

It's time to have an honest conversation about energy

By [Colin Logan](#)

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We're heading towards a future where renewables are the flavour of the day. Yet, it is critical that the energy mix is carefully blended by policymakers to ensure a sustainable economy.



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We know this, because the way we consume energy today is influenced by the economics of the past. As fossil fuels were relatively cheap in the past, and expected to remain so, much research and development was directed into improving this technology. Oil, coal and gas became dominant energy sources.

Now the worm has turned. At the moment, it makes sense to move towards less carbon-intensive energy, but there is a lesson to be learnt.

Catching up to do

When fossil fuels were in vogue, all research went into perfecting that technology – the oil wells, the gas fields and optimising automotive petrol technology. For decades, research into wind, solar and biomass energy stagnated and therefore the technologies have remained more expensive and less viable.

Then global warming and climate change made it urgent that we find less carbon-intensive energy solutions. We now have

a lot of catching up to do on the renewables front.

Today, we should not make the same mistakes by concentrating all our research efforts on renewables alone and neglecting fossil fuels.

This will leave future generations with little flexibility on how to fulfil energy demand if requirements change again. There may well be a highly efficient way to use fossil fuels that may be useful in some parts of the world in future.

Create a diversified mix

We should not force oil and gas producers into extinction and let their 100 years and more of intellectual capital go to waste. Research must continue into all energy sources. It should focus on improving efficiency, analysing carbon as a raw material and the area of carbon capture and storage. (The latter usually involves storing waste carbon in underground geological formations.)

As we grow our knowledge, we should just ensure that we create a diversified energy mix and avoid another energy monopoly situation.

The reality is that humans will always create some footprint and our energy needs will not disappear, so versatility in energy supply and consumption must be encouraged. How we bring these effects into a manageable equilibrium is what will count in the end.

Our future energy mix needs both existing and new energy alternatives, combined in a way that provide for humankind's basic needs and even allows us to reverse some of the environmental damage we have done.

For many years, the fact that oil was a low-cost primary energy source drove the development of technologies like combustion engines and mechanised technologies. If we are to develop these technologies any further, we will still need cheap, abundant fossil fuels.

Research may also have continued in the field of nuclear technologies but it is still questionable whether nuclear energy would be a viable replacement energy source, following disasters like Fukushima and of course the on-going debate around where to store toxic waste following nuclear exploitation.

Climate change

The shift to a more renewable future may initially have emerged due to concerns that we were running out of economically exploitable fossil-fuel reserves. Now, though, it seems to be because the public believes that much of the economic prosperity we enjoy today has come at a gigantic environmental cost.

It is a non-negotiable that the health of mankind and the needs of future generations must be preserved. These needs must be addressed in a well-thought-out manner without over-reaction. The fact is that, as demand for energy goes up, CO₂ emissions will conversely need to be reduced, if the world is to meet the targets set out in the Paris Agreement on climate change.

Studies at NASA's Goddard Institute for Space Studies (GISS), have shown average global temperature increases to be in the order of 0.8°C since 1880. Much of this temperature rise is said to have occurred since the beginning of the Industrial Revolution. Predictions suggested these temperature rises would lead to erratic weather patterns - in particular, less rainfall but with higher intensity.

Extreme weather events are indeed hitting all parts of the world. In particular, seven countries in Southern Africa have recently endured a protracted period of serious drought. News channels are filled with climate and weather disasters.

The United States has not been immune to such disasters, so it is disappointing that President Trump decided to pull the US out of the landmark Paris agreement.

Solutions that work best

Today's decisions will drastically affect how we experience the world in the future. The way forward requires a level-headed approach and an honest discussion amongst energy specialists and industry leaders. We need to clearly define the problems and their causes, to better find solutions.

The challenge is to reflect honestly on the problems and their origins, to establish clear, measurable solution objectives, and to work towards a more inclusive and responsible future energy landscape.

We need a systematic, reliable and robust transition towards a greener energy mix, with reliable energy supply, so that other objectives like easing income inequality, creating jobs and easing water stress can also be achieved.

An integrated resource plan will involve cross-boundary agreements as well as decentralised operations. The world can no longer afford to operate in silos, as we aim to create a better life with less energy.

The *2016 International Energy Outlook* report (IEO2016) predicts significant growth (48%) in demand over the years to 2040. Most of this growth in energy consumption is set to take place in Asia, most notably China, followed by India. By contrast, demand in North America and Europe will probably drop, although recent decisions by the Trump administration may change that outlook.

The report further suggests that the industrial sector will account for most of the total delivered energy use through to 2040, although the fastest-growing end-use sectors will be residential, commercial, and transportation. This will all have a bearing on strategic planning at local and regional levels.

To meet future energy demands, significant technological advances will be required in storage to support renewables, carbon capture and storage (CCS), and mobility. Because social, political and geographical conditions differ from country to country, so too will the solutions that work best.

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