Hinkley Point C

Project Update

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Safety and Orientation

TODAY'S SAFETY MESSAGE

Wednesday 28th June
(Zero Harm Safety Message)

Weekly theme- Zero Harm – General Safety

What techniques can you use to keep your focus on the job in hand and avoid errors? How can you help your colleagues?

Hinkley Point C

- First new nuclear power station **in a generation**
- **Essential in the fight against climate change** and to build a secure, resilient system.
- Will provide **Six million homes with low carbon energy – 7% of UK demand**
- **£18billion investment** in Britain.
- **25,000 job opportunities** – thousands with local people
- Unit 1 **operational in 2027** with unit 2 commissioning in 2028.

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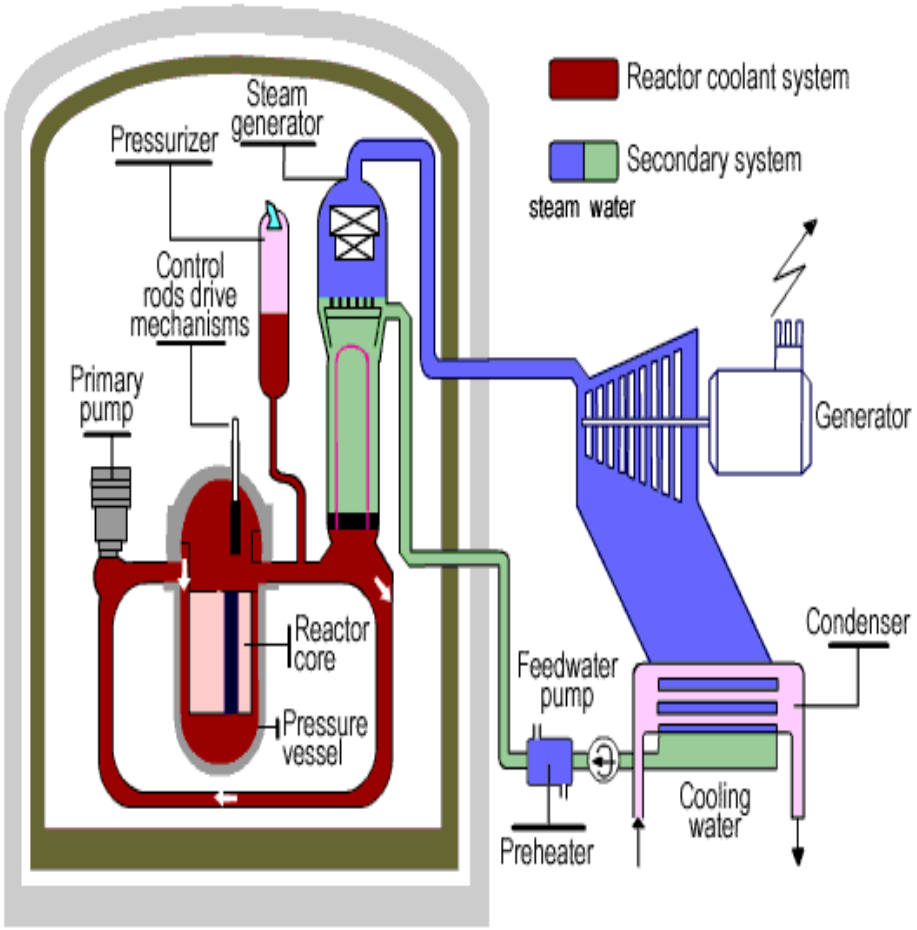
Hinkley Point C

2 X 1.6 GW EPR

- Construction began in Sept 2016
- Target for commissioning June 2027
- Adapted for UK regulations – a “UK EPR”

The EPR Reactor



- A nuclear reactor is driven by the splitting of atoms, a process called fission, where a particle (a 'neutron') is fired at an atom, which then fissions into two smaller atoms and some additional neutrons. Some of the neutrons that are released then hit other atoms, causing them to fission too and release more neutrons. This is called a chain reaction
- The uranium fission takes place inside the nuclear reactor. It releases a large amount of energy that heats the coolant water circulating at very high pressure. ...
- This steam is transported to the generator-turbine set via a secondary circuit.
- Once there, the vanes in the turbine move the alternator, and the mechanical energy is transformed into electricity.

The EPR Reactor

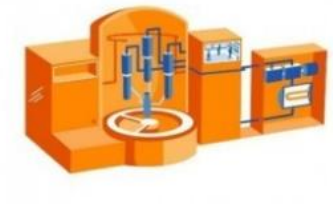
- The UK EPR is a **Pressurised Water Reactor**. The most common global design.
- It represents a major development on previous designs, making them amongst the **safest and most efficient civil nuclear power generators ever designed.**
- It has been designed to **use less uranium** and produce almost a third **less long-lived radioactive wastes** compared with water reactors in operation today.
- The UK version of the EPR **meets the most stringent safety and environmental protection standards,** having gone through the UK's Generic Design Assessment Process.

EDF Nuclear Power Plant Offers

A comprehensive portfolio of technologies to meet the worldwide demand for carbon-free energy

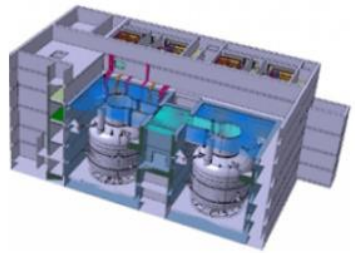
1650 MWe

- Most powerful reactor in the world
- The leading reference for very high energy demand
- Load following capability



1200 MWe

- EPR adaptation to 1200 MWe
- Adapted to various site and grid conditions
- Load following capability



340 MWe

- Meeting the 300-400 MWe SMR target
- Adaptable to various environments
- Other low-carbon uses: hydrogen, heat & electricity cogeneration, district heating, water desalinisation
- Load following capability

Designs sharing the Core EPR Technology

Fully integrated LWR-SMR design

Shaping our net-zero future with state-of-the-art nuclear technologies and services

Hinkley Point C – The Physical Scale

176 hectares

400 km
pipe work

9000 km
electrical cabling

6 MILLION
m^3 of earth moved

3 Million
tonnes of concrete

50,000 tonnes
structural steel

25,000
Employment Opportunities

Project Progress

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Journey to construction

- **2006** Government Energy Review states nuclear can make significant contribution
- **2008** EDF acquires British Energy's nuclear sites
- **2010** Government include Hinkley Point in list of suitable sites
- **2011** HPC Development Consent Order application lodged
- **2012** EPR approved for use in UK; HPC nuclear site licence granted and site clearance begins
- **2013** Contract for Difference agreed with Government; Development Consent Order granted
- **2016** Final Investment Decision
- **2018** Start of main construction marked by completion of first concrete pour

Reactor Unit 1

Reactor Pressure Vessel Complete

- The first nuclear reactor built for a British power station in more than 30-years is complete and has been safely delivered to site.
- The “reactor pressure vessel” is the high strength cylinder that contains the nuclear fuel and the chain reaction needed to make heat.
- At just 13m long and weighing in at 500 tonnes, each of the two reactors at Hinkley Point C will help power around 3 million British homes.
- The reactor has been built in France by Framatome; the same nuclear engineering company which built Britain’s last nuclear reactor, at Sizewell B in 1991.
- Teams have spent 80,000 engineering hours on its construction.

First Nuclear Island Pump

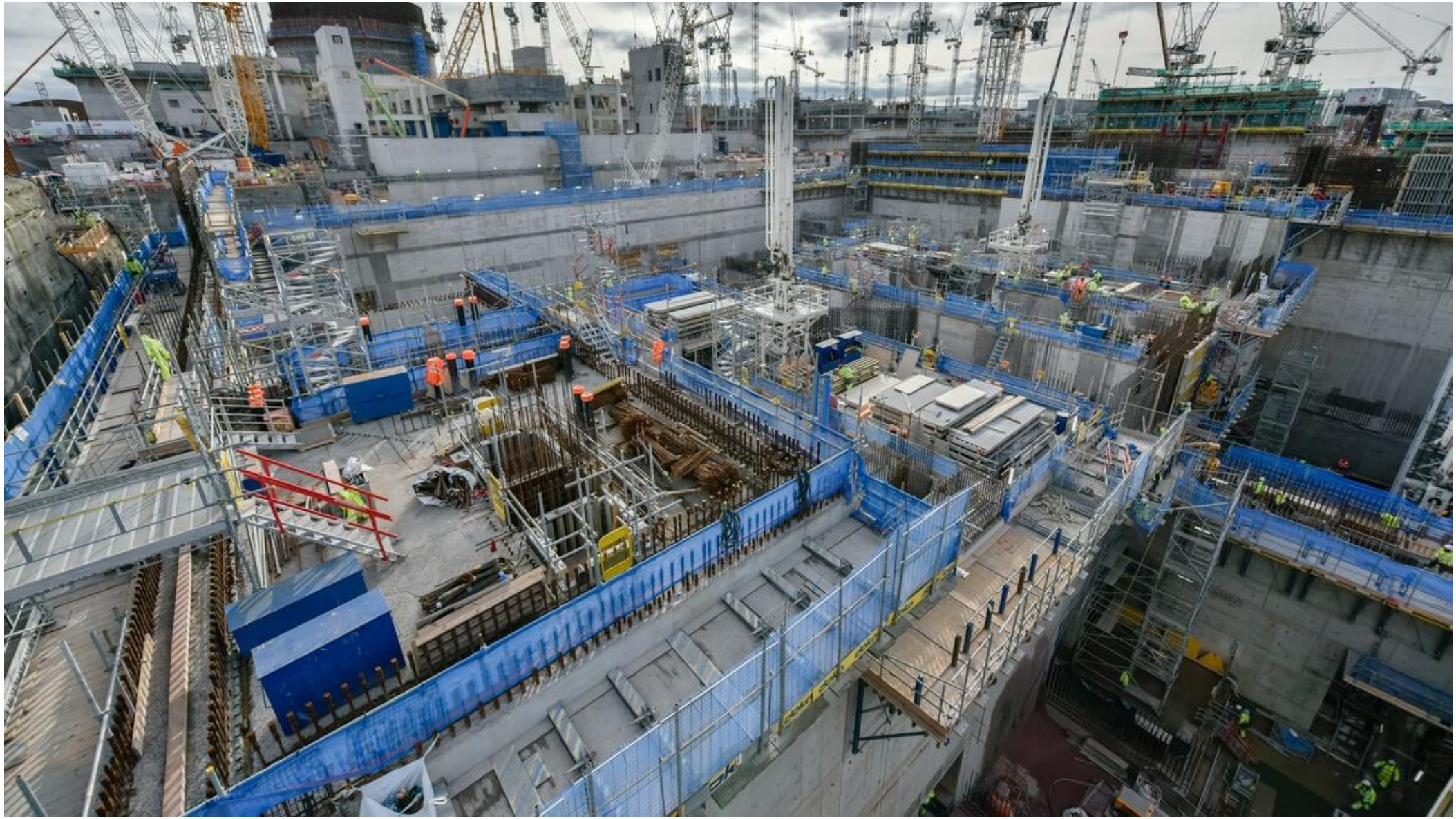
- The first of a series of pumps that will be used across the Nuclear Island was successfully installed this week in one of the Unit 1 Safeguard Buildings.

- The pump will deliver cooling water for the sprinkler safety system located on the underside of the Dome, which would activate in the unlikely event of a fire or accident in the Reactor Building.

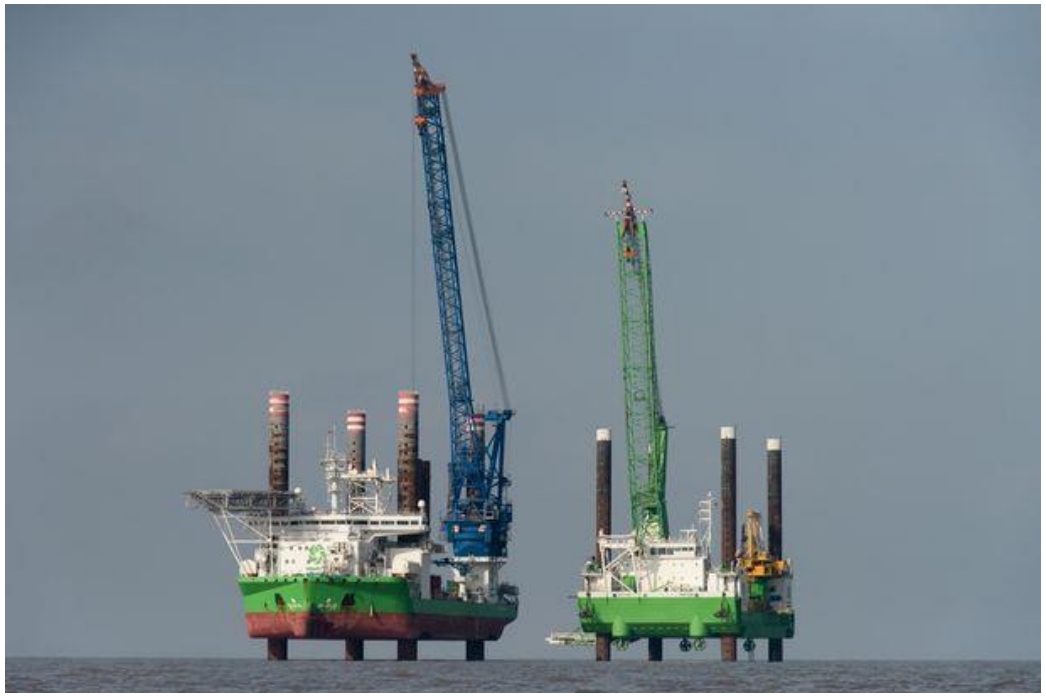
- Once delivery from Avonmouth was complete it was picked up by crane, manoeuvred through one of the Safeguard Building's equipment hatches, lowered down to the -9.6m level, slid into position on skates and finally raised onto its installation plinth.

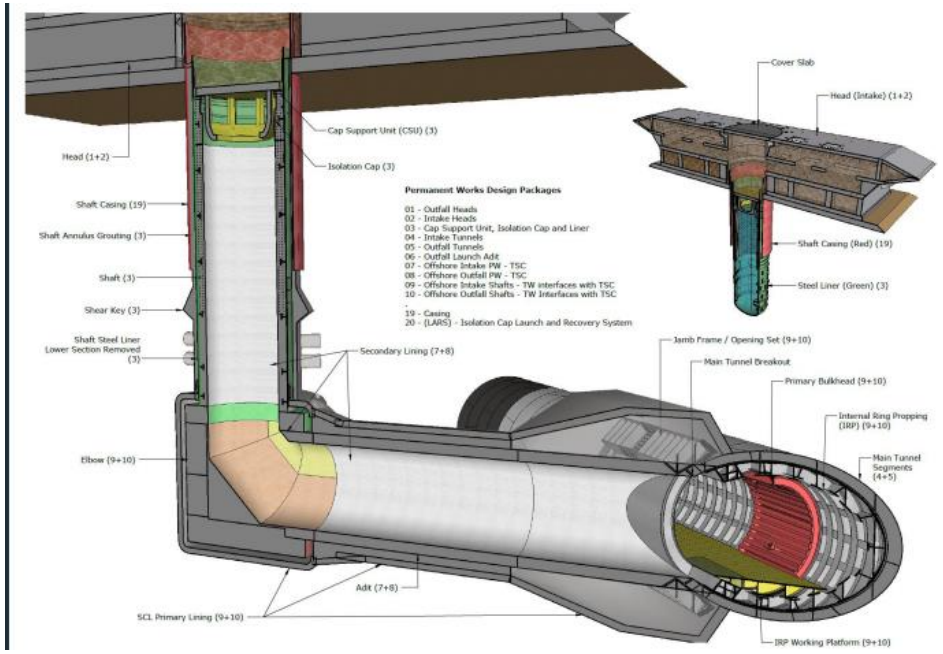
Conventional Island – Turbine Hall

Conventional Island – Cooling Water and Pump House



Marine Works





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Replication reduces cost and schedule risk

Hinkley Point C sees major productivity gains in work repeated on Unit 2 from Unit 1
Similar evidence seen in nuclear construction across the world

Turbine Hall base slab concrete pour

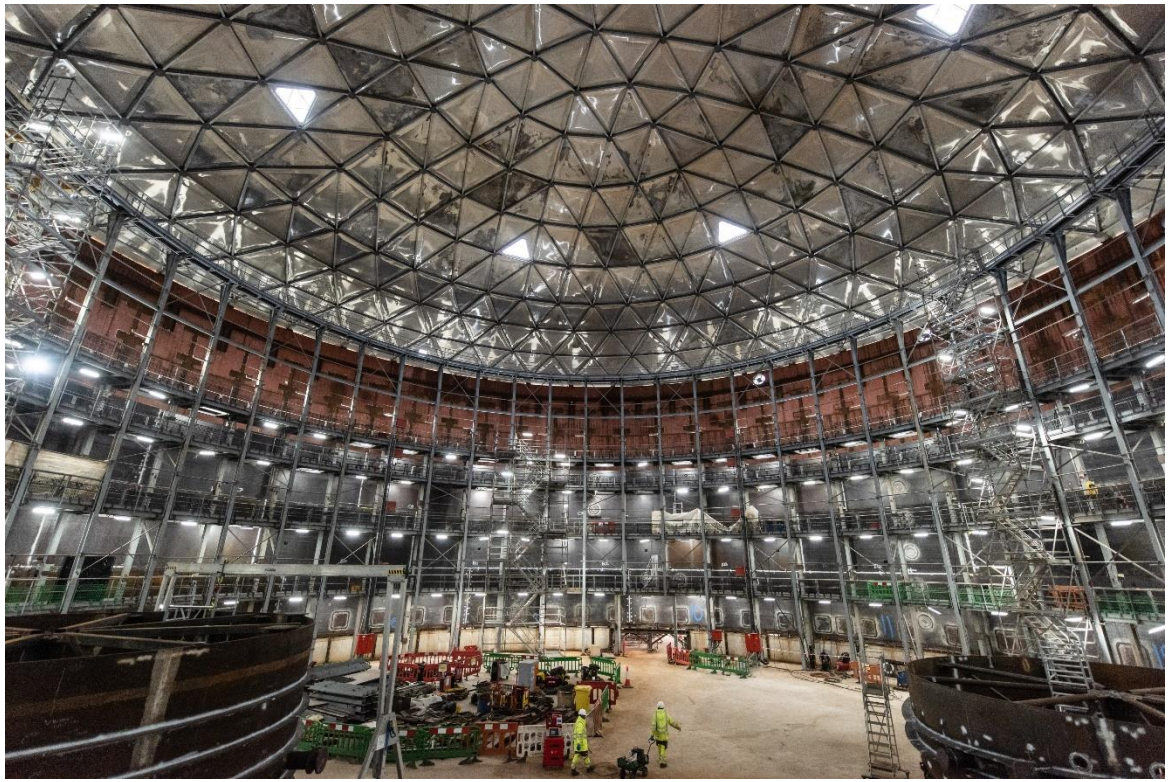
Unit 1	Unit 2	
12 pours	10 pours	30% Quicker in Unit 2
10 months	7 months	

Liner cup floor

Unit 1	Unit 2	
57 days to build	39 days to build	30% Quicker in Unit 2

Modularisation – factory built on site

Reactor Cavity Pool lift 700 tonnes



Bunker factory – for liner rings and domes

Progress throughout 2023

- The project **will reach the peak of construction** with both main-civil works and mechanical and electrical installations in progress.
- This will be **the year we place the Dome onto Unit 1** and receive the Reactor Pressure Vessel on-site.
- In the Bristol Channel, more great work will occur as we **drill the shafts to connect the heads** to the cooling water tunnels.
- **The main control room** that has been pre-fabricated will also be transferred into Unit 1 for its fit-out.
- In addition, the suppliers of our **Nuclear Steam Supply System** (Framatome) and Turbine (GE) will increase their presence on Site and start installing equipment.
- The MEH teams will also be **accelerating the installation of 1,000 km's of pipework and cabling** as rooms are transferred from the main-civils work.

Building a copy – Sizewell C

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SizewellC
Doing the power of good for Britain
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Wider Benefits

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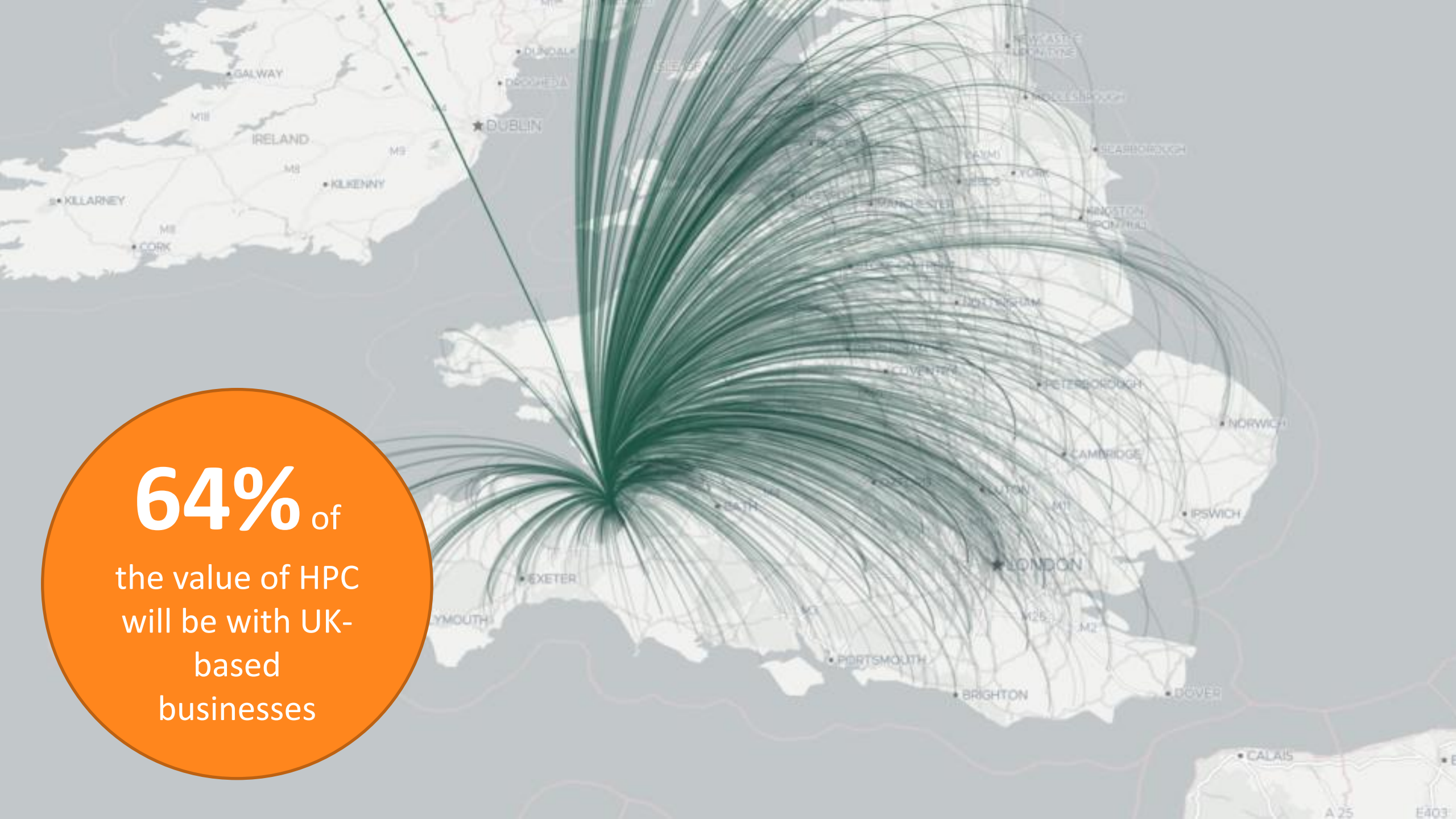
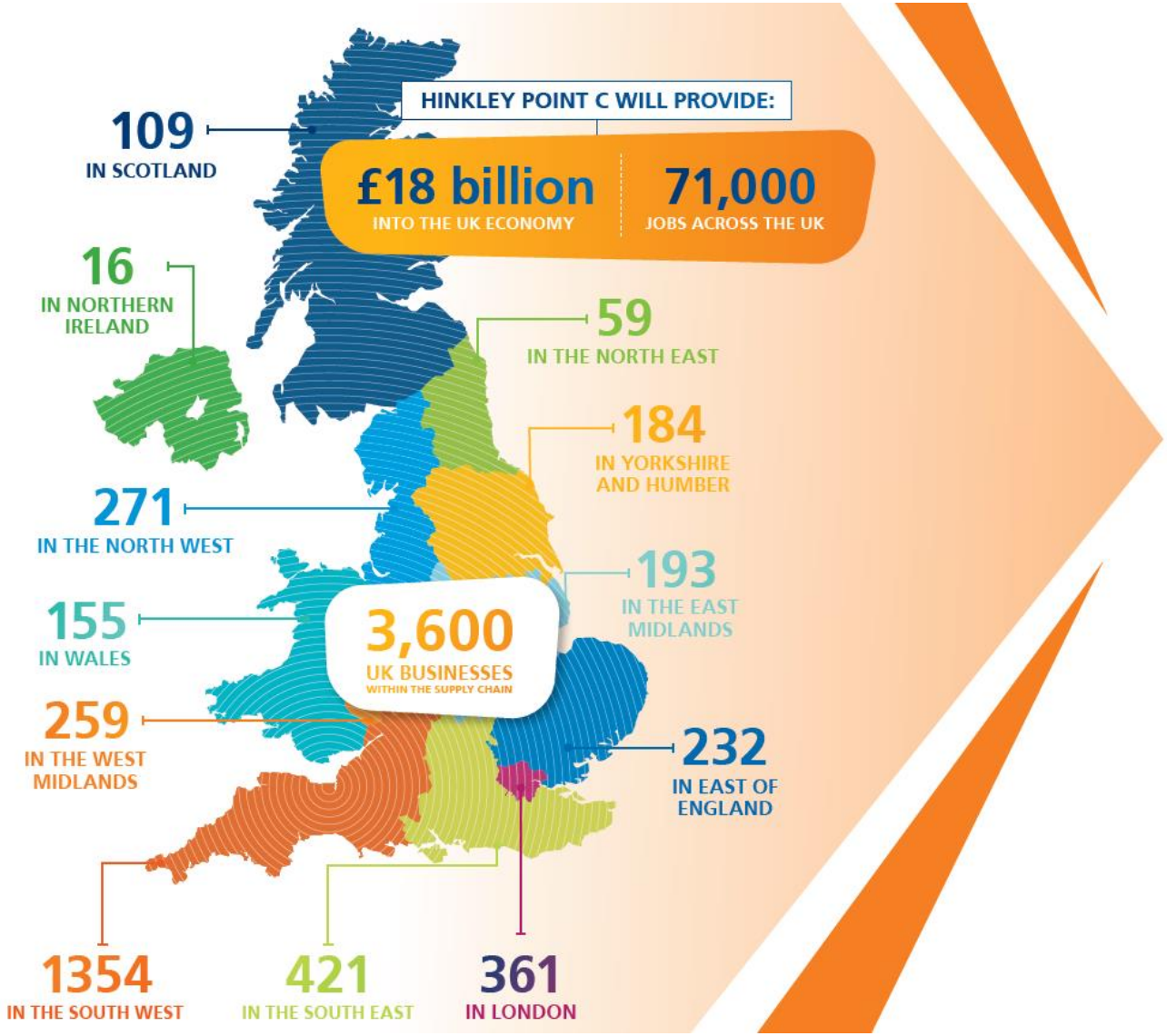


64% of the value of HPC will be with UK-based businesses

Hinkley Point C – Regional Economic Impact



£5.3 Billion

spent with companies in the South West to date against a target of £1.5 billion during construction.

64%

of the value of Hinkley Point C contracts have been awarded to UK-based companies to date against a target of 57%.

£1 → £2.50

For every £1 spent by the project, an additional £2.50 is generated in wider economic value for the local region

HPC European Supply Chain

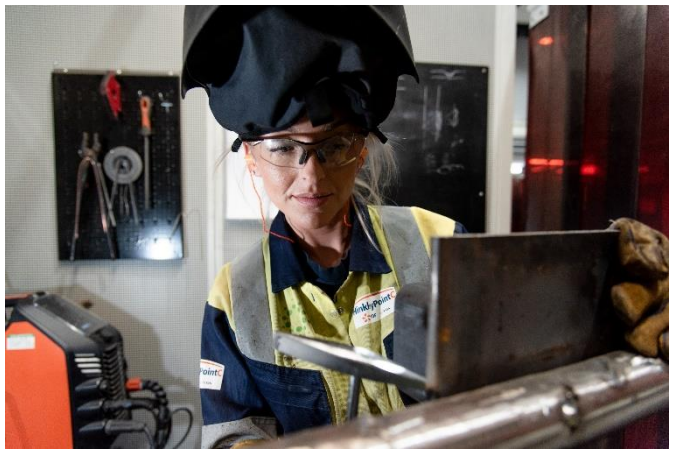
- 90% of HPC suppliers are within Europe (including UK)
- France represents the largest supply chain base outside the UK - 36% of spend
- Hundreds of companies from across Europe at both T1 and T2 level

Tier 1 Europe Distribution

Tier 2 Europe Distribution

Skills, Training and Employment

- Hinkley Point C proves that the transition to net-zero can also deliver huge social and economic benefits, changing lives and communities for the better.
- New training centres will offer 30,000 places as we reach peak construction. The project will help them to upgrade their skills to get better jobs, better pay which in turns supports regional productivity.



£24 million

Skills investment

£24 million invested directly into Education, Skills and Employment

30,000 training places

Training

30,000 training places available between now and Hinkley Point C's completion

1,131 trained

Apprentices

1,131 apprentices have been trained at Hinkley Point C so far

Original target: **1,000**

19,250 jobs

Job opportunities

19,250 jobs created directly on site so far

Target: **25,000**

Supporting Skills
for Net-zero

Welding Centre of Excellence

Trainees are learning the specialised techniques required for nuclear projects. Since opening in 2020, more than 500 welders have been trained and tested, ensuring they have reached Hinkley Point C's competency standards. The Centre also provides routes for those seeking employment in welding, through the government's bootcamp training scheme.

Electrical Centre of Excellence

The facility, based at the Somerset Energy Innovation Centre in Bridgwater, provides training to support the electrical fit-out of Hinkley Point C. It also hosts candidates from the Hinkley Support Operative programme, which works to up-skill local people seeking employment and looking to begin new careers in construction.

Mechanical Centre of Excellence

Due to open later in 2022 and located next to the Construction Skills and Innovation Centre in Bridgwater, the facility will feature simulations of the Hinkley Point C site. Students will be trained and tested in mechanical installation techniques including pipefitting, steel erection and plating, ensuring they meet the high standards required for nuclear projects.

Diverse Training Routes

- Hinkley support operative programme
- Industrial placements
- Reactor operator programme
- Centres of Excellence
- Occupational traineeships
- Apprenticeships
- Young HPC
- Hinkley jobs service
- Work experience
- T-levels
- Graduate programmes
- Supported traineeships

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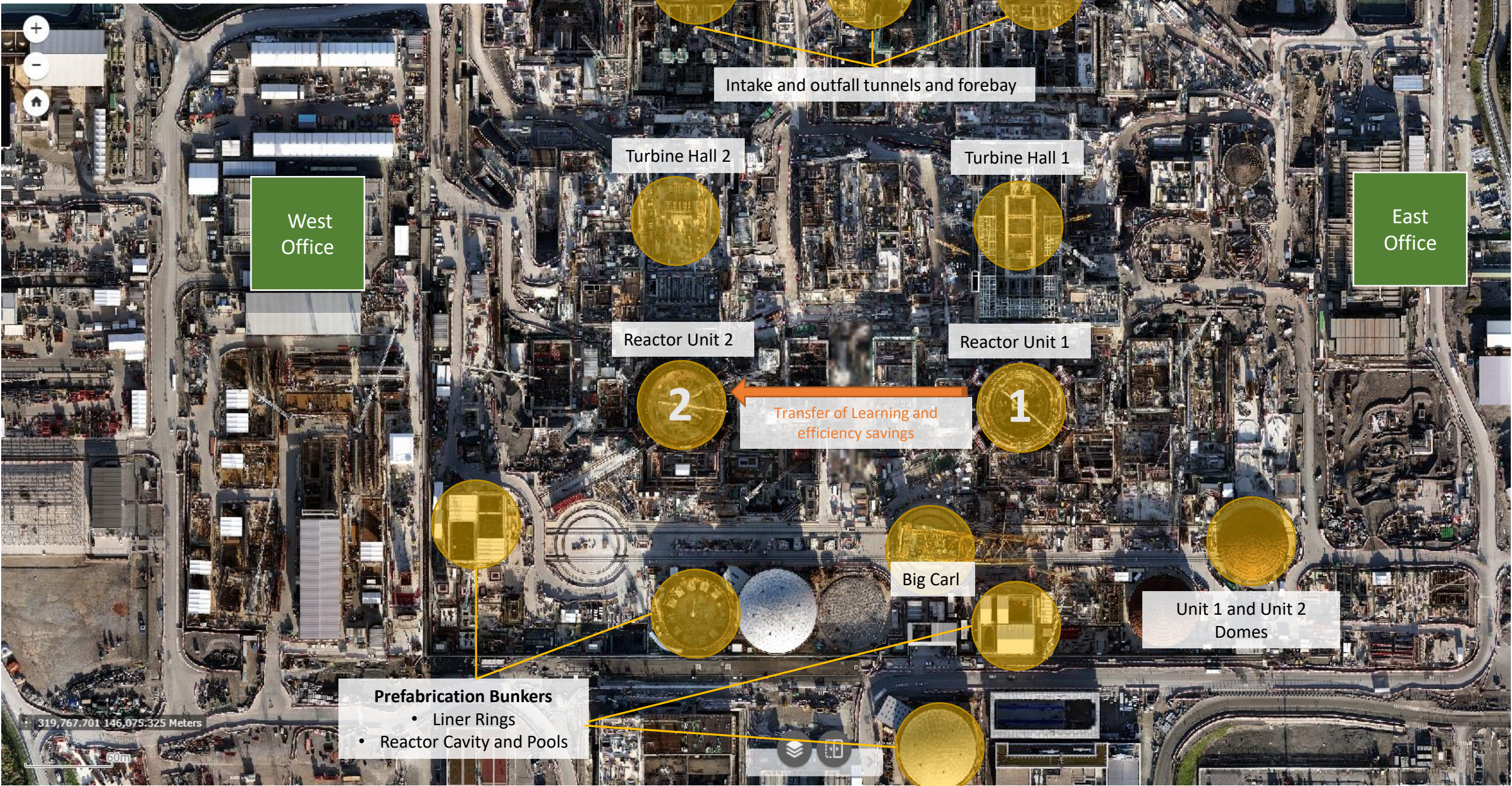
Site Tour - Orientation



Thank You

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