

# UK nuclear weapons programme: from Vanguard to Dreadnought

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<https://www.sgr.org.uk/projects/nuclear-weapons-threat-main-outputs>

## A reminder of our 2025 context...

### The 'Doomsday' Clock is currently set at **89** seconds to midnight

- Doomsday Clock invented in 1947 for *Bulletin of the Atomic Scientists*
- Symbol of likelihood of global catastrophe caused by nuclear weapons
- Nowadays also includes other human-made environmental and technological threats

**2025 is judged to be the most dangerous in humanity's history**

#### Main reasons

- Risk of nuclear escalation or miscalculation, especially due to Ukraine war
  - Growing climate emergency
  - Dangerous and deliberate misinformation
    - My addition: new US 'leadership'

## Brief reminder of extreme impacts of nuclear weapons

- ❑ Their existence...
  - Risk of war by mistake, equipment failure, cyber attack, unpredictable leaders
  
- ❑ Detonation of one weapon:
  - Terrible deaths & injuries: intense heat, blast, radioactive fallout
  - Immediate destruction equivalent to months of artillery shelling in a few seconds
  - Medical facilities overwhelmed; humanitarian assistance impossible
  
- ❑ Regional nuclear war, e.g.:
  - 100 Hiroshima size weapons - hundreds of millions killed, injured
  - Terrible long-term impacts – 10-year nuclear winter; 2bn+ at risk of starvation
  
- ❑ Global nuclear war, e.g.:
  - 2000 – 4000 warheads - mainly USA & Russia
  - Hundreds of millions to over a billion immediately killed and injured
  - Radioactive fallout over large areas - especially from nuclear reactors
  - Even worse long-term nuclear winter, ozone layer destruction, ecocide
  - Civilisation destroyed

## Trident nuclear-armed submarines

- ❑ Only 2 out of 4 Vanguard subs are currently working – leading to very extended (6+ month) patrols
- ❑ ‘Continuous’ patrol under threat

## UK Trident – extremely destructive

- ❑ One UK submarine carries at least 40 Trident warheads
- ❑ Capable of causing 4 million fatalities and 10 million casualties across 10 or more cities
- ❑ As few as 25 warheads could create a fire-zone 100 times that of Hiroshima and 5 million tonnes of ‘black carbon’ injected into upper atmosphere leading to catastrophic climate cooling (nuclear winter)
- ❑ Total explosive power huge - greater than 6 years of bombing during World War II !



# New Dreadnought nuclear-armed submarines: Lack of progress and escalating timescales/ costs...

- £4bn Dreadnought nuclear reactor 'cores' for propulsion – labelled 'undeliverable' for the third year running
- Dreadnought submarines – 'significant issues'
- Nuclear cores: RED:  
'Successful delivery of the project appears to be **unachievable**. ... major issues with project definition, schedule, budget, quality and/or benefits delivery, ... do not appear to be manageable or resolvable. The project may need re-scoping and/or its overall viability reassessed'
- Astute Submarines: AMBER:  
'**significant issues** already exist, **requiring management attention**'
  - Vanguard/ Dreadnought submarines: nuclear-armed & nuclear-powered (Trident programme)
  - Trafalgar/ Astute/ AUKUS submarines: nuclear-powered but conventionally-armed

*Source: Infrastructure and Projects Authority: Annual Report on Major Projects 2023-24 (Sunak Government)*

## What are the main problems?

- Lack of capacity to house the combination of:
  - 22 nuclear-powered submarines already decommissioned and awaiting dismantling
  - Repairing and extending life of 4 existing Vanguard submarines
  - Completing final Astute submarine
  - Building new Dreadnought hulls and reactor cores
- Lack of skilled welders, nuclear engineers
- Poor project management/ bad project specification, e.g.
  - Work started before design was complete thus having to undo/ repair work (MENSA)
  - Warhead replacements delayed (AWE work overdue)
  - Problems with nuclear reactor fuel (reactor leaks)
- Regulatory disagreements, e.g.
  - Rolls Royce (monopoly supplier) wouldn't agree to let new regulator oversee contract
  - Arguments between regulators over which responsible for 8 different sites (ONR, DNSR, or SSCR)
  - Barrow, Devonport, AWE, Rosyth, Faslane, Springfield, Rolls Royce, Dounreay
- Government isn't in charge!

*Main source: House of Commons Committee of Public Accounts*

*Defence Nuclear Infrastructure Second Report of Session 2019–21*

*<https://www.nuclearinfo.org/article/the-uk-governments-major-projects-report/>*

## Main UK nuclear sites

- Barrow in Furness
  - Devonshire Dock – three sub capacity – only site licensed to build nuclear subs
  - Major fire: Agincourt hull involved
  - Dreadnought hull build delayed
- Devonport & Rosyth
  - 22 (15 & 7) decommissioned, radioactive submarines
  - Vanguard nuclear refuelling
- Burghfield, Aldermaston, Springfield
  - Warheads and nuclear fuel
  - Major fire at AWE
- Faslane
  - HMS Clyde submarine base
- Rolls Royce Raynesway
  - Reactor manufacture: PWR2 (Vanguard) and PWR3 (Dreadnought)

## Gross incompetence – leading to escalating costs & delays

MoD & nuclear weapon spending £bn	2022-23	2023-24	2024-25	2025-26
MoD budget	53 (a)	53.9	56.9	59.8
Nuclear budget <i>*estimates*</i>	5.5-6.5	5.5-6.5	5.5-6.5	7

**Nuclear weapons: £1.5-bn/yr additional spending 23/24 and 24/25  
£2 bn/yr additional spending 25/26 onwards**

*(a) (Ministry of Defence Annual Report and Accounts 2022–23)*

**44% increase in warheads announced in 2021 – from 180 up to 225**

*(MOD strategy 2021: Global Britain in a competitive age)*

➤ **Annual military budget to be increased by £13.4bn by 2027 – announced by PM, 25 Feb 2025**

*(But different accounting method used, and this figure includes some other spending rises already announced)*

\* <https://demilitarize.org.uk/what-new-spending-has-been-announced-in-the-updated-uk-military-strategy/>

\* <https://demilitarize.org.uk/military-budget-continues-to-grow-faster-than-peacebuilding-and-overseas-aid-spending/>

\* <https://www.nuclearinfo.org/comment/2024/06/uk-nuclear-weapons-spending-rises-to-6-5bn/>



## Key background on latest military spending announcement

- 'Extra' £13.4bn by 2027 really more like £5-6bn above existing planned increases
- Figure looks like it is intended to 'impress' Trump
- US military spending is 3.4% of US GDP (IISS)
  - BUT this is its bloated **global** spending
  - US spending in NATO Europe is around 1.5% of US GDP – still a huge \$388bn
  - **But** smaller than NATO 'target' of 2 – 2.5%
- UK, France, Germany, Italy and Poland military spend \$253bn in total
- Russia spends approx. \$295bn (purchasing power parity - \$109bn is unadjusted sum (IISS))
- So even without US input – rough parity
- If Germany upped its spending to 'target', non-US NATO would reach parity
- The problem is HOW this money is spent – need to concentrate on defence not global forces
- Stop subsidising US arms manufacturers? Eg F-35
- NATO already planning wide area air defence systems: 'Sky Shield'
- More ammunition stocks and production etc

## The final straw: like Trident missiles, Dreadnought subs are dependent upon the US

- UK nuclear warheads sit on **US leased** missiles, regularly serviced and replaced on US East Coast
- UK depends upon US military GPS, US radioactive tritium gas (warheads), US launch tubes (submarines)
- US & UK submarines have coordinated, allocated patrol zones

## Arising from the new US president?

- With the US questioning support for European NATO, can we assume this nuclear co-operation will continue?
- Will US plans to deploy new nuclear weapons (B61-B nuclear drop bombs) to Lakenheath still go ahead?
- Ukraine war has shown how nuclear weapons do not prevent war – they DO create risk of catastrophic escalation
- So-called ‘tactical’ nuclear weapons in Western Europe & Belarus extremely dangerous, but militarily useless
- Surely this should be a wake-up call to think differently – to cancel new nuclear weapons programmes
- Security would be better realised through restoring health services and a fast green transition
- And - if we must – better regional defensive conventional forces – but no more ‘global ambitions’