



Converting the United States and United Kingdom defence sector to civil production: The views of defence workers

Karen Bell¹  | Vivian Price² | Keith McLoughlin³ |
Miriam Pemberton⁴

¹University of Glasgow, Glasgow, UK

²California State University Dominguez Hills, Carson, California, USA

³University of Bristol, Bristol, UK

⁴Institute for Policy Studies, Washington, District of Columbia, USA

Correspondence

Karen Bell, University of Glasgow, Glasgow, UK.

Email: karen.bell.2@glasgow.ac.uk

Funding information

British Academy

Abstract

There are many social, environmental, and economic reasons for converting from defence manufacturing to civil production. Importantly, such a transformation could support more peace in the world while still ensuring the secure jobs that the defence sector has historically provided. The views of defence workers on such a transition are important to understanding how this change could effectively and equitably occur. To capture some of these views, the research project on which this paper is based involved interviewing 58 former and current defence sector workers in the United States and the United Kingdom and convening key leadership focus groups which included their trade union representatives. Though these workers' opinions were not entirely polarized and some interviewees had mixed and nuanced views, they loosely fell into three categories (a) opposed to defence diversification, (b) supportive of defence diversification, and (c) supportive in principle but thought that it would be unlikely to happen. The (a) category of defence workers primarily based their view on the idea that the defence sector is necessary for security and a feeling of pride in supporting this endeavor. The (b) category views were built on the perceived harm of the sector, the potential

This is an open access article under the terms of the [Creative Commons Attribution-NonCommercial-NoDerivs](https://creativecommons.org/licenses/by-nc-nd/4.0/) License, which permits use and distribution in any medium, provided the original work is properly cited, the use is non-commercial and no modifications or adaptations are made.

© 2023 The Authors. *Peace & Change* published by Peace History Society and Wiley Periodicals LLC.

‘peace dividend’ that would arise from transition, and feelings of guilt about working in the sector. The (c) group of workers identified the profit motive, worker attachment to defence jobs, technological issues, and the economic and political power of the defence companies as the key barriers to change. Proposals for effectively converting included economic incentives, government regulation, and organizing trade unions to push for change. A unified view was that workers want to be involved in discussions about these issues in their workplace and unions.

INTRODUCTION

Peace campaigners often argue that the arms trade fuels wars and violent conflict (e.g., CAAT, 2022). Academic investigation has supported this view, though with greater nuance. For example, Pamp et al. (2018), after examining SIPRI records of global arms imports, and noting the increased likelihood of conflict following increases in importing weapons, concluded “... while arms imports are not a genuine cause of intrastate conflicts, they significantly increase the probability of an onset in countries where conditions are notoriously conducive to conflict” (Pamp et al., 2018: 430). There has not been adequate research in this area and some would argue that more weapons are needed to act as a deterrent to aggressive attacks, as in the so-called “peace through strength” position of the US Republican Party (McCrisken & Downman, 2019). It is beyond the scope of this paper to engage with this debate except to note our positionality. As engaged researchers, it is our position that wars and conflicts would be much less harmful with less weapon availability. Hence, we consider that peace could more easily be achieved with a reduced and less powerful defence sector. Based on similar beliefs, “defence diversification” or “arms conversion” has been an important campaign for many peace activists. However, the question of jobs then looms large, as many well-paid, secure, and unionized jobs are connected with this sector. A recent UK report states that 10,000 organizations were paid directly by the Ministry of Defence globally in 2020/21 and that the average full-time salary for surveyed defence roles was £45,000, over 16% higher than the UK mean average annual full-time salary in 2020 (JEDHub, 2022).

The loss of these jobs would obviously be threatening to the workers involved and their communities so creating alternative jobs is vital. This makes it important to engage with the defence sector workers in disarmament and diversification campaigns as they will be most affected by such a transformation of production and will be able to offer important insights into how this should most effectively and equitably happen. Some peace campaigners have historically engaged with the workers in the industry, for example, during the Lucas Aerospace plan of the mid-1970s. This was a plan to move the aircraft manufacturer away from military production and toward socially useful production (Salisbury, 2021). However, more widespread and recent engagement with defence sector workers on discussions of arms conversion has been minimal. Engaging these workers would be extremely important for arms conversion campaigners so that they can develop discourses and actions which defence workers can relate to and support.

This paper highlights the views of defence workers. It is based on the 2021–2022 research project, “Decarbonising and Diversifying Defence: A Workers’ Enquiry for a Just Transition,”



which focused on worker views of the environmental impacts of the defence sector and how to reduce this. In this article, we focus on what the workers interviewed said in relation to diversification, rather than the wider scope of the project which can be followed up in the project reports (see <https://www.decarbonising-defence.co.uk>); the publicly available data set for this project (see www.decarbonising-defence.co.uk and the UK Data Archive Data Catalogue, under “Data Collection #855918”).

While we use the terminology of “defense diversification,” we do not see this as differing substantially from what is sometimes referred to as “arms conversion” or “transitioning to socially useful production.” The definition of “diversification” we use here draws on that of NET’s (2018) as “the broadening of business to non-military business fields with the intention of reducing or stopping arms production” (NET, 2018: 6). This is the definition that we read out to our interviewees as our working definition for the project after we had first explored what the concept meant to them. We, therefore, use the term “diversification” interchangeably with “conversion” in this paper while recognizing that the latter denotes a more comprehensive transition away from military production. The project on which the paper is based focused on the United States (US) and the United Kingdom (UK), as they are the two largest global defence exporters on a rolling 10-year basis (DFIT, 2020). Moreover, the US has the highest level of national military spending in the world and the UK has the 5th highest, with spending in 2020 reaching \$778 billion and \$59.2 billion, respectively (SIPRI, 2021).

BACKGROUND

Numerous studies indicate the many social reasons for converting the defence sector so as to mitigate the harms arising from it including, for example, forcibly displacing indigenous and marginalized communities to make room for natural resource extraction (e.g., Delina, 2020); and the damaging health impacts from military installations (e.g., Alvarez, 2021), the testing of weapons (e.g., Alexis-Martin et al., 2021) and their use in military operations (e.g., Frey, 2013). However, beyond the social case for reducing arms production, there is also a strong environmental case. The “treadmill of destruction” (Hooks & Smith, 2004) is a theoretical framing of the role the military plays in environmental destruction in a capitalist society, noting that nature is destroyed for power and wealth. The defence sector is responsible for extremely high rates of greenhouse gas (GHG) emissions, pollution, and use of nonrenewable resources (Belcher et al., 2020; Bigger & Neimark, 2017; Crawford, 2019; Parkinson, 2020). One analysis found that the US military alone emits more CO₂e (carbon dioxide equivalent) than most entire nation-states (Belcher et al., 2020). While the defence sector itself intends to address this problem, through “decarbonization” programs (Bowcott et al., 2021; MoD, 2021; US Army, 2022) which do not seek to reduce the number of weapons overall, we felt it necessary to include “diversification” as (possibly) a more effective solution to reducing the material footprint of the sector. This is based on an understanding that the planet has limits to what it can sustain and that we face multiple environmental crises (Steffen et al., 2015) such that we need to address a range of environmental harms simultaneously. Moreover, the supposed predicted decoupling of environmental growth from material footprint via “ecological modernization” and “green growth” programs has seen limited success (Hickel, 2021; Hickel & Kallis, 2020; Vadén et al., 2020). Therefore, given planetary limits and the need to reduce the use of resources and production of waste, coupled with numerous unmet human needs, it is important to consider how humanity can reduce consumption and limit it to what is actually necessary or brings genuine social value.

Alongside critiques of the environmental impacts, and the harm to people, property, and societies caused by armed conflict, the defence sector has also been criticized on the grounds of its costs for the state and, consequently, for citizens. Recently, 50 Nobel laureates signed a letter calling for decreased military spending and to use these resources to create a UN Fund to combat poverty, health crises and climate change (Sabbagh, 2021). Defence industries are heavily subsidized by the state via citizen taxation in the main weapons-producing nations (CAAT, 2014). There is a potential “peace dividend” that could result from the transfer of resources from military to civilian use, particularly at the present time when resources are needed for combatting urgent issues such as poverty and climate change. For example, DiGiovanna and Markusen (2003), drawing on studies of defence sectors from around the world, noted that the allocation of resources to maintain these industries in many cases came at the expense of addressing other essential civilian development needs, including social services, education, and public infrastructure. In a more recent study, de Groot et al. (2022) found that if there had been no violent conflict in the world since 1970, the level of global GDP in 2014 would have been, on average, 12% higher.

Historically, defence diversification has found favor or met with resistance from various groups and for different reasons over time. In the 20th century, defence was closely intertwined with foreign policy goals, such as deterring the Soviet Union and strengthening NATO (McLoughlin, 2022). This led to a close relationship between the defence sector and the governments in both the UK and the US. During the Cold War, a coalition consisting of businesses, politicians, and trade unionists ensured a steady supply of military orders that maintained employment (Brenes, 2020). Both in the UK and the US, the Cold War defence economy played a crucial role in sustaining employment, particularly in declining sectors like shipbuilding (Hartley, 1996). Defence became an integral part of wider economic and industrial strategies for “New Deal” liberals in the US (Brenes, 2020) and social democrats in the UK (McLoughlin, 2022).

However, calls for diversification of the defence sector go back to the 1920s. Attempts to diversify defence include:

- The Barrow Alternative Employment Committee (Schofield, 2007)
- The Lucas Aerospace Plan in the 1970s (Salisbury, 2021)
- Vickers 1920s and 1970s (Benyon & Wainwright, 1979; Unite, 2016)
- Prior UK Defence Diversification Agency set up in 1999 (Spinardi, 2000)
- The United States Defense Industry Adjustment program (OEA, 2015, 2021; OLDCC, 2022)
- The US 1988 Base Realignment and Closure (BRAC) Act (Unite, 2016)
- IRI in Italy 1990s (Felice, 2010)
- Bremen Industrial Defence Conversion Program (CP) 1980 (NET, 2018)
- Estonian shipyards 1990s (NET, 2018)

One of the best-known attempts at diversification was the proposals put forward by the workers at Lucas Aerospace and Vickers, though their ideas for “socially useful production” were not taken forward because of resistance from management (Wainwright & Elliott, 1982). Also significant, in the UK, the left wing of the Labor Party set up a defence study group in 1974, publishing *Sense about Defence* (Labour Party, 1977). Although it was rejected by the then Labour government, it was the most comprehensive statement on defence diversification in the UK up until that point. It included a list of alternative technologies that defence workers would have relevant expertise in, from renewable energy to civilian transport (McLoughlin, 2022; Mort & Spinardi, 2004).



In the US, President Eisenhower's 1961 "military-industrial complex" speech sparked academic and political interest in the influence of the international defence industry. From the mid-1960s through the 1990s, a number of academics studied the military-industrial complex and diversification issues (e.g., Bishop, 1995; Chin, 2004; Chan, 1965; Dankanyin, 1994; Melman, 1964; Powers & Markusen, 1999; Shenhar et al., 1998; Southwood, 1991). For example, Melman (1964) argued for transferring the resources used for subsidizing weapons manufacture to civilian industries.

By the end of the Cold War, many defence companies, which had heavily relied on state contracts, were ill-prepared to adapt to peacetime opportunities (Southwood, 1991). Despite privatization in the 1980s, the defence industry in the UK continued to rely on state support, with the government absorbing significant cost overruns and delays (Jones, 2018). In the face of dwindling jobs in the sector, a number of studies from the 1990s considered how defence companies could diversify (e.g., Bishop, 1995; Dankanyin, 1994; Shenhar et al., 1998). They noted that defence workers who were laid off often did not get the support to make satisfactory job and career changes where they could use their skills and receive equivalent pay and conditions. The defence sector's complex mix of business, politics, and trade unions made it challenging to enact diversification reforms (Chin, 2004). While US President Bill Clinton vowed in 1992 that the nation was poised to cash in on a "peace dividend," there was strong resistance to military downsizing from key Pentagon officials, defence business leaders, some members of Congress, and parts of the labor movement (Chan, 1995; Powers & Markusen, 1999). The "peace dividend" did not live up to its promise, withering in the late 1990s as defence budgets began to soar. The most important defect in the efforts to build a peaceful economy was the failure to reinvest sufficient defence savings in big projects to create what economists call "demand-pull" to new alternative markets in the civilian sector. In the US, 85% of the defence savings went instead to deficit reduction (Bischak, 1997).

Recently, in the UK, networks called for a new government Defence Diversification Agency (DDA) that could provide coordination, assistance and funding to diversify to green jobs (e.g., New Lucas Plan, 2016). This agency would "help to repurpose workers' jobs which are threatened by any downturn in military contracts," and the key industries which could fulfill this role would include wind energy, marine energy, and energy-efficient/renewable energy powered shipping (New Lucas Plan, 2016: np). The New Lucas Plan emphasizes that "The role of the DDA would not simply be to assist Defence manufacturers to find civilian markets for their products" because "Experience has shown that it is often expensive and unproductive, and the Defence industry often abandons such work when there is a prospect of future upturns in military contracts" (New Lucas Plan, 2016: np). Some UK NGOs and trade unions have joined this call, for example, NFLA (2019) and CAAT (2020). They propose that there should be a UK Just Transition/Defence Diversification Agency with aims to move defence workers to alternative industrial sectors that provide clear social or environmental benefits (CAAT, 2020). In 2017, the Trade Union Congress (TUC) called for a Shadow Defence Diversification Agency, stating that the first task of this agency would be to "engage with plant representatives, trade unions representing workers in the defence industry and local authorities, to discuss their needs, capacities and listen to their ideas" (TUC, 2017: 1). However, more recently, the TUC voted by a very narrow majority to support increased arms spending (TUC, 2022). The vote took place in the context of plans to increase government arms spending at the same time as cutting pensions and welfare (Nineham, 2022). The debate discussed the need to protect jobs, though a speaker from the National Education Union argued, "Yesterday we passed a motion on a Just Transition. This is what we should fight for. That is a solution to these high-skilled jobs in Barrow and Derby and elsewhere, not investment in

pointless, unproductive, murderous weapons” (in Chacko, 2022 np). The Unite union, which had previously backed diversification of the defence sector (e.g., see Unite, 2016), supported the motion but with reservations, stating “we need the tools to defend Britain” (in Bates, 2022). Given that UK society is highly militarized (see, e.g., Kelly, 2020; Smart, 2016) and, in the context of ongoing requests from Ukraine for more weapons, the dominant discourse currently is for increased defence spending to counter external threats and the vote may reflect that.

Overall, the history and efforts to diversify the defence industry demonstrate the complexities and challenges involved in transitioning from a defence-focused economy to a more diversified one. While there have been many studies on diversification, very few involve discussions with defence sector workers. There has particularly been little recent exploration of the views of defence workers and virtually no studies involving workers across a range of defence industries, companies, and skill sectors. This paper addresses this deficit offering a number of insights into defence workers hopes, concerns, and ideas on defence diversification.

METHOD

The project was based on a workers’ enquiry, a method that facilitates workers to consider and articulate their situation in the productive process (Brown & Quan-Haase, 2012). We spoke to prior and current defence sector workers (aged 18+) about a range of topics related to transitioning the defence sector toward sustainability, including decarbonization, diversification, and just transition. However, as outlined earlier, in this paper, we focus on what they said in relation to diversification.

The investigation used triangulated data collection methods that included a literature review, document analysis, semi-structured interviews with defence sector workers, and focus group interviews with defence sector worker representatives and other relevant “experts”. However, for the purposes of this paper, the document analysis and “expert” extracts are omitted so as to focus on the workers’ and their unions’ comments. The literature review was based on articles from academic databases (e.g., Scopus), reference lists, library searches, gray literature, and internet search engines.

We defined “defence sector workers” as people who currently work, or previously worked, in the defence sector or for a company that supplies the defence sector, including the military and civil service. We aimed to recruit a diversity of workers with a wide range of perspectives and backgrounds. In order to recruit, we approached more than 200 organizations including defence companies; the main trade unions that cover the defence sector in each country; defence interest groups, such as US Military, US Airforce, Defence Forum, and Defence and Security Portal Facebook groups; veteran organizations, including Veterans for Peace in the US and UK and AMVETS (American Veterans); and community-based environmental groups. A total of 58 workers were interviewed individually, 30 in the UK and 28 in the US, mostly online or by telephone due to Covid restrictions. The backgrounds and sectors of the interviewees ranged across military, engineering, administration, manufacturing, IT, services, and design, at all levels, but primarily nonmanagerial.

The semi-structured interviews lasted for up to one hour and included questions such as:

- Are you aware of any policies or plans for diversification that might apply to your type of work?



- Have you ever been asked, either formally or informally, what you think about these policies or plans?
- How do you think these policies or plans will impact yourself/your family/your workplace/your community?

During the interviews, we asked a number of key questions but added further questions as needed, pursuing a semi-structured approach that allowed for “probing” and following unanticipated themes (Fielding, 1993; Moser & Kalton, 1985). For transparency, all the particular questions can be seen in the publicly available transcripts via the online repository. The interviews were between 25 and 70 minutes in length.

The study also included two online international focus group discussions. The groups included defence company sustainability managers, relevant government officials, and worker representatives of local, national, and international trade unions. In this paper, we only discuss the opinions of the worker representatives so that we can highlight the worker voice on diversification which has been somewhat missing. In order to analyze the focus groups and interviews, we used the Framework Method (Ritchie & Lewis, 2003). This entails using inductive and deductive themes from the literature and the research data. The data were managed using NVivo software. The interviews and focus groups, which took place between November 2021 and mid-February 2022, continued until the researchers felt that the study had reached the point of “data saturation.” Further information on the wider views and aspects of decarbonizing defence and a just transition can be found in the published reports and the publicly available data set (see www.decarbonising-defence.co.uk and the UK Data Archive Data Catalogue, under “Data Collection #855918”).

Diversification of defence is very contentious and this makes it particularly important to consider the validity and reliability of the findings. The sample and context are very important for credible research. In order to enhance this, we were as ‘reflexive’ as possible throughout the research; we made the process as transparent as possible, given confidentiality requirements; we collected as much data as possible; we used triangulated methodology to cross check findings; and we checked our interpretations with research participants, as much as possible. We were not aiming to be “value free” in this study but rather to be “engaged.” However, we wished to produce reliable research by being aware of our subjective position at all times while attempting to see beyond it, as “reflexive” (Kincheloe & McLaren, 2000) researchers who acknowledge our own assumptions, values, and ideologies.

Given that this is a qualitative investigation, the sample is small and so we are not able to generalize about defence sector workers overall in the US and the UK. However, we have been able to gain insights and understanding about the range of perspectives and the hopes, concerns, and ideas associated with potential arms conversion. Moreover, the discussions help to illustrate the debates that are also found in the academic literature and reports on diversifying defence. By triangulating the findings with these other sources, we have a stronger basis for proposing some recommendations for consideration.

INTERVIEWS

In the following sections, the worker names and details have been anonymized. They are referred to only in terms of the nation they currently inhabit (i.e., US and UK) and an ID number, with gender and occupational role in relation to defence added for the quotes only. Most of the workers interviewed had not heard of the term diversification before being approached

about the study (e.g., UK005, UK008, US013, US021). Those who did understand the term (e.g., US001, US009, US011, US017) had a range of interpretations. When given our working definition, they put forward a range of opinions in relation to whether they felt positively or negatively about the idea. Many were interested in considering how military products might have a civil application; some thought it would be a good idea but would be difficult to implement; and others were completely opposed to any movement away from military to civil production.

Some of those who said they supported diversification saw this only in terms of broadening defence company business to encompass civil. They felt that diversifying would offer greater employment security and business stability, likely enhancing innovation and business opportunities, as illustrated in the following comments:

I think it probably goes back to that “spreading the risk” so, if we take an organisation in the supply chain, is it sensible for them to invest in other, or try and bid for, other work that isn’t defence related? I think that’s probably a good decision. You don’t want to put your eggs in one basket.

(UK018: male, white, current defence manufacturing)

[T]here’s the benefit that, if they diversify, they’re not going to be dependent only on government funding. With different administrations funding gets either cut or they get increased so they’re not going to be totally dependent on that.

(US023: male, Latin American, current defence manufacturing)

Those who were interested in diversification only for the sake of the greater economic security of the defence industry were, naturally, opposed to any scaling back of military production. However, some of the other workers favored initiatives to impose some limits on arms production and sales as exemplified in the following comments:

Do we really need any more weapons? I don’t think I can answer that...I think we do need, given the current state of play with the world, I think we do need some kind of defence but, in the same token, are we producing too much?

(UK005: female, white, current government defence service)

[D]o we really need to update all our ICBMs [Inter-Continental Ballistic Missiles]? Don’t we have enough to blow up the world three times over, or five times over? Why don’t we take those resources and use them someplace else where they really should be?

(US008: male, white, ex-military)

Those who supported diversification among the interviewees spoke about how the money currently spent on defence could be repurposed to meet social needs, in line with the arguments of “peace dividend” proponents. They also tended to believe that other means of dealing with conflict would be more effective, as well as less socially and environmentally harmful than military means, as illustrated in the following statements:

So, if we weren’t spending as much [on defence] or if we were taking that money and putting it towards social needs, those could have a great impact on the quality of life



for most Americans in terms of stuff like national healthcare and a lot of the safety net things that, say, most countries in Europe take for granted because they don't spend as much money on weaponry as we do.

(US011: male, white, current defence manufacturing)

[T]he biggest one is the amount of resources that are taken up, like 40% of the discretionary budget of the US is military...taking up enormous amounts of resources that could be transferred to mitigating the causes of war.

(UK019: male, white, ex-military, current defence manufacturing)

Some of the more critical views of the defence sector were put forward by ex-workers, particularly ex-military. However, some current workers expressed similar opinions. A few of those currently working in the defence sector said that they felt guilty and/or uncomfortable about their work and would welcome the opportunity to transition into civil roles, as in the following statements:

I'd certainly do a greener job if the money was right and it's in an area where I could actually assist and use my expertise or skills.

(UK010: male, white, current government defence service)

I am uncomfortable working in the defence industry at large so I am looking to make that move already because I'd rather be working for a business that's good for the planet.

(UK022: male, white, current defence manufacturing)

I'm in a weird place because my politics don't really line up with the work that I do and so, on the one hand, I am really grateful that I have such a secure job in a secure industry but, on the other hand, it would be wonderful if my job didn't necessarily have to exist.

(US015: male, white, current defence manufacturing)

I guess, it's funny because one of the reasons that I didn't wanna come to work at [ANONYMISED defence company] was because of the defence industry. I didn't wanna work in a factory and I didn't wanna work in something that supported making machines of war. Obviously, over time that's worn away but I've always said to people here that if something happened and we didn't have to have war anymore and we didn't have to make, you know, military engines and, you know, that kind of thing, I would be happy to lose this job and find another. And, if it was in a renewable resource, research or job, that would be fantastic....I would feel better about my life if I did that.... I feel that it's important that I do my job properly in order to keep people safe....Would I prefer to do something that was more relevant for the world? Absolutely!

(US013: female, white, current defence manufacturing union leader)

Some of the workers interviewed were, however, very averse to the idea of diversifying the defence sector. They argued that this sector is essential for responding to known and, as yet, unknown, threats, as in the following comments:

I think it's [diversification is] irrelevant to the defence sector and counterproductive to the entire reason of defence. The entire reason of defence is to protect the

nation. We can't do that without the tools necessary to do that job.... Moving away from funding the military or the defence sector to making the defence sector produce directly for civilians will then no longer be the defence sector...if we diversified from defence...we would basically have no defence. We would lose our capabilities in order to defend ourselves and our interests both at home and abroad. That would, basically, not only render the nation mute but it would make them vulnerable to attacks that go on on a day-to-day basis, both in the cyber infrastructure and on the ground when we're trying to protect our interests.

(UK002: male, white, current government defence service)

We do need a defence force in this country—there's no two ways around it. Every country does, but there's plenty of other areas, I think, where skills could be reused to support those green jobs—I don't think we need to be taking them from defence.

(UK030: male, white, current defence manufacturing)

[A] strong defence is what you have to have in order to show the world that you can take them on, and the United States...some people would like to call it “the protectors of the world”....

(US007: female, white, current defence manufacturing)

A few of the workers argued that defence sector technologies would be inappropriate for diversification because the technologies are overly complex for civil use, as discussed here:

[T]here wouldn't necessarily be a sensible civilian use for some of the equipment. It's overly complex for civilian needs so the cost of the equipment to pay for the development and testing would be prohibitively expensive for its – to make it financially viable for roll out into other industries....

(UK010: male, white, current government defence service)

In the same vein, a few of the interviewees considered that diversification of the defence sector would not be workable because defence has high standards that would make transitioning to civil uneconomic, as discussed here:

[W]e are inclined in our industry to understand that we're not making cars, we're not making toaster ovens, we're not making washing machines. The products we make people's lives depend on, they have to work every time they're used, every time they're used, no exceptions...; it has to work no matter what. So the quality of what we produce is very, very good, but it comes at a very high cost ...

(US014: male, white, current defence manufacturing union leader)

Their defence and commercial are not the same. One is basically, you're working at...speed and, when you're working in defence, it's more you're pushing quality a lot harder. Their emphasis is on quality —making sure that it's right. Making sure that you're not putting soldiers' lives in danger. With commercial, I would say that management's focus is on “We have planes on the ground, there's customers waiting for them, and we need to get this out right now.”

(US023: male, Latin American, current defence manufacturing)

Another key barrier to diversification, it was proposed, was the defense workers themselves, who tended to be quite satisfied with their current jobs. In general, the workers we interviewed tended to express significant job satisfaction, primarily as a result of enjoying working with colleagues (e.g., US012); feeling they are doing something worthwhile (e.g., UK007); having autonomy (e.g., UK009); variety in the work (e.g., UK010); opportunities to learn on an ongoing basis (UK008); using and developing their skills (US025); and the relatively good pay, conditions, and job security (US015). For some, this level of job satisfaction was seen to be a barrier to diversification as civil jobs, including “green jobs,” tended to be seen as less attractive in these respects as US015 discusses here:

I think that's part of the hesitation in transitioning, because these jobs are so good and secure and they pay well and especially the ones that are protected through collective bargaining. I mean, this is a job for life and, in the civilian sector...it's impossible to find anything like that. So I think that's the major stumbling block towards a transition, in my experience. Most of the people who work in these types of fields, one of the major motivating factors is just it's such a good job and why would I want to go and work for a [ANONYMISED]...and I could get fired at any moment? Why would I want to leave for that? Even if I would rather be doing something that there is more of a public good involved, people aren't as selfless as they would need to be to just walk away from this.

(US015: male, white, current defence manufacturing)

In particular, it was emphasized that, for some, the high wages associated with the defence sector would be a barrier to arms conversion:

[D]efence workers get paid high wages, we get paid high wages because the work is very sophisticated and difficult to do, so if everybody goes from making an engine for the Joint Strike Fighter to making toasters, well toasters just don't bring the same price, so what's the impact on wages of that? There has to be some kind of figuring out of that part of it.

(US011: male, white, current defence manufacturing)

Some of the interviewees discussed the importance of worker identity in relation to the defence sector, including their sense of belonging and pride in being part of the defence workforce. They felt that when workers were approached to engage in this conversation, the discussion would have to take this into account, as in the following comments:

[P]eople there are extremely proud of that product which they fully know is the most technically complicated and advanced manufacturing product ever made, even more than a rocket. So, they had that pride and by telling them that they're making weapons of war really, you know, insulting them, isn't really the way to go at this. But, beyond the pride, they have pride in their skill and they all want to make good things. It becomes more complicated when you go to defence workers and you say, “well we're going to cut out these weapons because we need more nurses and teachers and we need more highways” or something, because we're not nurses and teachers or construction workers.

(US011: male, white, current defence manufacturing)

I thought that, all the industries I've been in, I've changed into somebody who thinks within the industry and not outside it. It's very easy to do that, I think. You become one of a team that goes "well, this is what we do" and, if you if you speak out against it, you're sort of out, really...it's like coming out, actually...saying war is wrong and yet you're a soldier, how come you're not loyal to the regimental loyalty...there's a sort of soldier worship we have in this country I think where, you know, people die in combat and the combat's the reason for when everything else cannot be questioned because people have died...and so it makes it very difficult to criticise the military when it's all bound up in this enormous sort of pride.

(UK019: male, white, ex-military, current defence manufacturing)

Some of the workers interviewed felt that the defence industry is constrained by economic imperatives, including the vested interests in maintaining and growing the sector and some perverse incentives within the system, as discussed in the following excerpts:

[D]efence is easy money for companies and doing anything else is risk...it comes down to the money thing and the incentives. So if the country and the government wants the defence industry to diversify, there needs to be incentives that minimise the risk for them to do that so, whether that's funding support, whatever, that needs to be there ...the defence industry, from my point of view, is essentially a magic money tree. There is always money available no matter what...they almost need to be made less dependent on that to make them do other things...I don't think it's a priority for the defence sector because I think it is more lucrative to be in the defence sector and be paid public money to develop defence products than it is to be in private sector and take the risk with no guaranteed return.

(UK022: male, white, current defence manufacturing)

[D]efence work is essentially state run. It's a state-run industry and the majority of the funding is through the taxpayer. So, for the defence industry to branch out, you'd probably have to have an equal amount of investment from state governments to justify it. ...the private sector is so focused on short term reward that they're not really going to be interested in putting in the type of investment it would take to transition entire sectors into something out of the defence industry....they don't care where their money comes from as long as they make their money. So, if they can see the same type of profit margin through renewable energy then maybe they will invest as much in that as they have in aviation in the past, but the problem is with defence work it's kind of like a blank cheque.

(US015: male, white, current defence manufacturing)

The point that defence is very profitable was reiterated many times, with some considering that its profitably is, perhaps a drive for war, as emphasized in these comments, for example:

[I]t's a very lucrative business for a start. I mean, I think when you have a permanent arms industry that has to make lots of money and sell arms then you're going to have a dynamic to fight wars.

(UK019: male, white, ex-military, current defence manufacturing)

[T]here's people who live off war and war based industries and you would have to overcome that barrier....If you can convince them, I think, that they could make as much money in another field, that would be the barrier that would have to be broken.

(US013: female, white, current defence manufacturing union leader)

Some saw the power of the defense sector, the associated lobbying, as a barrier to diversification. This was particularly a view of the US interviewees, as is exemplified in the following excerpts:

Well, the major barrier is this, for Trident, the only reason they have got it – they can't use it because if they used it, you would be talking the annihilation of civilisation – the only reason they have got it is to keep a seat at the top table of the Security Council at the UN and it's a political thing. It's no' really a defence weapon, it's a macho thing. Britain is still the imperial power or it thinks it is....

(UK020: male, white, ex-military)

I always revert back to lobbyists because they're the ones controlling our politicians. If we can somehow take the money out of the voting system in the States, then we'll take the power away from lobbyists.... We're under the guise of a lot of propaganda, unfortunately....if the lobbyists are still there to control the policy, they [the government] realistically won't do it.

(US019: male, black, ex-military)

They donate to the parties, and also to the congressmen and senators themselves, and a lot of times they don't have to reveal those sources of where that money comes from, so there's a lot of dark money involved. There's so many ways of covering up what the sources are, or just hiding it, and they do their bidding.

(US006: male, white, ex-military)

A common argument that there will always be someone willing to sell weapons, even if the UK or the US reduced its defence production, was also put forward, as implied here:

If there's one thing that I have seen over my years, someone is always going to want a bigger stick and when there's a demand for sticks someone's going to start selling them. I'd like it not to be the case but, unfortunately, that's what it is. I don't think it's [diversification is] achievable, not at this point anyway.

(UK010: male, white, current government defence service)

Yet, some of those interviewed expressed a perception that the COVID-19 pandemic had engendered more support for arms conversion as people had begun to reassess their values and priorities (e.g., US004). It was also proposed that the chaotic withdrawal from Afghanistan and the discussion of the aftermath of occupation had embedded the view that “billions of dollars were spent to no good point” (US004) and this may have increased a desire for military conversion among the public.

While the workers detailed their hopes and concerns regarding diversification, they also put forward a number of ideas as to how to overcome the apparent barriers. Some

emphasized that since the defence sector is usually more profitable and well resourced than civil production, diversification would require government incentives to motivate the relevant companies:

I guess if defence companies are finding that they're earning sufficient profit from just focusing on defence sales and defence technology then they're not, sort of, forced to change and look at other opportunities. Again, I suppose it's about incentivising companies to do that. I think there are probably lots of opportunities but they're not being pursued at the moment.

(UK007: female, white, current defence civil service)

We just need to reallocate our budget. Instead of investing in the same technology from [ANONYMISED]—or whoever you want to name in terms of the equipment we're using—we need to allocate it towards renewable resources, possibly even turning down our engagements in conflicts around the world.

(US019: male, black, ex-military)

Others felt that more regulation would be required to achieve diversification of this sector, as emphasized in the following comments:

I think what would make a difference is if Congress, or different countries around the world...the ones that control the purse strings, made it a requirement that a certain percentage of the money that's spent [on defence] has some [requirement to develop] some of these greener technologies to move away from fossil fuels....if they put a priority and said, "In order to get this amount of money you need to build these green products."

(US022: male, white, current defence manufacturing)

Some of those interviewed emphasized the importance of collective organizing via the trade unions as a way of creating improvements in the workplace but also in the wider society, as US015 emphasizes in this comment:

I just really want to stress that organised labour, I think, is the most powerful tool when it comes to shifting economies and industries and even politics. And so, in some ways, it's easy to be very pessimistic about the last several years but one thing that I am really optimistic about is just how angry workers are right now and how much more power they seem to have than they ever had before.

(US015: male, white, current defence manufacturing)

Changing government approaches to foreign policy was also considered important by some of the interviewees. They highlighted the necessity to think beyond military security toward more fundamental human security, particularly given the climate and environmental crises, as US019 discusses here:

There are drawbacks in wars. Let's end wars. Let's stop selling weapons, especially machinery that requires fossil fuels....Let's reallocate that budget towards renewable and sustainable ways of living and I guess more ethical. I'm a very young person.

I'm only 28.... Coming to terms with the reality that I'm born into and now having a son—and you're aware of where we could have been and that we had the technology to live in a different existence—it's kind of depressing. It's hard to swallow. We could do better.

(US019: male, black, ex-military)

However, others strongly felt that the defence sector was needed to achieve human security, allowing for diplomatic progress, as US023 argues in this excerpt:

I don't think that there can be diplomacy without weapons. For example, if North Korea didn't have an atomic bomb the US wouldn't have diplomacy with them, they just wouldn't care about them. You know what, you don't have a bomb, I don't really have to bother with you, but the fact that they have an atomic bomb is where the US has to be at the table with them and has to be diplomatic with them so, even though a county can choose to not use weapons, you have to have defence.... You have to have a form of defending yourself or else you have no say in diplomacy.

(US023: male, Latin American, current defence manufacturing)

While there were varying discourses, the ideas that the workers had for diversification were sometimes quite challenging for the defence industry as they would impact the industry's profit and power. Most of these issues were also discussed by the trade union representatives as discussed in the next section.

FOCUS GROUPS

The focus groups included representatives from defence companies, national government, academics, NGOs, and trade unionists. Here, we examine only the latter as we wish to highlight the perspectives of defence sector workers, including their representatives. The trade union representatives all supported some form of diversification. Several considered that a shift is required toward an industrial policy that focuses on climate change as the key national security threat. These trade union representatives, as with the workers interviewed, questioned the resources used highlighting that the funds spent on the military might more usefully be used for addressing social and environmental challenges, especially in the face of climate change. One of the representatives said, for example:

[I]f we consider the investments that are going into the defence sector side, broadly into nuclear weapons and Trident renewal, for example, and what is the basis for real human security, which is dealing with the climate challenge, which we've got such a short time frame now to really make progress...if you look at the Integrated Strategic Review and how Boris Johnson has positioned global Britain in the world and it's very much an imperialist and colonialist position that it's going to be back with greater investments in the defence sector and in arms and militarisation. The biggest increase in the defence budget for 70 years. Increase in nuclear war heads. I think that's a threat for all of us, and that's a threat for global security as well.

Numerous current concerns facing the workforce were discussed. These included: Firstly, pay. While usually better in the defence than in the “green” sector or other manufacturing work, pay is still trailing inflation for some workers. Secondly is attachment to jobs. As the workers discussed, many are very proud of helping with the defence of their country, though the point was also made that they would be proud of undertaking any work that was skilled, interesting, and of social value. Thirdly, doubts that the high standards of quality required in their work might not translate well to the civil sector. Finally, misgivings that workers would be expected to simply trust that they would get a good job at the end of the process of transition. Many of these points are captured in this excerpt from one of the United States union representatives:

The pay is usually better in the defence sector because it's more highly skilled work ...I guess the members take a certain pride in helping with the defence of the country but, on the other hand, I think they just want to build good products. We did a workshop on conversion at one of our locals and we said that maybe they won't be building the same stuff and one of the members said, “Well, we can build anything. Just ask us what you need and we can do it”...I think the main challenge comes down to that people don't really want to take a big hit in terms of their wages and benefits and their future security.

The trade unionists reflected on the Lucas Plan for diversification in the 1970s and how important this was for raising the issue of workplace democracy, as discussed here:

[F]rom a union perspective, one of the other lessons of Lucas, obviously, is that it was actually somewhat about workers' control as well. I mean, the movement that it came out of, the movement that it generated, is about giving workers generally more of a say over what goes on with the work that they deliver...we're [trade unions are] often characterised as an organisation which simply monitors the price, or negotiates over, the price of handing over our labour, whereas all of the traditions of working class apprenticeships and things like that in skilled jobs was that you were actually not just giving over some labour and skill...for which you wanted to be decently rewarded, you actually wanted to have a role in determining what was done with that labour and those skills.

One of the local leaders of the Industrial Division of the Communications Workers of America (IUE-CWA) spoke about the resistance that some workers had, or would have to diversification, in the face of job security, stating:

[T]his [defence product] is, basically, what we're making around here. Because of NAFTA [North Atlantic Free Trade Agreement], because of free trade, and because of the lack of US industrial policy, we're lucky to have anything left. So the idea that we can go ahead and transition and be making something else when everything is going out the door for the past 30 years does not sit well with manufacturing workers. I mean, we know it's a lie. So, I think that trade agreements have to be addressed.

The trade union representatives argued that workers are not solely focused on their own jobs but also care about the wider issues pertaining to their work. A key message from the trade union

representatives was that social dialogue is important. Training is also crucial, as any diversification will require upskilling for new jobs. It was felt that the process of transitioning would enhance greater workplace democracy.

The focus groups also discussed the link between the defence sector and colonialism, for example, in relation to the extraction of resources, testing of weapons, and the US bases deployed around the world. The point was also made that reducing the use of oil could automatically drive diversification because conflicts would be reduced. Hence, the trade union representatives reiterated the points made in the individual interviews across a number of drivers and barriers to diversification of the defence sector.

DISCUSSION AND CONCLUSION

This paper gives an overview of the range of opinions on diversification among a group of defence sector workers in the US and UK. Since it is a small, qualitative study we cannot generalize from the sample to all defence workers in the US, UK, or elsewhere. However, the project provides insights into their ideas and perspectives on diversification. This will be helpful to those campaigning for diversification or wishing to see less militarism.

While most of the workers interviewed had very little knowledge of the term “diversification” before taking part in the study, once explained, they tended to have quite strong views on the topic, broadly in terms of whether they were seeing it as a threat or an opportunity. Some argued for a scaling back of military production and operation and for a greater focus on “human security” in foreign policy. Those who supported diversification often expressed uncomfortable feelings about working in defence because of the harm caused, socially and environmentally. These welcomed a partial or total transition of the sector from defence to civil. For others, the defence sector was seen to be absolutely necessary for protecting citizens and preventing attacks from foreign powers. They saw it as necessary for freedom, democracy, and security.

The views were not entirely polarized as some workers had mixed and nuanced views. We cannot say how prevalent any of the positions are for the workforce as a whole in the US or the UK or globally. The recent TUC vote in the UK could indicate a narrow majority in favour of growth of the defence sector among UK workers (a minority of which are defence workers), though it should be noted that (a) the motion was a composite, mixed with a general argument for government support for UK manufacturing; (b) it was a card vote so most of the voters had not heard the debate in the room (TUC, 2022); and (c), it took place in the context of media and government depictions of the UK as under threat, using common arguments to justify militarism (Geis & Wagner, 2021) and increasing “everyday militarism” (PPU, 2022).

To find arguments for converting the defence sector among such a small sample could perhaps indicate that they are not as unusual as might be thought. Follow-up surveys are recommended, though these may be difficult to undertake given the secrecy requirements of the sector. It is clear that at least some of the workers are interested in the diversification of the sector, providing opportunities for peace activists to align with them. Also, some have analyses similar to that of “treadmill of destruction” theorists, linking the environmental damage of the military to capitalism. This provides opportunities for those opposed to the current economic system to link up with this strand of defence workers on joint campaigns.

For most, having a secure job was a key priority and some workers struggled to square this with their occupation. This fits with other research where jobs may not line up with the workers’ personal values, often because their employment choices have been constrained by the availability of work.

For example, Levy and Egan (2003, 813) note that workers will have different perspectives, some self-contradictory, in part because of “the capacity of agents to comprehend social structures and effect change, while simultaneously being constructed and constrained by them.”

It should also be noted that the interviews and focus groups took place before the Russian armed intervention in Ukraine. Given that the UK and US are the largest providers of military equipment to Ukraine (Mills, 2023), defence budgets have been soaring over the last few years, and there is currently a dominant discourse to increase defence spending to counter external threats. However, diversification has been a priority at different phases of history over time and, if this pattern continues, it is likely that it will become a priority again. As the armed conflict in Ukraine becomes protracted, the tide of opinion on the wisdom of focussing on superior military might to bring peace may be changing. For example, the United Nation's recent policy announcement of a New Agenda for Peace seems to take a different approach. This seeks to address the underlying drivers and systems of influence that are sustaining conflict and to develop a comprehensive approach to prevention, linking peace, sustainable development, climate action, and food security (UN, 2023).

The findings from the overall study conveyed a strong message that the workers desired inclusion in the decision-making related to diversification. These workers had important insights into how the sector works and what might be needed to diversify. Yet, the workers interviewed had rarely been consulted on this issue. Given the range of views about diversification and the small sample of the participant cohort, recommendations based on the worker interviews can only be tentative. However, putting this data in the context of the other aspects of the study, including the advisory committee considerations, literature review, document analysis, and focus group dialogues with relevant international experts and worker leaders, we can more confidently offer the following recommendations for consideration. These all focus on greater discussion about this issue:

For companies:

- Set up structures and programs to include workers at all levels to discuss the possibilities and issues in relation to diversification planning and implementation.

For unions:

- Create more opportunities for education and dialogue around diversification with rank-and-file defence workers.

For governments:

- Create a public dialogue on security policies and budgets. Is “peace through strength” what is really wanted? Or, does the public support a “human security” approach that addresses the global and national poverty, inequality, health and environmental crises to invest in the jobs that would address these?

For workers:

- Propose diversification education and dialogue in their own company and union.

These recommendations essentially require devolving more power to the defence workers. In general, most are interested in long-term public good, whether they consider this is best achieved

through increased diversification or resisting such a program. These objectives also sit alongside individual shorter-term considerations of job security, status, and pay. All can be achieved simultaneously but, inevitably, learning from previous attempts at diversification, efforts will need to be made to ensure replacement jobs are equally interesting, well paid, and secure so as to bring the workers real employment and production choices. This is best achieved by their involvement in the process.

ACKNOWLEDGMENTS

This research was conducted by researchers at the University of Glasgow, California State University–Dominguez Hills, University of Bristol, Cornell University and financially supported by the British Academy. We would like to thank our advisory board members from the UK Department of Business and Industrial Strategy; UK Public and Commercial Services Union; UK Trade Union Congress; International Association of Machinists and Aerospace Workers (IAM); Institute for Policy Studies (United States); Campaign Against the Arms Trade; Texas Christian University; two international defence companies who wished to remain anonymous; and one UK Government department who wished to remain anonymous. Finally, we are immensely grateful to the defence sector workers for their participation in the project and to those that facilitated their interviews.

Please note that while we have been as inclusive and participatory as possible, the advisory board, financial supporters, academic institutions, and individual interview participants do not necessarily agree with the interpretations, conclusions, or recommendations of this paper.

FUNDING INFORMATION

This paper is based on the research project “Decarbonising and Diversifying Defence: A Workers’ Enquiry for a Just Transition” funded by the British Academy Just Transitions within Sectors and Industries Globally Program 2021. Award Reference: COVJT210036.

CONFLICT OF INTEREST STATEMENT

There are no conflicts of interest.

DATA AVAILABILITY STATEMENT

The project reports can be found at www.decarbonising-defence.co.uk and the anonymized transcriptions of the interviews at the UK Data Archive Data Catalogue, under “Data Collection #855918”.

ORCID

Karen Bell  <https://orcid.org/0000-0001-7585-3540>

REFERENCES

- Alexis-Martin, B., M. B. Bolton, D. Hawkins, S. Tisch, and T. L. Mangioni. 2021. “Addressing the Humanitarian and Environmental Consequences of Atmospheric Nuclear Weapon Tests: A Case Study of UK and US Test Programs at Kiritimati (Christmas) and Malden Islands, Republic of Kiribati.” *Global Policy* 12(1): 106–21.
- Alvarez, C. H. 2021. “Military, Race, and Urbanization: Lessons of Environmental Injustice from Las Vegas, Nevada.” *Sociological Perspectives* 64(3): 325–42.
- Bates, S. 2022. “Union Leaders Back Arms Spending at TUC Conference,” 19 October. <https://socialistworker.co.uk/news/union-leaders-back-arms-spending-at-tuc-conference/>.

- Belcher, O., P. Bigger, B. Neimark, and C. Kennelly. 2020. "Hidden Carbon Costs of the "Everywhere War": Logistics, Geopolitical Ecology, and the Carbon Boot-Print of the US Military." *Transactions of the Institute of British Geographers* 45(1): 65–80.
- Benyon, H., and H. Wainwright. 1979. *Workers' Report on Vickers*. London: Pluto Press.
- Bigger, P., and B. D. Neimark. 2017. "Weaponizing Nature: The Geopolitical Ecology of the US Navy's Biofuel Program." *Political Geography* 60: 13–22.
- Bischak, G. 1997. "U.S. Conversion after the Cold War, 1990–1997: Lessons for Forging a New Conversion Policy," Bonn International Center for Conversion. <https://www.bicc.de/publications/publicationpage/publication/us-conversion-after-the-cold-war-1990-1997-lessons-for-forging-a-new-conversion-policy-113/>.
- Bishop, P. 1995. "Diversification: Some Lessons from the UK Defence Industry." *Management Decision* 33(1): 58–62. <https://doi.org/10.1108/00251749510075392>.
- Bowcott, H., G. Gatto, A. Hamilton, and E. Sullivan. 2021. "Decarbonizing Defense: Imperative and Opportunity," McKinsey. <https://www.mckinsey.com/industries/aerospace-and-defense/our-insights/decarbonizing-defense-imperative-and-opportunity>.
- Brenes, M. 2020. "For Might and Right: Cold War Defense Spending and the Remaking of American Democracy". Amherst: University of Massachusetts Press.
- Brown, B. A., and A. Quan-Haase. 2012. "A workers' Inquiry 2.0: An Ethnographic Method for the Study of Producers." *Social Media Contexts, tripleC* 10(2): 488–508.
- CAAT. 2014. "Arms to Renewables: Work for the Future," <https://www.caat.org.uk/campaigns/arms-to-renewables/armsto-renewables-backgroundbriefing.pdf>.
- CAAT. 2020. "Defence Diversification Agency," <https://caat.org.uk/alternatives/jobs/diversifying-our-economy/>.
- CAAT. 2022. "The Arms Trade," Campaign Against the Arms Trade. <https://caat.org.uk/challenges/the-arms-trade/>.
- Chacko, B. 2022. "TUC Narrowly Votes To Back Higher Military Spending And Drop Defence Diversification Policy," 19 Oct. <https://morningstaronline.co.uk/article/b/tuc-narrowly-votes-to-back-higher-military-spending-and-drop-defence-diversification-policy>.
- Chan, S. 1995. "Grasping the Peace Dividend: Some Propositions on the Conversion of Swords into Plowshares." *Mershon International Studies Review* 39(1): 53–95.
- Chin, W. 2004. *British Weapons Acquisition Policy and the Futility of Reform*. Aldershot: Ashgate.
- Crawford, N. C. 2019. *Pentagon Fuel Use, Climate Change, and the Costs of War*. Rhode Island: Watson Institute.
- Dankanyin, R. J. 1994. "Defense Company Diversification: What it Takes to Succeed." *Technology Management, Strategies and Applications for Practitioners* 1(1): 11–6.
- de Groot, O. J., C. Bozzoli, A. Alamir, and T. Brück. 2022. "The Global Economic Burden of Violent Conflict." *Journal of Peace Research* 59(2): 259–76.
- Delina, L. 2020. "Indigenous Environmental Defenders and the Legacy of Macliing Dulag: Anti-dam Dissent, Assassinations, and Protests in the Making of Philippine Energyscape." *Energy Research and Social Science* 65: 101463.
- DFIT. 2020. *UK Defence and Security Export Statistics for 2019 – Gov.UK*. London: UK Dept for International Trade <https://www.gov.uk/government/statistics/uk-defence-and-security-export-statistics-for-2019/uk-defence-and-securityexport-statistics-for-2019>.
- DiGiovanna, S. M., and A. Markusen. 2003. "From Defense to Development?" In *International Perspectives on Realizing the Peace Dividend*, 1st ed. Abingdon, Oxfordshire: Routledge.
- Felice, E. 2010. "State Ownership and International Competitiveness: The Italian Finmeccanica from Alfa Romeo to Aerospace and Defense (1947–2007)." *Enterprise and Society* 11(3): 594–635.
- Fielding, N. 1993. "Qualitative Interviewing." In *Researching Social Life*, edited by N. Gilbert. London: Sage.
- Frey, R. S. 2013. "Agent Orange and America at War in Vietnam and Southeast Asia." *Human Ecological Review* 20(1): 1–10.
- Geis, A., and W. Wagner. 2021. "What we Are Fighting for': Democracies' Justifications of Using Armed Force since the End of the Cold War." In *The Justification of War and International Order: From Past to Present*, edited by Lothar Brock and Hendrik Simon. Oxford: Oxford Academic. (Online edn) <https://doi.org/10.1093/oso/9780198865308.003.0016>.

- Hartley, K. 1996. "The Defence Economy." In *Britain in the 1970s: The Troubled Decade*, edited by Richard Coopey and N. W. C. Woodward, 212–35. London: University College London Press.
- Hickel, J. 2021. "What Does Degrowth Mean? A Few Points of Clarification." *Globalizations* 18(7): 1105–11.
- Hickel, J., and G. Kallis. 2020. "Is Green Growth Possible?" *New Political Economy* 25(4): 469–86.
- Hooks, G., and C. L. Smith. 2004. "Treadmills of Production and Destruction: Threats to the Environment Posed by Militarism." *Organization and Environment* 18(1): 19–37.
- JEDHub. 2022. 2021. *Annual Economic Report*. Farnborough, Hampshire: Joint Economic Data Hub, UK Defence Solutions Centre. <http://www.jedhub.org/>.
- Jones, H. 2018. "Astute Boats 4-7 Now More than £800m over Budget," *UK Defence Journal*. <https://ukdefencejournal.org.uk/astute-boats-4-7-now-more-than-800m-over-budget/>.
- Kelly, J. 2020. "A Critical Discourse Analysis of Military-Related Remembrance Rhetoric in UK Sport: Communicating Consent for British Militarism." *Communication and Sport* 11(1): 1–21. <https://doi.org/10.1177/2167479520971776>.
- Kincheloe, J. L., and P. McLaren. 2000. "Re-thinking Critical Theory and Qualitative Research." In *Handbook of Qualitative Research*, edited by N. K. Denzin and Y. S. Lincoln. Thousand Oaks, CA: Sage.
- Labour Party. 1977. *Sense about Defence: The Report of the Labour Party Study Group*. London: Quartet.
- Levy, D. L., and D. Egan. 2003. "A Neo-Gramscian Approach to Corporate Political Strategy: Conflict and Accommodation in the Climate Change Negotiations." *Journal of Management Studies* 40(4): 803–29. <https://doi.org/10.1111/1467-6486.00361>.
- McCrisken, T., and M. Downman. 2019. "'Peace through Strength': Europe and NATO Deterrence beyond the US Nuclear Posture Review." *International Affairs* 95(2): 277–95. <https://doi.org/10.1093/ia/iiz002>.
- McLoughlin, K. 2022. *The British Left and the Defence Economy: Rockets, Guns and Kidney Machines, 1970–83*. Manchester: Manchester University Press.
- Melman, S. 1964. "Economic Alternatives to Arms Prosperity." *The Annals of the American Academy of Political and Social Science* 351: 121–31.
- Mills, C. 2023. "Military Assistance to Ukraine since the Russian Invasion" UK Commons Briefing Research Library, October 4th.
- MoD. 2021. *Ministry of Defence Climate Change and Sustainability Strategic Approach* March 30. <https://www.gov.uk/government/publications/ministry-of-defence-climate-change-and-sustainability-strategic-approach>.
- Mort, M., and G. Spinardi. 2004. "Defence and the Decline of UK Mechanical Engineering: The Case of Vickers at Barrow." *Business History* 46(1): 1–22.
- Moser, C., and G. Kalton. 1985. *Survey Methods in Social Investigation*. Gower: Aldershot.
- NET. 2018. *Defence Diversification: International Learning for Trident Jobs*. London: Nuclear Education Trust. <http://www.nucleareducationtrust.org/sites/default/files/NET%20Defence%20Diversification%20%20%20%20%20Report.pdf>.
- New Lucas Plan. 2016. *Just Transition*. <http://lucasplan.org.uk/just-transition/>.
- NFLA. 2019. "A Welsh 'Just Transition'/Defence Diversification Agency?," Nuclear Free Local Authorities, Welsh Forum Seminar Swansea, 6 September. https://www.nuclearpolicy.info/wp/wp-content/uploads/2019/09/Welsh_Just_Transition_DD.pdf.
- Nineham, C. 2022. "Welfare Not Weapons: The TUC Vote For More Arms Spending Is Deeply Mistaken," 19 Oct. <https://www.stopwar.org.uk/article/welfare-not-weapons-the-tuc-vote-for-more-arms-spending-is-deeply-mistaken/>.
- OEA. 2015. "Defence Industry Adjustment," Fact Sheet. http://wamilitaryalliance.org/wp-content/uploads/2015/03/OEA_DIA-Fact-Sheet1.pdf.
- OEA. 2021. *Workforce Transitions: A Local official's Guide to Defense Industry Adjustment*. Arlington, Virginia: DoD, Office of Economic Adjustment. <https://oldcc.gov/resource/industry-resilience-workforce-transitions>.
- OLDCC. 2022. *US Department of Defense Office of Local Defense Community Cooperation*. <https://oldcc.gov/>.
- Pamp, O., L. Rudolph, P. W. Thurner, A. Mehlretter, and S. Primus. 2018. "The Build-up of Coercive Capacities: Arms Imports and the Outbreak of Violent Intrastate Conflicts." *Journal of Peace Research* 55(4): 430–44. <https://doi.org/10.1177/0022343317740417>.
- Parkinson, S. 2020. *The Environmental Impacts of the UK Military Sector*. Lancaster: Scientists for Global Responsibility. https://www.sgr.org.uk/sites/default/files/2020-05/SGR-DUK_UK_Military_Env_Impacts.pdf.

- Powers, L., and A. Markusen. 1999. "A Just Transition? Lessons from Defense Worker Adjustment in the 1990s," Economic Policy Institute Technical Papers, Rutgers University, No. 237. <https://files.epi.org/page/-/old/technicalpapers/justtransition.PDF>.
- PPU. 2022. "Everyday Militarism," Peace Pledge Union. <https://www.ppu.org.uk/everyday-militarism>.
- Ritchie, J., and J. Lewis. 2003. *Qualitative Research Practice*. London: Sage.
- Sabbagh, B. 2021. "Colossal Waste: Nobel laureates call for 2% cuts to military spending worldwide" The Guardian, 14 December.
- Salisbury, B. 2021. "Story of the Lucas Plan," <https://lucasplan.org.uk/story-of-the-lucas-plan/>.
- Schofield, S. 2007. "Oceans of Work", BASIC, London. https://basicint.org/wp-content/uploads/2018/06/oceans_0.pdf.
- Shenhar, A. J., A. Z. Hougui, D. Dvir, A. Tishler, and Y. Sharan. 1998. "Understanding the Defense Conversion Dilemma." *Technological Forecasting and Social Change* 59(3): 275–89.
- SIPRI. 2021. *Trends in World Military Expenditure, 2020*. https://sipri.org/sites/default/files/2021-04/fs_2104_milex_0.pdf.
- Smart, B. 2016. "Military-Industrial Complexities, University Research and Neoliberal Economy." *Journal of Sociology* 52(3): 455–81. <https://doi.org/10.1177/1440783316654258>.
- Southwood, P. 1991. *Disarming Military Industries: Turning an Outbreak of Peace into an Enduring Legacy*. London: Palgrave Macmillan.
- Spinardi, G. 2000. "Prospects for the Defence Diversification Agency: Technology Transfer and the UK Defence Research Establishments." *Science and Public Policy* 27(2): 123–35.
- Steffen, W., K. Richardson, J. Rockström, S. E. Cornell, I. Fetzer, E. M. Bennett, R. Biggs, et al. 2015. "Planetary Boundaries: Guiding Human Development on a Changing Planet." *Science* 347(6223): 1259855.
- TUC. 2017. *Template Resolution For Union Branch On Defence Diversification*. <https://gmdcnd.com/wp-content/uploads/2019/04/union-model-resolution-defence-diversification-final-version-pdf.pdf>.
- TUC. 2022. *TUC Congress Motions*. <https://congress.tuc.org.uk/c02-economic-recovery-and-manufacturing-jobs/#sthash.FLrraCSx.dpbs>.
- UN. 2023. "UN Chief Unveils New Vision For Peace Across A 'Multipolar World,'" *UN News*, 20th July <https://news.un.org/en/story/2023/07/1138947>.
- Unite. 2016. *Defence Diversification Revisited*, <https://www.uniteunion.org/media/1108/unite-diversification-revisited.pdf>.
- US Army. 2022. *United States Army Climate Strategy, Department of the Army, Office of the Assistant Secretary of the Army for Installations*. Washington, DC: Energy and Environment. https://www.army.mil/e2/downloads/rv7/about/2022_army_climate_strategy.pdf.
- Vadén, T., V. Lähde, A. Majava, P. Järvensivu, T. Toivanen, E. Hakala, and J. T. Eronen. 2020. "Decoupling for Ecological Sustainability: A Categorization and Review of Research Literature." *Environmental Science and Policy* 112: 236–44.
- Wainwright, H., and D. Elliott. 1982. *The Lucas Plan: A New Trade Unionism in the Making?* London: Allison and Busby.

AUTHOR BIOGRAPHIES

Karen Bell researches and teaches Just Transition, environmental justice, and environmental policy at the University of Glasgow. She is the author of numerous publications, including the monographs "Achieving Environmental Justice" (2014) and "Working Class Environmentalism" (2021). As well as her environmental qualifications and work, she has a Masters in Peace Studies and has been a peace activist her entire adult life.

Vivian Price has, for the last 10 years, focused on how workers, unions, and communities are thinking about and acting on the transition away from the fossil fuel economy—as well as how the green economy is being imagined and shaped through policy. She recently worked on the Just Transition Listening Project.



Keith McLoughlin is a lecturer in the Department of History at the University of Bristol. His first book, *The British Left and the Defense Economy: Rockets, Guns and Kidney Machines, 1970–83*, was published by Manchester University Press in 2022. His research interests center around industry, politics, society, and technology in modern Britain.

Miriam Pemberton has studied the United States military economy and the means of shrinking it down to size for decades, primarily as a Research Fellow at the Institute for Policy Studies in Washington, DC. She is the author of *Six Stops on the National Security Tour: Rethinking Warfare Economies* (Routledge, 2022). She holds a PhD from the University of Michigan.

How to cite this article: Bell K, Price V, McLoughlin K, Pemberton M. Converting the United States and United Kingdom defence sector to civil production: The views of defence workers. *Peace Change*. 2024;49:101–123. <https://doi.org/10.1111/pech.12648>