of it, is just

incredibly more efficient," he says.

Beyond Meat has its chicken substitute on the market, mostly in Whole Foods stores in California, and is planning other products, including substitutes for beef and fish. Far from being resistant to an artificial product, Mr Williams says, consumers are "buying it as fast as we can make it".

The move into food production is a return to his roots for someone who describes himself as "a Nebraska farm boy", and who cares about climate change because he understands the significance of threats such as the droughts that hit much of the US corn belt this year.

With Beyond Meat, Obvious is making the leap from processing information to processing matter. It is a step that has proved troublesome for several entrepreneurs who have made fortunes in IT and then stumbled when they tried to achieve similar success in energy and environmental technology.

Mr Williams argues that whether in clean tech or IT, the rules of the start-up game are the same.

"If you look at the internet, the vast majority of start-ups are not successful. But the ones that are, are very successful. So you can't point to



Evan Williams: 'Unfortunately climate has become a dirty word'

Reuters

the unsuccessful ones and say there's no hope for this field. It's just that they had the wrong idea or they had bad execution," he says.

"A lot of the time with clean tech we've been trying to solve everything at once, when there's lots of low-hanging fruit that's not being addressed today, especially in the area of efficiency."

His plans for his new home in the fashionable Parnassus Heights area of San Francisco include design features such as insulation and solar panels that will give the house zero net energy consumption.

"The fact that we can now build buildings that use no energy shows that the solutions are available," he says. "And the benefits of that are not just in energy. They're healthier, they will feel better – they're better in every way."

If some of these technologies can break through to the mass market, the consequences could be profound, for business as well as for the environment. "I think it's the most important issue facing the world, so that's what captures my interest," he says. "But my optimistic and entrepreneurial side says it's also the biggest opportunity."

Business fails to reduce footprint

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groups that works on issues such as climate change, found only a third were setting targets.

"We're not seeing enough companies even setting time-bound greenhouse gas emission goals," says Mindy Lubber, president of Ceres. "Our expectation is that companies need to set a 25 per cent reduction target for greenhouse gas emissions by 2020 from a 2005 baseline. Not many companies are getting there yet."

Those that do set goals have objectives that vary between intensity-based targets (reductions per dollar generated in revenue) and absolute goals within a stipulated time.

"You have to look at what kind of targets they are setting and whether it is forward looking or not," says Boyd Cohen, climate

'We're not seeing enough companies even setting time-bound greenhouse gas emission goals'

strategist and the co-author of *The Way Out: Kick-starting Capitalism to Save Our Economic Ass*.

Mr Cohen argues a lot of companies set retroactive targets or disclose selectively, such as only reporting on what they define as their most important business lines. "Whereas, with a forward-looking target to reduce overall emissions by 50 per cent by 2020", he says, companies could not "weasel out".

A lack of reporting standards adds to the difficulties of getting a clear picture of global corporate sector emissions. The CDP has emerged as a leader in this respect, collecting information from thousands of companies on their greenhouse gas emissions.

Not all the world's companies participate in the CDP's programme and while it provides a powerful platform for transparency

on corporate carbon emissions, it does not provide a standard. While many companies use the Global Reporting Initiative, and the integrated reporting movement is gaining momentum, no universally accepted reporting format for sustainability practices exists.

The bigger question is whether companies can make a sufficient reduction in carbon footprint to meet what scientists say will be needed to avoid more rises in global temperatures.

"You're talking about everything being produced with 10 to 15 per cent of the energy and carbon intensity that it is now – and it needs to operate at that level too," says Peter Lacy, Asia-Pacific managing director of sustainability services at Accenture, the consultancy. "There's no way of describing that as anything other than an industrial revolution."

Yet while leading companies are making impressive progress in lowering their carbon intensity, market mechanisms, shareholder demands and corporate strategies all point to the production and sale of more goods and services.

Mr Dickinson does not believe that this will necessarily lead to increased greenhouse gases. He cites tremendous opportunities to use technology to reduce transport related emissions or the fact that carbon-efficient retailers could start to replace inefficient ones.

"I'm reasonably positive about the potential to have healthy growth and to reduce greenhouse gas emissions at the same time," he says.

Mr Lacy is less optimistic. "At this point, even the leaders are only on an incremental change curve and the rest of the world is heading south," he says.

He does point out one bright spot. "It's not that the technology doesn't exist and we don't know what needs to be done," he says. "The technology, the knowledge and the capacity for us to scale solutions and tackle the problem is available to us now."

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Managing Climate Change

Ice cap drilling proves tough project to crack

Arctic Oil and gas companies face loud protests but ultimately may be defeated by the unsustainable cost of extraction, writes *Jessica Twentyman*

The annual retreat of Arctic ice this summer took climate scientists by surprise, setting a new record for the seasonal minimum extent. At its lowest point, in mid-September, the Arctic ice extent had shrunk to 3.41m square kilometres, around half the 1979-2000 average.

For environmentalists, this drastic melting is a stark warning of the threat greenhouse gas emissions pose to that region in particular and the planet in general. More must be done to protect it, they say.

For some businesses, however, it represents a huge opportunity, as melting ice frees up normally ice-packed sea routes and makes it easier – in theory – to extract the Arctic's previously untapped natural resources. It is reckoned the Arctic holds around 10 per cent of the world's untapped oil reserves and 30 per cent of its natural gas.

This conflict is making a battleground of the Arctic. Climate change – widely accepted to be the result of burning fossil fuels – could lead to a bonanza of fossil fuel extraction, against a backdrop of furious environmental protest.

Environmental group Greenpeace is calling for a halt to oil drilling and industrial fishing in the Arctic and for the area to be declared a global sanctuary. Its high-profile Save the Arctic campaign is backed by musician Sir Paul McCartney, businessman Sir Richard Branson and actor Robert Redford, among others.

"There are inherent risks to drilling in the Arctic," says Vicky Wyatt, a campaigner with Greenpeace. "We believe that, however safe an oil company claims its activities in the region are, they simply can't be sure. The extreme weather conditions, the remote location and the presence of ice make drilling really difficult and, in our view, far too risky." An oil spill in this environment, she adds, would be catastrophic.

That view is shared by Peter Wadhams, professor of ocean physics and head of the Polar Ocean Physics Group at the University of Cambridge, who recently told the UK government's Environmental Audit Committee what might happen in the event of a spill or blowout towards the end of the brief Arctic summer drilling window.



Green warfare: environmental protesters scaled Cairn Energy's Leiv Eriksson oil rig off the coast of Greenland in the summer of 2011

Steve Morgan/Greenpeace

"If they can't cap the blowout off or drill a relief well before the winter, the blowout will operate right through the winter months, with oil and gas coming up under the ice," he said.

"The oil coats the bottom of the ice, and if the ice is moving – which is often at about 10km a day – it acts like a great sheet of moving blotting paper, absorbing the oil coming up under it, and carrying it away downstream."

The result, he added, could be "a trail of oiled ice floes 1,000km or more in length, covering a whole swath of the Arctic".

The oil companies tell a different story. Cairn Energy was one of the first to start drilling in the Arctic, and one of the first to be targeted by Greenpeace, whose protesters scaled Cairn's Leiv Eriksson rig off the coast of Greenland in summer 2011.

David Nisbet, Cairn's head of corporate affairs, says the company is working at the invitation of the Greenland government and under "a very robust and comprehensive operating plan [that] reflects the stringent regulations and controls" applied by that government.

"Our oil spill response plan has been approved by the Greenland government and by independent third parties, and includes equipment and personnel at our disposal, for a variety of scenarios," he adds.

Meanwhile, Robert Blaauw, for Shell's Global Arctic Theme, says: "Our record throughout 50 years of operating in Arctic and sub-Arctic regions demonstrates that we have the technical expertise to explore for and produce oil and gas safely and responsibly."

The problem is that most of the

world's easily drilled oil has already been taken. What remains involves huge geological and/or geopolitical risk, is hard to access or is not accessible at all, according to Paul Sankey, lead oil analyst at Deutsche Bank.

"This makes the oil industry far more prepared to go to extremes, especially at a price of \$100 per barrel, in order to identify and exploit new mega resources," he says.

In an oil industry constrained by opportunity, though rarely by capital, he says, these companies simply look for new locations, where the potential scale of the opportunity matches, or preferably exceeds, the challenges involved in extracting resources.

Between the opposing sides stands the Arctic Council, an intergovernmental forum made up of representatives of the eight states with Arctic territory and the six governing organisations of the region's indigenous people.

"The Arctic is very much under pressure now with global warming, certainly, but also because modernisation, globalisation and the high price of natural resources elsewhere are creating a lot of interest in the region," says Gustaf Lind, Sweden's Arctic ambassador and the head of the country's two-year chairmanship of the Arctic Council.

"The difficult balance we have to strike is to develop the Arctic sustainably, because the communities in the north need jobs and economic development, while at the same time ensuring that their environment and traditional ways of life are not ruined," Mr Lind says.

In other words, the Arctic states are under pressure to cash in on oil and gas, and are unlikely to heed any outside call for a moratorium on exploration and drilling.

All this makes the Arctic "the next frontier for many oil companies", says Mr Sankey. But because the risks and costs involved in Arctic extraction are "epic", he says, it is entirely possible the oil industry's appetite for it may start to wane if extraction proves too expensive or new opportunities open elsewhere.

The other, more worrying alternative could be that some companies could focus on Arctic areas where there is less regulation and protest, such as Russia.

"We have the expertise to explore and produce safely and responsibly"

Robert Blaauw, Shell's Global Arctic Theme

Weather needs to become top priority for companies

Management

From flooding to drought, planning is essential, writes *Charles Batchelor*

Vivid images of flood waters swirling through the streets of lower Manhattan and drought-blasted crops on US prairies have brought home to business the devastating cost of severe weather events.

Controversy has surrounded the debate over climate change and humanity's role in its impact on our planet. But evidence of change is growing, with further impetus provided by a report in the July Bulletin of the American Meteorological Society that said individual freak weather events could be linked to global warming.

The society's report concluded that climate change significantly increased the odds of the likelihood of some of last year's unusual weather, including the Texas drought and the unseasonably warm November in Britain.

The drought was about 20 times more likely to occur than it would have been in the 1960s with similar weather patterns, while the warm UK November was about 60 times more likely.

However, no link could be established to the Bangkok floods of 2011. The rain that caused them was not that extreme, although the conversion of farmland to industrial use in recent years meant the damage to the Thai economy and locally based suppliers of automotive and other components was severe.

One report among many may not be enough to convince doubters. "But lots of reports from different experts tends to mean that businesses start to take notice," says Malcolm Preston, global head of sustainability and climate change at consultants PwC. "When

you see what happened in Thailand, you feel it firm and hard."

Business is faced with responding to an increase in regulation aimed at reducing carbon emissions.

It must ensure that its production processes and the long tail of companies in its supply chain are resilient to the challenges of severe weather incidents.

These can range from floods that overwhelm a factory in minutes to much longer-term changes in weather patterns that reduce the rainfall available to grow crops.

Controlling carbon emissions has been one of the core issues to be addressed by regulation. The UK government will require all 1,800 London Stock Exchange-listed companies to measure and report their greenhouse gas emissions from next April while Australia has introduced a carbon trading scheme.

Mr Preston says: "You do need to price carbon to incentivise action."

"Chief executives want regulation that has TLC – transparency, longevity and consistency."



Drought victim: the remains of a cow near Tulla, Texas Getty

Diageo, the global drinks group, says it is on course to meet its target of reducing the carbon emissions of its operations by half by 2015 "as well as our risk exposure to energy insecurity and rising costs".

A £700,000 investment programme at its Cameronbridge distillery in Scotland has cut 3,000 tonnes of CO₂ emissions and made an

annual saving of £1.4m. Redesigning processes cut water use while new equipment and better metering have contributed to cost and carbon reductions.

But managing water in a global company that requires a pure and constant supply to make spirits and beers is a complex challenge. "It is simplistic to set overall targets for water,"

says Michael Alexander, the company's head of environment. "You have to be flexible because you are drawing water from different watersheds. There might be a lack of rainfall or the infrastructure might not be able to provide a supply."

Diageo has begun to focus more closely on the effect of climate change on its access to water around the world, particularly in the dryer parts of Africa. Ensuring a continuous supply involves working with governments, non-governmental organisations and communities.

Mr Alexander says: "We have a set of robust group risk management standards for our 120 operational sites around the world."

"That involves looking at our suppliers and their business and drawing up continuity and crisis management plans."

If Scotland gets warmer this could involve moving cultivation of the barley needed for the company's beers. If Africa suffers more frequent dry spells, this could increase planting of sorghum, which is drought resistant and requires less water in the brewing process than barley.

Failure by business to manage its risks frequently ends up at the door of insurers. "We follow all these climate change reports very closely and do considerable research," says Neil Smith, manager of emerging risks and research at Lloyd's of London, the specialist insurance market. "We say to our syndicates, 'Look at the trends and plan them into your future business.'"

Coming full circle. ClimateWise, a grouping of more than 40 international insurance companies, sponsors an initiative to reduce the environmental impact of the industry's activities.

By applying best practice to drying out water-damaged buildings, energy emissions for such work can be cut by up to 92 per cent, the duration of repair work cut from 159 days to as low as 51 days and claim costs reduced by 9-17 per cent.

There is not enough electricity to ensure the needs of Africa's one billion people. Every day, more than 35 countries in Africa experience load shedding – black outs and brown outs – that prevent people from living and working comfortably.

This reality predictably generates chronic dissatisfaction, slows down the productivity of local companies, and sets back the development of African economies and the quality of life of millions of Africans.

"After China," states Enercap CEO Alexandre Vial, "Africa, with its 54 nations, should be the continent where industrial and manufacturing growth is the most vibrant in the world today. With a dynamic master plan, Africa realistically can overcome its energy challenges, and massive growth will follow. Energy is the key."

Lyon-based Enercap has responded in 2011 with an innovative cost-effective energy plan called "EcoProfitable™ Lighting Africa", which includes the distribution of 200 million Compact Fluorescent Lamps (CFL) in over 25 countries in Africa. Philips has manufactured these bulbs exclusively for Enercap, with African specificity. (The lamps enjoy the lowest levels of mercury and the longest life usage, 15 000 hours, of any CFLs on the planet.)

The use of Compact Fluorescent Lamps reduces by 80% the electricity consumption over traditional incandescent bulbs. Lighting alone in Africa represents up to 60% of electricity consumption during peak hours. When considering the case of huge countries like Nigeria, the savings of electricity is overwhelmingly compelling. The quickest way to save resources and generate massive savings is to reduce the consumption needs.

In collaboration with the United Nations Environment Program, Enercap is working toward replacing all incandescent lamps in Africa with these energy-efficient CFLs.

Enercap has developed a comprehensive strategy to assist African nations at every phase of this process of transformation.

Enercap accompanies each nation at every stage of the project – definition of needs, technical research, supply of lamps, financing, and the highly lucrative carbon project deployment process.

"Saving energy and creating efficiency," Vial added "should be the first environmental measure for African nations. Electricity production in Africa currently continues to produce massive carbon emissions, is expensive and is in greater shortage here than anywhere else in the world. It's extraordinary how simply changing light bulbs radically improves this situation."

Vial has criss-crossed the African continent bringing his message to Heads of State, energy ministers, and development bankers and institutional directors. But stakeholders are often slow to respond and Vial contends that the simplicity of distributing 10 million CFL lamps, which produces immediate energy savings at minimal cost, is often harder to sell than the construction of a multi-million-dollar power plant, which takes years to build.

The Enercap message is breaking through. By adopting the "Eco-Profitable Lighting Programme", Ghana, an energy leader, has shown the way. Chad, the Democratic Republic of Congo, Senegal, Morocco and Nigeria (UNDP supported) have also embarked in the process, and the West African Development Bank and the Bank of Central African States have respectively shown keen interest.

Vial is emphatic that energy losses can be minimized and more electricity will be available for the public and for African businesses. "Anyone who keeps the electricity flowing and increases the buying power of the people will enjoy great public support."

To learn more about how Enercap is helping Africa solve its power challenges, please contact:

visit www.enercap.fr

or call: +33 4 78 55 90 66 / +33 6 16 74 82 16

EcoProfitable™ Lighting Africa – key figures

- 200 million low consumption lamps
- 25 countries
- Largest PoA (Carbon Credit) in Africa
- Reduce power peak load by 8 000 MW
- Save 10 000 GWh of energy / year
- Reduce CO₂ emission by 70 Mt
- Technology: CFL with very low mercury or LED
- Main technical partner: PHILIPS
- Save 20 to 100 \$ per year on each household's electricity bill

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