



The Abdullah Bin Hamad Al-Attiyah International Foundation
for Energy & Sustainable Development

~ *CEO Roundtable Series* ~

WHITE PAPER, SEPTEMBER 2017

The Implications of the Paris Agreement
for Oil and Gas Companies

PRICING A GREEN FUTURE



THE IMPLICATIONS OF THE PARIS AGREEMENT FOR OIL AND GAS COMPANIES

Pricing a Green Future

The world's environmental rulebook is thickening as political momentum behind the Paris Agreement grows, albeit sans the US. To avoid being caught out in the economic cold, oil and gas companies must prep their balance sheets to meet low-carbon goals. But first they need a clear answer to a deeply complex question: how much is it going to cost?

Sparrring between environmentalists and industry has historically been commonplace; green economics is a touchy subject. And unsurprisingly so; the complexity of the challenge is immense. Countries have varying energy needs and economic abilities to mitigate climate change, with each affected in different ways by rising temperatures. Plus, the cost of renewable technologies, including solar and wind, has historically been high. Pinning down a unified and global method to price carbon amidst this maelstrom of disagreement has been challenging.

The signing of the Kyoto Protocol in Japan in 1997 provided a solid political starting point, which was then reinforced by maturing scientific and technology research and development (R&D) that made some of the low carbon technologies touted in the late-1980s more financially viable in the late-2000s. It is worth remembering that all entities are largely operating on a learning-by-doing basis when it comes to pricing carbon; the world's oldest carbon emissions trading market is only 12 years old.

The unprecedented political momentum that resulted in the establishment of the Paris Agreement in the French capital in 2015 changed the tone entirely. A

renewed sense of urgency propelled global discussions on tackling the negative impacts of climate change, including putting a price on carbon. Now, proactively thinking about how to navigate the inevitability of carbon pricing is inexorably printed onto the large majority of oil and gas companies' daily agenda; ambiguity is the enemy when it comes to balance sheets and growth forecasts.

Oil and gas companies are far from novices. Shell warned in 1991 that climate change was happening faster than at any time since the end of the ice age and major energy companies – including BP, Royal Dutch Shell and Statoil – called on the world's governments in 2015 to introduce carbon pricing systems. They also emphasised the need for clear, stable and ambitious policy frameworks that could eventually connect national systems. The latest call from industry in June this year by ExxonMobil, Shell, Total, BP and other large corporations in a one-page advertisement in the Wall Street Journal suggested a gradually rising and revenue-neutral US carbon tax.

Appetite for clarity is unsurprising. The oil and gas industry is beset by unpredictability; political, social and natural incidents, with almost inevitable subsequent

26
The number of years since Shell warned that climate change was happening faster than at any time since the end of the ice age.

40
The number of countries worldwide that use a form of carbon pricing.

13%
Carbon pricing schemes worldwide currently cover around 13% of annual GHG emissions.

2027
The year when offsetting emissions above 2020 levels becomes compulsory in the aviation industry. How will the timetable compare to the oil and gas industry?

Pricing Carbon: Global Evolution

- ◆ Proposals to reform the European Union Emissions Trading Scheme (EU ETS) are under discussion by the EU Parliament, Council and European Commission. Phase 4 of the EU ETS, established in 2005, will run from 2021 to 2030.
- ◆ China, the world's biggest energy consumer, plans to establish a national emissions trading market this year on the back of successful pilot schemes since 2013, including in Beijing, Shanghai and Chongqing.
- ◆ Talk of establishing a Northeast Asia emissions trading hub is slowly gaining traction, spearheaded by the developments in China, Japan and South Korea.
- ◆ Mexico may eventually join California's established emissions trading market. Whether the other countries in the Pacific Alliance – Colombia, Chile and Peru – follow suit remains to be seen.

“Clarity is gold dust in an industry beset by unpredictability; energy companies must already flex to unexpected political, social and natural incidents and the subsequent price volatility.”

price volatility, are relatively common. A 'lower for longer' era of oil prices since mid-2014 and lower gas prices means eagle-eyed accountants who have had to cut payrolls and re-evaluate projects fear any last-minute carbon-related surprises.

Therein lies the value of Article 6; a jewel in the crown of the Paris Agreement. Article 6 broadly supports the idea of co-operation across borders and systems to eventually hook up individual carbon pricing mechanisms – an evolution that market participants hope to see within the coming decade. Around 40 countries and more than 20 cities, states and provinces currently use carbon pricing mechanisms, with many more planning to. Combined, global carbon pricing schemes cover approximately 13% of annual GHG emissions, according to the Carbon Pricing Leadership Association.

The political and economic tussle surrounding the long-discussed offsetting scheme in the aviation industry could offer a beacon of light for oil and gas companies. Last October, the 191-member states of the United Nation's International Civil Aviation Organisation (ICAO) adopted a global carbon dioxide offsetting scheme – known as the Carbon Offset and Reduction Scheme for International Aviation, or CORSIA. CORSIA aims to reduce any annual increase in total CO₂ emissions above 2020 levels, with a voluntary period between 2021–2026 becoming mandatory in 2027. Significant progress has also been made in the shipping industry. After a decade on the regulatory table, the UN's International Maritime Organisation (IMO) ruled last October to reduce the sulphur cap for bunker fuel from 3.5% to 0.5% from 2020.

Cap-and-Trade vs Tax

Emissions trading scheme: Sometimes referred to as a cap-and-trade system, this caps the total level of GHG emissions and allows those industries with low emissions to sell their extra allowances to larger emitters. By creating supply and demand for emissions allowances, an emissions trading scheme establishes a market price for GHG emissions. The cap helps ensure that the required emission reductions will take place to keep the emitters – in aggregate – within their pre-allocated carbon budget.

Carbon tax: Directly sets a price on carbon by defining a tax rate on GHG gas emissions or more commonly on the carbon content of fossil fuels. It is different from an emissions trading scheme in that the emission reduction outcome of a carbon tax is not pre-defined, but the carbon price is.

Source: World Bank



BE HOLISTIC, BE FAST

Putting a price on carbon is not a silver bullet. Complementary policies are equally important to making Article 4 of the Paris Agreement a reality – a tall order. The article says the world must aspire to only emit emissions into the atmosphere that are simultaneously being withdrawn by the second half of this century. In short, the world must have net-zero emissions as soon as possible from 2050 onwards.

The UN Environment Programme warned last November that 2030 are expected to reach 54–56 gigatons of CO₂ emissions equivalent. This is already far above the level of 42 gigatons that is required to have a chance of limiting global warming to 2°C this century. One gigaton is roughly equivalent to the emissions generated by transport in the EU – including aviation – over a year. There is also a black regulatory hole within which more damaging

56
The annual rate of emissions worldwide by 2030 could reach 56 gigatons – far above the level of 42 gigatons that is integral to having a shot at limiting global warming to 2°C this century.

19%
The \$287.5 billion global spend on clean energy in 2016 helped spur a 19% increase in the amount of wind and solar energy connecting to power grids around the world.

60%
The surface area of the GCC that has strong suitability for solar PV deployment.



“Putting a price on carbon is not a silver bullet to climate stability – other comprehensive efforts are unavoidable.”

non-CO₂ emissions, such as nitrogen oxides (NO_x) in aviation, that has not yet been fully addressed. Reducing CO₂ emissions is just the start.

The timetable for Article 4 is very tight; mid-century is just 33 years away. Consider that 33 years ago, it would still be around five years until the UK launched its first wind farm and more than a decade until the Kyoto Protocol, the most significant climate-related deal at the time, was signed.

The Paris-based International Energy Agency (IEA) said Article 4 is viable by 2060, but only if – and it is a big if – significant action is taken quickly. Energy companies cannot rely on ‘business as usual’ scenarios that are based on small incremental efforts. Article 4 means that oil and gas companies must adopt an environmental ethos that flows through every level of the hierarchy. Momentum must run at full burn – the clock is ticking too loudly for the lurching progress of the last two decades to continue.

Willingness by companies to continue broadening their repertoire of renewables and gas projects – the latter is considered the ‘cleanest’ fossil fuel – is paramount. The rate of global spending on clean energy last year fell by 18% to \$287.5 billion, from the record high of \$348.5 billion in 2015, according

to Bloomberg New Energy Finance (BNEF). The decline is a red herring; investors got more value for their money thanks to technological advancements and efficiency. Consequently, there was a 19% increase in the amount of wind and solar energy connected to power grids around the world.

The Abu Dhabi-based International Renewable Energy Agency (IRENA) estimates that around 60% of the GCC’s surface area has strong suitability for solar photovoltaic (PV) deployment. This geographic fortune will help the region sustainably meet the 7.4% annual increase in the Gulf’s power consumption up to 2021, as forecast by Riyadh-based Apicorp. Developing just 1% of this area could create almost 470 gigawatts of additional power-generation capacity – huge potential for pioneering oil and gas companies.

Oil and gas companies can cast their green net further to extend their support to REDD+. REDD+ is an UN initiative to reduce emissions from deforestation and forest degradation in developing countries, as well as to increase conservation, sustainable management of forests and the betterment of forest carbon stocks.

The same applies to nuclear power plants. The UAE’s \$20 billion Barakah plant located 300km west of Abu Dhabi makes the UAE the first country

10%

Up to 210,000 people could be employed in renewables by 2030 – roughly 10% of Dubai’s current population.

500+

The number of climate change laws in 60% of countries that cover around 80% of global emissions.

2007

Since the world’s first green bond a decade ago, the rate of global issuances reached \$60 billion in the first nine months of 2016.



LNG carrier

since 1985 to start construction on an inaugural nuclear power plant, the International Atomic Energy Agency (IAEA) said in 2012. The project will be fully operational by 2020, while Saudi Arabia aims to build 16 nuclear power reactors at a cost of around \$80 billion over the next 25 years.

Oil and gas companies can also support local National Visions by helping spur a greener job market – arguably a wise security measure as MENA has the world’s highest rate of youth unemployment. Achieving the GCC renewable energy targets and plans could create around 140,000 direct jobs every year, according to IRENA. In 2030 alone, up to 210,000 people could be employed in renewables –

a volume that equates to just under 10% of Dubai’s current population.

Significant progress to shape a clearer legal architecture will help oil and gas companies explore new opportunities. So far, more than 500 climate change laws in 60% of countries covering 80% of global emissions have been established, but more are needed. Overall progress so far has created positive sentiment amongst large institutional investors – integral to making Article 4 viable. The European Investment Bank (EIB) issued the world’s first green bond in 2007 and the World Bank estimates that the market has grown to \$60 billion worth of global issuances in the first nine months of 2016 alone.

Tick-Tock goes the climate clock

Red flags are increasingly evident. Temperatures of 54°C (129.3F) in Kuwait last summer marked one of the highest in the world’s recorded history and public showers in Baghdad attempt to cool the heated population. By mid-century, rising temperatures could render parts of Middle East and North Africa (MENA) uninhabitable, according to Germany’s Max Planck Institute for Chemistry and the Cyprus Institute in Nicosia. The economic and social implications of being squeezed into ‘geographic corners’ would be immense – and very expensive. Surely investing in R&D now to prevent further climate extremes is better than facing the cost implications later in the century when the challenges have multiplied? Water scarcity is also a major issue. The World Bank forecasts that MENA will have the greatest expected economic loss from climate-related water scarcity by 2050, at 6–14% of GDP. Qatar alone relies on desalinated water to meet 99% of its municipal needs. The environmental strain will only intensify as the region’s population grows. UN data shows that Qatar’s population could climb by 23% to 3.2 million by 2030, the UAE’s by 18% to 11.05 million, Kuwait’s by 17% to 4.8 million, Saudi Arabia’s by 20% to 39.4 million, Oman’s by 26% to 5.8 million and Bahrain’s by 43% to 2 million.

14%

MENA could experience up to 14% loss to GDP from climate-related water scarcity by 2050.

23%

Qatar’s population is expected to rise by nearly a fifth to 3.2 million by 2030.

1.6

The launch of Qatar’s ‘Jetty Boil-off Gas (JBOG) Recovery Project’ in 2014 aimed to reduce up to 1.6 million tons of CO₂ emissions per year – the equivalent CO₂ emissions of 175,000 cars



Doha, Qatar

“Oil and gas companies in Qatar and beyond must actively help ensure that the Agreement is not overshadowed by political and economic noise. Time is too short to start the process again – the Agreement must succeed.”

Actively seeking partnerships, knowledge sharing and data transparency are all good starting points for oil and gas companies. Germany has set up commissions that help modernize the economy, impart competitiveness and manage the socio-economic transition to a low-carbon future, for example. Sensitivity on the latter has been well-managed by Gulf countries’ slow-but-steady approach since 2015 to reduce energy-related emissions, historically ingrained as a national right in the region’s psyche. In 2014, the World Bank said MENA was home to 5.5% of the world’s population and 3.3% of its GDP, yet it accounted for a 48% of its energy subsidies – a percentage that is falling.

Finding a common voice amidst the varying political, economic and social agendas of most of the world’s 196 nations in the French capital in 2015 was an extraordinary feat. But it represents just the first few pages of oil and gas companies’ low-carbon narrative.

Aside from meeting tangible obligations, oil and gas companies have the crucial and subtle diplomatic task of ensuring that efforts to erase ambiguity – including how to price carbon – are not overshadowed by political and economic noise. Industry, and indeed our natural environment, have tired of the ‘wait and see’ approach. Financial goalposts are needed – now.

Qatar: Green Ethos

Doha hosted the UN Framework Convention on Climate Change (UNFCCC) Conference of Parties (COP 18) in 2012 and Environmental Development is one of the four key pillars detailed in the country’s National Vision. Launched in 2008, Qatar’s National Vision emphasizes the value of harmony between economic growth, social development and environmental protection at a time when many countries were at the early stages of brushing up on their green know-how. Qatar could deepen its reputation as an early mover if it established the region’s first emissions trading market, especially as the country has already evolved into the world’s biggest liquified natural gas (LNG) exporter. Examples of Qatar’s emission reduction projects includes the launch of the ‘Jetty Boil-off Gas (JBOG) Recovery Project’ in late-2014. The project recovers gas, which was previously flared during LNG ship loading at the country’s Port of Ras Laffan. At the time, Qatargas estimated the reduction at 1.6 million tons of CO₂ emissions per year, which equates to the annual GHG emissions generated by 175,000 cars – 22% of the cars on Qatar’s streets at the time. This year, the Qatar General Electricity & Water Corporation (Kahramaa) announced this year that its ongoing National Program for Conservation and Energy Efficiency (Tarsheed) reduced the per capita consumption of electricity and water in the country by 18% and 20%, respectively, in its first phase from 2012-2017. ●



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