Horizon Nuclear Power

A Presentation to the Minerals Engineering Society

15 October 2010

NOT PROTECTIVELY MARKED

Horizon Nuclear Power

- Formed in January 2009 – a 50:50 joint venture between E.ON UK and RWE npower. Office opened November 2009.
- Land acquired at Oldbury-on-Severn and Wylfa (privately, and from NDA). Staggered development and construction programme with Wylfa commencing first
- Mission to develop around 6,000MW of new nuclear capacity by 2025. At least £15bn investment.
- Initial staff resources drawn from UK nuclear development projects of RWE and E.ON
- Plan for significant growth during 2010 - 2011
- Safety First culture

HORIZON NUCLEAR POWER

A UK company of E.ON and RWE

ENERGY WORKING FOR BRITAIN

e·on RWE The energy to lead

22 units in operation

6 units undergoing decommissioning and dismantling

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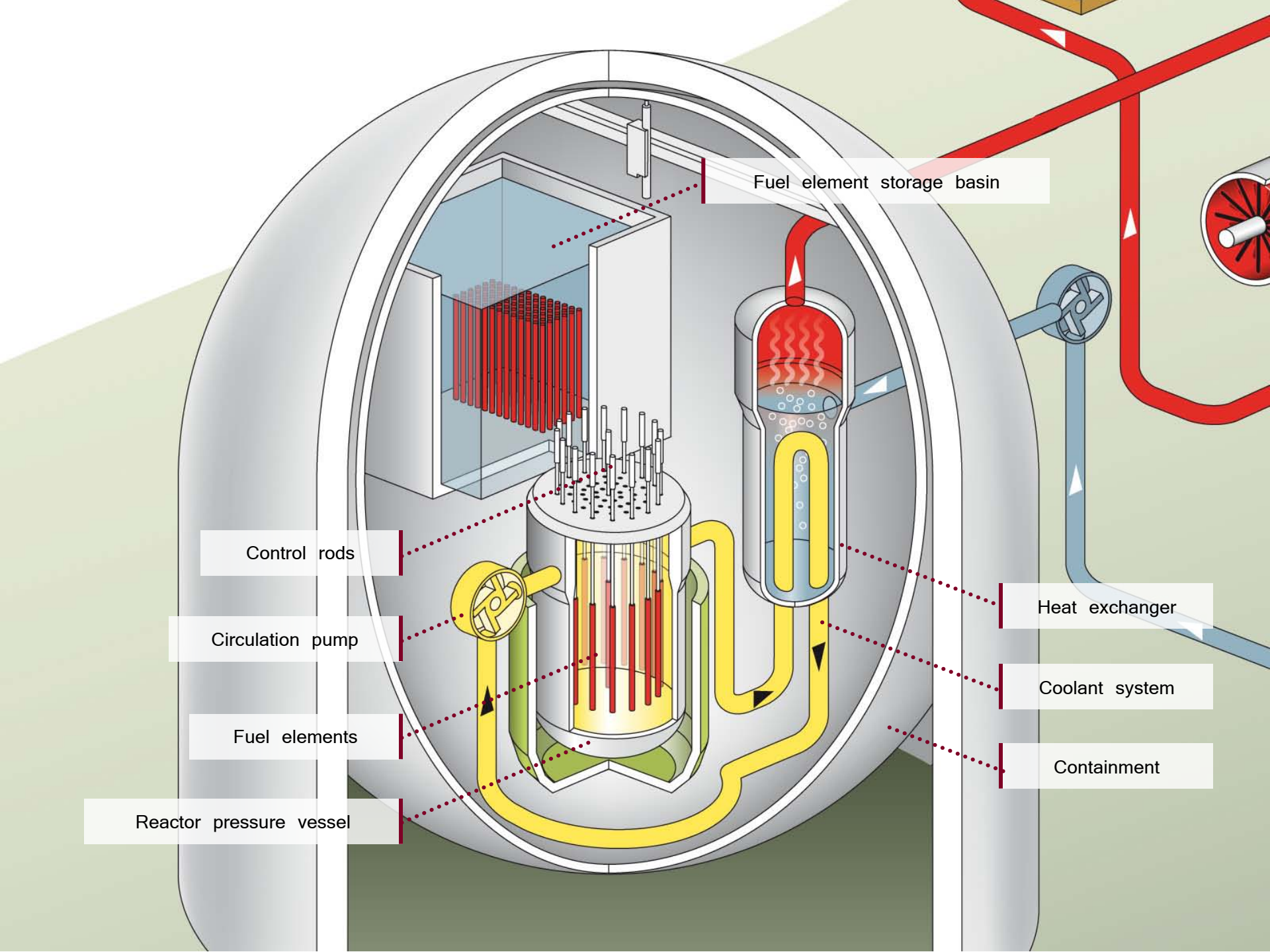
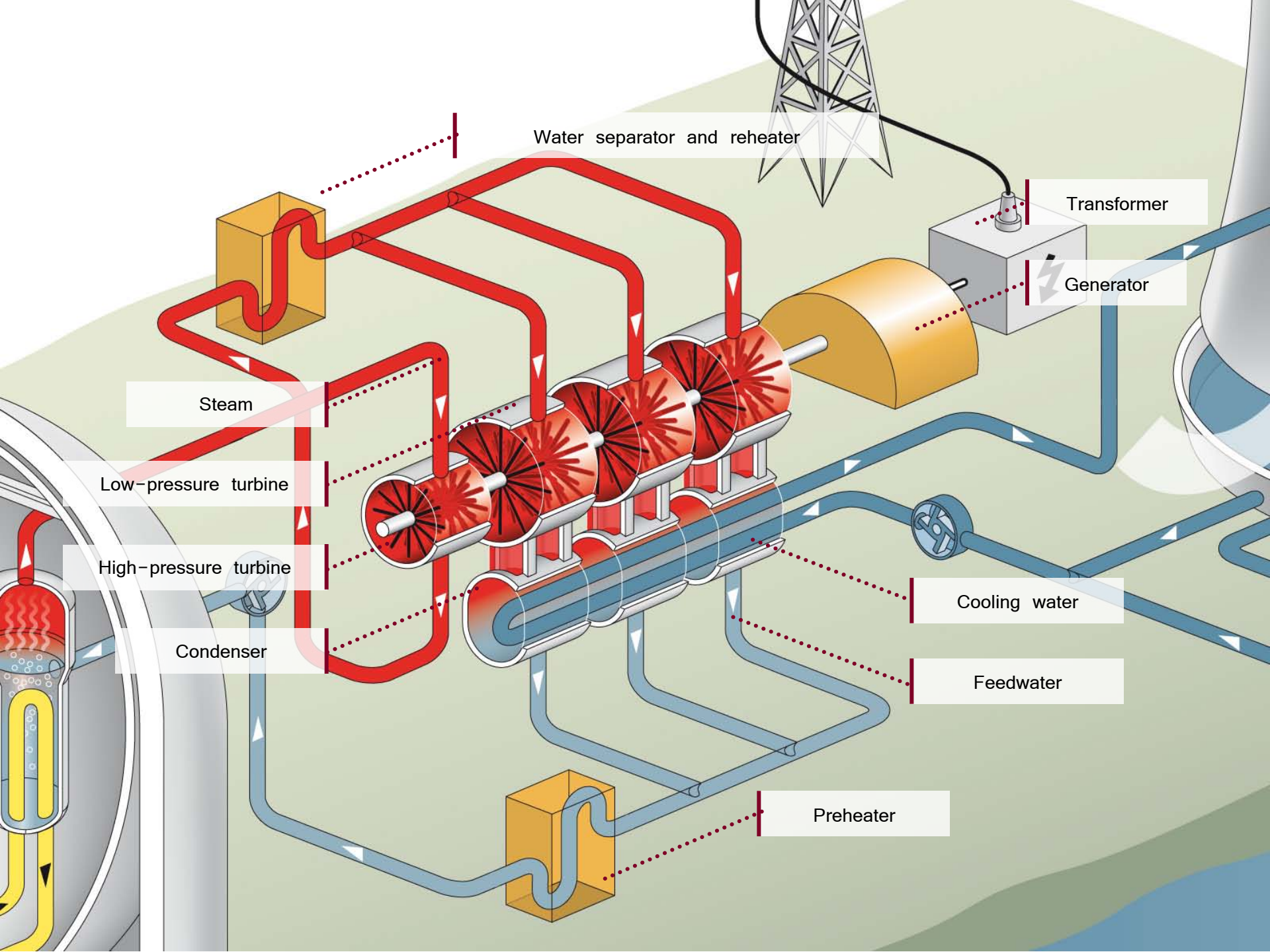
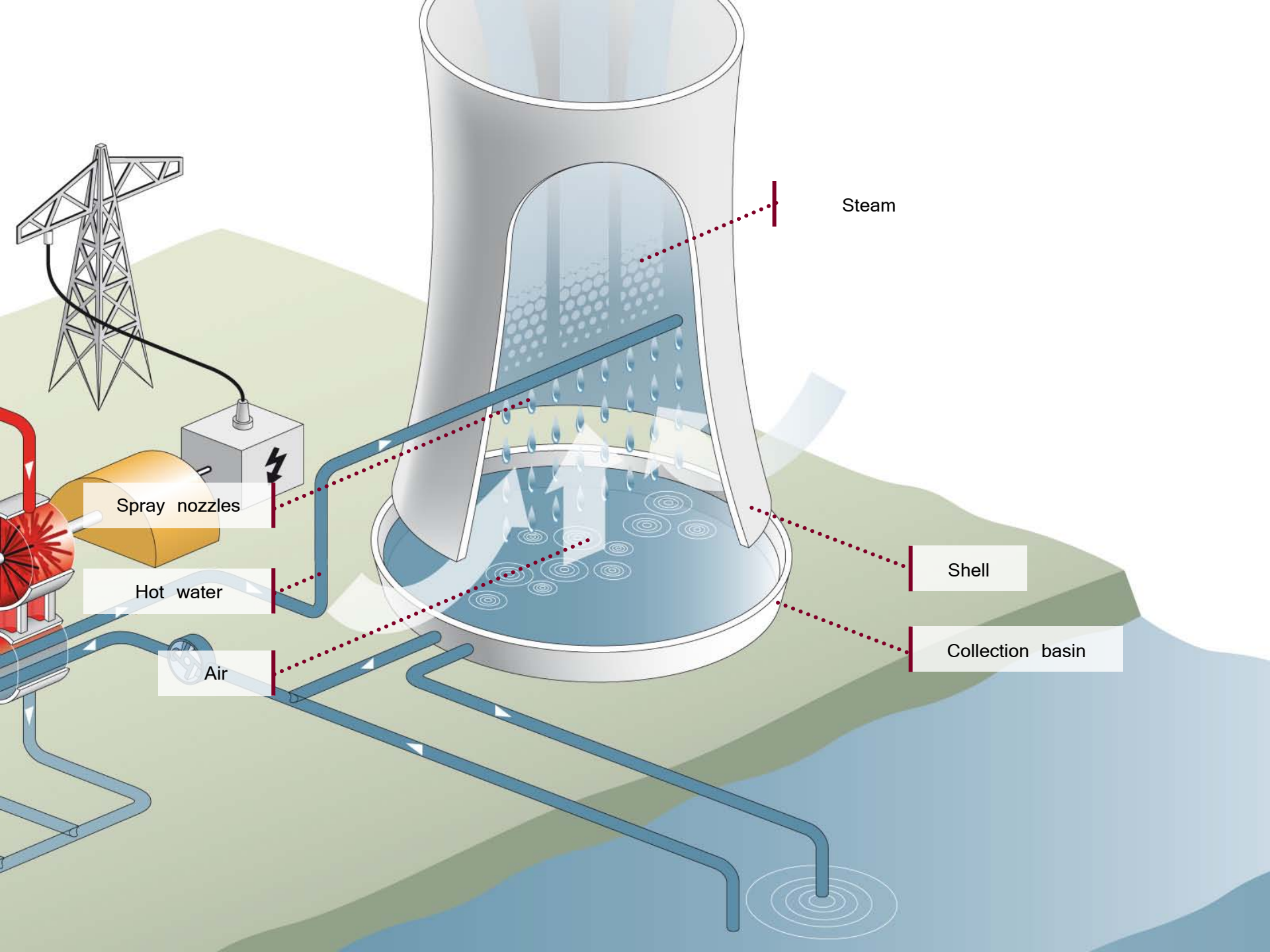
Leading in safety and performance

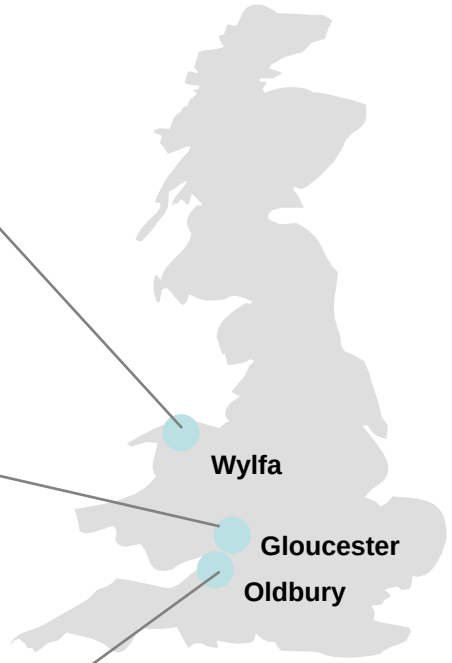
1980	Unterweser	9,81 bn kWh	(world record)
1981	Unterweser	9,54 bn kWh	
1982	Biblis B	9,74 bn kWh	
1983	Grafenrheinfeld	9,96 bn kWh	(world record)
1984	Grafenrheinfeld	10,15 bn kWh	(world record)
1985	Grohnde	11,48 bn kWh	(world record)
1986	Grohnde	10,79 bn kWh	
1987	Grohnde	10,21 bn kWh	
1988	Palo Verde	10,86 bn kWh	
1989	Grohnde	10,86 bn kWh	
1990	Grohnde	10,69 bn kWh	
1991	Emsland	10,83 bn kWh	
1992	Brokdorf	11,33 bn kWh	
1993	Unterweser	11,40 bn kWh	
1994	Isar 2	11,13 bn kWh	
1995	Grohnde	11,36 bn kWh	
1996	Philippsburg 2	11,47 bn kWh	
1997	Grohnde	12,53 bn kWh	(world record)
1998	Grohnde	11,76 bn kWh	
1999	Isar 2	12,27 bn kWh	
2000	Isar 2	11,94 bn kWh	
2001	Isar 2	12,40 bn kWh	
2002	Isar 2	12,17 bn kWh	
2003	Isar 2	12,32 bn kWh	
2004	Isar 2	12,24 bn kWh	
2005	Brokdorf	11,99 bn kWh	
2006	Isar 2	12,44 bn kWh	
2007	South Texas 1	12,36 bn kWh	
2008	Chooz B1	12,84 bn kWh	(world record)

ENERGY WO


Fuel element storage basin
Control rods
Circulation pump
Fuel elements
Reactor pressure vessel
Heat exchanger
Coolant system
Containment


Water separator and reheater
Transformer
Generator
Steam
Low-pressure turbine
High-pressure turbine
Condenser
Cooling water
Feedwater
Preheater


Steam
Spray nozzles
Hot water
Air
Shell
Collection basin



- Wylfa - Anglesey, North Wales
- Lead site
- Adjoins existing power station (closes 2010)
- includes grid connection offer acquired by EDF, plus GCA acquired by RWE npower
- Includes additional EDF owned land and RWE-owned land
- Direct cooling feasible, potential for >3 GW

HORIZON NUCLEAR POWER

Oldbury-on-Severn Gloucestershire

- Lagging site
- NDA land north of existing station site
- NDA land in the Severn estuary, including tidal reservoir important for cooling (NB cooling towers also needed)
- Grid connection agreement
- Land purchased by EON, potential for c3GW

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A UK company of E.ON and RWE

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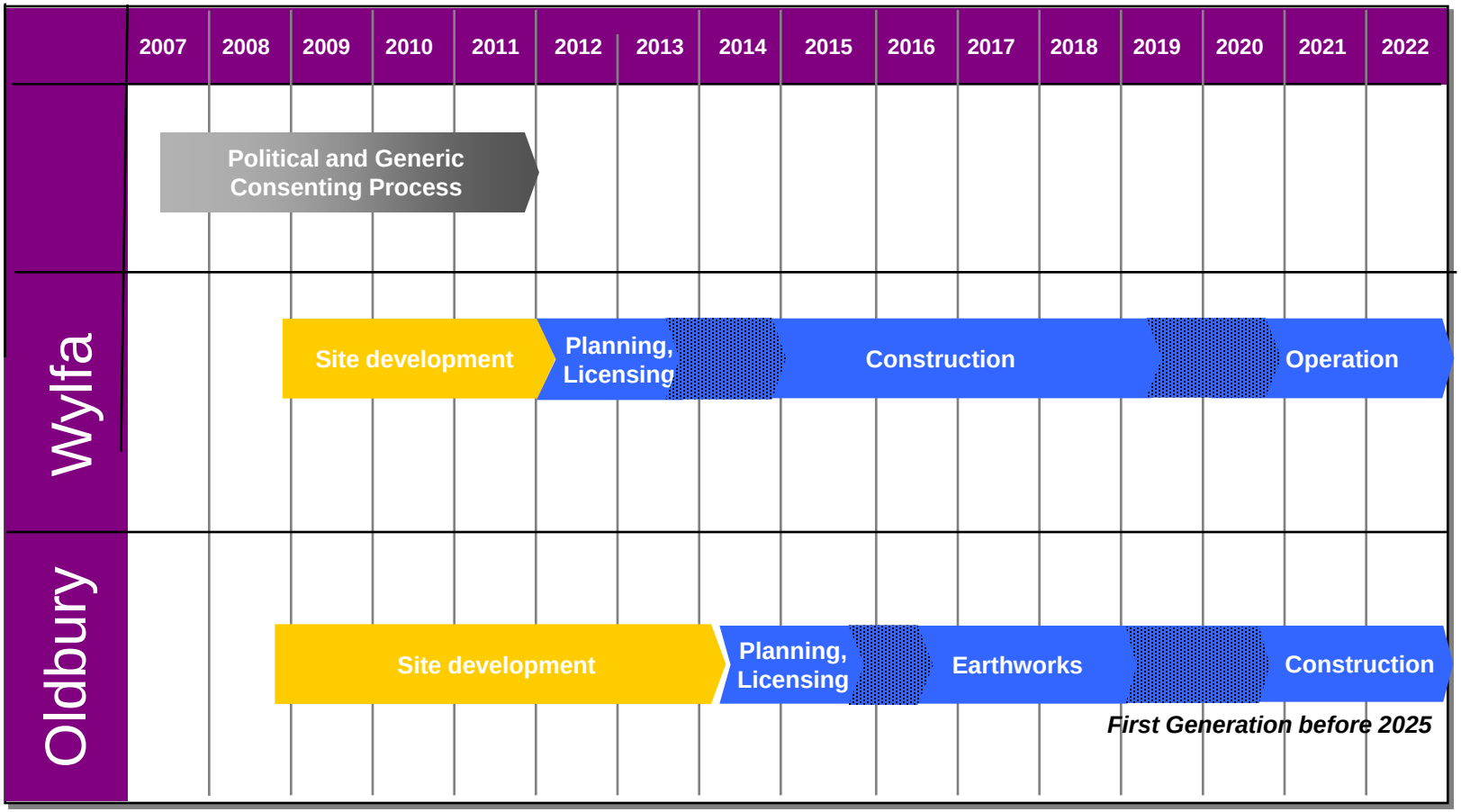
A phased approach



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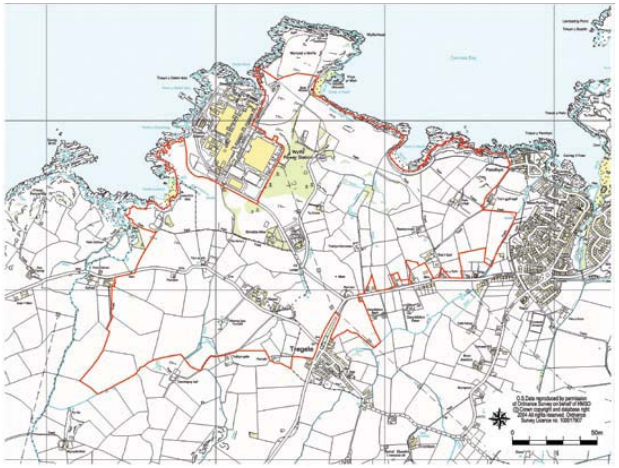
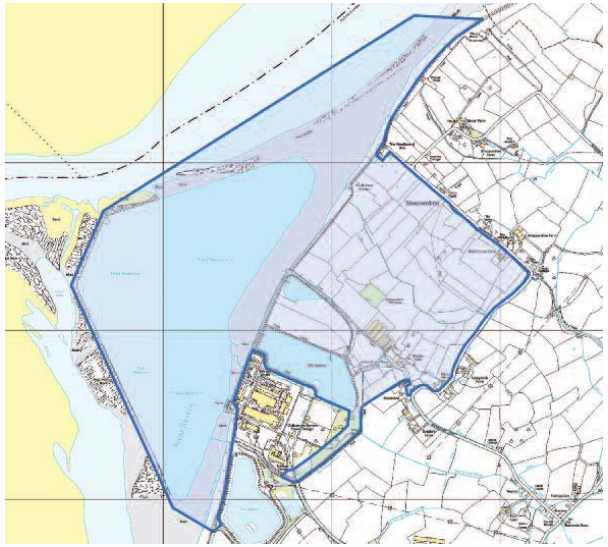
Site progress

- Wylfa nomination site

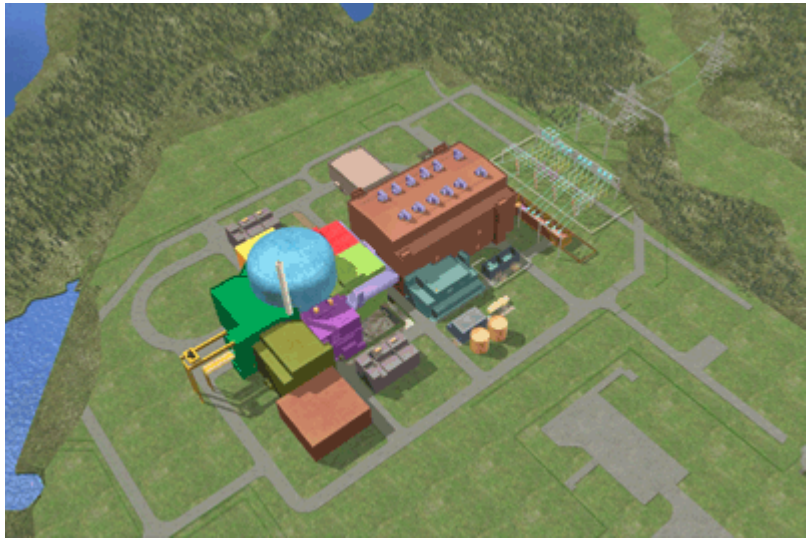


- Oldbury nomination site



- EIA preparation/consent programme
- Site characterisation/studies programme
- Engagement with stakeholders
- Continual and ongoing engagement with local residents
- Working with statutory bodies

Technology Selection

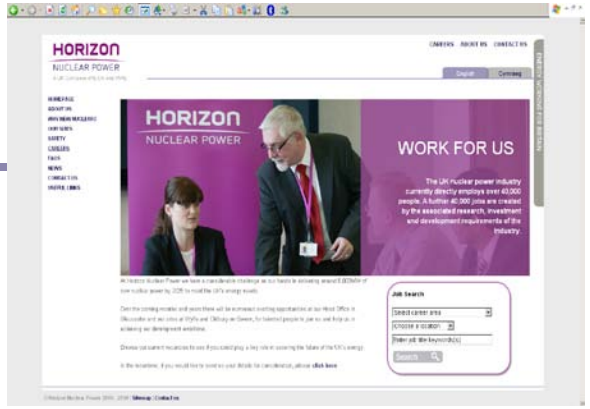


- Formal procurement process underway. Technical, economic and logistical evaluation.
- Westinghouse's 1200 MW AP1000 PWR and Areva's 1700 MW EPR PWR
- Process will conclude in the first quarter of the new year

Supply chain engagement

- Early Days
  - Building the organisation
  - Developing the projects at site
- Engaging at a national and regional level
  - Supplier drop-in days at Wylfa and Trawsfynydd in last year
  - Registrations of interest via www.horizonnuclearpower.com
- Graded approach:
  - Contracting party likely to be WEC or Areva
  - Direct relationship with Horizon where appropriate
- Quality is key, for conventional and nuclear supply chain

HORIZON
NUCLEAR POWER



Recruitment activity

Required:

- Nuclear specialists – safety, licensing, radiological, design
- Project and site development engineers
- Legal & company secretariat support
- PAs / Admin staff
- Finance / Risk Management
- Learning & development
- Procurement and commercial staff
- Communications team

2010-2013:

- ~100 more general project management and project development staff
- 30-40 nuclear specialists for licensing and engineering of designs

2013 onwards:

- construction workforce on sites and mobilise operations staff
- HQ corporate functions will have long term presence at Valiant Court

ENERGY WORKING FOR BRITAIN

Industry Skills - Challenge and Opportunity

- UK must retain and invest to remain a sustainable world class nuclear sector in the UK
- Collective industry effort needed for nuclear workforce planning against the backdrop of challenging demographic forecasts, including skills transfer
- UK New Build will create 1000’s of new job opportunities across the entire nuclear value chain (projects, licensing, safety, construction and operations)
- New blood (and possible returners) essential
- 2015 is a watershed year for nuclear skills
- Regional locations need local skills strategies and relationships with local communities and partner organisations

Industry Skills Challenge and Opportunity

Today

- 44,000 nuclear sector employees in the UK
- 24,000 employed directly by the nuclear operators
  - Decommissioning: 12,000
  - Generation: 7,500
  - Fuel processing: 4,500

Tomorrow

- Assuming 12GWe by 2025: 1000 new industry recruits pa, mostly graduates and apprentices
- 4,600 new jobs in generation sector alone (with further impact on supply chain)
- Age profile, retirement of plant, need for operational skills from 2017 onwards points to 2015 as key date for recruitment and training to be underway

Source: Cogent -'Power People. The Civil Nuclear Workforce'

The Challenge and the Opportunity

- Technically and commercially challenging projects to develop
- UK remains an important NNB market
- Early need for skills and education initiatives
- Need industrial confidence to invest in UK supply chain
- Still much work to be done on facilitative actions
- But the prize is huge. Each new station (3000 MW)
  - will cost around £8bn
  - will require up to 5000 construction staff
  - will create around 800 new jobs when operational
  - plus hundreds of additional jobs and supply chain benefits in the communities around each site
  - providing continuity of employment for a skilled nuclear workforce for around 60 years and opportunities for future generations to develop skills, through apprenticeships and access to skilled employment