



Drone Wars UK Briefing

PROTECTOR: THE UK'S NEXT GENERATION ARMED DRONE

This briefing provides a critical overview of the UK's next generation armed drone / unmanned aerial vehicle (UAV), Protector, beginning by considering the reasons behind its acquisition and its core capabilities. The briefing then reviews some of the key issues involved in the programme, focusing on the associated costs, benefits and risks, and then on the ethical, legal, human rights and safety concerns involved in the decision to allow Protector to fly in UK airspace. Given the significant controversies around the UK's armed drones programme, all these aspects need to be subject to public and parliamentary discussion now so prudent decisions can be made.

Introduction: What is Protector?

- Former Prime Minister David Cameron announced in October 2015 that the UK's then 10 Reaper drones would be replaced by a fleet of up to 26 new armed drones. This new aircraft, which is named SkyGuardian by its US manufacturer, General Atomics, has been renamed 'Protector' by the UK, apparently for public relations reasons.¹ The announcement claimed that Protector was needed, "in order to equip UK intelligence agencies and British Armed forces with the capabilities they need to keep the streets of Britain safe." In addition to the increase in the size of the fleet, Protector will also have "a greater range and endurance" thus "substantially enhancing the UK's global Intelligence Surveillance and Reconnaissance (ISTAR) capability."²
- The UK's currently operational Reapers are scheduled to be withdrawn from service in the early-2020s.³ The first of an initial batch of 16 Protector deliveries is scheduled to begin between 2021 and 2024 to ensure what the MoD calls a "seamless transition" from Reaper.⁴ Key upgraded capabilities of Protector over Reaper include: the ability to fly for up to 40 hours; a 50% payload increase over Reaper so it "can carry an even more deadly mix of sensors and weapons"; and the ability to take off and land via satellite from a home base (i.e. RAF Waddington), without the need for a ground control station at its deployed take-off and landing point.⁵
- Unlike Reaper, Protector has been built to international airworthiness standards so in theory it is possible for it to be certified to fly in unsegregated airspace within UK and Europe. The Ministry of Defence (MoD) are keen for Protector to be certified so it can be used over the UK and its waters as well as for NATO intelligence-gathering missions in eastern Europe, and beyond.⁶

Photo credit: Crown Copyright

1 UK Ministry of Defence, 'New investment in counter terrorism for UK Armed Forces', 4th October 2015, <https://www.gov.uk/government/news/new-investment-in-counter-terrorism-for-uk-armed-forces>

2 Ibid.

3 Craig Hoyle, 'UK details Reaper transition plan as Protector advances', Flight Global, 30th July 2019, <https://www.flightglobal.com/news/articles/uk-details-reaper-transition-plan-as-protector-advan-459992/>

4 Ibid.

5 Dominic Nicholls, 'RAF's new drone to battle terrorists: killing machine which can be entirely operated from UK', Daily Telegraph, 30th August 2019, <https://www.telegraph.co.uk/news/2019/08/21/rafs-new-drone-battle-against-terrorists-automated-killing-machine/>

6 Ibid.

Proponents of Protector see its successful integration into non-segregated airspace as an opportunity for the UK to take the lead globally in the use of beyond line-of-sight (BLOS) unmanned aircraft and enabling the development of military, government and commercial uses of UAVs.

- Allowing Protector to be flown within the UK would also open up the possibility of the UK establishing a training school for its own personnel. This opens the possibility that other nations now acquiring large military unmanned systems could utilise such training facilities as there is a shortage of space on the US Air Force's training courses for operators of armed drones.⁷

Protector Acquisition: Costs and Risks

- In 2016 the approved budget for the new Protector programme was £816.2 million. However, a November 2019 letter from Sir Stephen Lovegrove, permanent secretary at the MoD, to the Commons Public Accounts Committee outlined that Protector costs had increased by 40% to £1.14 billion, a cost overrun of £325 million.⁸ Reasons for the increase include: costs associated with a delay in 2017/8 to save money in that financial year; a decision to include a new primary sensor, foreign exchange costs and other general programme cost increases.⁹ The letter also confirmed that the programme was running more than two years late.¹⁰
- Sir Stephen Lovegrove's letter also outlined that the most significant risk to the Protector programme is personnel shortages. Writing on the issue, *The Times'* Defence Editor, Lucy Fisher explained that both the USAF and the RAF face problems with recruiting and retaining armed drone operators.¹¹ Difficulties are attributed to several factors, including worries about the potential mental health issues associated with operating these systems; fatigue from long shifts and heavy workload; and concern about the ethical and legal controversies associated with the use of armed drones.

Flying Protector in UK airspace: safety and other concerns

- The MoD would like Protector to be able to fly unsegregated in UK airspace so it can be deployed "across the full spectrum of operations", including for: domestic security purposes such as surveillance; training personnel; and being available to civil authorities for contingencies and emergencies.¹²
- The operation of unmanned aircraft within the UK is governed by the Air Navigation Order (ANO) 2016, which is regulated by the Civil Aviation Authority (CAA). Evidence from a FOI request made by Drone Wars shows that the MoD first began discussing with the CAA how Protector can meet the requirements of the ANO in January 2016.¹³ These discussions included a variety of senior RAF officers, MoD officials, the Military Aviation Authority (MAA) and General Atomics.¹⁴ However, it quickly became clear that there were significant problems and differences of perspective between the MoD and the CAA.
- The CAA argue that the ability to visually see and avoid other aircraft is the bedrock of air flight safety. Without a pilot on-board, large unmanned aircraft like Protector, operating beyond line-of-sight (BLOS) do not have this ability. General Atomics and other UAV manufacturers are developing

7 Beth Stevenson, 'US Reaper pilot shortage prompts UK to consider sovereign training capability', Flight Global, 30th June 2016, <https://www.flightglobal.com/news/articles/us-reaper-pilot-shortage-prompts-uk-to-consider-sove-426827/>

8 Sir Stephen Lovegrove, 'Protector Programme Accounting Officer Assessment', Ministry of Defence, 5th November 2019, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/854362/20191105_-_Meg_Hillier_Protector_AOA.pdf

9 UK Ministry of Defence, *The Defence Equipment Plan 2018: Financial Summary*, 18th March 2019, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/788481/20190318-EP18_v3.pdf

10 Sir Stephen Lovegrove, 'Protector Programme Accounting Officer Assessment', Ministry of Defence, 5th November 2019, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/854362/20191105_-_Meg_Hillier_Protector_AOA.pdf

11 Lucy Fisher, 'Stress of killing from afar creates shortage of MoD drone operators', *The Times*, 13th January 2020 <https://www.thetimes.co.uk/article/stress-of-killing-from-afar-creates-shortage-of-mod-drone-operators-0fnm36r6t>

12 UK Ministry of Defence, '£100m boost for cutting-edge Protector aircraft', 11th September 2019, <https://www.wired-gov.net/wg/news.nsf/articles/100m+boost+for+cuttingedge+Protector+aircraft+11092019161000?open>; Mark Hookham, 'RAF killer drones to fly in UK', *The Times*, 2nd October 2016, <https://www.thetimes.co.uk/article/f748bfb8-881d-11e6-8242-d338f8b15268>

13 Chris Cole, 'Revealed: internal discussions between MoD and regulators on flying Predator drones in UK', *Drone Wars UK*, 12th February 2018, <https://dronewars.net/2018/02/12/revealed-internal-discussions-between-mod-and-regulators-on-flying-predator-drones-in-uk/>

14 Ibid.

so-called 'detect-and-avoid' technology to try to electronically replicate the task, but such equipment is largely untried and untested. It is far from clear at this stage if the CAA and other airspace regulators will accept this technology as a substitute for a human pilot.

- To avoid conflict and communications difficulties between the defence community and the regulator, it seems it was decided that the MoD and General Atomics would communicate with the MAA who would then in turn deal with the CAA. While it may suit the MoD and defence manufacturers to deal with the MAA (an agency wholly owned by the MoD) rather than the CAA, it is vital that the final decision on whether it is safe to fly Protector in UK airspace lies with the independent regulator – the CAA.
- Alongside these key safety process issues, it is important to note that large military drones frequently crash. Data collated by Drone Wars reveals that over 250 large military drones within the same NATO classification as Protector have crashed in the past decade – twice a month on average. This alone raises serious questions about whether Protector drones should be flown in UK airspace.¹⁵
- If the MoD cannot secure permission for Protector to fly unsegregated within UK airspace, as part of a possible 'Plan B', they have initiated proceedings to enable an Air Change Proposal (ACP) centred around RAF Waddington in Lincolnshire where the Protector drones will be based.¹⁶ Although details are sketchy at this point and liable to change, this initiative appears aimed at allowing some flights of Protector to take place in a limited area.
- General Atomics sees the UK as a key gateway to opening up airspace in Europe and around the globe for its drones. The decision to allow Protector to fly in UK airspace is potentially worth billions of dollars to them. In January 2019, General Atomics contracted BAE Systems to help facilitate the integration of Protector into UK airspace. BAE have said that it will support General Atomics through its experience of testing UAVs and "shaping the regulatory environment through participation, dialogue and strong relationships with UK and European regulatory authorities."¹⁷ Scrutiny of the decision-making process around the integration of Protector into UK air space is extremely important and there must be greater transparency than there has been so far.
- In addition to safety concerns, there are significant privacy, civil liberties and human rights issues regarding the use of military UAVs within the UK. Several opinion polls have shown that the public are worried about the domestic presence of aerial drones. A 2018 NESTA study of public attitudes to drones found that "safety, privacy and accountability concerns dominate" discussion of the issue.¹⁸ Although the military tends to be highly trusted by the British public, the controversial nature of military drones, in particular their use for surveillance and intelligence gathering as well as for lethal targeted killing operations is likely to undermine public support.
- While, as former Policing Minister Damian Green stated in 2013, "covert use [of drones] by a public authority likely to obtain private information... would be subject to authorisation under the Regulation of Investigatory Powers Act [RIPA] 2000", a number of lawyers, researchers and campaigners have criticised RIPA for its lack of safeguards concerning surveillance.¹⁹



15 Chris Cole, 'Military drone crash data undermines MoD case to fly Protector drones in UK', Drone Wars UK, 9th June 2019, <https://dronewars.net/2019/06/09/military-drone-crash-data-undermines-mod-case-to-fly-protector-drones-in-uk/>

16 UK Ministry of Defence, 'Enabling Remotely Piloted Air System Operations Out of RAF Waddington', Civil Aviation Authority, 3rd February 2020, <https://airspacechange.caa.co.uk/PublicProposalArea?pID=142>

17 General Atomics, 'GA-ASI Hosts Industry Showcase Highlighting UK Partners', 24th January 2019, <http://www.ga.com/ga-asi-hosts-industry-showcase-highlighting-uk-partners>

18 Richard Duffy, *Understanding the public perception of drones*, Nesta, 24th May 2018, <https://www.nesta.org.uk/blog/public-perception-of-drones/>

19 Chris Jones, 'Drones: the UK debate and its implications for the EU', EU Law Analysis, 28th May 2014, <http://eulawanalysis.blogspot.com/2014/05/drones-uk-debate-and-its-implications.html>

Unanswered questions on Protector

The UK's potential acquisition and deployment of Protector raises significant questions and concerns which Drone Wars UK will continue to examine. We urge parliamentarians, the public and civil society groups to join us in scrutinising this issue. It is vital that questions are raised with the responsible parties so that the full costs and risks of this programme can be weighed against the alleged benefits, and to promote openness, transparency and accountability in relation to government policy on the use of armed drones.

- How are safety concerns regarding the proposed flights of Protector drones within UK airspace - in particular in and around RAF Waddington - being addressed?
- How will the government and the CAA ensure that the decision on whether to allow Protector to fly in UK airspace is made in an open, transparent and accountable fashion?
- What role, if any, does the Department for Transport have regarding decision-making on Protector?
- Can the government confirm that the CAA rather than the MAA will have the final say on whether Protector can fly within UK airspace?
- What assessment is being made of the impact of Protector flights on local and regional populations, particularly in and around the geographical areas covered by the Air Change Proposal initiated by the MoD? When will local people have an opportunity to engage in a consultation on the proposal? Have local and regional authorities within the area covered by the Air Change Proposal been informed about the Protector proposal and what has been their response?
- Is it proposed by the MoD that Protector will undertake live fire exercises within the UK given that the Air Change Proposal contains Holbeach firing range?
- What safeguards and controls will be put in place to regulate the data captured by Protector during flights within the UK? How will civil liberties be safeguarded if Protector is allowed to fly on training and operational flights within the UK?
- What are the whole-life costs of the Protector project (i.e. the combined costs of purchase, operating, and decommissioning of the aircraft)?
- What is the expected timetable for Protector delivery given the delays that have occurred?
- When is Protector expected to enter service and what is its life expectancy?



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