AUKUS AND THE TREATY ON THE NON-PROLIFERATION OF NUCLEAR WEAPONS: EVALUATING THE SCOPE OF PEACEFUL PURPOSES UNDER ARTICLE IV IN THE CONTEXT OF AUSTRALIA'S PROPOSED NUCLEAR-POWERED SUBMARINES

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I INTRODUCTION

In September 2021, Australia, the United Kingdom and the United States announced a new trilateral security partnership: AUKUS. The underlying intention of this historic partnership is to "promote a free and open Indo-Pacific that is secure and stable," [1] which will be achieved through enhanced capability cooperation.[2] AUKUS has two pillars. Pillar One involves Australia's acquisition of conventionally armed, nuclear-powered submarines.[3] Pillar Two is centred on developing the three states' advanced capabilities, including artificial intelligence, quantum computing, undersea capabilities, cyber technology, hyper-sonics, counter-hyper-sonics, electronic warfare and information-sharing.[4] The focus of this essay will be to evaluate the scope of peaceful purposes under Article IV of the *Treaty on the Non-Proliferation of Nuclear Weapons* ("**NPT**") in the context of Australia's proposed nuclear-powered submarines under Pillar One of AUKUS.

AUKUS has received significant international scrutiny around the implications of Australia's acquisition of nuclear-powered submarines and what the consequences for the wider international nuclear regime will be. In general terms, the NPT prohibits non-nuclear-weapon states from receiving nuclear weapons or nuclear explosive devices but does permit the use of nuclear material for "peaceful purposes."[5] Under the NPT, the International Atomic Energy Agency ("**IAEA**") is responsible for regulating the peaceful application of nuclear material by non-nuclear-weapon states.[6] No authoritative determination has been made as to the status of

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[1] Prime Minister, President of the United States of America, and Prime Minister of the United Kingdom, 'Joint Statement', *Joint Leaders Statement on AUKUS* (Web Page, 14 March 2023) <https://www.pm.gov.au/media/joint-leaders-statement-aukus>.
[2] Ibid.
[3] Australian Government, 'The AUKUS Nuclear-Powered Submarine Pathway: A Partnership for the Future', *Australian Government* (PDF, 2023) 7 <https://www.asa.gov.au/aukus>.
[4] Australian Government, 'AUKUS: A New Partnership for Joint Capability Development', *Department of Defence Annual Report 2021-22* (Web Page) <https://www.transparency.gov.au/publications/defence/department-of-defence/department-of-defence-annual-report-2021-22/chapter-2---departmental-overview/aukus%3A-a-new-partnership-for-joint-capability-development>.
[5] *Treaty on the Non-Proliferation of Nuclear Weapons* opened for signature 1 July 1968, 729 UNTS 161 (entered into force 5 March 1970) art III and IV ('*Treaty on the Non-Proliferation of Nuclear Weapons*').
[6] Ibid art III.

nuclear-powered submarines for non-nuclear-weapon states. The matter is further complicated by the fact that the NPT is silent on what constitutes peaceful purposes likewise different interpretations of peaceful purposes exist. This creates legal ambiguity as to how to understand naval nuclear propulsion alongside the NPT and safeguard agreements as well as what this means for non-nuclear-weapon states like Australia who want to establish a nuclear-powered submarine program.

In Part II, I introduce the *Treaty on the Non-Proliferation of Nuclear Weapons*. I begin my discussion by providing general observations about the NPT's object and purpose using the *Vienna Convention on the Law of Treaties* to inform how the Treaty should be interpreted. In Part III, I introduce the first interpretative issue, how should a non-nuclear-weapon state's right to nuclear material for peaceful purposes be construed against their nuclear non-proliferation obligations? I consider the two prevailing interpretations regarding the scope of peaceful purposes. In Part IV, I focus on how naval nuclear propulsion operates under the NPT regime. I consider whether nuclear-powered submarines are classed as a peaceful use of nuclear material. It becomes evident that legal ambiguity exists regarding the categorisation of nuclear-powered submarines across the NPT and safeguard agreements. In Part V, I consider these interpretative issues alongside AUKUS and how AUKUS influences the interpretation of peaceful purposes under Article IV of the NPT.

II UNDERSTANDING THE NPT

The NPT is the foundational authority underpinning the wider international nuclear regime. It is now supplemented by other treaties, agreements, institutions, and groups to regulate nuclear

non-proliferation, nuclear supply, nuclear security and nuclear disarmament.[7] It was opened for signature in 1968, entered into force in 1970 and was extended indefinitely in 1995.[8]

Parties to the NPT are distinguished as being either nuclear-weapon states or non-nuclear-weapon states. This was determined at the time the Treaty was established by identifying which state parties were already in possession of nuclear weapons.[9] The five recognised nuclear-weapons states under the NPT are the UK, the US, Russia, France and China.[10] All remaining parties to the Treaty are recognised as non-nuclear-weapon states.[11] With the exception of India, Pakistan, North Korea and allegedly Israel who are in possession of nuclear weapons but are not parties to the NPT.[12] Australia is a party to the NPT and is considered a non-nuclear-weapon state.[13]

A *Interpreting the NPT*

The *Vienna Convention on the Law of Treaties* is the primary international agreement which regulates treaties between states as well as codifying the relevant rules to the interpretation of treaties.[14] Under Article 31(1), the primary rule for interpretation is that "a treaty shall be interpreted in good faith in accordance with the ordinary meaning to be given to the terms of the treaty in their context and in the light of its object and purpose."[15] Interpreting the object

[7] United Nations Office for Disarmament Affairs, 'Treaty on the Non-Proliferation of Nuclear Weapons (NPT)' (Web Page, n.d.) <https://www.un.org/disarmament/wmd/nuclear/npt/>.
[8] Ibid.
[9] *Treaty on the Non-Proliferation of Nuclear Weapons* (n 5) art IX(3).
[10] Dean Rust, 'How We've Come to View the NPT: Three Pillars' in Henry Sokolski (ed), *Nuclear Rules, Not Just Rights: The NPT Reexamined* (Nonproliferation Policy Education Center, 2017) 37.
[11] Ibid.
[12] Ibid.
[13] Department of Foreign Affairs and Trade, 'Nuclear Weapons', *Non-proliferation, disarmament and arms control* (Web Page, n.d.) <https://www.dfat.gov.au/international-relations/security/non-proliferation-disarmament-arms-control/nuclear-weapons>.
[14] Richard K Gardiner, *Treaty Interpretation* (Oxford University Press, 2nd edition, 2015) 5; Oliver Dörr, 'Article 31' in Oliver Dörr and Kirsten Schmalenbach (eds), *Vienna Convention on the Law of Treaties: A Commentary* (Springer Berlin, 2nd ed, 2018) 557, 559.
[15] *Vienna Convention on the Law of Treaties,* opened for signature 23 May 1969, 1155 UNTS 331 (entered into force on 27 January 1980) ('*Vienna Convention on the Law of Treaties*').

and purpose of a treaty must be done in a manner that advances the treaty's aims.[16] Article 31 also allows for consideration of extrinsic material to the treaty to identify its context as well as any material regarding the implementation of the treaty or treaty provisions.[17] Article 32 enables supplementary means of interpretation through the use of the preparatory material of the treaty.[18] Article 32 may be relied on to confirm the treaty's meaning where interpretation under Article 31 is ambiguous, obscure, manifestly absurd or unreasonable.[19]

B *The NPT and its three pillars*

Contrary to the title of the Treaty, the NPT is not solely focused on the prohibition of the proliferation of nuclear weapons or nuclear explosive devices. Instead, the NPT is about the regulation of nuclear energy in its full dual-use nature – as nuclear weapons and for peaceful purposes.[20] Pillar One, nuclear non-proliferation, is captured by Articles I, II and III. Nuclear-weapon states cannot transfer any nuclear weapons or nuclear explosive devices to non-nuclear-weapon state.[21] Likewise, non-nuclear-weapon states cannot receive any nuclear weapons or nuclear explosive devices.[22] Additionally, to prevent the diversion of nuclear energy from peaceful uses to nuclear weapons or explosive devices, non-nuclear-weapons states must accept safeguards on all fissionable material.[23] Pillar Two supports the inalienable right of all Treaty parties to research, produce and use nuclear energy for peaceful purposes.[24] Pillar Three endorses the end of the nuclear arms race as well as general and complete nuclear disarmament.[25] The remaining Articles of the Treaty are procedural in nature and relate to the

[16] Gardiner (n 14) 211.
[17] *Vienna Convention on the Law of Treaties* (n 15) art 31(2) and (3); Dörr (n 14) 588.
[18] *Vienna Convention on the Law of Treaties* (n 15). See also Oliver Dörr, 'Article 32' in Oliver Dörr and Kirsten Schmalenbach (eds), *Vienna Convention on the Law of Treaties: A Commentary* (Springer Berlin, 2nd ed, 2018) 557, 618.
[19] *Vienna Convention on the Law of Treaties* (n 15) art 32.
[20] Daniel H Joyner, *Interpreting the Nuclear Non-Proliferation Treaty* (Oxford University Press, 2011) 30–1.
[21] *Treaty on the Non-Proliferation of Nuclear Weapons* (n 5) art I.
[22] Ibid art II.
[23] Ibid art III.
[24] Ibid art IV.
[25] Ibid art VI.

execution of the NPT. Thus, the object and purpose of the NPT can be summarised as the non-proliferation of nuclear weapons (Articles I, II and III), the peaceful uses of nuclear energy technologies (Articles IV) and the disarmament of nuclear weapons (Article VI).[26]

Importantly, the object and purpose of the NPT lies in all three of its pillars, and no one principle takes priority over the others, so a presumption exists that these pillars are equal in legal standing.[27] Previously, there has been a disproportionate prioritisation of nuclear non-proliferation by nuclear-weapon states who interpreted this pillar as being the central, primary objective of the NPT and considered the other two pillars as secondary in legal status.[28] In contrast, the views of non-nuclear-weapon states emphasised the need for a balanced and equal prioritisation of the Treaty's three pillars.[29]

III THE NPT'S NUCLEAR NON-PROLIFERATION OBLIGATIONS VERSUS NUCLEAR MATERIAL FOR PEACEFUL PURPOSES

A closer analysis of the Treaty reveals an inherent tension between two of its pillars – nuclear non-proliferation and peaceful nuclear energy. While Pillar One of the NPT prohibits conduct by non-nuclear-weapon and nuclear-weapon states that enable nuclear proliferation, Article IV (1) states:

> Nothing in this Treaty shall be interpreted as affecting the inalienable right of all the Parties to the Treaty to develop research, production and use of nuclear energy for

[26] Joyner (n 20) 31. See also Kimberley Gilligan, 'The Non-Proliferation Regime and the NPT' in Jonathan Black-Branch and Dieter Fleck (eds), *Nuclear Non-Proliferation in International Law* (Asser Press, 2014) 85.
[27] Joyner (n 20) 31.
[28] David S Jonas and Ariel E Braunstein, 'What's Intent Got to Do with It: Interpreting Peaceful Purpose in Article IV.1 of the NPT' (2018) 32(3) *Emory International Law Review* 351, 367–8.
[29] Ibid.

peaceful purposes without discrimination and in conformity with Articles I and II of this Treaty.[30]

The question thus becomes how to reconcile a non-nuclear-weapon state's right to nuclear material for peaceful purposes under Article IV against their nuclear non-proliferation obligations under Articles I, II and III. In other words, to what extent does peaceful purposes cover nuclear technology applications by non-nuclear-weapon states?[31]

As a starting point for consideration, the plain meaning of "peaceful" is "without violence"[32] and "purpose" is "an intention or aim; a reason for doing something or for allowing something to happen."[33] Therefore, an intuitive reading of peaceful purposes under Article IV would suggest the intention to use nuclear material without violence. Much of the disagreement regarding the scope of Article IV is due to the differing views of nuclear-weapon states and non-nuclear-weapon states about the latter's rights under the NPT.[34] This has been in contention since the Treaty's inception and erodes the perceived effectiveness of the Treaty.[35]

A *The wide interpretation of peaceful purposes*

The broader reading of peaceful purposes contends that aside from developing nuclear weapons or nuclear explosive devices, everything else is permitted as a peaceful use of nuclear energy under Article IV of the NPT.[36] This interpretation suggests Article IV can be relied on in

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[30] *Treaty on the Non-Proliferation of Nuclear Weapons* (n 5) art IV.
[31] Robert Zarate, 'Chapter 8 The NPT, IAEA Safeguards and Peaceful Nuclear Energy: An "Inalienable Right," but Precisely to What?' in Henry D Sokolski (ed), *Falling Behind: International Scrutiny of the Peaceful Atom* (Strategic Studies Institute, US Army War College, 2008) 221; Christopher A Ford, 'Chapter 11 Nuclear Technologies Rights and Wrongs: The Nuclear Nonproliferation Treaty, Article IV, and Nonproliferation' in Henry Sokolski (ed), *Reviewing the Nuclear Nonproliferation Treaty* (Strategic Studies Institute, US Army War College, 2010) 237.
[32] *Cambridge Dictionary* (online at 3 October 2023) 'peaceful' (def 2).
[33] *Cambridge Dictionary* (online at 3 October 2023) 'purpose'.
[34] See also Jonas and Braunstein (n 28); Ford (n 31).
[35] Permanent Representative of Indonesia, *Letter Dated 27 March 1995 from the Permanent Representative of Indonesia Addressed to the Provisional Secretary-General of the 1995 Review and Extension Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons*, UN Doc NPT/CONF.1995/14 (6 April 1995) annex ('*Document on Substantive Issues Submitted by Indonesia on Behalf of the Group of Non-Aligned and Other States*') 3.
[36] Jonas and Braunstein (n 28) 361–2. See also James M Acton, 'What Does Article IV Mean?', *Arms Control Wonk* (Forum Post, 22 August 2008) <https://www.armscontrolwonk.com/archive/602007/what-does-article-iv-mean/>; *Nonproliferation*

military contexts whether aggressive or non-aggressive by Treaty Parties. As described by the former Director of the US Arms Control and Disarmament Agency, William C. Foster, the actions of a state demonstrate its intentions in the use of nuclear technology.[37]

Some non-nuclear-weapon states contend that, under the NPT, Article IV grants the right to *all* nuclear technology that can conceivably be categorised as having a peaceful purpose and that, by limiting access to certain technologies and materials, nuclear-weapon states or other suppliers are violating this right.[38] Participants in the debate go so far to describe nuclear-weapon states' denial of access to nuclear materials and technologies to non-nuclear-weapon states as "nuclear apartheid" to maintain the status quo hierarchy.[39]

B *The narrow interpretation of peaceful purposes*

An alternative interpretation offers a narrower scope of peaceful purposes, which is more akin to its ordinary meaning. It supports the position that peaceful purposes means the application of nuclear material in a non-violent or non-aggressive manner. This position can be further constrained to exclude any nuclear material of a military nature under Article IV.[40] A more realistic view of this narrow interpretation would suggest military use of nuclear material is permissible under peaceful purposes providing it is not violent or aggressive.[41]

The preferred position of nuclear-weapon states is that a non-nuclear-weapon state's right under Article IV is conditioned on compliance with Articles I and II of the NPT, thus restricting non-nuclear-weapon states' access to technology and material that would enable a complete

Treaty: Hearings Before the Committee on Foreign Relations, United States Senate Ninetieth Congress Second Session on Executive H, 90th Congress, Second Session Treaty on the Nonproliferation of Nuclear Weapons (U.S. Government Printing Office, 1968) 39.
[37] Jonas and Braunstein (n 28) 361.
[38] Ibid 352; Zarate (n 31) 223. See also Permanent Representative of Indonesia (n 35) 5.
[39] Jonas and Braunstein (n 28) 352.
[40] Ibid 362.
[41] Ibid.

nuclear fuel cycle.[42] Having access to a complete nuclear fuel cycle by a non-nuclear-weapon state is associated with higher risks of proliferation, as described in an official US statement:

> it has long been understood that the greatest technical barrier to massive and widespread proliferation has been the difficulty of acquiring sufficient quantities of weapons-usable fissile material. Anyone who can enrich (or reprocess) can overcome this hurdle to weapons development – helping open the door to the incalculable dangers of a proliferated world.[43]

The NPT does not define peaceful purposes, nor is there a consensus among Treaty parties regarding its interpretation, which further contributes to ambiguity. Uncontroversial peaceful nuclear energy uses are easy to identify and include energy, food, water, health care and industrial output.[44] Instead, it has been difficult to delineate the limits of peaceful purposes and how to characterise nuclear material not intended for weapons or explosive devices but also are not entirely peaceful in nature either. Nuclear-powered submarines are a notable example of this legal penumbra. The challenge of nuclear-powered submarines is that while being used in a military context, they are not inherently peaceful nor non-peaceful.

IV IS NAVAL NUCLEAR PROPULSION A PEACEFUL NUCLEAR ACTIVITY?

To determine whether naval nuclear propulsion is a peaceful nuclear activity, it is first necessary to establish how nuclear-powered submarines are treated under the relevant legal framework. The NPT is supplemented by other treaties, safeguard agreements and the additional protocol. It will become evident that the NPT fails to adequately address uses of

[42] Ibid 352.
[43] Christopher A Ford, 'The NPT Review Process and the Future of the Nuclear Nonproliferation Regime' (Speech, Vienna, 6 February 2007) <https://2001-2009.state.gov/t/isn/rls/rm/80156.htm>.
[44] Background paper prepared by the Secretariat of the International Atomic Energy Agency, *Activities of the International Atomic Energy Agency Relevant to Article IV of the Treaty on the Non-Proliferation of Nuclear Weapons*, UN Doc NPT/CONF.2015/14 (20 March 2015) 1.

nuclear material outside explosive weapons and peaceful purposes, namely non-explosive military uses. This is the category that nuclear-powered submarines fall into. The ambiguity surrounding naval nuclear propulsion raises questions regarding the regulation of this specific application of nuclear material.

A *Interpreting nuclear-powered submarines under the NPT*

The first step in the interpretation of nuclear-powered submarines under the NPT is to consult the Treaty itself. The NPT does not make any direct references to naval nuclear propulsion more broadly or how this nuclear technology may be utilised in military contexts. The NPT only explicitly bans the transfer, use or production of nuclear weapons or nuclear explosive devices by non-nuclear-weapon states in Articles I and II, whilst also permitting Treaty parties to research, produce or use nuclear energy for peaceful purposes.[45] Article III states that safeguards apply to all peaceful nuclear activities.[46]

From this short analysis, it can be concluded that the NPT does not prohibit the use of nuclear material in all military contexts by non-nuclear-weapons states, but only explosive uses.[47] On the sole basis of the terms of the Treaty, it suggests that naval nuclear propulsion can exist in only one of two categories – as a nuclear weapon or other nuclear explosive device (prohibited use) or, as a peaceful use of nuclear energy (permissible use). Nuclear-powered submarines are not a nuclear weapon or nuclear explosive device.[48] This leads back to the interpretative issue introduced in Part II of how to construe the scope of peaceful purposes under Article IV. Is a nuclear-powered submarine a peaceful use of nuclear energy? While the NPT does not define peaceful purposes, it does refer to safeguard agreements with the IAEA in Article III.

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[45] *Treaty on the Non-Proliferation of Nuclear Weapons* (n 5) art IV. See further *Part II* above.
[46] Ibid art III. See further *Part II* above.
[47] Laura Rockwood, 'Legal Frameworks for IAEA Safeguards', *International Atomic Energy Agency* (PDF, 2013) 5 <https://www-pub.iaea.org/MTCD/Publications/PDF/Pub1608_web.pdf>.
[48] Reuben Blum, 'Treading Lightly Within the Nuclear Non-Proliferation Regime: An Examination of the Non-Proliferation Treaty in the Context of AUKUS and Nuclear-Powered Submarines' (2023) 101 *Texas Law Review* 1457, 1483–7.

B *Interpreting nuclear-powered submarines under the IAEA safeguard agreements*

The NPT establishes the IAEA as the governing body for the regulation of the peaceful nuclear applications.[49] Generally, the *IAEA Statute* sets out the IAEA's functions, responsibilities and limitations. The core objective of the IAEA is the promotion of nuclear energy in peaceful contexts which do not further any military purpose.[50]

In terms of a state's safeguards obligations, these are further enshrined in individual or bilateral safeguard agreements between the IAEA and non-nuclear-weapon states. Nuclear-weapon states are not required to undertake safeguard agreements but can do so on a voluntary basis.[51] A document titled *The Structure and Content of Agreements Between the Agency and States Required in Connection with the Treaty on the Non-Proliferation of Nuclear Weapons* ("***Structure and Content of Agreements***") acts as a template for negotiating safeguard agreements under the NPT.[52] Any safeguard agreements concluded using the *Structure and Content of Agreements* are commonly recognised as "full scope" or "comprehensive."[53] Australia has an individual safeguard agreement with the IAEA modelled off the *Structure and Content of Agreements*.[54] Like the *IAEA Statute*, these safeguard agreements are premised on the undertaking of states to accept safeguards on "all source or special fissionable material in all peaceful nuclear activities."[55] The purpose of the safeguards is to ensure that nuclear material is not being diverted to produce nuclear weapons or other nuclear explosive devices.[56]

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[49] *Treaty on the Non-Proliferation of Nuclear Weapons* (n 5) art III.1.
[50] *Statute of the International Atomic Energy Agency* (adopted 29 July 1957) art II ('*Statute of the International Atomic Energy Agency*').
[51] *Treaty on the Non-Proliferation of Nuclear Weapons* (n 5) art III.1.
[52] *The Structure and Content of Agreements between the Agency and States Required in Connection with the Treaty on the Non-Proliferation of Nuclear Weapons*, IAEA Doc INFCIRC/153 (Corrected) (1 June 1972) ('*Structure and Content of Agreements between the Agency and States*').
[53] Rockwood (n 47) 12.
[54] *The Text of the Agreement between Australia and the Agency for the Application of Safeguards in Connection with the Treaty on the Non-Proliferation of Nuclear Weapons,* IAEA Doc INFCIRC/217 (13 December 1974) ('*Australia-IAEA Safeguard Agreement*').
[55] *Structure and Content of Agreements between the Agency and States* (n 52) para 1.
[56] Ibid.

Despite also not making direct reference to nuclear-powered submarines, Paragraph 14 of the *Structure and Content of Agreements* begins to delineate how non-nuclear-weapon states may engage in non-peaceful nuclear activities where IAEA safeguards do not apply.[57] Paragraph 14 has not yet been invoked by a non-nuclear-weapon state,[58] but it is well-established that naval nuclear propulsion is a non-proscribed military activity. The Safeguards Committee in the negotiating history of the *Structure and Content of Agreements* refer to naval nuclear propulsion as a non-explosive military use of nuclear energy.[59] Likewise, in the 2015 edition of the P5 Glossary of Key Nuclear Terms, under the definition for comprehensive (full scope) safeguards agreement, there is specific reference to nuclear propulsion as being a non-peaceful uses of nuclear material.[60] Interestingly, the 2022 edition of the P5 Glossary of Key Nuclear Terms makes no reference to any non-peaceful uses of nuclear material.[61] While these glossaries are not legally binding documents, it tends to affirm the interpretation of non-proscribed military activity as including nuclear naval propulsion under Paragraph 14.

Returning to the question of how the NPT regime deals with naval nuclear propulsion – there appear to be two conflicting interpretations. Under Article IV of the NPT, nuclear-powered submarines are considered a peaceful purpose; but under Paragraph 14 of the IAEA safeguard agreements, nuclear-powered submarines are classed as a "non-peaceful" use of nuclear material. How should this be reconciled? In short, it cannot be. Instead, Paragraph 14 has been described as creating a "loophole" which may enable non-nuclear-weapon states to use nuclear

[57] See also *Australia-IAEA Safeguard Agreement* (n 54) art 14.
[58] Frank von Hippel, 'Mitigating the Threat of Nuclear-Weapon Proliferation via Nuclear-Submarine Programs' (2019) 2(1) *Journal for Peace and Nuclear Disarmament* 133, 134.
[59] International Energy Associates Limited, 'Review of the Negotiating History of the IAEA Safeguards Document INFCIRC/153 Volume I: Chapters 1.0 - 3.0', *Foundations of International Safeguards* (PDF, 30 July 1964) 163 <https://nationalsecuritytraining.pnnl.gov/fois/doclib/IAEA_153_Negotiating_History.pdf>.
[60] P5 Working Group on the Glossary of Key Nuclear Terms, 'P5 Glossary of Key Nuclear Terms', *U.S. Department of State* (PDF, 2015) 54–55 <https://2009-2017.state.gov/documents/organization/243293.pdf>.
[61] P5 Working Group on the Glossary of Key Nuclear Terms, 'P5 Glossary of Key Nuclear Terms', *Permanent Mission of the People's Republic of China to the UN* (PDF, 2022) <http://un.china-mission.gov.cn/eng/chinaandun/disarmament_armscontrol/npt/202112/P020211229399493527828.pdf>.

energy for non-explosive military activity and for such activity to be unregulated by the IAEA.[62] The non-application of safeguards means the IAEA must rely on state declarations about how the nuclear material is being utilised.[63] Ultimately, the concern is that Paragraph 14 may be utilised by non-nuclear-weapon states in a manner that enables the proliferation of nuclear weapons as the purpose of the enrichment activity cannot be verified by the IAEA.[64] This ambiguity was intended by treaty drafters to allow non-nuclear-weapon states to retain the right to use nuclear material for non-explosive military purposes such as nuclear-powered submarines.[65]

The lack of safeguards on non-explosive military uses of nuclear material under the NPT and the risk of exploitation of this gap is well recognised as forming a loophole.[66] As captured in a draft US position paper in 1965:

> we do not wish to create a loophole whereby a non-nuclear state might claim the right to exempt important nuclear facilities from safeguards, and … perhaps raise suspicions that clandestine nuclear weapons work was being carried out in those facilities.[67]

Despite concerns of proliferation, a consensus could not be reached among state parties, meaning the loophole remained.[68] The negotiating history of the *Structure and Content of Agreements* indicated that the Safeguards Committee attempted to reconcile this gap:

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[62] Jeffrey Kaplow, 'The Canary in the Nuclear Submarine: Assessing the Nonproliferation Risk of the Naval Nuclear Propulsion Loophole' (2015) 22(2) *The Nonproliferation Review* 185, 185–190; von Hippel (n 58) 133; James Clay Moltz, 'Closing the NPT Loophole on Exports of Naval Propulsion Reactors' (1998) 6(1) *The Nonproliferation Review* 108, 109.
[63] Kaplow (n 62) 187.
[64] Thomas B Cochran, 'Chapter 6 Adequacy of IAEA's Safeguards for Achieving Timely Detection' in Henry D Sokolski (ed), *Falling Behind: International Scrutiny of the Peaceful Atom* (Strategic Studies Institute, US Army War College, 2008) 121; Gilligan (n 26) 97–8.
[65] Rockwood (n 47) 5; Moltz (n 62) 109.
[66] David Fischer, *History of the International Atomic Energy Agency: The First Forty Years* (International Atomic Energy Agency, 1997) 272.
[67] US Arms Control and Disarmament Agency, 'Safeguards on Peaceful Nuclear Activities' (Draft Position Paper, 1965) quoted in Kaplow (n 62) 189.
[68] Moltz (n 62) 109.

> While the fact that non-explosive military uses of nuclear energy, such as naval propulsion, were not proscribed by the NPT and thus not subject to safeguards by reason of the Treaty was not subject to debate, how to deal with this omission was the subject of extensive debate and discussion in the Safeguards Committee.[69]

Though Paragraph 14 is an attempt by the Safeguards Committee to bridge the gap created by the NPT in the safeguard agreements, arguably it has only further added to this legal ambiguity. Enabling the non-application of safeguards to nuclear material for some military uses exposes a weakness in the NPT, and it is further entrenched by safeguard agreements. This concession raises further questions about the effectiveness of the NPT achieving its object and purpose.

C *Can safeguards still be applied to nuclear-powered submarines?*

On its face, the exercise of Paragraph 14 would appear to be straightforward: if a non-nuclear-weapon state wants to develop its own nuclear-powered submarine program, it comes to an agreement with the IAEA on the non-application of safeguards under Paragraph 14.[70] However, given the inconsistent categorisation of nuclear-powered submarines as both peaceful under the NPT and non-peaceful under safeguard agreements, it still leaves some questions unanswered. In particular, can safeguards be applied to nuclear-powered submarine programs despite Paragraph 14 of IAEA safeguard agreements?

The negotiating history suggests that the intention of Paragraph 14 was to ensure that the non-application of safeguards in non-proscribed military uses only occurs in the narrowest circumstances.[71] The Safeguards Committee stated:

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[69] International Energy Associates Limited (n 59) 163.
[70] *Structure and Content of Agreements between the Agency and States* (n 52).
[71] International Energy Associates Limited (n 59) 163–5.

> Of particular importance, the discussion of this paragraph, which in turn led to the discussion of a definition of "peaceful nuclear activity," establishes categorically that activities such as enrichment or reprocessing, even if they are undertaken to produce or process materials for non-proscribed military use are not intrinsically military and are, therefore, not entitled to the exception from safeguards of Paragraph 14.[72]

This caveat on the exercise of Paragraph 14 provides more guidance on the extent of the non-application of safeguards in the process of manufacturing nuclear-powered submarines. Subsequently, is a nuclear reactor in a submarine intrinsically military? And if it is then possible to distinguish a nuclear reactor from the submarine, can safeguards still be applied to that reactor? This is perhaps too long of a bow to draw in the interpretation of Paragraph 14 due to the covert nature of military submarine designs as well as the reluctance by the IAEA to have knowledge of classified military information.[73]

Even if it is possible to distinguish a nuclear reactor as not being intrinsically military, this argument still fails. Regardless of whether the non-military nature of a nuclear reactor is conceded, the submarine is still being used in a military context, which contravenes the objective of the IAEA to not further military purposes.[74] Overall, this restriction on the scope of Paragraph 14 confirms the non-application of safeguards on nuclear material does not occur by default of being characterised as a non-proscribed military activity. This suggests that safeguards would apply up until the nuclear reactor is in the submarine and safeguards would reapply when the submarine is decommissioned.

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[72] Ibid 164.
[73] Moltz (n 62) 109. See also Nick Ritchie, 'The UK Naval Nuclear Propulsion Programme and Highly Enriched Uranium', (Working Paper, Federation of American Scientists, March 2015) 3 <https://eprints.whiterose.ac.uk/84697/1/2015_FAS_UK_NNPP_HEU_final2.pdf>.
[74] *Statute of the International Atomic Energy Agency* (n 50) art II.

V LINKING BACK TO AUKUS

The central focus of this essay has been identifying the scope of nuclear energy for peaceful purposes under Article IV of the NPT. While Australia's proposed actions under AUKUS do not create a gap in the NPT that did not already exist, it magnifies the long-standing unresolved issue of naval nuclear propulsion.[75] In its ambitions to develop nuclear-powered submarines as a non-nuclear-weapon state, Australia is not in contravention of the NPT. The effectiveness of the NPT is already weakened in the first instance because it allowed for such a gap to exist, regardless of Australia's intentions under AUKUS. The reality that the NPT and safeguard agreements enable circumstances where safeguards on nuclear material are not applied seems inconsistent with achieving the object and purpose of the Treaty.[76]

Additionally, AUKUS does not provide any definitive guidance on the scope of a non-nuclear-weapon state's right to research, use and produce nuclear energy for peaceful purposes.[77] On the one hand, the proposed nuclear-powered submarines tend to confirm that the preferred interpretation of peaceful purposes is its broadest, where non-nuclear-weapon states can engage in any nuclear activity that does not involve nuclear weapons or explosive devices.[78] This suggests that peaceful purposes is not characterised by the nature of the activity. In other words, a permissible activity under peaceful purposes is not required to be without violence or aggression, rather the only requirement is for the nuclear activity not to result in a weapon or explosive device.

On the other hand, the proposed nuclear-powered submarines under the AUKUS agreement do indicate limitations exist on the practical exercise of Article IV's peaceful purposes. In the production of the submarines, Australia's engagement in the nuclear fuel cycle remains

[75] See further *Part IV* above.
[76] See further *Part IV* above.
[77] *Treaty on the Non-Proliferation of Nuclear Weapons* (n 5) art IV.
[78] See further *Part III.A* above.

relatively narrow, which is in line with nuclear-weapon states' position of restricting non-nuclear-weapon states' access to the nuclear fuel cycle.[79] Under AUKUS, Australia will not produce nuclear fuel for its submarines, enrich uranium or reprocess spent fuel, and the UK and US intend to provide Australia with nuclear material in complete, welded nuclear power units that will not require refuelling during its lifetime.[80] Australia would not be participating in most of the nuclear fuel cycle. AUKUS continues to highlight the inherent tension between peaceful purposes and nuclear non-proliferation. While naval nuclear propulsion expands the contexts Article IV may be invoked, it also shows the reluctance of nuclear-weapon states to grant expanded access to nuclear technology on practical level.[81]

VI CONCLUSION

In this essay I have examined the scope of peaceful purposes under Article IV of the NPT and what this means in the context of Australia's proposed nuclear-powered submarines under Pillar One of AUKUS. The NPT is silent on nuclear-powered submarines and the prevailing legal interpretation by scholars is that safeguards do not apply to nuclear-powered submarines. A closer examination demonstrates that there is an inconsistency in the use of peaceful purposes across the NPT and safeguard agreements. Interpretation suggests nuclear-powered submarines occupy a unique status as both peaceful under the NPT and non-peaceful under safeguard agreements. A non-nuclear-weapon state can take advantage of such a characterisation. Being peaceful under the NPT, naval nuclear propulsion is a permissible use of nuclear material under the Treaty and avoids IAEA oversight under safeguard agreements. But such a loophole does undermine the effectiveness of the regime, and Australia's actions legitimise the practice of not

[79] Australian Government, 'AUKUS and Non-Proliferation', *Nuclear Non-Proliferation* (PDF, 2023) 1 <https://www.defence.gov.au/sites/default/files/2023-03/08.%20Non-proliferation%20fact%20sheet.pdf>. See further *Part III* above.
[80] Ibid.
[81] See further *Part III.B* above.

applying safeguards to nuclear-powered submarine programs, which seems inconsistent with advancing the three pillars of the NPT. Australia did not create any of these problems, but AUKUS further highlights the inherent gaps within the NPT regime.

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