

Energy

‘The energy system is changing rapidly. The UK’s net zero decarbonisation targets are accelerating the growth of new low carbon energy sources. Energy demands are changing as consumers choose new technologies for heat and transport. And smart technology and digitalisation is driving a change in how consumers interact with energy.’

National Grid, Future Energy Scenarios 2021

Although using energy in our homes is easy (we often push a switch to turn on a light), producing, transforming, transporting and distributing that energy across a region is a more complex and difficult task. All of this together is commonly described as our ‘energy system.’ Based on future scenarios of our energy system, if we are to meet net zero by 2050 or earlier, we would likely require the following:

- A transition away from unabated natural gas. Some natural gas will be required for hydrogen energy production in the short-term.
- An increase in renewable energy production, particularly wind and solar power.
- To make more use of hydrogen energy, which will help with inter-seasonal flexibility (when we cannot rely on solar and wind power).
- An increase in the use of bioenergy (sourced from recently living organic materials), and combine with carbon capture and storage, where possible, to create negative emissions.
- A mass transformation of how we consume energy with the electrification of home heating, transport and industry.
- Become smarter and more flexible in the way we use energy, balancing demand to reduce peak energy requirements.
- Store energy more effectively and reduce energy waste.

East Riding of Yorkshire Council continues to take action to support the transition to a cleaner energy system and this priority area sets out how the Council can further support the ambitions listed above. Fundamental changes to the way we will consume energy, however, such as the electrification of transport, heating buildings and industry are set out in more detail in other priority areas.

What we have done

- We have undertaken an array of energy projects significantly reducing the authority’s carbon footprint and reducing emissions across the East Riding. The Council has previously been successful in bids to support the development or installation of:
 - District energy networks. The Council has two district energy projects in advanced stages of development at Beverley and Goole.
 - Large scale solar PV technology, such as the installation of a solar farm at South Cliff Holiday Park, in Bridlington.

- Low-carbon heating. We have installed over 650 air source heat pumps in Council owned houses and replaced old boilers with high-efficiency biomass boilers in a number of Council maintained schools.
 - Projects to support decarbonisation in schools. This has included a school insulation programme, the replacement of old inefficient boilers and programmes to help finance efficient lighting and controls.
- Taken a proactive approach to mitigating climate change in the East Riding Local Plan. More specifically, we look to provide opportunities for renewable and low carbon technologies, decentralised energy and heating and low carbon design in developments across the East Riding.
 - Supported the private energy sector through local economic measures that have helped the area become a leader in low carbon technology. This has previously included supporting the creation of the largest Enterprise Zone in England and the Humber Freeport. Within the area there has been investment from the likes of Siemens Gamesa and Associated British Ports into renewable technology, establishing the region as a world-class centre for clean energy production. We are also leading on the Fusion Yorkshire bid to secure a new home for the UK Atomic Energy Authority's STEP Programme.
 - Run the collective energy switch scheme YORSwitch, where the Council helps to negotiate for competitive prices with the energy companies to get residents the best deal. This scheme can help reduce energy bills and the vulnerability of lower socio-economic groups to the impacts of climate change by equipping them with a method to make financial savings.

Key Challenges & Opportunities

Challenges to Delivery

Natural Gas – Gas has long been promoted as a transition fuel as it has lower carbon emissions than coal, but still requires a similar scale of centralised infrastructure. As a result, we now have one of the most developed gas networks in the world. This makes the replacement or decarbonisation of the network a key challenge nationally, which is particularly significant given the Government's commitment to phase out the installation of new gas boilers by 2035.

Costs – Whilst we have identified opportunities for carbon reduction initiatives and energy projects, such as new solar farm projects or geothermal heating, the economic viability of projects on this scale are challenging. Rising electricity prices will lead to high running costs for electric vehicles and heat pumps meaning these technologies become less financially viable for businesses and residents.

Fossil Fuel Economy – The Humber is home to many traditional heavy industries, such as oil refining and steel production, whose long-term future is under pressure from

decarbonisation. Ensuring this economy remains sustainable during this transition to net zero is essential to the region. To overcome this challenge partners have come together to create a Humber Industrial Cluster Plan setting out a strategy to achieve net zero.

Environmental Impact – A challenge is also using our natural resources sustainably and creating new infrastructure which does not have a negative impact on the wider environment. For instance, offshore wind can negatively impact seabird populations which are already under significant pressure from climate change. As such, we need to plan energy infrastructure developments efficiently.

Opportunities

Hydrogen – The Humber industrial area is leading on the development of hydrogen production and storage facilities to create one of the UK's most efficient gas-fired power station and support the roll-out of low-carbon hydrogen infrastructure. Hydrogen has the potential to be blended into the gas network, used for domestic heating and power transportation.

Offshore Wind – The Humber region has been identified as a flagship region for wind power and will be key to achieving the Governments offshore wind power targets. This is unsurprising given that region is recognised internationally for offshore wind energy with Ørsted's Hornsea Project One, the largest offshore wind farm in the world, powering more than one million homes. Even larger offshore projects are in development, with the majority of the turbines manufactured at the Siemens Gamesa factory in Hull.

Carbon Capture and Storage - Major energy companies have come together to develop offshore carbon capture and storage in the North Sea, forming The Northern Endurance Partnership. This partnership provides the infrastructure needed to transport carbon dioxide from emitters in the Humber to secure offshore storage in the North Sea. In October 2021, this partnership's East Coast Cluster was selected as a priority cluster in phase-I of the UK Government's Carbon Capture, Usage and Storage cluster sequencing process. Once developed it will transport and store 50% of all UK industrial cluster emissions. This will serve the Zero Carbon Humber project, aiming to establish a fully decarbonised industrial cluster on the Humber.

Industrial Clustering – The Humber is just one of the six energy intensive industrial clusters in the UK. These industrial districts provide unique partnership opportunities for integrating processes, building more efficient supply-chains, utilising by-products or waste materials and conducting research and development on low-carbon technologies.

Biomass – Yorkshire and Humber is leading the way in the UK in terms of biomass energy and fuel production. This includes the 22MW Solar 21 biomass plant in Aldbrough, the Y Pellets wood refinery near Goole and Drax power station in Selby, which is fuelled by compressed wood pellets sourced from sustainably managed forests and waste from existing forestry work.

Areas of Action

Please note that until the final Climate Change Strategy has been approved, we have chosen to use the wording 'East Riding of Yorkshire Council can.' Once the Strategy has been fully consulted on internally and with the public we will commit to 'East Riding of Yorkshire Council will.'

East Riding of Yorkshire Council can...

- Lead by example, maximising opportunities for renewable energy and sustainable energy consumption throughout the Council's estate.
- Assist schools with energy projects by identifying new funding opportunities, providing financial support, energy audits and general advice.
- Look to finalise construction, and identify new opportunities, for district energy networks in suitable locations across the East Riding, maximising opportunities for the utilisation of waste energy and renewable technology.
- As a planning authority, support new developments that enable low carbon energy with neighbourhoods planned around infrastructure such as local microgrids, enabling energy autonomy through self-generation and direct consumption.
- Support work to reduce the environmental impacts of new energy infrastructure construction, operation and decommissioning, in order to achieve truly sustainable energy production.
- Explore further economic measures to support the expansion of the renewable and low-carbon energy sector.
- Work with landowners to assess the benefits and potential of hosting renewable generation.
- Explore with partners the creation of a whole-system local area energy plan for East Riding to help inform our energy decarbonisation roadmap.
- Work with the North East and Yorkshire Net Zero Hub to support local energy projects and attract finance for energy projects.
- Explore and investigate emerging technologies to support energy decarbonisation and storage in the area, such as carbon capture utilisation and storage, hydrogen technology or heat networks.
- Promote the importance of maximising the use of energy assets through energy reduction, flexibility and storage.
- Promote to residents and businesses the benefits of sustainable energy consumption and switching to green energy tariffs.

How can you reduce your carbon footprint?

- Switching to a green energy tariff can reduce your carbon footprint.
- Installing renewable energy technologies (e.g., solar panels) on a property can significantly reduce the carbon footprint of your home and save you money.
- Replacing lights with LED bulbs, washing your clothes less frequently and not leaving your devices on standby can help you save energy and money.
- Line drying clothes where possible promotes energy saving.