

Future of Energy

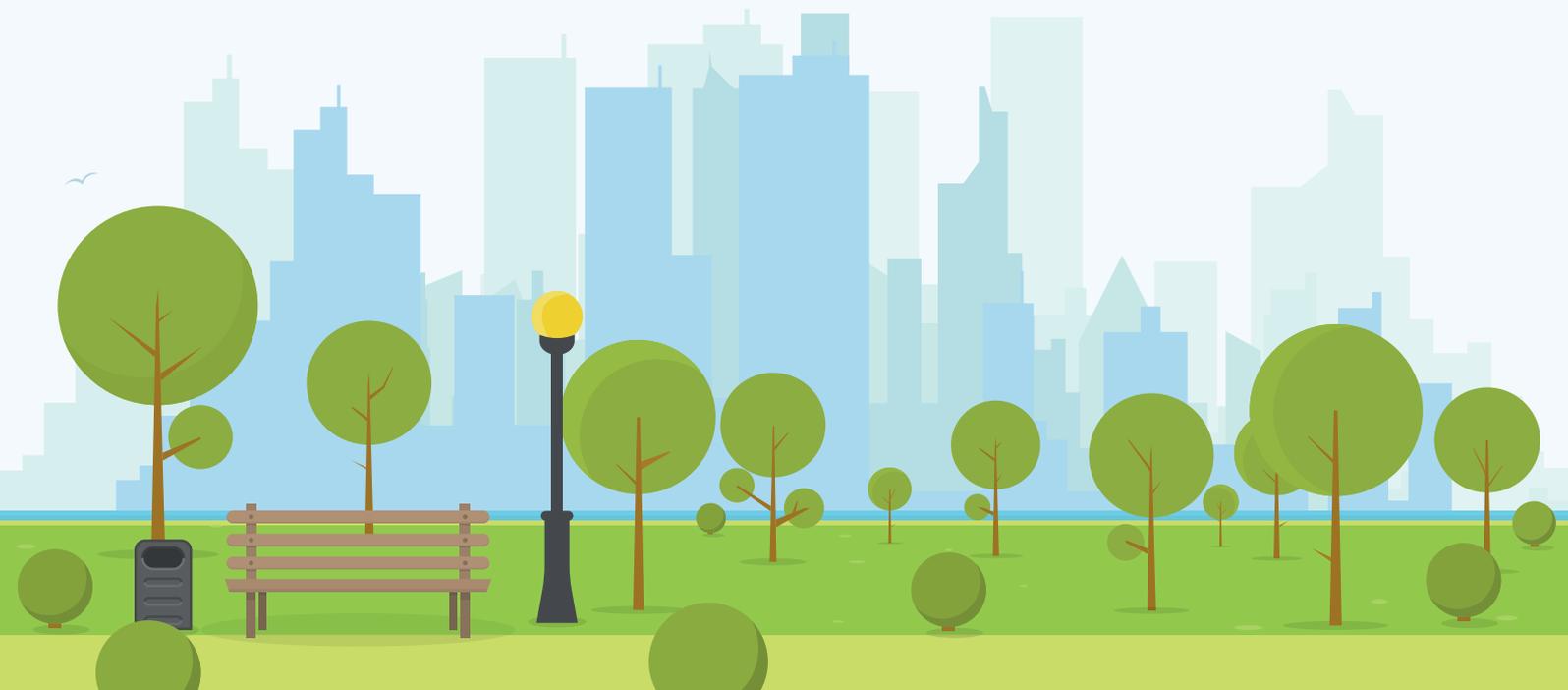
Our vision of a future energy system

“A low carbon energy system that customers see as fair and which delivers excellent service, choice and value for money to all UK’s homes and businesses”

Our commitment

Looking ahead to 2028, twenty years after the Climate Change Act was passed, the energy industry commits to a future energy system that:

- Supports delivery of the UK Government’s decarbonisation objectives and allows all customers access to clean energy for their homes, transport and business needs;
- Recognises the need for the system to be balanced and diverse, and makes the most of different technologies including large and small generation, demand side response, interconnection and storage;
- Is smart and decarbonised in power, heat and transport and so is able to deliver clean energy at a competitive, affordable and fair cost to all customers; and
- Meets the needs and expectations of customers.



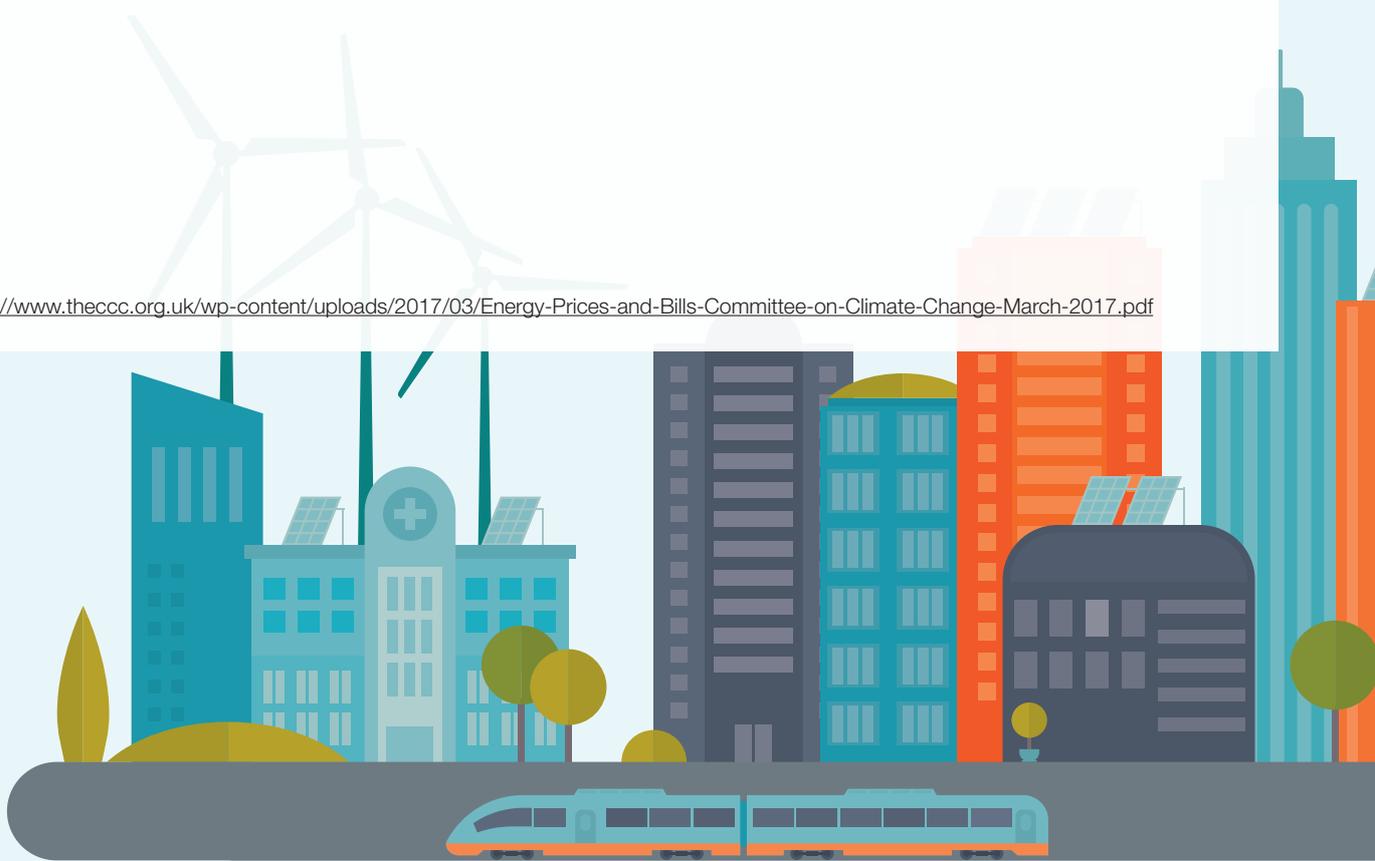
Where we are now

Energy is an essential service. We all need it and use it to stay warm, light our homes and power our businesses. Decarbonisation and decentralisation of our electricity supply and technology is changing the way we produce energy, how we use and pay for it, and how much it costs. The industry has already made significant progress in this transition with a competitive energy system delivering on many fronts, such as:

- Significant reductions in the CO₂ concentrations of each unit of electricity produced - almost halving from 551 gCO₂/kWh in 2007 to 286 gCO₂/kWh in 2017. Electricity Market Reform has supported this transition and we have also seen cost reductions in recent Contracts for Difference auctions. Continuing on this path will not be cost free. However, ensuring we have the right market frameworks, capable of harnessing the opportunities offered by a range of low carbon generation technologies, including demand side response and storage, should help ensure that this decarbonisation is delivered at least cost.
- Since 2008, improvements in energy efficiency have saved a typical household around £290 on their energy bills as demand for electricity and gas has reduced¹.
- There are now over 65 suppliers in the domestic retail market for consumers to choose from and there have long been a similar number in the non-domestic sector.
- Over 5.5 million customers switched supplier in 2017, around a third of these for the first time. Customers increasingly have the confidence to engage in the market, backed by the Energy Switch Guarantee, a commitment that promises a simple, speedy and safe switch from one energy provider to another and now covers over 90% of the market.

However, the market is currently working less well for some customers than for others. The energy sector is clear that we have a responsibility and an opportunity to get things right for all our customers. This is a challenge the sector is committed to facing.

¹<https://www.theccc.org.uk/wp-content/uploads/2017/03/Energy-Prices-and-Bills-Committee-on-Climate-Change-March-2017.pdf>



On the cusp of change

The UK is committed to a path of decarbonisation and is leading international action to mitigate the impact of climate change. This has led to huge changes in the generation mix with large-scale investment in low carbon generation coupled with increasing levels of decentralised energy, joining existing and new thermal assets on the system.

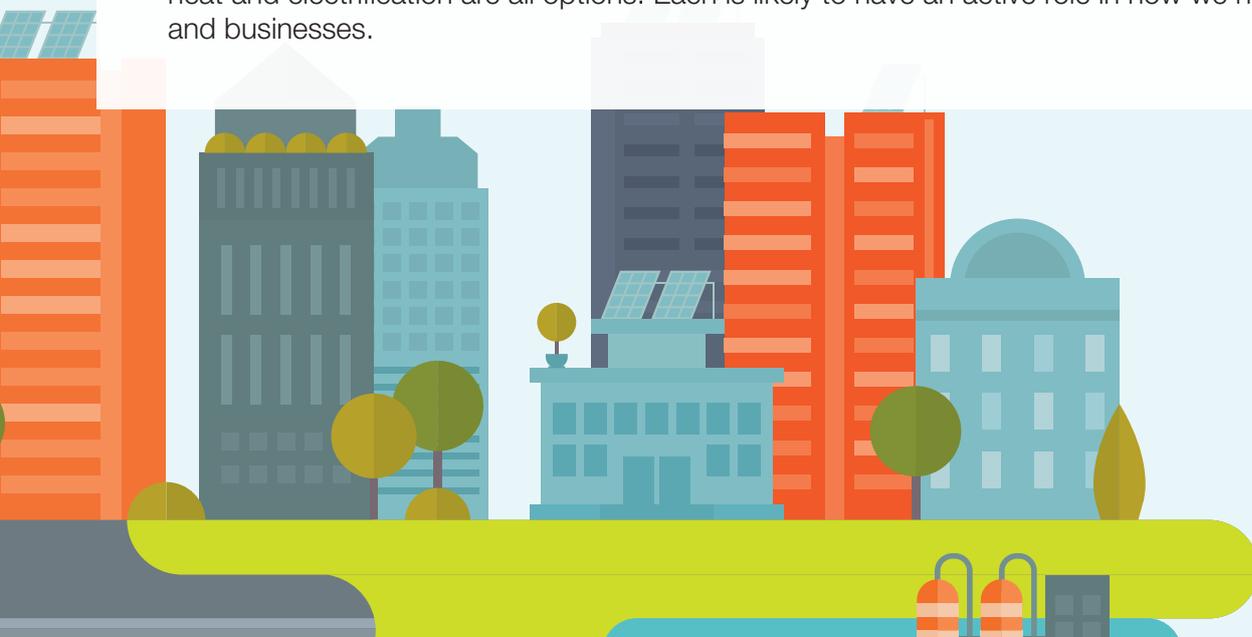
Securing investment in the generation needed to continue decarbonising energy and maintain security of supply remains a priority. Electricity Market Reform has supported this transition, highlighted by impressive cost reductions in recent Contracts for Difference auctions. However, we must ensure that both the regulatory and market frameworks harness the opportunities offered by a range of low carbon technologies, including demand side response and storage, and ensure that decarbonisation is delivered at least cost. We can therefore expect the Capacity Market and Contracts for Difference framework to evolve further, driving even more efficient outcomes in the future. Equally important is the need to ensure transmission and distribution charging provides a level playing field between transmission connected generation, embedded generation, storage, energy imports and demand side management.

Customer expectations are already challenging energy suppliers. A data and technological revolution is happening with an increasing range of smart appliances, which when enabled by the ongoing roll out of smart meters will allow retailers to offer more innovative products and provide customers with greater control of their energy use and bills. This will create a gateway to a much more engaged customer population and responsive energy industry.

Buying energy is not a discretionary choice for the vast majority of customers. We believe both industry and Government have a responsibility to protect those customers in vulnerable situations who struggle to engage with the market, ensuring their energy supply is fair and affordable with retailers actively competing for their business.

Decarbonising transport is a significant area where technology is reducing the levels of harmful emissions. The UK Government has recently proposed ending the sale of new conventional petrol and diesel cars and vans by 2040. Electric vehicles are becoming a more popular consumer choice as technology improves, whilst opportunities for reducing emissions in HGVs and shipping are growing. Managing a system with greater electrification will present its own challenges and opportunities.

Decarbonising heat is one of the biggest challenges facing the industry and government. Any solution is likely to involve seeking alternatives to natural gas to heat our homes and a greater focus on energy efficiency. Industry and government will need to work together to find solutions that are attractive to customers in both price and performance. The use of low carbon gases, district heating, renewable heat and electrification are all options. Each is likely to have an active role in how we heat our homes and businesses.



Looking ahead

A future energy system that delivers our vision for customers is within reach. Its benefits stretch beyond customers and include a positive impact on the UK and its regions, through boosting productivity and jobs as well as creating export opportunities as other countries follow the UK's lead.

To support this vision, Energy UK will set out a series of thought pieces that propose options to address the issues we have raised within this paper. These will consider key issues such as:

- Funding future electricity generation and system services
- Transporting energy to and from customers through transmission and distribution networks
- The future retail market and customers' relationship with it
- Meeting the needs of vulnerable customers
- Improving energy efficiency for domestic, industrial and commercial customers
- How we can sustainably transition to a low carbon heating system
- How we can deliver a smooth customer experience in transitioning to a low carbon transport system.