A future perspective

Philip Wolfe FRSA, FEI

Let's project ourselves forward a decade and a bit.

It's the first week of Wimbledon and it's raining. Two people are on their way to work.

Janet has to go in to the office today for a meeting. She normally cycles to the station, but doesn't want to get wet so takes the car.

John can't face the train, which would be slow, overcrowded and probably late. He takes the car too.

When Janet gets to the station, she pulls in under an awning of solar panels and plugs in her car. Soon the electric train is speeding her past the unused cooling towers of the Didcot Power Museum, and she catches up on the news. Our balance of trade is back in the black thanks to reduced oil and gas imports. An item on screen 9 reports a European Council meeting, where our Secretary of State for Energy and Environment has been lauded for the highest renewable energy growth amongst the EU 33 just exceeding our 15% target.

John is sitting in a traffic jam, and rues his decision to drive, as the diesel train grinds past in a cloud of fumes. The radio newsreaders report the latest brownouts and further delays to construction of the Beauly-Denny transmission line. They speculate on the fine to be levied for failing to reach the EU energy targets. "Yet more misery for consumers already facing petrol prices over £3 per litre and electricity at 29p per unit."

Of course Janet and John are living in different countries. She is in Energy2020 – he in 'business as usual' United Kingdom. Let's not spend time exploring his country. We know what it's like – we're in it now. But what else is different for Janet?

Firstly the changes are not just about energy; they're about a more sustainable way to live, work and travel. Most of Janet's colleagues live near the office and she doesn't go in, when she can do what needs doing from home. When she does travel, an integrated efficient public transport system is the obvious option.

Energy is no longer purely an undervalued remote commodity provided on demand from overseas and far away down long pipelines and wires. The oil hasn't run out, but it is treated as a precious commodity, used only where better alternatives have yet to be perfected.

There is still a strong and reliable centralised electricity network too. The UK boasts the world's largest offshore wind capacity and almost as much onshore. The strategically planned offshore grid also brings home power from our increasing number of tidal stream and wave farms, and imports and exports electricity to the rest of Europe. We have the new hydro-station at Glendoe and two others under construction. Tidal lagoons have been built in Liverpool Bay and the Severn barrage is nearly finished.

A network of biomass and waste-to-energy CHP plants provides base-load so overall the electricity network now gets half its power from renewable sources. With consumption declining slightly, this proportion is growing year on year – it is hotly debated whether we'll ever need to build a major coal, oil, gas or nuclear station after the present batch are completed.

National gas and oil distribution systems also remain an important part of the infrastructure. And they too have evolved. Janet's biodegradable waste is collected and delivered to a local farm, where it is digested with agricultural residues to produce fertiliser and biogas that is fed back into the gas grid. Her car is electric, but her neighbour's runs on a high blend of cellulosic bio-ethanol, now available on many forecourts. The farmer's tractor runs on his own biogas.

Yes energy is no longer remote or undervalued. We use it sparingly and we produce it for ourselves where we can.

New buildings have for some time been designed for zero emissions. This has produced a revolution in technology for energy management, conservation and renewable generation, now also being deployed in many existing homes and offices. Go to the City of London at night and it's almost dark. You can see the lights turn on and off automatically as security guards patrol the office blocks. The old energy-inefficient buildings of the 20th century have become impossible to sell or rent until they've been upgraded.

The supermarket too has a solar canopy where Janet can plug in her car. It also has a biomass CHP plant providing its power and cooling, and contracts with a network of local biogas plants to take its waste. All blue chip companies now report on their carbon footprint, with 'zero emissions from energy' becoming the norm.

Many communities too now get income from their own renewable energy networks, windfarms and bio-energy plants. Thousands of old mill-sites are back in service producing hydropower for riverside villages.

It was relatively easy for Janet to convert her home to zero carbon – the stamp duty and council tax breaks plus the renewable energy tariffs introduced in 2010 made it economic, and living in the country she had plenty of space for the photovoltaics, solar panels and heat pump.

Rented flats in city tower-blocks were a different proposition, so wisely the government stepped in. A targeted programme, starting back in 2009 and now funded from the proceeds of the auctioning of carbon allocations, has completed phase one. Over two million of these homes have now been insulated, fitted with smart meters and connected to local energy networks funded from the Community Infrastructure Levy and supplied from biomass, solar, wind or heat pumps. The expression 'fuel poverty' hasn't been heard for some years.

What did it cost to get to Janet's world? In total it was tens of billions. But along the way we created half a million jobs and saved tens of billions on oil and gas imports. In fact it cost a lot less than John's world, even before the fine was imposed. And he still hasn't got to work!