

Climate change and peak oil – threat or opportunity?

In the first of two articles examining the implications of environmental change for L&D practitioners, **Larry Reynolds** describes the drivers for the new low-carbon economy

In 2007, Tesco boss Terry Leahy announced that Tesco “will be a leading player in the low-carbon economy”. He also committed Tesco to being a “zero-carbon business by 2050”¹.

Why on earth would he do this? Does he really believe, as he says, that climate change is the biggest challenge facing humanity? Is it that low-carbon companies will have a powerful competitive advantage in the years ahead? Perhaps he thinks that a good route to business success is to apply a bit of ‘greenwash’ – giving the impression of being environmentally friendly without actually doing much.

Or maybe the normally sensible Leahy, CEO of one of the most successful retailers in

the history of the world, has gone a bit mad – maybe climate change is just some kind of global con and not at all the significant issue he says it is.

In this two-part article, I will explain why Leahy and other business leaders are taking climate change very seriously indeed. I’ll also be spelling out the implications for anyone involved in organisational learning and change.

Climate change and peak oil together mean that organisations of all kinds will have to do things differently



But first, a quick review of the climate change debate and a primer on peak oil.

Every year, human beings put about 27 billion tons of carbon dioxide into the atmosphere, primarily by burning fossil fuels – coal, oil and natural gas². Some of this is pulled out of the atmosphere by trees and other plants or by the oceans, which absorb it, but most of it stays in the air.

Carbon dioxide is a greenhouse gas, which means that very small amounts prevent the heat of the sun being reflected back into →

gases in the atmosphere, the more the earth warms up. This is basic science and no sane person disputes this.

The debate starts to get interesting when we talk about how much the world will warm up as a result, how quickly this will happen and whether this matters. Let's take these questions in turn.

The world has already warmed by 0.74 degrees above pre-industrial levels³. This makes it the warmest it has been in the last 400,000 years⁴. If human beings continue to put greenhouse gases like CO₂ into the atmosphere, the world will get warmer still – but by how much and how soon? The truth is no one knows for sure but there's broad agreement amongst scientists that, if we carry on as we are, we'll hit two degrees of warming some time before the next 50 years are up.

Why does this matter? As the temperature rises, all sorts of things will happen. Dry areas will become drier. Around 315,000 people in the developing world already die each year as a result of drought caused by climate change⁵. A two-degree rise would put more than two billion people at risk of water shortages⁶.

Weather will generally become more erratic. The unusually hot European summer that killed 35,000 people in 2003, Hurricane Katrina, which killed 1800 people when it devastated New Orleans in 2005, and the Lake District floods earlier this year are typical of the kind of extreme weather we can expect as the world warms.

Were these events directly caused by climate change? No one can say for sure but most scientists agree that they're exactly the kind of events we'd expect in a warming world.

Finally, and most significantly in the long term, the hotter the world gets, the more sea levels will rise. This is partly because

hotter water expands but mainly because land-based ice melts. Greenland, for example, is about the size of France and Spain combined and, until recently, most of it was covered in ice more than a mile thick. Once we're past two degrees, it's pretty certain that this will melt, raising sea levels by seven metres⁷. This means goodbye to London, Paris, New York, Sydney, Mumbai and Shanghai.

How long will the Greenland ice sheet take to melt? Nobody knows – estimates range from 1,000 years to just 150 years. Even a sea-level rise of just 40cm would displace 10m people in India and Bangladesh⁸.

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The real problem with climate change is this: Most people who study the facts believe that it's happening, and believe that the long-term consequences will be pretty terrible, but no one really knows how soon these negative effects will really start to have an effect.

But whether you think the chickens will come home to roost in our lifetime, or in our children's lifetime, or in our grandchildren's lifetime, there's clearly a moral responsibility to take some action now if we want to leave future generations at least some chance of survival. (Unless, of course, you agree with Groucho Marx, who once said: "Why should I care about future generations? What have they ever done for me?")

That's why many individuals, organisations and governments have made a commitment to

a big cut in greenhouse gas emissions. The UK government, for example, has committed you and me and another 60 million UK citizens to a 34 per cent decrease in CO₂ emissions by 2020 and an 80 per cent cut by 2050⁹. Many other countries have set themselves similar – or even tougher – targets.

And although, as I write this, it seems unlikely that any worldwide binding agreement will be reached some time soon, many countries are thinking in terms of a cut of around 30 per cent by 2020 and 80 per cent or more by 2050.

Because our current standard of living depends so heavily on burning fossil fuels, these targets will only be achieved with radical changes in personal lifestyles, national trade and the global economy. Either we dramatically reduce our use of energy or we find low-carbon replacements for oil, gas and coal.

Whichever route we go down – probably a bit of both – will have major implications for every business, every public sector body and every not-for-profit organisation.

While everyone's heard about climate change, very few people have heard about peak oil, yet it will probably affect businesses sooner, and more directly, than even climate change.

Ever since my childhood, watching a programme called *The Beverly Hillbillies* about a poor American family striking oil on their land and becoming immensely rich, I'd thought that the moment you struck oil, a steady stream of the stuff came pouring out until it became exhausted and stopped, like a fast-running tap being abruptly turned off.

When, some years ago, I did some leadership training for Shell aboard its Fulmar Alpha platform in the North Sea, I discovered this wasn't the case. When you open up a new field, →



the initial flow of oil is only a trickle. This trickle gradually increases over a period of years until it hits a peak. At this point, about half the oil in that field is used up; then, over a period of years, the flow gradually reduces as the oil gets harder and harder to extract.

For example, North Sea oil, which peaked in 1999, still gives us almost 2m barrels a day, although it is declining fast. This peak is sometimes called Huppert's Peak, after the American geologist who correctly predicted in 1956 that US oil production would peak around 1970.

What's true for a particular oil field, or collection of oil fields, is also true for world oil production and here's the scary thing: World oil production will be peaking very soon – if it hasn't already. We can't be certain when the peak of oil production will be but it usually happens around 40 years after the peak in discovery.

The peak of world oil discovery was in the mid 1960s, so the peak in production is due any time now.

Why is this scary? If we're only at the peak, half of the world's oil reserves are still there in the ground, right? Indeed, but if we're at the peak, from now on the world's total production of oil is going to decline – although demand for it is going to go up¹⁰.

Today, the world produces about 83m barrels of oil a day. If China is to enjoy the same standard of living that we enjoy in the West today, that will require 200m barrels of oil a day.

The most optimistic projection for total oil production in 2020 is 73m barrels a day.

When demand exceeds supply, two things happen – the price goes up and some people go without. Because oil is so expensive, Britain will be closing its few remaining oil-fired power stations by 2020, along with some nuclear power stations that

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are coming to the end of their working life. In fact, by 2020 a third of the UK's generating capacity will disappear.

If demand continues to rise, we may well be facing regular power cuts from about 2015. How will your business deal with regular power cuts?

Can we be sure that oil production really will peak soon? The honest answer is no: big oil companies and big oil-producing nations tend to be quite secretive about just how much they've got. A recent report from the UK Industry Taskforce on Peak Oil and Energy Security suggests that it'll happen in 2013¹¹. Most oil company experts agree that it'll be some time between 2010 and 2020, and sooner rather than later.

The peak oil issue is important because it adds a sense of urgency to the move towards a low-carbon economy. We certainly should move towards a low-carbon economy if we want the world to be habitable for future generations, but we'll probably be *forced* to move towards it as oil and gas becomes scarce and expensive. (According to most estimates, peak coal is decades, maybe centuries, away but coal is the worst emitter of greenhouse gases of any fossil fuel and, anyway, you can't run a motor car on coal.)

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of all kinds will have to do things differently. Here are four ways in which business can change or adapt to the low-carbon economy.

Firstly, by dramatically reducing energy usage. For some organisations, this will be easy – Tesco reduced the energy usage in its stores by 50 per cent between 2000 and 2008 – but others whose operations involve a lot of transportation or high-energy manufacturing processes will find this more of a challenge.

Secondly, businesses will have to reduce the carbon footprints of all their current products and services because customers will prefer it, or increasingly demand it. Tesco's big competitor Walmart is already asking all its suppliers some very tough questions about their carbon footprints.

High-carbon products will increasingly become more expensive against their low-carbon equivalents or substitutes.





Tesco has already labelled 500 of its products with their carbon footprints and is working towards labelling all 50,000 products, because it believes customers will want to make an informed choice.

Thirdly, businesses that can offer specific products and services for the new low-carbon economy will gain a significant advantage. According to some scenarios, private motoring will be an expensive luxury within the next ten or 20 years, which is a bit of a threat for Tesco's huge out-of-town stores. But with its locally-based Tesco Metro and Tesco Express brands, the company is well placed to thrive in a world where people return to shopping locally.

Fourthly, some organisations will have to completely re-think their business models in order to adapt to the low-carbon economy. Leahy says: "For Tesco, this involves something much more than listing a series

of environmentally-friendly actions, although those do play their part. It demands that we transform our business model so that the reduction of our carbon footprint becomes a central business driver."

And why is Tesco taking this course of action? Leahy is completely up-front about this – to give his business a competitive advantage: "[We are doing this]... to satisfy a new consumer need and grow our business. That is the goal of a sustainable business."

Let me be clear here: I am not claiming that Tesco is the perfect role model. Many people are very critical of its current approach to business and others consider its decision to support biofuels to be not very sensible. But if a successful, profit-driven, focused business like Tesco is already grasping the opportunities of the low-carbon economy to come, what should your organisation be doing?

If your organisation can equip itself for the emerging low-carbon economy of the next decade, rather than relying on what's worked for the last decade, it will gain a real competitive advantage. But it's not going to be easy.

As Leahy puts it: "I do not underestimate the task. It is to take an economy where human comfort, activity and growth are inextricably linked with emitting carbon, and transform it into one which can only thrive without depending on carbon.

"This is a monumental challenge. It requires a revolution in technology and a revolution in thinking. We are going to have to re-think the way we live and work."

And this is where learning and development and organisational development people have a key role to play.

In the next few years, I think a lot of traditional training will disappear because businesses

will perceive that it costs too much for the results it delivers. But there will be a huge need for organisations to reinvent themselves in order to adapt to the emerging low-carbon economy. OD people who are experts at leading organisational change – whether as internal or external change agents – will be much in demand.

Next month, in part two of this article, I'll be examining what kinds of approaches to leadership and change will be needed as we move towards the low-carbon economy. ■

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