Plugged in

INSIDE:

• A history of Hinkley Point B
• Engineering interest sparks student’s career
• How spent fuel is managed

Seabed structures set
Welcome to the autumn issue of Plugged in

The past couple of months have seen some significant progress on the project, with us undertaking some of the most complex marine engineering in the world. You can read more about Gulliver and Rambiz, the giant floating sea cranes that have been hard at work in the Bristol Channel this summer, on pages 8-9.

From the end of September through to the end of October we will be undertaking a public consultation on a proposal for a Combwich to Hinkley Point Shared Use Cycle Path. The proposed route would provide a commuting route for all Hinkley Point workers while also providing wider local value – offering an enjoyable route for leisure purposes. The route would further connect the existing cycle route along the C182 from Combwich towards Cannington and Bridgwater.

Before the application is submitted, we would like to invite you to take a look at the proposed plans and submit your views before the end of October. You can find details of our drop-in sessions and the website where you can view the plans in full on the right of this page.

Nigel Cann
Hinkley Point C Delivery Director

A. REACTOR BUILDING
This building will house the first of our nuclear reactors. It continues to grow in height, currently approaching 15.5m tall, and preparations are in place to lift the last of the prefabricated steel rings that form a reinforced cylinder around the nuclear reactor. This is the final step in preparing the building before the steel dome roof is put on top. Designed to withstand the impact of an aeroplane, the dome will complete the series of reinforcement and containment measures around this crucial building.

B. TRAINING CENTRE
The reactor operators who will be responsible for running the power station once it is operational are already being trained. This is taking place at the Hinkley Point C site in a specially designed training centre completed earlier this year. The training centre includes a perfect replica of the control room that the operators will eventually work from.

C. PUMP HOUSE
The pump house is one of the largest structures in the power station. It continues to grow faster due to these learnings. A major concrete pour completed 30% faster due to these learnings.

D. TURBINE HALL
The turbine hall contains the equipment that moves the steam from the nuclear reactor to heat water and produce the steam to turn the steam-generating turbines. The team recently completed the concrete volute – a spiral-shaped structure designed to add the delivery of the water that is considered one of the most complex structures in the power station.

E. CONCRETE BATCHING PLANT
Hinkley Point C recently produced and poured the millionth cubic metre of concrete from its concrete batching plant based on the construction site. The materials arrive via the jetty situated in the Bristol Channel and are moved to the batching plant for the mixing and creation of the concrete required for construction. One load arriving via jetty is the equivalent of 110 HGV deliveries. That means using the jetty equates fewer HGVs on local roads and it also equates to a 50% reduction in CO₂ emissions per load too.

Vicki’s welcome

In this issue, I’ve enjoyed exploring the heritage of Hinkley Point B (pages 12-13), Somerset’s nuclear power station that was shut down in August after providing the UK with low-carbon electricity for the past 46 years. I am also pleased to introduce you to our Hinkley Point visitor centre team (page 14). They are the friendly voices at the end of the freephone number, the people who will welcome members of the public into our visitor centre, and who host our visits and site tours. In this issue, we also speak with Charlotte Casey (page 5), our go-getting engineering apprentice from Bridgwater, as she tells us what inspired her to embark on a career in engineering...

Vicki Dingwall, Plugged in Editor

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The latest from the Hinkley Point C site
Find out about some of the latest developments on key areas of the Hinkley Point C Project.
Hi Charlotte, Tell us about yourself... “I grew up in the village of Bawdrip, just outside of Bridgwater. I went to Chilton Trinity School, and then Bridgwater & Taunton College to study mechanical and manufacturing engineering. Away from Hinkley Point C, I enjoy forest walks with my dog, water sports and painting.” How did your apprenticeship with Hinkley Point C come about? “When I was at secondary school, EDF hosted two science, technology, engineering and mathematics (STEM) days to get us interested in the energy industry, and we did lots of activities relating to the importance of nuclear fuel transportation and wind power generation. When I was at college, I’d often see stands at career fairs or guest lectures from Hinkley Point C recruiters. I talked to the EDF careers team and I knew they had a range of apprenticeship opportunities to offer. I was eligible for the degree apprenticeship with the UCAS points I earned from my engineering BTEC, so I applied in my final year at college.” Where did your interest in engineering come from? “It was a combination of influence from my dad and my physics teacher at secondary school. I’ve always been aware of the engineering industry, as my dad’s a telecommunications engineer, and I saw how much he loved his job and how it challenged him.” What kind of things does your apprenticeship cover? “It covers a broad range of subjects within nuclear engineering. I’ve learned practical skills such as dismantling and re-assembling a pump, as well as looking at nuclear science, nuclear safety, regulations and governing bodies. We focused on nuclear technologies too, so we could see the results of our ongoing partnerships with the local authorities and emergency services.”

Engineering a bright future

Somerset local Charlotte Casey had her heart set on working at Hinkley Point C after listening to EDF recruiters talk about career opportunities in the nuclear industry. Here she shares her journey from apprentice to Operational Development Engineer...
Hinkley Point C is once again working in partnership with Bridgwater & Taunton College, Discovery and Somerset County Council to offer the HPC Supported Traineeship programme.

Donna Brown, Skills Development Coordinator, said: “We’re really pleased to see the return of the HPC Supported Traineeship, and also thrilled with the response from our partners across the project for providing placements.

“This is a life-enhancing programme and is really important in contributing to the project’s commitment to investing in local young people – supporting our ambition to create a diverse and inclusive workforce.”

During the 10-week programme, trainees will complete five weeks “This is a life-enhancing programme and is really important in contributing to the project’s commitment to investing in local young people – supporting our ambition to create a diverse and inclusive workforce.”

The process

The training will be a replica of Hinkley Point C, with two EPR reactors providing low-carbon electricity to six million homes. Because of this design choice, expertise and learning gained at Hinkley Point C will be able to deliver significant cost and time savings. The former Secretary of State for Business, Energy and Industrial Strategy, Kwasi Kwarteng, approved the application for a Development Consent Order to build and operate the new nuclear power station for the Suffolk coast. The project is now awaiting its final investment decision (known as FID), which is expected in 2023.

Sizewell C, Hinkley Point C’s sister project in Suffolk, was granted planning consent in July 2022.

The power station will be a replica of Hinkley Point C, with two EPR reactors providing low-carbon electricity to six million homes. Because of this design choice, expertise and learning gained at Hinkley Point C will be able to deliver significant cost and time savings.

The planning process involved four stages of consultation, which started in 2012, involving more than 10,000 local residents.

Nuclear gains green backing from EU

Nuclear’s contribution to reaching net zero was given the seal of approval by the European Union. Nuclear energy will be added to the EU’s Taxonomy Regulation, which helps investors, companies and financial institutions to define environmentally sustainable economic activities.

Reacting to the European Parliament’s vote to include nuclear in the taxonomy, Tom Greatrex, Chief Executive of the UK’s Nuclear Industry Association (pictured), said: “The inclusion of nuclear is a huge victory for science. Nuclear is green, with the lowest lifecycle carbon, lowest land use, and lowest metal use of all electricity generation technologies.

“The UK should now give nuclear the green label it deserves in our own taxonomy.”

Hinkley Point C and its sister station Sizewell C will provide enough low-carbon power to 12 million homes, providing an essential role in helping Britain on its path to net zero.
What are the heads?
The heads are the inlets and outlets for Hinkley Point C’s cooling water system for the site’s two reactors and they sit above the three tunnels that have already been excavated by tunnel boring machines. The six concrete heads (for two outfalls and four intakes) were constructed at Avonmouth by Balfour Beatty. Each of the four intake heads are 44m long, 8m high and weigh 4,650 tonnes, with the two outfall heads weighing in at 3,500 tonnes each.

How were they developed?
The design of the heads took many years to perfect. Considerations included the difficult conditions they would operate under, as the Bristol Channel has the second largest tidal range in the world. Because the heads are also a critical safety element of the project, the design needed to consider all eventualities, including ship impacts and a 1 in 10,000-year seismic event.

What made the lifts so complex?
Each intake head had to be lifted and lowered onto the seabed by the two floating cranes working in tandem. The platforms of these vessels are the size of football pitches and have a combined lifting capacity of 7,300 tonnes (that’s equivalent to five Statues of Liberty)! Because of the difficult tidal conditions in the Bristol Channel, the vessels could only operate in six-hour tidal windows, meaning the work to place each head took several days.

What about the fish?
Hinkley Point C will be the first nuclear power station to include any fish protection measures. The measures include a fish recovery and return system and special water intakes designed to slow down the speed at which water enters the cooling system. It’s a big improvement from older power stations that we have seen around our coastlines.

WORLD CLASS MARINE ENGINEERING
Six massive concrete structures playing a crucial role in the cooling water system for the Hinkley Point C power station have been placed successfully onto the seabed of the Bristol Channel. It’s a marine engineering operation thought to be among the most complex in the world.

The work taking place over the summer to lower both the outfall and intake heads has been clearly visible, as two specialist lifting vessels, Gulliver and Rambiz, worked over several weeks to lower and place them within centimetres of accuracy. The structures will eventually be connected to the three 3.5km tunnels already completed.

Watch here the intake heads being lowered onto the Bristol Channel seabed.
MANAGING SPENT FUEL AT HINKLEY POINT C

Radioactive waste and spent fuel is produced as a result of electricity generation in nuclear power stations and from the use of radioactive material in industry, defence, medicine and scientific research.

Unlike other harmful industrial waste products like carbon dioxide, radioactive waste is produced in small amounts and has already been safely stored and secured for very long periods of time. Since the oldest stations in the Hinkley Point fleet started generating in 1976, they’ve helped avoid the emission of 700 million tonnes of CO₂ – making a big difference in the fight against climate change.

In the UK, spent nuclear fuel which is removed from the reactor itself, is safely stored at power stations in specialist facilities before being moved to a future geological disposal facility currently being developed by the UK’s Nuclear Waste Services (part of the National Decommissioning Authority).

SPENT FUEL STORAGE

Hinkley Point C is considering changing the way it stores spent fuel. The change is from the originally proposed ‘wet’ design, where spent fuel is stored in large pools (see example of nuclear spent fuel in wet storage, right), to one which uses ‘dry’ storage – where spent fuel is stored in strong canisters inside a building. In the 12 years since the site’s original review of storage options, a new dry store at Sizevelly B in Suffolk (pictured below) has given the project UK operational experience of this method. It provides easier handling and accessibility, and as canisters used in a dry store do not require any active management, the future decommissioning of Hinkley Point C can be carried out more safely and in a faster timeframe.

Tests on spent fuel canisters after decades in dry storage have confirmed that the system provides a safe and secure storage option. The canisters are robust and designed to withstand any external hazard. They can be approached without protective clothing – as they completely shield the environment from the radiation of the spent fuel.

There will be capacity to safely store all of Hinkley Point C’s spent fuel generated through the entirety of the plant’s operation and it’s designed to store the spent fuel generated by Hinkley Point C only. The project continues to consider the available fuel storage options and once an application is ready, Hinkley Point C will conduct a full public consultation on the proposed changes.

FROM CONSTRUCTION TO COMMISSIONING

As Commissioning Director at Hinkley Point C, Simon Alibhai (pictured) is focused on the work required to help bring the power station online – from construction to go live. He will eventually lead a 500-strong team of operational staff who’ll keep Hinkley Point C generating low-carbon electricity 24/7.

Tell us about your background...

“I previously worked as the Station Director of Torness power station, the last operating nuclear power plant in Scotland. I loved my old job – moving to work in Somerset was the only opportunity I could think of in the nuclear industry that was better than the one I already had.”

What does your role involve?

“I’m responsible for commissioning the plant and getting it ready for launch – which involves testing equipment, running simulations, writing maintenance procedures and training skilled operators. The work we’re doing now will make sure everything is running smoothly and safely from day one.”

Your thoughts on the project?

“It’s a privilege to be commissioning what I think is the most complex and advanced nuclear plant in the world, working with such a great team.”

How are you finding it so far?

“After moving from Edinburgh, we’re settling in well and we’ve been busy finding local schools for our kids. I’m aware of the legacy that Hinkley Point B established and I’m keen to continue creating career opportunities for local people and ensuring Hinkley Point C has a lasting benefit on the community.”

THE TORTOISE AND MRS AYRE

A tortoise set off in search of fame and glory when it was spotted at Hinkley Point C. Nicknamed “Speedy Geoff” by the team, the wanderer was not on the list of approved visitors so was safely escorted off the property into a temporary rescue home, with the help of Sedgemoor Tree Services.

Hinkley Point C takes its environmental responsibility seriously, as Nicola Doble, Commercial Director – Sedgemoor Tree Services, said: “We’ve been carrying out wildlife rescue in and around Hinkley Point C, but finding a tortoise was a surprise – we didn’t quite believe it at first!”

“We’re proud to play a part in the project by delivering Habitat and Environment Management programmes. It’s important for everyone at Hinkley Point C to be mindful of the environment and wildlife, and the Environmental team takes exceptional steps to mitigate any impact.”

In the absence of an owner to claim him, the runaway reptile was taken for a vet check-up, and he’s since been rehomed by local animal rescuer Lynda Ayre (pictured). The tortoise is now living in a luxurious enclosure among other tortoises, with an adventurous tale to tell and a new name to reflect his journey: Speedy HP.

Bringing two rural communities together

A £37,000 grant from the HPC Community Fund is helping to tackle rural isolation in Stolford and Wick.

The money has been used to refurbish St Peter’s Church, a building which dates back to the 1850s with new plumbing and heating. The church is the location for the new Stolford and Wick Community Hub, which will provide a central social space for these two rural communities.

Val Bishop, Somerset Community Foundation Programmes Director, said: “Rural isolation is the ultimate ‘hidden’ issue here in Somerset, as it is almost impossible to see or measure. This project aims to develop St Peter’s Church into a community hub to bring people together and foster social connections to improve quality of life.”

Reverend Andrew Tatham, Stolford and Wick Community Hub Project Leader, added: “Many houses in Stolford are separated from neighbours by fields or woodland. Though idyllic, being distant from others can increase the sense of isolation. There was a strongly felt need for a focal hub to counter this by binding the community together.”

For more information about the HPC Community Fund, visit: hpcfunds.co.uk.

Watch here the 360 virtual tour of a dry fuel store and click here for more on Hinkley Point C’s management of spent fuel.
HINKLEY POINT B: END OF AN ERA

After more than 46 years of generating low-carbon electricity for the UK, Hinkley Point B station has ceased operations. The station is the UK’s most productive nuclear power plant and has helped the UK avoid emissions of more than 107 million tonnes of carbon dioxide.

From the community spirit of those who worked there to the amount of energy supplied to the UK, there is so much to celebrate and be proud of. It leaves behind a legacy that is an important part of community history through the thousands of people who have been employed over the years, and the millions of pounds invested into the Somerset economy.

Dave Stokes, who has worked at Hinkley Point B since August 1990, said:

“My dad used to work here and the best bit of advice he’s ever given me was to work at a power station. The people here are great - it’s like one big family. When the reactors were shut down for the final time it was a sad moment. So many people who have worked here feel a big part of it.”

Hinkley Point B was one of EDF’s fleet of eight nuclear power stations and in 2020 the fleet generated enough low-carbon electricity for 44% of UK homes. Since that time, Dungeness B, Hunterston B and Hinkley Point B stations have reached the end of their operational life and been safely shut down ready to begin defueling.

The remaining five nuclear power stations will follow their lifetime programmes for operation and closure, with four more due to come offline by the end of 2028.

The planned end of operations for the UK’s existing nuclear fleet, alongside the need to reduce reliance on fossil fuels that cause damage to the environment, makes the role that Hinkley Point C will play in providing 7% of the UK’s low-carbon electricity even more important.

Making a mark

Hinkley Point B was the first Advanced Gas-cooled Reactor to generate electricity to the grid in the UK, and it began operation on 05 February 1976. Hinkley Point C will be the first European Pressurised Reactor to generate electricity to the grid in the UK too - meaning these sites will always have an important place in British nuclear history.

What comes next?

The first phase of decommissioning a power station is defueling. This is the safe removal of all the spent fuel from the 300 fuel channels in each reactor. This is cooled, safely packaged in specialised containers called flasks and transported to Sellafield in Cumbria, where it is dismantled, cooled further and then kept in storage for up to 70 years. Around 400 spent fuel flasks will be sent to Sellafield in a process that will take between three and four years.

Once all the spent fuel from Hinkley Point B has been safely removed, the site is transferred to the Nuclear Decommissioning Authority, which will carry out the rest of the work, including removing all the equipment and demolishing redundant buildings.

Watch here as employees talk about what has made the nuclear power station so special.

“DID YOU KNOW...”

Since Hinkley Point B joined the UK electricity grid in February 1976, it has generated more than 310 Terawatt hours (TWh) of electricity – that’s enough to meet the needs of every home in the South West for 33 years.

The station has helped the UK avoid emissions of more than 100 million tonnes of CO₂ - that’s the equivalent of taking 51 million cars off the roads.

While operational, it contributed £40m a year to the Somerset economy.

Mike Davies
Station Director of Hinkley Point B

“This tiny corner of Somerset has produced huge amounts of zero-carbon electricity and provided thousands of jobs to our community. I’m excited that Hinkley Point C is taking shape, but I also know that thanks to this station and everything it’s achieved, our colleagues have very big boots to fill.”
Visitors welcome

Did you know that Hinkley Point C has its own visitor centre? The facility, located in Cannington, has just celebrated its first birthday – and the team there is delighted to report seeing a big increase in the number of people through its doors. Whether they’re excited children on an organised school trip, nuclear experts on a fact-finding tour, or interested locals dropping in, the centre is a big hit. Each individual or group is given a tailored experience. Scheduled tour visitors will have a full morning of activities, including a 45-minute tour of the Hinkley Point C site, but anyone can drop in throughout the day and have a look around. The visitor team members are friendly, knowledgeable and happy to answer questions around energy and nuclear. A key part of the attraction is the stunning interactive digital displays, cutting-edge technology custom-made to tell the Hinkley Point story.

Jane Tomaney, Visitor Centre Manager, explained: “The visitor centre helps us explain not just what is happening at Hinkley Point C, but also what we’re doing to promote a net zero future. It enables us to share information about the important role nuclear has to play in tackling climate change. We also talk about the importance of renewables – solar and wind power – and how our carbon footprint is linked to climate change. “Visits are especially useful for schoolchildren, as we need to teach them about how energy is produced and why it’s so important for the climate to reduce our reliance on fossil fuels. “People ask what makes me come to work every day, and it’s the look on people’s faces when you take them to site – their jaws drop! I’m also proud to work for EDF. We’re doing so much to bring about positive change towards net zero.”

Want to know more about nuclear? Visit our Nuclear Fast Fact pages for nuclear in a nutshell!

“Visitors are always amazed at the way we make complex scientific information accessible,” said Jane Tomaney, Visitor Centre Manager. “We know people have concerns about nuclear, but then they come to the centre and gain a real insight into what we’re doing at Hinkley Point C.”

Sacha Hawthorne
Receptionist and Administrator

VIRTUAL TOUR
Cannington Court visitors are taken on a virtual tour of the construction site through the 12m high immersive video screens and can interact with a map to check on latest progress or watch drone footage swoop around Big Carl, the world’s largest crane. Other exhibits include a model of the pressurised water reactor, along with an interactive challenge to produce the right electricity mix to achieve zero carbon emissions and 100% output, so we all have the electricity we need.

Local career opportunities

Just under 400 people attended a recruitment event hosted by Hinkley Point C. The event, held at the Bristol Road Business Park in Bridgwater, gave local people the chance to find out more about the many roles available on the project. These range from apprenticeships, to training opportunities and employment.

Louise Brown, Hinkley Point C Jobs Service Lead, said: “We want to say a big thank you to everyone who attended our recruitment event in Bridgwater. We were delighted that so many local people attended, and we hope to see many of those pursue their interest in working on the Hinkley Point C project and contributing to helping Britain achieve net zero.”

The Hinkley Point C Jobs Service helps to ensure that local people can access employment opportunities during the construction and operation of Hinkley Point C. A partnership between EDF, Jobcentre Plus and other local support organisations and training providers, the Hinkley Point C Jobs Service works with our contract partners to identify upcoming opportunities and assist in matching people to jobs.

Through the Jobs Service online portal, local people are given priority access to job opportunities on the project, as vacancies are posted 48 hours before they are opened to wider recruitment channels. Working within the local community, the team offers employment outreach and support.

Those who missed the event can find out more about all the jobs and training opportunities available by heading to hpcjobsservice.edfenergy.com.

Career planning made easy

Hinkley Point C has launched a digital careers tool to help jobseekers navigate the range of opportunities available at Hinkley Point C. The project is more than just a construction project – it’s a unique opportunity to grow and develop people’s skills and their longer-term careers. With more than 400 job roles available ranging from office-based to site-based, and from apprentice opportunities to roles that are highly skilled requiring more experience, it’s easy to become spoilt for choice. This is where the ‘Building your Future’ website can help.

The new tool takes you through a simple questionnaire to help determine your working preferences, which will then help point you in the right direction for next steps and career opportunities. You can explore each of the job sectors to learn more about those areas and the roles available within.

No experience? No problem! The Hinkley Point C team has already created more than 900 apprenticeships through 50 different apprenticeship schemes, has helped to provide training for more than 14,000 people, and is committed to making roles as accessible as possible.

Visit buildingyourfuture.edfenergy.com to find out where your career could take you next.
Visit the Hinkley Point visitor centre

Contact:
07813 232358
hinkleypointtours@nnb-edfenergy.com
(to enquire about a tour or educational trip)

Find out more:
edfenergy.com/energy/education/visitor-centres/hinkley-point-visitor-centre

OPENING TIMES
Monday – Thursday: 9:30am – 5pm (except Bank Holidays) • Friday: 9:30am – 4pm.
The last visit is half an hour before closing. Last entrance is 3:30pm on a Friday.