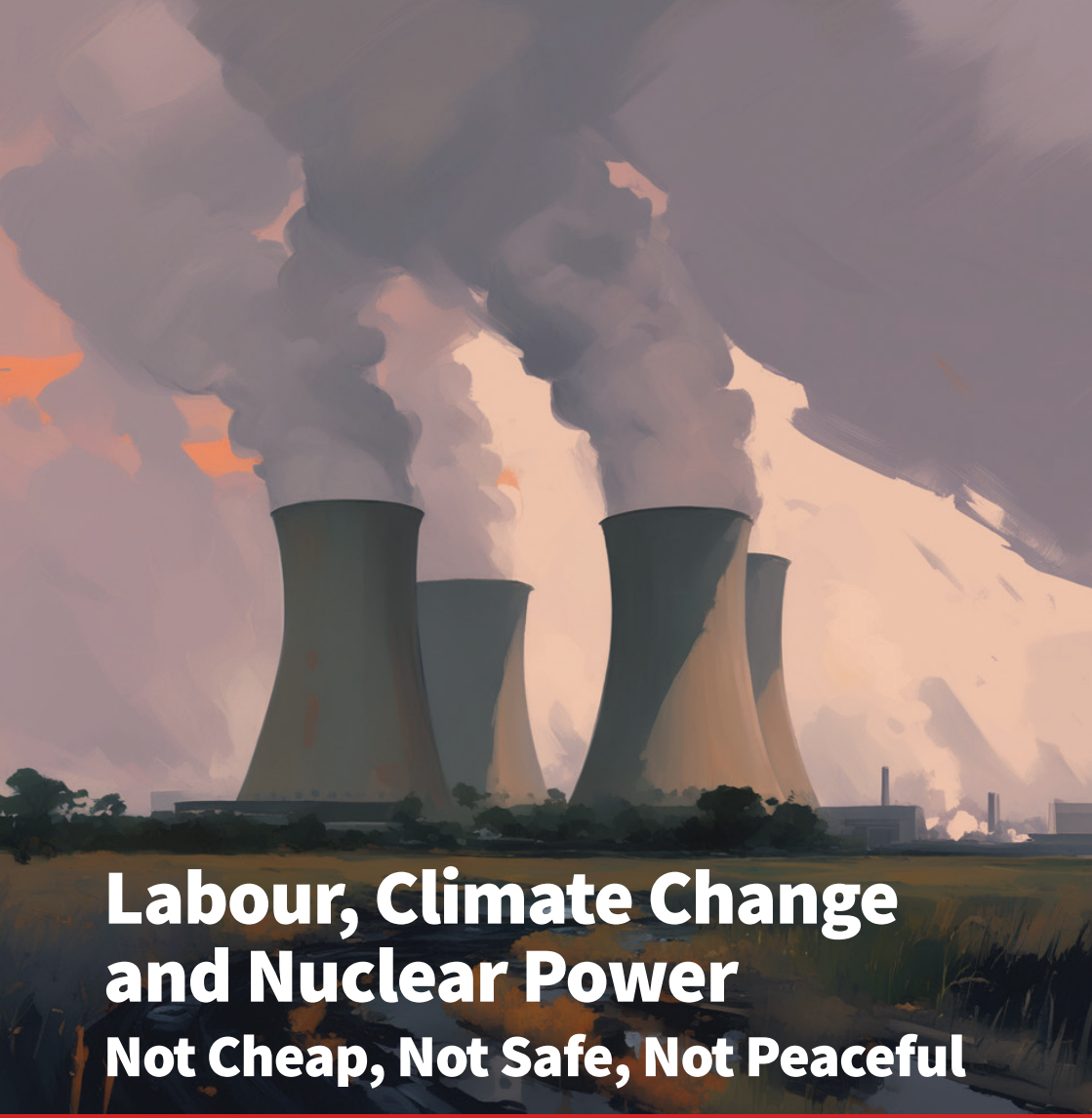

Labour, Climate Change and Nuclear Power

Not Cheap, Not Safe, Not Peaceful

By Samantha Mason
with a foreword by Kate Hudson

A Labour CND publication

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Dedication

With thanks to my Labour CND comrades whose comments have greatly improved this pamphlet, and to Jeff Searle our designer for turning the text into an engaging publication in superfast time. *Labour, Climate Change & Nuclear Power* is dedicated to all our allies in the labour movement who are part of the fight for socialism rooted in peace and internationalism.
Samantha Mason

Samantha Mason is a trade union and climate activist. She is a trade union policy officer whose work covers sustainability and climate change in the UK and internationally. Sam is part of the Labour CND Committee and a member of CND National Council. She works with a number of climate justice groups from Extinction Rebellion to Friends of the Earth, and is author of many publications on climate justice, defence diversification and just transition.

Labour CND campaigns for global nuclear disarmament including scrapping Trident, Britain's nuclear weapons system, and for Labour to adopt a peaceful and just approach to foreign and security policy. We welcome everyone's participation in our public events. Membership is open to all Labour Party members who are also members of the Campaign for Nuclear Disarmament, and members may take part in our decision making and stand for election to the Labour CND committee.

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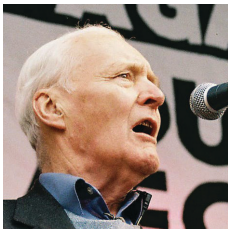

"In 1955 when Eisenhower said he was going for 'Atoms for Peace' I became a passionate supporter of it. Having been brought up on the Bible I liked the idea of swords into ploughshares. I advocated it as Minister of Technology. I was told, and believed, that nuclear power was cheap and safe and peaceful. Having been in charge of nuclear power I discovered it wasn't cheap, wasn't safe and when I left office I was told that during my period as Secretary of State for Energy plutonium from our nuclear power stations went to the Pentagon to make nuclear weapons. So every nuclear power station in Britain is a bomb factory for America. I was utterly shaken by that. Nothing in the world would now induce me to support nuclear power. It was a mistake."

Tony Benn, 2008

Foreword

By Kate Hudson, General Secretary, Campaign for Nuclear Disarmament

The planet is burning. We're in the middle of both a climate crisis and an energy crisis, and the calls for increased production of nuclear power have been getting louder. A big thank you to Samantha Mason and Labour CND for producing this timely publication which explains in no uncertain terms why this would be a massive mistake.

Sometimes when I've been out campaigning, people come and express their worries about the climate emergency, and share their thinking that nuclear power may be part of the answer. But as you will read in the following pages, nuclear power is definitely not the answer to climate change. In fact, pursuing nuclear power diverts resources from the real clean solutions and gives us a whole set of additional problems.

That's why CND calls for an end to its production: it's a technology that is dirty, dangerous, and economically unsustainable – and its outputs can be used in nuclear weapons production. Nuclear power burdens future generations with potential human and environmental disasters, whether catastrophic accidents like Chernobyl or Fukushima, or the vast amounts of toxic radioactive waste for which there is yet no safe storage provided.

As we are all increasingly aware, renewable energy sources are providing more and more of our energy supplies, without the risk of further poisoning our planet or helping sustain nuclear weapons production. If the billions of pounds spent subsidising the nuclear industry were to be invested in developing these renewable technologies instead, we could soon have enough secure and clean energy sources to provide for all our needs – while creating thousands of new jobs at the same time.

That's why CND urges the British government – whether the current Conservative one or a future Labour one – to immediately announce the phasing out of existing nuclear power plants and the cancellation of any plans for future investment in the industry.

As Sam has so clearly explained – nuclear power is not the solution to climate change. We need a safe, genuinely sustainable, global, and green solution to our energy needs, not a dangerous diversion like nuclear power.

19 September 2023

Introduction

This Labour CND publication makes the case against nuclear power and why the Labour Party should oppose it. We assert that in the face of the two biggest threats to humanity – climate change and nuclear war – the argument that nuclear power can rescue us is false and dangerous.

As Tony Benn's quote[1] illustrates, nuclear power is not cheap, safe, or peaceful. Benn was an industry and energy minister under the Wilson and Callaghan Labour governments of the 1970s, and oversaw the nuclear programme. In a period of nuclear power renaissance, his words are a powerful message for decision makers today.

The Atomic Energy Act 1946, passed under the Attlee Government, set in train Britain's nuclear programme, after wartime collaboration with the US in the form of the Manhattan Project ended. The UK nuclear weapons programme was the forerunner to Britain's development of nuclear power.

The UK civil nuclear program began in 1953 and was taken forward by the newly established UK Atomic Energy Authority (UKAEA). The first commercial reactor came online in 1956 at Calder Hall. This was a Magnox reactor which combined power generation with plutonium production for military purposes, highlighting the close and connected relationship between civil and military nuclear programmes.

The 1970s and 80s were the heyday of UK nuclear power production, a period of intensive construction of nuclear power plants. Since then, the UK has been on course to close all its operational nuclear power plants by 2030. However, with the increasing threat of climate change and the need to transition from a fossil fuel economy becoming ever more urgent, nuclear power is once again being touted as the solution to energy security and decarbonisation.

As a low-carbon source of energy, some believe there is no alternative to nuclear power being part of the energy mix. This argument is normally made around the requirement for baseload or 'dispatchable' power – ie, the need for nuclear to 'fill-in' when the wind doesn't blow or the sun doesn't shine. There are legitimate questions about balancing the power grid, but the issues are not insurmountable and building a grid around nuclear power is detrimental to

1 Quotation from an interview with Total Politics in 2008, cited at From the Archives: In Conversation with Tony Benn, https://www.iaindale.com/articles/from-the-archives-in-conversation-with-tony-benn

renewable energy. For example, when there is too much supply, it is renewable energy that is 'turned-off'.

Under pressure from the nuclear industry, however, the EU and the UK government have branded nuclear as "environmentally sustainable", part of a green taxonomy for the purposes of future investment.[2] This ignores the fact that uranium needed for nuclear power is a finite resource, unlike the wind and sun.

This debate over nuclear and its role in tackling climate change and energy security is not new. As we elaborate below, it is a debate that has long divided the Labour Party. As the climate crisis deepens though, it is no longer a debate Labour – or Britain – can afford to keep having.

Climate change: the new era of global 'boiling'

In 2023, summer in the northern hemisphere/winter in the southern hemisphere has been a story of extreme and record-breaking weather. Heatwaves swept through southern Europe. The resulting wildfires saw tourists evacuated, while locals were left to pick up their devastated lives. North America witnessed the same. The fires in Canada were so bad that New York was engulfed in their pollution.

The US was not without its own climate headlines, with record-breaking temperatures in California and the longest ever period of daily temperatures reaching 43.3C or more in Phoenix, Arizona. Meanwhile South America experienced winter heatwaves with extreme heat records broken from Brazil to Argentina, Paraguay, and Chile.[3]

Asia, India, South Korea, and China saw record high temperatures and rainfall. The 2023 World Meteorological Organisation (WMO) report on Asia noted the region was warming faster than the global average.[4] Australia also

2 Government Announces Plans To Include Nuclear Energy In Green Taxonomy, NucNet – The Independent Nuclear News Agency, https://www.nucnet.org/news/government-announces-plans-to-include-nuclear-energy-in-green-taxonomy-3-3-2023
3 Temperatures hit 41C in Brazil amid freak winter heatwave gripping South America, MSN, https://www.msn.com/en-us/news/world/temperatures-hit-41c-in-brazil-amid-freak-winter-heatwave-gripping-south-america/ar-AA1fLnjV
4 Warming trend in Asia set to cause more disruption: UN weather agency, UN News, https://news.un.org/en/story/2023/07/1139152 (accessed 22/08/2023)

recorded its warmest winter ever.[5]

The Middle East and North Africa region also broke records with severe droughts.[6] Africa continued to face its own particular effects, including severe drought as a result of climate change. Scarce water resources impacted food production to such an extent that the UN declared Madagascar was suffering the first climate induced famine in the world.

As the Oxfam report *Water Dilemmas* points out the "climate crisis is a water crisis".[7] Reduced access to safe drinking water is exacerbated by prolonged droughts and rising sea levels which contribute to salinisation of groundwater sources.

The World Meteorological Organisation (WMO) and the European Commission's Copernicus Climate Change Service have confirmed July 2023 was the hottest on record.[8] This was such a "remarkable and unprecedented" situation that the UN Secretary General Antonio Guterres described it as a "new era of global boiling".[9]

Despite calls for world leaders to step up action on climate change, greenhouse gas emissions continue to rise while politicians – here in the UK and elsewhere – bicker about climate and energy policy.

The long shadow of electoral politics

In Britain, as the general election approaches, climate politics are becoming overshadowed by electoral calculation. Labour Party policy for a fairer, greener future is being rolled back in the guise of responsibility over public finances. Actually, the opposite is the case. Labour is being reckless rather than responsible given the threat climate change poses to the economy, public

5 Australia records warmest winter caused by global heating and sunny conditions, The Guardian, https://www.theguardian.com/environment/2023/sep/01/australia-records-warmest-winter-caused-by-global-heating-and-sunny-conditions
6 From Algeria to Syria, heatwaves scorch Middle East, North Africa, Al Jazeera, https://www.aljazeera.com/news/2023/7/19/from-algeria-to-syria-heatwaves-scorch-middle-east-north-africa
7 https://www.oxfamwash.org/en/response-types/water-security/Water-Dilemmas-Cascading-Impacts-of-Water-Insecurity-Briefing-Paper-EN.pdf
8 July 2023 confirmed as hottest month on record, https://public.wmo.int/en/media/news/july-2023-confirmed-hottest-month-record
9 Hottest July ever signals 'era of global boiling has arrived' says UN chief, UN News, https://news.un.org/en/story/2023/07/1139162

health, and workers' livelihoods. In the Uxbridge by-election of July 2023, for example, climate politics was driven down the rabbit hole in a dispute over air pollution measures – the Ultra Low Emissions Zones (ULEZ) policy of the London government was allowed to dominate the national conversation.

Labour must stand firm on a credible climate policy. We must respond to what the science tells us. Anything else is short sighted.

The global energy crisis, resulting in part from the Russian invasion of Ukraine has given the nuclear power lobby a fillip. The UK is not the only country to experience this. While Germany has taken the bold step of ending its nuclear power programme, the energy crisis has led to calls for closed German nuclear plants to be re-opened. In response, Chancellor Olaf Scholz has pointed out that decommissioning of the last nuclear plants has begun and new ones would require €15-€20 billion for each new reactor and 15 years to build.

Standing firm means Labour pursuing clear green policies and a plan to rapidly decarbonise the economy while providing real human security in terms of energy, food, and water, and public services. It means providing jobs for workers who need to transition from the fossil fuel economy and striving for a safe and peaceful world in which to work collectively as part of a global labour movement to address these challenges.

Nuclear power, itself a threat to human security and the environment, does none of these things. Even if supported, it takes too long to develop and diverts resources away from investing in the decarbonisation programmes and technologies we urgently need, such as renewable energy and energy efficiency.

These same arguments were put forward by the Sustainable Development Commission under the last Labour administration – all the more reason why we need to put the pro-nuclear argument to bed once and for all.

Labour's U-turn on nuclear power

During Labour's last period of office, 1997 to 2010, the Party was moving away from supporting new nuclear on the basis of cost and environmental impacts. The Sustainable Development Commission (SDC) established in 2000 by Deputy Prime Minister John Prescott did not support a new programme

of nuclear power. The SDC position paper *The Role of Nuclear Power in a Low Carbon Economy*, March 2006,[10] voices all the concerns we continue to have today:

- technology locked in, i.e. an inflexible, centralised electricity generating system
- distraction from investment in renewables and energy efficiency measures
- costs
- intergenerational legacy
- waste
- safety
- increased risk of nuclear weapons proliferation.

It was of some surprise, therefore, when in 2006 Tony Blair announced an unexpected return to supporting nuclear power,[11] ahead of the results of the 2003 Energy Review. The reasons for this change are not entirely clear, but appear to be linked to the development of the UK's military nuclear programme.

Blair's nuclear plans were almost derailed by a Judicial Review when Greenpeace challenged his decision.[12] The judgement found the public consultation on new nuclear power plants to have been "very seriously flawed", but the government went ahead regardless. Ironically, the language of today is almost identical to the language used then. Energy security was a "race against time" to find alternatives to oil and gas.

The 2011 Fukushima disaster in Japan, like the 1986 Chernobyl disaster before it, raised questions about the safety of nuclear power. It was in the aftermath of Fukushima that Germany took a decision to end its civil nuclear power programme. Its last remaining nuclear power plants were closed this year, in April 2023.[13]

Labour's environment campaign, Socialist Environmental Resource Association (SERA) also remains opposed to nuclear power, though nowadays

10 SDC position paper, 'The Role of Nuclear Power in a Low Carbon Economy', https://research-repository.st-andrews.ac.uk/bitstream/handle/10023/2271/sdc-2006-nuclear-low-carbon-economy.pdf
11 Blair presses the nuclear button, The Guardian, https://www.theguardian.com/environment/2006/may/17/energy.business
12 https://www.theguardian.com/politics/2007/feb/16/labourparty.environment
13 A guide: The end of Germany's nuclear power, World Nuclear News, https://www.world-nuclear-news.org/Articles/A-guide-The-end-of-Germany%E2%80%99s-nuclear-power

its leadership refrains from mentioning this. SERA member Alan Whitehead MP, former Shadow Minister for Energy and Climate Change, noted in 2011 the dangers to nuclear plants given their flood-prone locations.[14] Whitehead is Shadow Energy Minister on Labour's frontbench today – but the Green New Deal has been dropped from this ministerial brief.

Backing for new nuclear was included in the 2017 and 2019 Labour manifestos, the parliamentary party having come under significant pressure from affiliated trade unions such as the GMB and Unite which represent members in the industry. The current energy crisis, resulting in part from the Russian invasion of Ukraine, has seen a resurgence of the debate about the role of nuclear internationally and in the UK.

In June 2023, ahead of Labour Party policy announcements on energy, Keir Starmer declared that nuclear power was a "critical part" of the UK's energy mix.[15] The underpinning rationale for this is said to be one of energy security, affordability, and job creation. But where is the evidence that nuclear power meets these aims? Would the Hinkley Point C nuclear power station really have been "open by now", as Starmer asserted?[16]

Given the history of nuclear power development, Starmer's claim seems highly unlikely. Nuclear power plants are notoriously expensive to build, and bedevilled with cost and time overruns.

Not Cheap

The cost of nuclear power

The Tory government plans to deliver 24 gigawatts of nuclear power by 2050 through Great British Nuclear, their new delivery body.[17] This includes eight new reactors. Only one new nuclear project, Hinkley Point C is currently under construction while Sizewell C is awaiting a financial investment decision (FID).

14 Southampton Test MP Alan Whitehead speaks out against nuclear power, Daily Echo, https://www.dailyecho.co.uk/news/8937941.southampton-test-mp-alan-whitehead-speaks-out-against-nuclear-power/
15 Keir Starmer says nuclear power is 'critical part' of UK's energy mix, The Guardian, https://www.theguardian.com/politics/2023/jun/04/keir-starmer-says-nuclear-power-is-critical-part-of-uks-energy-mix
16 Sir Keir Starmer says oil and gas needed for 'many years to come' in Hinkley Point C visit, ITV News, https://www.itv.com/news/westcountry/2023-06-05/sir-keir-starmer-says-oil-and-gas-needed-for-many-years-to-come
17 Great British Nuclear, https://www.gov.uk/government/organisations/great-british-nuclear

Setting aside for a moment whether nuclear should be an option in the UK's energy mix, these two projects illustrate the problems of cost.

The controversial Hinkley Point C in Somerset, the first of the new nuclear projects, is already running two years late, with a budget up from £18bn in 2015 to an estimated £32.7bn in 2023. The French state-owned company EDF began work in 2017 on the two nuclear reactors. EDF and its Chinese government partner CGN, are warning that further costs and time overruns are likely.

Work on the Sizewell C project in Suffolk is due to begin in 2024. According to the project's funding statement released in May 2020, the cost is estimated at "circa £20 billion".[18] However, research by the University of Greenwich Business School estimates that these costs could rise to £35bn over 15 years.[19]

In November 2022, the government announced it was providing £700 million as seed money to fund Sizewell C development. The government announced a further £180m in July 2023. Its aim in providing this money is to make the site "shovel ready" ahead of a final investment decision, and to enable the exit of China's CGN from the project.[20]

In 2013, China was a welcome partner in the UK nuclear programme and a Memorandum of Understanding was signed with the Chinese Nuclear Power Engineering Company Ltd. Given shifting geopolitics, however, China is no longer a sought-after partner.

Sizewell C will be the first nuclear power plant to be funded from the new Nuclear (Energy) Financing Act 2022 which established the framework for the nuclear Regulated Asset Base (RAB) model – a method of funding that passes a share of the upfront costs, or rather investment risk, onto electricity consumers and taxpayers. This has been used previously to finance large scale infrastructure assets such as water. The Thames Tideway 'super sewage' project is being funded using this type of model, by making an additional charge on Thames Water customers to cover the project costs.[21] This surcharge,

18 https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010012/EN010012-001678-SZC_Bk4_4.2_Funding_Statement.pdf
19 Sizewell C 'may cost double government estimates and take five years longer to build', The Guardian, https://www.theguardian.com/environment/2022/may/22/sizewell-c-may-cost-double-government-estimates-and-take-five-years-longer-to-build
20 UK government takes 50% stake, confirms backing for Sizewell C, World Nuclear News, https://www.world-nuclear-news.org/Articles/UK-government-takes-50-stake,-gives-go-ahead-for-S
21 Thames Tideway seeks rise in water bills to cushion London sewer delays, Financial Times, https://www.ft.com/content/f25e29f9-03b4-43a2-9da5-779bcdc3f883

by the way, includes helping to fund the generous salaries and bonuses for Tideway bosses.[22]

Hinkley is differently funded, under the Contracts for Difference (CfD) model whereby the government guarantees the megawatt (MWh) price of electricity in advance of construction. The risks of cost overruns or time delays are largely borne by the developer and its investors. The 'strike price' as it is known guarantees the price of the energy once generating begins. In 2013, it was set at £92.50/MWh for Hinkley Point C which is intended to produce 3.2 gigawatts (GW) of energy.

This means the taxpayers will top up EDF's income if wholesale prices are lower; if market prices are higher, then EDF pays money to the government. It is not without good reason that power from Hinkley Point C, once on stream, has been cited as the most expensive energy in the world.

The UK plans to have nuclear provide 24GW – i.e. 25% of all power generation – by 2050. This is significantly more than Britain achieved under the civil nuclear programme of the 1960s-1980s, which reached 12.7GW of installed capacity in 1994 provided by 17 nuclear power plants (excluding the first plants at Calder Hall and Chapelcross).[23] This puts into perspective the Tories' ambitious target for 2050.

Small modular reactors (SMRs) are widely touted as an alternative to large nuclear plants and a solution to the problems of cost and time overruns. But as Nils Prately rightly pointed out in his Guardian article of 18 July 2023, SMRs are "overhyped and untested".[24] SMR technology is still at an early stage. There is no agreed international design for SMRs on a commercial scale. In addition, plans to site them near population centres for use in district heating will require public acceptance.[25]

Likewise, the recent buzz about nuclear fusion[26] may be interesting for science

22 Tideway boss paid nearly £1m despite Thames 'super-sewer' project delays, The Guardian, https://www.theguardian.com/uk-news/2022/aug/17/tideway-boss-paid-nearly-1m-despite-thames-super-sewer-project-delays
23 'Nuclear Capacity in the UK', https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/604271/Nuclear_Capacity_in_the_UK.pdf
24 Small nuclear reactors are a big, but sensible, step forward – now get on with it, The Guardian, https://www.theguardian.com/business/nils-pratley-on-finance/2023/jul/18/commitment-to-push-forward-with-small-nuclear-reactors-seems-sensible
25 https://royalsociety.org/news/2020/10/nuclear-power-cogeneration-report/
26 Davos 23: The future of nuclear fusion, according to the lead scientist, World Economic Forum, https://www.weforum.org/agenda/2023/01/nuclear-fusion/

but it remains far from being a credible power alternative. Nuclear fusion also requires considerable investment which further detracts from the energy technology the UK can be investing in now for affordable, universal, and clean energy.

We have demonstrated that nuclear power is spectacularly expensive, even before factoring in the decommissioning and waste disposal costs. If the UK cannot afford £28 billion for vital measures such as retrofit and insulation of buildings, then how can Labour conceive of new nuclear as affordable within public finance constraints? Whether new nuclear is private or nationalised, public investment will be needed to underwrite the costs.

We have also indicated that private sector investment in nuclear is increasingly hard to come by, given the high risks and long wait for a return on capital. This is one reason why even the Tories have found it difficult to get further ahead with their new nuclear plans than strategy papers, and are having to resort to greater upfront public subsidy which will be loaded onto taxpayers and electricity consumers.

Concerns around energy security in the wake of the Russian invasion of Ukraine have raised other issues that need to be considered. SMRs and many other current technological developments are closely tied with military programmes.[27] Likewise, the Zaporizhzhia nuclear plant in Ukraine, the biggest in Europe, is clear evidence of the potential weaponization of nuclear plants in wartime.

In addition to its high costs, be it civilian or military, nuclear power remains a danger to us all.

Not safe

Radioactive waste, environmental damage, and health threats

Nuclear waste is a huge problem. There is a terrible global legacy from past nuclear programmes, which is no small issue for Britain. As the UK radioactive waste inventory asserts: “As a pioneer in the development and use of nuclear technology, the UK has accumulated a substantial legacy of radioactive waste

27 Nuclear: Does the West’s military need Small Modular Reactors?, Energy Post, https://energypost.eu/nuclear-does-the-wests-military-need-small-modular-reactors/

and nuclear materials from electricity generation, military programmes and other industrial, medical and research activities."[28]

Nuclear waste comprises used or spent radioactive material produced by the medical, industrial, military, research, processing, and power sectors. There are also non-radioactive materials contaminated through exposure to radioactive sources. As radioactive waste decays – which takes thousands of years for the most highly active waste – it emits radiation that can damage human health and the environmental, including low level radioactive impacts.[29]

Cleaning up Britain's nuclear legacy is overseen by the Nuclear Decommissioning Authority (NDA) and comprises Sellafield, Magnox with Dounreay, Nuclear Waste Services and Nuclear Transport Solutions. The NDA has responsibility for 17 sites which include "the first fleet of nuclear power stations, research centres, fuel-related facilities, and Sellafield, which has the largest radioactive inventory and the most complex facilities to decommission."[30]

NDA strategy is updated every five years. The latest, in 2021, anticipates it will take over 100 years to complete decommissioning at an estimated cost of over £120bn.[31] These costs are already rising. Professor Stephen Thomas from the University of Greenwich estimates that the final clean-up expenditures will be £260bn.[32]

There is also a considerable problem finding waste disposal sites, with the intention to bury waste underground as opposed to near or above surface storage. The NDA subsidiary Radioactive Waste Management Limited (RWM) is responsible for identifying a geological disposal facility (GDF) in England and Wales. According to government strategy, sites should be agreed on a basis of consent with local communities. Unsurprisingly, communities aren't welcoming proposals for sites in their areas with open arms.

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28 UK Radioactive Waste Inventory 2022, https://www.gov.uk/government/publications/uk-radioactive-waste-and-material-inventory-2022/uk-radioactive-waste-inventory-2022#introduction
29 This briefing from the Geological Society provides a good overview of the different types of nuclear waste: https://www.geolsoc.org.uk/~/media/shared/documents/policy/briefing%20notes/Geological%20Disposal%20of%20Radioactive%20Waste%20Policy%20Briefing%20Note%20PDFdigital%20export%202022%20Update.pdf
30 https://www.gov.uk/government/organisations/nuclear-decommissioning-authority/about
31 NDA Strategy 2021, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/973438/NDA_Strategy_2021_A.pdf
32 UK's nuclear waste cleanup operation could cost £260bn, The Guardian, https://www.theguardian.com/environment/2022/sep/23/uk-nuclear-waste-cleanup-decommissioning-power-stations

A GDF is an engineered facility where highly active nuclear waste is buried deep underground, intended to be left undisturbed for hundreds of thousands of years. This includes heat generating waste created from reprocessing spent nuclear fuel, larger volumes of 'cooler' intermediate level waste, and low-level waste which isn't considered suitable for disposal at existing surface facilities.

Waste management is devolved, and while the UK and Wales governments consider GDF as the long-term solution to managing nuclear waste, Scotland rejects this. Scottish policy is for high activity waste (HAW) to be stored in near-surface facilities and located as close as possible to the site where the waste was produced. As the National Geological Society says, GDF is a challenging major infrastructure programme which will impact future energy policy. The availability of sites is as much about future waste as it is about legacy waste.[33]

Current radioactive nuclear waste is stored in packages above ground and while the surface storage is deemed 'safe', it's said to require rebuilding every 100 years or so and need ongoing management. Development of GDFs need to withstand certain geological conditions such as earthquakes. But the question of whether deep underground storage is any safer remains to be answered.

The Nuclear Waste Services GDF report 2023 says the organisation is now "engaged with four communities: three in Cumbria and one in Lincolnshire."[34] Cumbria Country Council rejected an underground storage facility in 2013.[35] It now seems a series of 'bribes' to get the community to accept these may change that. One of these is the promise of jobs. Ironically, a loss of jobs at Sellafield which is currently storing the waste is one of the counter arguments from the council against the proposals.[36]

In Lincolnshire, as in Cumbria, the proposed site will be built on the coast. So far, Lincolnshire residents have also expressed opposition to becoming a 'nuclear dump', viewing it as damaging to the environment and local tourism. They too see promises of local investment and jobs as a bribe.[37]

33 https://geolsoc.org.uk/~/media/shared/documents/geoscientist/2020/september 2020/Geo_SEPTEMBER2020-F1.pdf?la=en
34 Nuclear Waste Services - GDF Report 2023, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1168980/NWS_GDF_Report2023_O15_SWAP.pdf
35 https://www.theguardian.com/environment/2013/jan/30/cumbria-rejects-underground-nuclear-storage
36 Cumbria County Council leader rejects call to join GDF discussions, News and Star, https://www.newsandstar.co.uk/news/19883634.cumbria-county-council-leader-rejects-call-join-gdf-discussions/
37 'It's a bribe': the coastal areas that could become the UK's nuclear dump, The Guardian, https://www.theguardian.com/environment/2022/may/17/its-a-bribe-the-coastal-areas-that-could-become-the-uks-nuclear-dump

Both cases highlight that attention needs to be paid to the question of the alternative jobs that could be created while contributing to decarbonisation of energy without the environmental damage, and longtime legacy of nuclear.

While all energy infrastructure comes with wider environmental impacts, nuclear has added dangers such as radioactive leakage from plants and storage facilities. Companies like Rolls Royce and others claim SMRs are small with little waste. This is far from the case. A 2022 study revealed that SMRs could actually generate more waste than conventional plant.[38]

Claims by popular science websites such as *The Naked Scientist*, that nuclear waste is comparable to other waste because "toxicity decays over time",[39] are misleading and dishonest when they fail to disclose what that period of time actually is. Knowledge and records created today about the nuclear waste sites and the materials contained within them will almost certainly diminish over time. Is this the legacy we wish to leave for future generations?

Nuclear accidents

Nuclear accidents are an ever present threat from all nuclear facilities both civil and military. RAF Lakenheath in Suffolk, for example, which will host US nuclear weapons which are returning to Britain as part of NATO's European nuclear force, has suffered at least two nuclear weapon near-accidents.[40]

The International Atomic Energy Agency (IAEA) records and rates the severity of non-military accidents and other occurrences which result in the release of radioactive material into the environment and exposure of workers and the public to radiation.[41] The Chernobyl reactor explosion of 1986 is considered to be the world's worst disaster to date; closely followed by radioactive releases at the Fukushima nuclear power plant in Japan in 2011, when a major earthquake resulted in damage to all four reactors. These accidents are the only two ranked highest on the IAEA scale.

The Windscale fire of October 1957 is the UK's worst nuclear accident, and also scores high on the IAEA scale of major international disasters. The fire led to the

38 Small modular reactors produce high levels of nuclear waste, Stanford News, https://news.stanford.edu/2022/05/30/small-modular-reactors-produce-high-levels-nuclear-waste
39 Small Modular Reactors: a new nuclear concept, Naked Scientists, https://www.thenakedscientists.com/articles/interviews/small-modular-reactors-new-nuclear-concept
40 CND Briefing, 'RAF Lakenheath: US nuclear weapons return to Britain'
41 https://www.iaea.org/resources/databases/international-nuclear-and-radiological-event-scale

release of radioactive pile material as dust into the environment and caused hundreds of deaths. It also led to the Windscale plant being renamed. It is now known as Sellafield.

The number of deaths from nuclear accidents are widely disputed, particularly those which result from radiation exposure. Nevertheless, it is clear that there are ongoing risks to the public and the environment for years after. Radiation exposure leads to cancers. Studies have shown that even low levels of ionising radiation increase cancer risks and should be of particular concern to workers and their representatives.[42] There is also significant psychological harm on resident communities due to the need to relocate and post-traumatic stress after disasters.

Dr Ian Fairlie, an independent consultant on radioactivity in the environment, has produced a useful overview. This includes the impacts on children, with increased levels of childhood leukaemia, for example, among children living near nuclear power plants.[43]

The long-term difficulty in 'cleaning up' after a nuclear disaster is exemplified by the Fukushima disaster. The Japanese government agreed to the release of more than a million tons of treated radioactive waste water into the Pacific Ocean. A further 350 million gallons of radioactive waste water is now being stored in more than 1,000 tanks on the Fukushima site which is at near capacity.[44]

We live in an increasingly water stressed world. It is unacceptable to put valuable water supplies, fishing, and agriculture at risk in this way by building more nuclear power plants. The UK is not exempt from this scenario.

Climate change poses particular risk to nuclear power plants, given the need to site them next to water sources for cooling and therefore in coastal locations. The proposed site at Sizewell C is under threat from both coastal erosion and rising sea levels. Without substantial investment in sea defences, it could be at risk of becoming a 'nuclear island'.[45]

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42 Important new BMJ article increases our perception of radiation risks, Dr Ian Fairlie, https://www.ianfairlie.org/news/important-new-bmj-article-increases-our-perception-of-radiation-risks
43 https://cnduk.org/wp-content/uploads/2022/06/A-primer-on-radiation-and-radioactivity.pdf
44 What to know about Japan releasing Fukushima water into the ocean, NPR, https://www.npr.org/2023/08/24/1195419846/fukushima-radioactive-water-japan
45 Rising sea levels could turn new Sizewell power station into 'nuclear island', East Anglian Daily Times, https://www.eadt.co.uk/news/business/21406979.rising-sea-levels-turn-new-sizewell-power-station-nuclear-island

The lack of clear energy policy is causing the life of many nuclear plants across the world to be expanded beyond their original lifetime. Trade unions have helped ensure high levels of safety at nuclear power plants in the UK. But at times it seems even they are prepared to accept this risk for the sake of jobs. In 2019 the GMB argued for the extension of the Hunterston B plant in Scotland, despite safety concerns due to cracking at the plant.[46]

While trade unions argue for jobs related to nuclear power, the Unite union reported in 2019 record numbers of suicides among construction workers at Hinkley point C.[47] While there is a high level of suicide rates in construction in general, the isolation of nuclear construction work, as with offshore work, is certainly a factor.

Uranium mining is often disregarded when nuclear power is discussed. This indispensable ingredient of civil and military nuclear power also raises human and environmental health concerns. The US Break Through Institute, for example, has documented how uranium mining "has often disproportionately harmed Indigenous communities and other marginalized groups".[48] This includes the health of workers and the legacy of contamination of sites on local land and surface water.

In his recently published book, *Atomic Days*, Joshua Frank rightly points out: "Uranium mining is an energy-demanding, brutal process and in the United States it is also a neo-colonial practice". Uranium mines in the USA are mostly on the land of indigenous peoples, especially the Dine (Navajo) people: "Paid very little, at times less than the minimum wage, these miners would enter deep uranium shafts and chip away at the walls, often 1,500 feet below the earth's crust. They filled their wheelbarrows with this uranium ore, all while choking on soot and dust particles... They drank water that dripped from the walls which contained high quantities of radon."

Alpha particle emissions from radon are considered to be 20 times more carcinogenic than x-rays. Many of the miners developed lung cancer. In addition to the impact on human health, Dine land was also ravaged. A breath-taking three billion metric tons of waste was created as a result of this uranium

46 Prohibit Hunterston B Nuclear Power Plant from increasing crack limit to 700, https://petition.parliament.uk/archived/petitions/264123
47 Revealed: mental health crisis at Hinkley Point C construction site, The Guardian, https://www.theguardian.com/uk-news/2019/aug/13/revealed-suicide-alarm-hinkley-point-c-construction-site
48 Nuclear Power Won't Be Green Until…, The Breakthrough Institute, https://thebreakthrough.org/journal/no-18-fall-2022/nuclears-uranium-problem

extraction, and native communities are impacted to this day. The same is true of other indigenous lands – in Canada, the Republic of Congo, Namibia, Niger and Australia.

In Australia, uranium mining has met with fierce resistance from indigenous people, but the country still has three mines and plans to open more. Australia has the largest supply of uranium in the world. The UK has no significant amounts of uranium and has imported it. Uranium sourced from aboriginal lands has been used to supply the UK's weapons programme in the past.[49]

Do we in Britain ever hear of the concerns for the miners and their families from the proponents of nuclear power? Surely that is something the Labour Party should care about?

Not peaceful

The link between civil and military nuclear power

Tony Benn's quote at the beginning of this publication dramatically illustrates the point that civilian nuclear power grew out of the military's atomic programme during the Second World War. Britain, which was developing its own nuclear weapons programme during the war, joined forces with the United States as part of the Manhattan project. Collaboration ended however, when the US passed its Atomic Energy Act 1946, commonly known as the McMahon Act, which restricted access to nuclear information sharing with other countries.

Britain decided go it alone, developing its own nuclear weapons programme and firing its first test bomb in 1952. In the aftermath, the UK Atomic Energy Authority (UKAEA) was established in 1954 when Britain started its own civil nuclear programme. Even the UKAEA had a brief covering the military sector, however. This relationship between the civilian and military programmes has never really been broken.

We have suggested earlier in this publication that Blair's government changed position on nuclear power in 2006, putting the Prime Minister out of step with his deputy John Prescott who headed the Sustainable Development

49 Uranium mines harm Indigenous people – so why have we approved a new one?, https://theconversation.com/uranium-mines-harm-indigenous-people-so-why-have-we-approved-a-new-one-116262

Commission. This has been thoroughly researched by Phil Johnson and Andy Stirling at the University of Sussex, whose analysis has shone light on the link between keeping nuclear skills within the civilian programme to maintain nuclear submarine capabilities.[50]

The current UK government is open about the cross-over of skills between the civil and military nuclear sectors. The launch of the New Nuclear Skills Taskforce in August 2023 makes clear it "will develop a skills strategy to support the significant growth expected across a range of roles in the defence and civil nuclear sectors in the coming years".[51]

The 2018 Nuclear Sector Deal, also talked about the need for transferability between civil and military skills:[52] "The government will work with the sector to enable bespoke programmes that support the transitioning and transfer of capability between civil and defence."

Labour CND disagree with the idea that nuclear weapons have any role to play. If we are developing a civil nuclear program at the behest of the military sector this raises serious questions about UK energy policy – whether the weapons cart is leading the civilian horse.

This is also a concern around nuclear skills with respect to the development of SMRs. They are seen as a way of developing nuclear propulsion systems on submarines, which is significant for the AUKUS project.[53] Contracts have been given to the Rolls Royce plant in Derby[54] to develop the nuclear reactor propulsion systems for Australian submarines as part of the AUKUS project. Rolls Royce has also been awarded money for SMR development, including for the development of nuclear power in the space sector for a "UK lunar modular reactor".[55]

Last, but not least, depleted uranium (DU) munitions, first used in the Gulf War of 1991, are another result of the civilian-military link. They were used

50 Science Policy Research Unit, https://www.sussex.ac.uk/webteam/gateway/file.php?name=2016-16-swps-cox-et-al.pdf&site=25
51 New Taskforce to build UK nuclear skills, https://www.gov.uk/government/news/new-taskforce-to-build-uk-nuclear-skills
52 https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/720405/Final_Version_BEIS_Nuclear_SD.PDF
53 The AUKUS nuclear powered submarine pathway: a partnership for the future, https://www.gov.uk/government/publications/the-aukus-nuclear-powered-submarine-pathway-a-partnership-for-the-future
54 Rolls-Royce submarine contract 'massive' for Derby, BBC News, https://www.bbc.co.uk/news/uk-england-derbyshire-64950937
55 https://www.rolls-royce.com/media/our-stories/discover/2023/uk-space-agency-backs-rolls-royce-nuclear-power-for-moon-exploration

by NATO forces during the 1990s civil war in Yugoslavia, and again in the Gulf War of 2003. This year, the UK government agreed to send Challenger 2 battle tanks and thousands of rounds of DU munitions to Ukraine. DU is a radioactive and chemically toxic heavy metal which is produced as a by-product of the enrichment of uranium for nuclear reactors.[56]

These munitions are not considered to be nuclear weapons, and no international treaty bans their use. When DU munitions explode they release a radioactive and toxic dust which can be blown in the wind for miles and/or sink into ground during rainfall and remain in the water table. If inhaled or ingested, DU can increase the risk of cancer, birth defects, and kidney damage for both troops and civilians in areas where they have exploded.

Concerns have been raised in parliament, including Early Day Motions backed by the Labour Party, calling for a moratorium on the use of depleted uranium munitions.[57] The Labour Party has also been part of cross-party calls questioning the legality of depleted uranium as a weapon.[58] The International Coalition to Ban Uranium Weapons (ICBUW) has made a recent statement on the US and UK supplying DU munitions to Ukraine.[59]

Labour CND believes Labour should call for a ban their use, for an end to DU production, and reparation to the countries where they've been used.

Nuclear power is a dangerous mistake

Nothing in the world should induce us to support nuclear power. It is a dangerous mistake that could cost the earth. Labour CND recognises that the nuclear industry sustains a large number of jobs. In seeking to commit the Labour Party to end its support for nuclear energy, we are not calling for any worker to be made redundant; and neither do we seek to end the use of nuclear in medical processes and procedures. The nuclear power sector is already facing natural decline as nuclear power plants approach the end of their lives. Substantial work will continue long after they do, as part of the decommissioning process and waste legacy management.

56 https://cnduk.org/resources/depleted-uranium/
57 https://edm.parliament.uk/early-day-motion/19691/moratorium-on-use-of-depleted-uranium
58 https://www.theguardian.com/politics/2011/nov/14/minister-sorry-dangers-depleted-uranium
59 https://www.icbuw.eu/en/

The jobs we reject are for new nuclear. Those that don't yet exist, and which indeed could be created for work in other much needed areas of decarbonisation, such as in retrofit and insulation.

The majority of work in new nuclear power plants is in construction. At Hinkley Point C it's estimated that 8,600 workers "will be needed during the peak of the construction programme" and said to be 3K more than originally predicted.[60] These will cover a range of building tradespeople such as electricians and project managers, which are not specific to the nuclear industry. There is much construction work required to re-engineer our energy system for renewable energy, including in energy efficiency measures.

We sincerely hope that the detailed discussion of processes and links in this publication make clear that nuclear power does not have, and should not be given, a place in the UK's future energy mix. Indeed, to reach the decarbonisation targets required by the science of climate change, there is no time to build the necessary capacity even if we thought it was a good idea to do so. We don't have the finances for such a programme either.

Leaving energy policy to the markets, underwritten by some public subsidy is already leading to more dither and delay. If Labour wants to roll up its sleeves, then the party should do just that – by developing a nationally coordinated programme of public energy ownership based on 100% renewables, investment in battery storage technology, and energy efficiency, which includes demand side reduction.

Safety will always be an issue with nuclear power. The stakes are too high for humans and environment when things go wrong. Climate change itself, the long-term shifts in temperatures and weather patterns, is a threat to the operation of nuclear power plants. Waste disposal remains a challenge; proliferation and the links with nuclear weapons remain a concern in our volatile, war-torn world.

When the young climate change campaigners took to the streets in 2019, they had a clear message: grown-ups have messed up and left us a dreadful legacy. Labour will be contributing to this legacy if it pursues more nuclear. It is a big mistake that we still have time to avoid.

60 Hinkley Point C: Plans to expand Moorhouse Farm campsite for staff, BBC News, https://www.bbc.co.uk/news/uk-england-somerset-66731238

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Labour, Climate Change and Nuclear Power: Not Cheap, Not Safe, Not Peaceful

By Samantha Mason

"Every nuclear power station in Britain is a bomb factory for America. Nothing in the world would now induce me to support nuclear power. It was a mistake."

Tony Benn, 2008

"The planet is burning. We're in the middle of both a climate crisis and an energy crisis. But as you will read in these pages, nuclear power is definitely not the answer. It is dirty, dangerous, economically unsustainable – and its outputs can be used in nuclear weapons production."

Kate Hudson, 2023

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