



SCARY NUMBERS

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We deal with Scary (high) numbers. As an industry that is what we have to deal with day by day to provide energy for all. And I mean for all. We are currently concerned about providing energy for the future population of the world in a sustainable way. There have been amazing increases in the share of renewables yet overall we still do not provide enough energy for everyone currently on the planet today. Just in my short lifetime, the world population has doubled from 3 billion to now over 7 billion people. So the first scary number is world population.

The UN has recently increased its estimate for 2050 to nearly 10 billion and to over 11 billion people by 2100. These are the average figures, hopefully it will be less but it could also be a lot more and all these people will need energy, food and water. And, thanks to scientific advances, all these people will be living a lot longer and by implication using more resources.

Energy leaders are increasingly acknowledging disruptive change. The one thing above everything else that is keeping global energy leaders awake at night is the impact of digitalisation on the future of the energy system. Industry leaders and policymakers across the globe are considering the impact of innovation with a mixture of excitement and unease.

The second scary number is the amount of energy we currently need just for our existing population. Looking at only the oil industry, we are close to providing the demand of 100 million barrels of oil every day. That is 100 million x 159 litres of product every day. Yet we do this on time, on demand, 24/7, 365 days a year.

And that's just the upstream business. Downstream then provides everything around us. We supply an efficient economic and regular supply to consumers – not just fuel for cars, rail, trucks, ships and planes – but also fuel for power generation, petrochemicals, polymers, lubricants, fertilisers, pharmaceuticals. The list is endless.

If we look at some more scary numbers, we have over 1 billion people that have no access to any form of energy and we have 2.9 billion people who have no access to clean cooking fuels and instead use wood, charcoal, animal dung and other agricultural waste. This leads to over 4 million people (mostly women) dying every year prematurely due to illnesses attributed to air pollution from cooking. To put that in perspective, they are cooking, for many hours, in an environment that is the equivalent of smoking 400 cigarettes per hour. We are working with

the OPEC Fund for International Development (OFID) and others on our Energy Access Platform to highlight all the good things that our industry is achieving in this area.

The world is not going to run out of oil or gas, or coal, anytime soon. We can largely forget about the notion of stranded assets on a worldwide basis and peak demand for the majority (or possibly a plateau) could become like peak oil; a distant memory. Over recent years the renewables sector has considerably reduced the cost of solar and wind, which will make that segment grow even faster than previously expected. For the future, with more scary numbers to come, we will need everything; all fossil fuels, all renewables and even nuclear. Our challenge for the wellbeing of future populations is to continue to provide energy in a clean and sustainable way to all, and again, I mean all. We will have an energy transition that will certainly last longer than most short-term thinkers believe or understand, but this will challenge us to the extremes of our development in science, technology and innovation in providing clean energy.

Climate change is the third scary number and a challenge that is totally underestimated by many. COP21 in Paris was a great diplomatic coup but when you “crunch the numbers” we are nowhere near getting to where we want to be. Don't get me wrong, I'm not a climate denier – for most of my career in the fossil fuel industry (sometimes coal, sometimes oil and gas), I have always worked on environment and utilisation-based projects. I learnt that has we have to be realistic about the requirements for the future and how we will get there.

With vast populations relying on fossil fuel for the foreseeable future, it is our duty to provide this in a clean and sustainable manner. So, without any doubt (particularly with all the coal reserves in India and China) we will have to embrace carbon dioxide capture, storage and utilisation. We solved the acid rain issue in the 80s and started looking at CCUS seriously straight after that. Many years have now passed, and we need to move quicker with its continued development and deployment. Governments can also help is by providing clear, stable, long-term policy frameworks. For example, putting a price on carbon that treats all carbon equally, whether it comes out of a cement works, an industrial chimney, agriculture, a power generation plant or a car exhaust. This would help make energy efficiency more attractive and make lower carbon energy sources more cost competitive and also help to justify CCUS.



Globally, 2.9 billion people have no access to clean cooking fuels and instead use wood, charcoal and agricultural waste.

A carbon price incentivises energy producers and consumers to reduce their greenhouse gas (GHG) emissions. Pricing carbon obviously adds a cost to our products but would help provide a vision for future investment, a level playing field for all energy sources across geographies and a clear role and direction towards a sustainable future.

As an industry, we have our many critics and we all know we are not perfect, but:

- We are unbelievably good at what we do with unique time horizons
- We are essential for modern life and there is no escaping from that
- We are responsible for economic growth – we have been for over 150 years and will be for the next 100
- No energy = no growth = no advancement = no social progress
- We supply an efficient, economic and regular supply to consumers
- We need a level global playing field, fair taxes and regulation and Governments need to recognise the great and vital job that we do.

Our high tech and capital-intensive industry requires significant human and financial resources to succeed. Over the last few years, and so far this year, there has been a significant and continuing lack of investment. We have reduced costs considerably over the last few years and companies are now far more efficient than they were at US\$100 per barrel. So, companies are in a far better place now and will need to keep these costs down. With reduced costs and the historic OPEC and Non-OPEC agreements in place we have seen a higher, more stable oil price which is encouraging and leading to more FIDs being completed. That said, the big challenge remains the important challenge of filling the gap caused by “minimal” investing for several years. This is an important challenge we must deal with, otherwise the global numbers will get even scarier.

The planet does not need saving. If we warm it up too much we will not exist. The planet and nature will always adapt to whatever we do, people won't. Our job is to keep our planet liveable and provide clean energy and products for the future wellbeing of all. ■