Nuclear arbitration: Interpreting non-proliferation agreements

By Peter Tzeng∗

Introduction

At the core of the nuclear non-proliferation regime lie international agreements. These agreements include, *inter alia*, the Nuclear Non-proliferation Treaty, nuclear co-operation agreements and nuclear export control agreements.[1] States, however, do not always comply with their obligations under these agreements. In response, commentators have proposed various enforcement mechanisms to promote compliance.[2] The inconvenient truth, however, is that states are generally unwilling to consent to enforcement mechanisms concerning issues as critical to national security as nuclear non-proliferation.[3]

This article suggests an alternative solution to the non-compliance problem: interpretation mechanisms. Although an interpretation mechanism does not have the teeth of an enforcement mechanism, it can induce compliance by providing an authoritative interpretation of a legal obligation. Interpretation mechanisms would help solve the non-compliance problem because, as this article shows, in many cases of alleged non-compliance with a non-proliferation agreement, the fundamental problem has been the lack of an authoritative interpretation of the agreement, not the lack of an enforcement mechanism.

Specifically, this article proposes arbitration as the proper interpretation mechanism for non-proliferation agreements. It advocates the establishment of a "Nuclear Arbitration Centre" as an independent branch of the International Atomic Energy Agency (IAEA), and recommends the gradual introduction of arbitration clauses into the texts of non-proliferation agreements.

Section I begins with a discussion of international agreements in general and the importance of interpretation and enforcement mechanisms. Section II then discusses nuclear non-proliferation agreements and their lack of interpretation and

∗ Peter Tzeng is a JD candidate at Yale Law School. He is Executive Editor of the *Yale Journal of International Law* and Editor of the *Yale Law Journal*. He graduated *summa cum laude* and Phi Beta Kappa from Princeton University, and has also studied in China, Kyrgyzstan and Egypt.

1. There are many other important non-proliferation agreements, such as nuclear test ban treaties, nuclear-weapon-free-zone treaties and nuclear safeguards agreements. This article, however, only focuses on the Nuclear Non-proliferation Treaty, nuclear co-operation agreements and nuclear export control agreements.
2. E.g. Goldschmidt, P. (2010), "Enforcing the NPT and IAEA Compliance", in Sokolski, H. (ed.), *Reviewing the Nuclear Non-proliferation Treaty*, Strategic Studies Institute, Carlisle, PA, United States, pp. 436-37; Gilinsky, V. and H. Sokolski (2014), "Serious Rules for Nuclear Power Without Proliferation", *The Nonproliferation Review*, Vol. 21, No. 1, Routledge, London, pp. 87-88; Sievert, R.J. (2010), "Working Toward a Legally Enforceable Nuclear Non-Proliferation Regime", *Fordham International Law Journal*, Vol. 34, No. 1, Fordham University, New York, pp. 102-03.
3. See Perkovich, G. and J. Acton (eds.) (2009), *Abolishing Nuclear Weapons: A Debate,* Carnegie Endowment for International Peace, Washington, DC, pp. 100-04.

enforcement mechanisms. Section III examines seven case studies of alleged non-compliance with non-proliferation agreements in order to show that the main problem in many cases of alleged non-compliance has been the lack of an interpretation mechanism rather than the lack of an enforcement mechanism. Section IV then presents the case for non-binding arbitration as the proper interpretation mechanism for non-proliferation agreements. Section V concludes the article by recommending practical steps for introducing arbitration clauses into non-proliferation agreements over the next decade.

I. International agreements

The doctrine of *pacta sunt servanda* ("agreements must be kept") is the cornerstone principle of international agreements.[4] In order to promote compliance, agreements may have an interpretation mechanism (specifying an interpretation authority) and/or an enforcement mechanism (specifying an enforcement authority). The interpretation authority interprets the text of the agreement, determines whether a party has breached the agreement and specifies the consequences of breach. The enforcement authority ensures, be it through force, sanctions or mere supervision, that the decisions made by the interpretation authority are complied with.

Agreements with high compliance rates often contain both an interpretation mechanism and an enforcement mechanism. For example, the European Convention on Human Rights (ECHR) establishes the European Court of Human Rights (ECtHR) as its interpretation authority,[5] and specifies the Committee of Ministers as its enforcement authority.[6] Similarly, the Treaty on the Functioning of the European Union (TFEU) designates the European Court of Justice (ECJ) as the interpretation authority for preliminary references, leaving national courts to be the enforcement authorities.[7] And in international commercial arbitration, the New York Convention recognises private arbitral tribunals as the interpretation authorities for contractual disputes, and expects national courts to be the enforcement authorities.[8] With the help of both interpretation and enforcement mechanisms, these agreements enjoy very high compliance rates.

Agreements with lower compliance rates may have an interpretation mechanism without an enforcement mechanism. For example, the International Covenant on Economic, Social and Cultural Rights (ICESCR) provides for the Economic and Social Council to interpret the ICESCR (a power that was subsequently delegated to the Committee on Economic, Social and Cultural Rights[9]), but does not provide for an enforcement mechanism.[10] Similarly, the International Covenant on Civil and Political Rights (ICCPR) establishes the Human Rights Committee as its

4. Dörr, O. and K. Schmalenbach (2012), *Vienna Convention on the Law of Treaties: A Commentary*, Springer, Heidelberg, p. 427; see Vienna Convention on the Law of Treaties (1969), 1155 UNTS 331 (hereinafter "VCLT"), art. 26.
5. Convention for the Protection of Human Rights and Fundamental Freedoms (1950), 213 UNTS 221, art. 19.
6. Ibid., art. 46.
7. Treaty on the Functioning of the European Union (2012), 2012 OJ C 326/01, art. 267; Albors-Llorens, A. (2014), "Judicial Protection Before the Court of Justice of the European Union", in C. Barnard and S. Peers (eds.), *European Union Law*, Oxford University Press, Oxford, pp. 284-92.
8. Convention on the Recognition and Enforcement of Foreign Arbitral Awards (1958), 330 UNTS 38.
9. ECOSOC Res. 1985/17, U.N. Doc. E/RES/1985/17 (1985).
10. International Covenant on Economic, Social and Cultural Rights (1966), 993 UNTS 3, Part IV.

interpretation authority, but does not envision a reliable enforcement mechanism.[11] Although the ICESCR and the ICCPR do not have enforcement mechanisms, they at least have bodies responsible for interpreting their provisions.

The difficulty of establishing an interpretation mechanism (and selecting an interpretation authority) cannot be understated, especially in international contexts. The authority must not only be impartial, but also be perceived to be impartial, such that the subjects of the regime would be willing to submit to its jurisdiction. The ECHR and the TFEU opted for interpretation authorities comprised of an equal number of individuals from each member state (i.e. the ECtHR and the ECJ). The ICESCR and the ICCPR, having too many state parties, opted for interpretation authorities whose members are re-elected on a regular basis (i.e. the Committee on Economic, Social and Cultural Rights and the Human Rights Committee). The New York Convention, facing too many cases, recognised private arbitral tribunals as their interpretation authorities.

Establishing an enforcement mechanism (and selecting an enforcement authority) is even more difficult. If the subjects of the regime are states, they must be willing to relinquish sovereignty over certain subject matters to the enforcement authority. Moreover, the enforcement authority must have actual enforcement power over the subjects.

In cases where it is not politically feasible to establish an enforcement mechanism, parties should at the very least try to establish an interpretation mechanism. This way, even if a state cannot be forced to comply with its legal obligations, at the very least the international community would know for certain whether the state is in compliance with its obligations or not. This authoritative determination of "right" and "wrong" can be crucial for incentivising states to comply with their legal obligations, even if there is no enforcement mechanism.

II. Nuclear non-proliferation agreements

As noted in the Introduction, nuclear non-proliferation agreements include, *inter alia*, the Nuclear Non-proliferation Treaty (Section II.A), nuclear co-operation agreements (Section II.B) and nuclear export control agreements (Section II.C). Unfortunately, all of these agreements lack interpretation and enforcement mechanisms.[12]

A. The Nuclear Non-proliferation Treaty

The Nuclear Non-proliferation Treaty (NPT)[13] is the centrepiece of the non-proliferation regime. Adopted in 1968, the NPT has three pillars: non-proliferation, disarmament and the peaceful use of nuclear energy. Under the non-proliferation pillar, the NPT restricts the possession of nuclear weapons to five states: China,

11. International Covenant on Civil and Political Rights (1966), 999 UNTS 171, part IV.
12. This is not to say that all non-proliferation agreements lack interpretation and enforcement mechanisms. In fact, many nuclear-weapon-free-zone treaties have such mechanisms. E.g. Treaty for the Prohibition of Nuclear Weapons in Latin America (1967), 634 UNTS 326, art. 24; Treaty on the Southeast Asia Nuclear Weapon-Free Zone (1995), 1981 UNTS 129, art. 21; Antarctic Treaty (1959), 402 UNTS 71, art. XI. In addition, modern comprehensive safeguards agreements also have interpretation and enforcement mechanisms. IAEA (1972), "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, paras. 19, 22; Statute of the International Atomic Energy Agency (1956), 276 UNTS 3, art. XII(C).
13. Treaty on the Non-Proliferation of Nuclear Weapons (1968), 729 UNTS 161.

France, Russia, the United Kingdom and the United States ("nuclear weapon states"). All other states ("non-nuclear weapon states"), after becoming parties to the NPT, are prohibited from acquiring nuclear weapons[14] and are required to implement IAEA safeguards to verify their compliance with this prohibition.[15] Under the disarmament pillar, the NPT imposes an obligation on all state parties to pursue negotiations for the cessation of the nuclear arms race, nuclear disarmament and a treaty on "general and complete" disarmament.[16] Finally, under the nuclear energy pillar, the NPT affirms that all state parties have the "inalienable" right to develop nuclear energy for peaceful purposes, and moreover requires that all state parties facilitate "the fullest possible exchange" of nuclear materials and equipment for the peaceful use of nuclear energy.[17]

Today, almost all states in the world are state parties to the NPT.[18] Nevertheless, unlike the treaties of many other nuclear regimes,[19] the NPT has neither an interpretation mechanism nor an enforcement mechanism. The NPT does not grant any body the authority to interpret its provisions, determine whether a party has breached its provisions or specify the consequences of breach. Neither does it grant any body the power to ensure that obligations arising from its provisions are complied with.

B. Nuclear co-operation agreements

Nuclear co-operation agreements (NCAs) also play an important role in the non-proliferation regime. Since the early 1950s, nuclear supplier states have been signing bilateral NCAs with recipient states as a prerequisite to transferring nuclear material and equipment.[20] Recognising the dual-use nature of certain material and equipment, NCAs restrict the use of certain transferred items. For example, nearly all NCAs require that transferred nuclear material and equipment only be used for peaceful purposes, and NCAs governing the transfer of fuel for research reactors

14. Ibid., art. II.
15. Ibid., art. III.
16. Ibid., art. VI.
17. Ibid., art. IV.
18. Currently, 188 of the 193 member states of the United Nations are state parties to the NPT. The five member states of the United Nations that are not parties to the NPT are: India, Israel, North Korea, Pakistan and South Sudan. Note, however, that the status of North Korea is unclear. See infra Case Study 1 in Section III.A.
19. E.g. Convention on Early Notification of a Nuclear Accident (1986), 1439 UNTS 275, art. 11; Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency (1986), 1457 UNTS 133, art. 13; Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management (1997), 2153 UNTS 303, art. 38; Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters (1998), 2161 UNTS 447, art. 16; Convention on Environmental Impact Assessment in a Transboundary Context (1991), 1989 UNTS 309, art. 15; Convention on the Physical Protection of Nuclear Material (1979), 1456 UNTS 101, art. 17; International Convention for the Suppression of Acts of Nuclear Terrorism (2005), 2445 UNTS 89, art. 23; Vienna Convention on Civil Liability for Nuclear Damage (1963), as amended by the Protocol of 12 September 1997, 1063 UNTS 1065, art. XX A; Convention on Supplementary Compensation for Nuclear Damage (1997), IAEA Doc. INFCIRC/567, art. XVI; Paris Convention on Third Party Liability in the Field of Nuclear Energy of 29 July 1960, as amended by the Additional Protocol of 28 January 1964 and by the Protocol of 16 November 1982, 1519 UNTS 329, art. 17.
20. The first NCAs appeared as a result of the US Atomic Energy Act of 1954, which legalised the export of nuclear material and equipment, but only if the recipient state had an NCA in force with the United States. Today, NCAs with the United States are often called "123 Agreements" because they fall under Section 123 of the Atomic Energy Act of 1954.

generally require that the recipient state return the spent fuel to the supplier state. Like the NPT, NCAs generally do not have interpretation or enforcement mechanisms.[21]

C. Nuclear export control agreements

Nuclear export control agreements (NECAs) have also played an important, albeit more controversial, role in the non-proliferation regime. At an effort to meet the non-proliferation goals of the NPT, the Zangger Committee (a group of originally seven nuclear supplier states) began meeting in March 1971 to create and maintain a "trigger list" to define exactly what nuclear material and equipment would require safeguards when exported to non-nuclear weapon states.[22] Shortly after India's "peaceful nuclear explosion" in 1974,[23] US Secretary of State Henry Kissinger set up the Nuclear Suppliers Group (NSG) (also a group of originally seven nuclear supplier states) to strengthen export controls.[24] Since the 1970s, the Zangger Committee and the NSG have revised their export guidelines on multiple occasions,[25] and have also grown in size: the Zangger Committee now has 38 members,[26] and the NSG now has 48 members.[27] Not only do these export control agreements not have interpretation or enforcement mechanisms, but they themselves are not legally binding on their members.

III. Interpretation problems with nuclear non-proliferation agreements

Over the past 60 years, there have been many cases of alleged non-compliance with non-proliferation agreements. This Section examines seven such cases, all of which concerned the interpretation of one of the three aforementioned types of non-proliferation agreements: the Nuclear Non-proliferation Treaty (Section III.A), nuclear co-operation agreements (Section III.B) and nuclear export control agreements (Section III.C).

21. E.g. Agreement Between the Government of the Islamic Republic of Pakistan and the Government of the People's Republic of China for Cooperation in the Peaceful Uses of Nuclear Energy (1986), 1514 UNTS 8 (hereinafter "China-Pakistan 1986 NCA"); Agreement for Cooperation Between the Government of the United States of America and the Government of the Republic of Korea Concerning Civil Uses of Atomic Energy (1972), as amended on 15 May 1974, 953 UNTS 388 (hereinafter "South Korea-US 1974 NCA"); Agreement for Co-operation Between the Government of the United States of America and the Government of India Concerning the Civil Uses of Atomic Energy (1963), 488 UNTS 21 (hereinafter "India-US 1963 NCA").
22. Squassoni, S.A. (2005), "Proliferation Control Regimes: Background and Status", Congressional Research Service, Washington, DC, p. 18; Schmidt, F.W. (1994), "The Zangger Committee: Its History and Future Role", *The Nonproliferation Review*, Vol. 1, No. 1, Routledge, London, p. 38.
23. See infra Case Study 5 in Section III.B.
24. The NSG was originally called the London Group. The first seven members were: Canada, France, Japan, the Soviet Union, the United Kingdom, the United States and West Germany. Beckman, R.L. (1985), *Nuclear Nonproliferation: Congress and the Control of Peaceful Nuclear Activities*, Westview Press, Boulder, CO, United States, p. 231; Boulanger, W. (1978), "Nuclear Export Policy and Regulation for Non-Proliferation: Federal Republic of Germany", International Conference on Regulating Nuclear Energy, Brussels, Belgium, p. 13.
25. Nuclear Threat Initiative, "Zangger Committee (ZAC)", www.nti.org/treaties-and-regimes/zangger-committee-zac/ (accessed 4 April 2015); Arms Control Association (2012), "The Nuclear Suppliers Group (NSG) at a Glance", www.armscontrol.org/factsheets/NSG (accessed 4 April 2015).
26. Nuclear Threat Initiative, supra note 25.
27. Nuclear Suppliers Group, "Participants", www.nuclearsuppliersgroup.org/en/participants1 (accessed 4 April 2015).

A. The Nuclear Non-proliferation Treaty

State parties to the NPT have on many occasions been accused of not complying with their NPT obligations. As the case studies below show, these allegations of non-compliance have been with respect to all three of the NPT's pillars: non-proliferation (Case Studies 1 and 2), disarmament (Case Study 3) and the peaceful use of nuclear energy (Case Study 4).

Case Study 1: Did North Korea validly withdraw from the NPT under Article X(1)?

On 12 December 1985, North Korea acceded to the NPT in exchange for Soviet assistance in constructing four nuclear reactors.[28] North Korea subsequently signed the Joint Declaration on Denuclearisation of the Korean Peninsula with South Korea on 20 January 1992, and ratified an IAEA safeguards agreement on 9 April 1992. Nevertheless, early IAEA inspections revealed that Pyongyang had not been completely open about its plutonium reprocessing activities.[29] After IAEA inspectors were denied access to certain sites in North Korea, the IAEA Board of Governors (hereinafter "IAEA Board" or "Board") declared North Korea to be in non-compliance with its safeguards agreement, and referred the matter to the UN Security Council. In response, North Korea declared its intention to withdraw from the NPT under Article X(1).[30]

Article X(1) of the NPT grants state parties the right to withdraw from the treaty. Specifically, the provision states:

> Each Party shall in exercising its national sovereignty have the right to withdraw from the Treaty if it decides that extraordinary events, related to the subject matter of this Treaty, have jeopardized the supreme interests of its country. It shall give notice of such withdrawal to all other Parties to the Treaty and to the United Nations Security Council three months in advance. Such notice shall include a statement of the extraordinary events it regards as having jeopardized its supreme interests.[31]

North Korea declared its intention to withdraw from the treaty on 14 March 1993.[32] As for the "extraordinary events" that "jeopardized the supreme interests of its country", Pyongyang pointed to American hostile threats to its security.[33] In an effort to prevent North Korea from following through on its intention to withdraw, Washington began intense bilateral negotiations with Pyongyang. Just one day before the date the withdrawal would come into effect, North Korea suspended its decision to withdraw.[34] Continued negotiations led to the bilateral Agreed Framework on 21 October 1994, which temporarily defused the crisis.

28. Bermudez, J.S. (1991), "North Korea's Nuclear Programme", *Jane's Intelligence Review*, Vol. 3, No. 9, IHS Global Ltd, Englewood, CO, United States, p. 409; Oberdorfer, D. (1997), The Two Koreas: A Contemporary History, Addison-Wesley, Reading, MA, United States, p. 254.
29. Richardson, S. (2006), *Perspectives on US Policy Toward North Korea: Stalemate or Checkmate?*, Lexington Books, Lanham, MD, United States, p. 3; Hibbs, M. (1993), "Isotopics Show Three North Korean Reprocessing Campaigns Since 1975", *Nuclear Fuel*, Vol. 18, No. 5, Platts, New York, pp. 8-9.
30. Oberdorfer, D., supra note 28, p. 280.
31. NPT, supra note 13, art. X(1).
32. Richardson, S., supra note 29, p. 3.
33. Kirgis, F.L. (2003), "North Korea's Withdrawal from the Nuclear Nonproliferation Treaty", *American Society of International Law Insights*, Vol. 8, No. 2, American Society of International Law, Washington, DC.
34. Arms Control Association (2015), "Chronology of U.S.-North Korean Nuclear and Missile Diplomacy", www.armscontrol.org/factsheets/dprkchron (accessed 15 May 2015).

The Agreed Framework suspended North Korea's plutonium programme, but North Korea pursued an alternative route to nuclear weapons: high-enriched uranium. After the United States discovered this programme and then confronted the North Koreans about it in 2002, Pyongyang acknowledged that it had a plan to produce nuclear weapons, but Pyongyang considered it to be part of its right to self-defence.[35] Washington, on the other hand, considered it to be a violation of North Korea's obligations under the NPT and under the Agreed Framework.[36]

On 10 January 2003, Pyongyang declared that it was withdrawing from the NPT, effective on the following day.[37] Pyongyang reasoned that since it was formally just lifting the 1993 suspension of its decision to withdraw, it only had to wait one more day for the entire three-month period to elapse.[38] Pyongyang notably also declared that its withdrawal from the NPT meant that it was no longer bound by its IAEA safeguards agreement,[39] as Article 26 of the agreement read: "This Agreement shall remain in force as long as the Democratic People's Republic of Korea is party to the [NPT]."[40] Many commentators expressly rejected North Korea's application of Article X(1): they believed that a new three-month withdrawal notice was required, and questioned whether North Korea's reasons for withdrawal met the "extraordinary events" and "supreme interests" requirements under the article.

Nevertheless, the IAEA Board did not expressly accept or reject North Korea's withdrawal. Why not? In the words of the IAEA, the Agency "is not in the position to determine the status of any State Party's membership of the Non-Proliferation Treaty."[41] In other words, the IAEA is not the interpretation authority of the NPT. Indeed, the NPT does not have an interpretation mechanism. Since the matter remained ambiguous, the IAEA proceeded as if North Korea's status had not changed: the IAEA Board declared on 12 February 2003 that North Korea was in non-compliance with its safeguards obligations and referred North Korea to the UN Security Council.[42]

As the world now knows, the North Korean nuclear crisis did not end there. However, this instance of withdrawal raises many legal questions. Did Pyongyang validly withdraw from the NPT under Article X(1)? Can a party pause and then resume the three-month notification period? In North Korea's case, were there "extraordinary events" that "jeopardized the supreme interests" of the state?[43]

35. Nuclear Threat Initiative (2014), "North Korea: Nuclear", www.nti.org/country-profiles/north-korea/nuclear/ (accessed 4 April 2015); US Department of State (2002), "North Korean Nuclear Program", http://2001-2009.state.gov/r/pa/prs/ps/2002/14432.htm (accessed 4 April 2015).
36. US Department of State, supra note 35.
37. UN Office for Disarmament Affairs, "Democratic People's Republic of Korea", http://disarmament.un.org/treaties/a/npt/democraticpeoplesrepublicofkorea/acc/Moscow (accessed 4 April 2015).
38. Arms Control Association, supra note 34.
39. Kirgis, F.L., supra note 33.
40. Ibid.
41. IAEA (2014), "Fact Sheet on DPRK Nuclear Safeguards", www.iaea.org/newscenter/focus/dprk/fact-sheet-on-dprk-nuclear-safeguards (accessed 4 April 2015).
42. IAEA (2003), IAEA Doc. GOV/2003/48, 12 February 2003.
43. Similar questions may be raised with regards to the US withdrawal from the Anti-Ballistic Missile Treaty in June 2002 under Article XV(2), a provision very similar to Article X(1) of the NPT. President Bush declared in December 2001 that September 11 was the "extraordinary event" that "jeopardized the supreme interests" of the United States. Arms Control Association (2002), "U.S. Withdrawal From the ABM Treaty: President Bush's Remarks and U.S. Diplomatic Notes", www.armscontrol.org/act/2002_01-02/docjanfeb02 (accessed 4 April 2015).

Ordinarily, the interpretation authority would have the jurisdiction to answer these questions. However, since the NPT does not have an interpretation authority, these questions remain unanswered to this very day. If the NPT had an interpretation mechanism to give a definitive answer to this question, then the issue would have a greater chance of being resolved. Instead, Pyongyang continues to assert that it has validly withdrawn from the NPT, while many western states continue to assert that North Korea is still bound by its obligations under the NPT. These divergent starting points have made non-proliferation negotiations with North Korea much less productive than they could otherwise be.

Case Study 2: Did North Korea's and Iran's alleged plans to develop nuclear weapons violate Article II of the NPT?

The North Korean case raises another legal question. As mentioned above, when North Korea's high-enriched uranium programme was discovered and Washington confronted the North Koreans about it in 2002, Pyongyang responded that it only had "plans" to produce nuclear weapons for self-defence, which it asserted did not violate the NPT.[44] Washington rejected this interpretation and declared North Korea to be in violation of the NPT.[45]

The same question emerged regarding the Iranian nuclear programme. In December 2007, the US National Intelligence Estimate concluded with "high confidence" that Iran (a state party to the NPT) had plans to develop nuclear weapons but halted the programme in 2003.[46] Does the mere existence of plans to develop nuclear weapons violate the NPT?

A textual examination of the NPT would answer this question in the negative. Article II of the NPT states:

> Each non-nuclear-weapon State Party to the Treaty undertakes not to receive the transfer from any transferor whatsoever of nuclear weapons or other nuclear explosive devices or of control over such weapons or explosive devices directly, or indirectly; not to manufacture or otherwise acquire nuclear weapons or other nuclear explosive devices; and not to seek or receive any assistance in the manufacture of nuclear weapons or other nuclear explosive devices.[47]

The text of Article II does not expressly prohibit plans to develop nuclear weapons. It only prohibits the receipt, manufacture and solicitation of assistance in the manufacture of nuclear weapons and nuclear explosive devices. Nevertheless, the customary principles of treaty interpretation, as enshrined in Articles 31 and 32 of the Vienna Convention on the Law of Treaties (VCLT),[48] allow one to look to, *inter alia*, the "object and purpose" of the treaty in question to determine its legal effects. Thus, one could therefore argue that a fundamental purpose of the NPT was

44. Nuclear Threat Initiative, supra note 35; US Department of State, supra note 35.
45. US Department of State, supra note 35.
46. US National Intelligence Council (2007), *Iran: Nuclear Intentions and Capabilities*, US Office of the Director of National Intelligence, Washington, DC, p. 5.
47. NPT, supra note 13, art. II.
48. The VCLT does not directly apply to the NPT because under Article 4 of the VCLT, the VCLT does not apply to treaties concluded before its entry into force, i.e. 27 January 1980. However, the International Court of Justice has held that Articles 31 and 32 of the VCLT are customary international law, and therefore necessarily apply to the interpretation of any treaty. Oil Platforms (Iran v. United States), Preliminary Objection, Judgments, ICJ Reports 1996, p. 803, para. 23.

to prevent the horizontal proliferation of nuclear weapons, and thus Article II of the NPT should be read to also prohibit plans to develop nuclear weapons.

What is the authoritative interpretation of Article II? There is none. Once again, the underlying problem is that the NPT does not have an interpretation mechanism. There is no single body that has the competence to consider both sides of the argument and make a final determination on the matter. Consequently, the question remains unanswered.

Case Study 3: Does the stockpile of nuclear weapons in Russia and the United States violate Article VI of the NPT?

On 24 April 2014, the Marshall Islands filed applications against China, France, India, Israel, North Korea, Pakistan, Russia, the United Kingdom and the United States before the International Court of Justice (ICJ) for not complying with their disarmament obligations under Article VI of the NPT.[49] Article VI states:

> Each of the Parties to the Treaty undertakes to pursue negotiations in good faith on effective measures relating to cessation of the nuclear arms race at an early date and to nuclear disarmament, and on a treaty on general and complete disarmament under strict and effective international control.[50]

Two key respondent states are Russia and the United States; to this day both states still possess a disproportionately large number of nuclear weapons. The International Panel on Fissile Materials estimates that Russia still has approximately 8 500 nuclear warheads in its stockpile and the United States still has approximately 7 700 nuclear warheads in its stockpile.[51] Moreover, over the past two decades, Washington has at times acted contrary to the goals of "general and complete disarmament". For example, in 2002 it withdrew from the Anti-Ballistic Missile Treaty, and for many years it has refused to ratify the Comprehensive Nuclear-Test-Ban Treaty. On the other hand, Moscow and Washington have also taken some positive steps towards disarmament. For example, they have supported negotiations over a Fissile Material Cut-off Treaty, signed a long series of bilateral disarmament treaties, down blended significant amounts of their high-enriched uranium and announced that they would seek a "nuclear free world".[52] But do these activities amount to compliance with Article VI, especially in light of the outstanding stockpiles of nuclear weapons that remain under the control of Russia and the United States?

Regrettably, the question may never be officially answered. Since the ICJ is not the interpretation authority of the NPT, it does not have the jurisdiction to issue a ruling in the Marshall Islands case with respect to Russia or the United States

49. International Court of Justice (2014), "The Republic of the Marshall Islands files Applications against nine States for their alleged failure to fulfil their obligations with respect to the cessation of the nuclear arms race at an early date and to nuclear disarmament", www.icj-cij.org/presscom/files/0/18300.pdf (accessed 4 April 2015), p. 1.
50. NPT, supra note 13, art. VI.
51. International Panel on Fissile Materials (2013), *Global Fissile Material Report 2013*, International Panel on Fissile Materials, Princeton, p. 9.
52. The White House (2009), "Joint Statement by President Dmitriy Medvedev of the Russian Federation and President Barack Obama of the United States of America", www.whitehouse.gov/the_press_office/Joint-Statement-by-President-Dmitriy-Medvedev-of-the-Russian-Federation-and-President-Barack-Obama-of-the-United-States-of-America (accessed 4 April 2015).

without their consent.[53] Assuming that Russia and the United States will not consent to the ICJ's jurisdiction, it will remain a question whether the two states are pursuing negotiations in "good faith" for a treaty on "general and complete disarmament".[54] Russia and the United States will continue to claim that they are, while other states will continue to assert the opposite.

Case Study 4: Do the NSG guidelines violate Article IV of the NPT?

The drafters of the NPT had the difficult task of drawing a line between preventing the proliferation of nuclear weapons and promoting the peaceful use of nuclear energy. One major issue was that the nuclear material and equipment required for the peaceful use of nuclear energy may also be used to produce nuclear weapons. As a result, the NPT aimed to promote the exchange of nuclear material and equipment, but not so recklessly such that non-nuclear weapon states could take advantage of the exchange and develop nuclear weapons. At an effort to strike this balance, Article III(2) of the NPT states:

> Each State Party to the Treaty undertakes not to provide: (a) source or special fissionable material, or (b) equipment or material especially designed or prepared for the processing, use or production of special fissionable material, to any non-nuclear-weapon State for peaceful purposes, unless the source or special fissionable material shall be subject to the safeguards required by this Article.[55]

But what items are considered "equipment or material especially designed or prepared for the processing, use or production of special fissionable material"? In order to create a list of such items, nuclear supplier states established the Zangger Committee. Since the Zangger Committee was established for the mere purpose of interpreting this phrase in Article III(2) of the NPT, the Zangger Committee's list does not extend beyond this article.

The guidelines of the NSG, however, are another story. As mentioned in Section II.C, US Secretary of State Henry Kissinger established the NSG in 1974 in the wake of India's "peaceful nuclear explosion" in order to further restrict exports to non-nuclear weapon states that could lead to the development of nuclear weapons (as the Canadian heavy water reactor and the American heavy water did in the Indian case[56]). That is to say, not only does the NSG go beyond the limits of Article III(2), but it was actually established *for the purpose of* going beyond the limits of Article III(2). Two key differences between the Zangger Committee trigger list and the NSG guidelines are: (1) the Zangger Committee trigger list is restricted to "especially designed or prepared" items, whereas the NSG trigger list includes "dual-use" items, i.e. items that could potentially be used for both peaceful and non-peaceful purposes;[57] and (2) the NSG guidelines impose more demanding conditions of supply on recipient states, such as having a comprehensive safeguards agreement

53. The ICJ does, however, have jurisdiction over India, Pakistan and the United Kingdom because they have made declarations submitting themselves to the compulsory jurisdiction of the ICJ under Article 36(2) of the ICJ Statute. See Statute of the International Court of Justice (1945), 33 UNTS 993, art. 36(2).
54. NPT, supra note 13, art. VI.
55. Ibid., art. III(2).
56. See infra Case Study 5 in Section III.B.
57. IAEA (2013), "Guidelines for Transfers of Nuclear-related Dual-use Equipment, Materials, Software, and Related Technology", IAEA Doc. INFCIRC/254/Rev.9/Part 2, 13 November 2013.

in force.[58] Unsurprisingly, many non-nuclear weapon states, as well as commentators, have argued that the NSG is therefore in violation of Article IV of the NPT, which guarantees "the inalienable right of all the Parties to the Treaty to develop research, production and use of nuclear energy for peaceful purposes" and "the fullest possible exchange of equipment, materials and scientific and technological information for the peaceful uses of nuclear energy."[59]

Over time, the NSG has expanded both its trigger list and its conditions of supply. The NSG agreed on its first guidelines in 1977 and transmitted them to the IAEA in January 1978.[60] In 1992, the NSG introduced guidelines for dual-use items and adopted the requirement for comprehensive safeguards.[61] After the A.Q. Khan proliferation network came to light in 2004, President George W. Bush began pushing for an absolute ban on exporting enrichment and reprocessing (E&R) technologies to non-nuclear weapon states.[62] After signing an NCA with the United Arab Emirates (UAE) that prohibited the UAE from engaging in E&R activities on its territory,[63] Washington began to publicise the agreement as a "gold standard" NCA.[64] Nevertheless, virtually all other NSG members disapproved of this policy.[65] Still, the most recent version of the NSG guidelines, adopted in 2011, are more stringent than the last. They now impose specific conditions on exports of E&R technologies, such as having an Additional Protocol in force with the IAEA.[66]

Do the NSG guidelines, especially their most recent iteration, violate Article IV of the NPT? From one point of view, yes. Enrichment technology is a classic example of a dual-use item, but it is also often necessary for a state to develop a self-sufficient peaceful nuclear programme. At the same time, however, the NSG's guidelines restricting exports of dual-use technologies can also be seen as a genuine response to proliferation threats, namely the Indian "peaceful nuclear explosion" and the A.Q. Khan proliferation network. NSG members can argue that the NSG guidelines promote the "object and purpose" of the NPT, and therefore Article IV should be read

58. IAEA (2013), "Guidelines for Nuclear Transfers", IAEA Doc. INFCIRC/254/Rev.12/Part 1, 13 November 2013 (hereinafter "NSG Guidelines Part 1"), para. 4(a). India received a waiver from the comprehensive safeguards requirement on 6 September 2008. Nuclear Threat Initiative, "Nuclear Suppliers Group (NSG)", www.nti.org/treaties-and-regimes/nuclear-suppliers-group-nsg/ (accessed 4 April 2015).
59. NPT, supra note 13, art. IV; Hibbs, M. (2011), "New Global Rules for Sensitive Nuclear Trade", Carnegie Endowment for International Peace, http://carnegieendowment.org/2011/07/28/new-global-rules-for-sensitive-nuclear-trade (accessed 4 April 2015); Joyner, D. (2013), "Why Nuclear Supplier States are in Collective Breach of the NPT", Arms Control Law, http://armscontrollaw.com/2013/04/24/why-nuclear-supplier-states-are-in-collective-breach-of-the-npt/ (accessed 4 April 2015).
60. Nuclear Threat Initiative, supra note 58.
61. Ibid.
62. Hibbs, M., supra note 59.
63. Agreement for Cooperation Between the Government of the United States of America and the Government of the United Arab Emirates Concerning Peaceful Uses of Nuclear Energy (2009), http://old.armscontrolcenter.org/policy/nonproliferation/resources/us_uae_123_fulltext.pdf (accessed 4 April 2015), art. 7.
64. Arms Control Association (2013), "The U.S. Atomic Energy Act Section 123 at a Glance", www.armscontrol.org/factsheets/AEASection123 (accessed 4 April 2015).
65. Hibbs, M. (2011), supra note 59.
66. NSG Guidelines Part 1, supra note 58, para. 6(c); Viski, A. (2012), "The Revised Nuclear Suppliers Group Guidelines: A European Union Perspective", *Non-Proliferation Papers*, No. 15, EU Non-Proliferation Consortium, Brussels, p. 10; Hibbs, M., supra note 59; Horner, D. (2011), "NSG Revises Rules on Sensitive Exports", Arms Control Association, www.armscontrol.org/act/2011_%2007-08/Nuclear_Suppliers_Group_NSG_Revises_Rules_Sensitive_Exports (accessed 4 April 2015).

to not prohibit such guidelines. Once again, the problem is that the NPT does not have an interpretation authority to answer this legal question. In the absence of an interpretation mechanism, supplier states will continue to assert that the NSG guidelines do not violate the NPT, and non-supplier states will continue to assert that they do.

B. Nuclear co-operation agreements

NCAs also face their own set of compliance problems. As explained in Section II.B, before the NPT, NCAs served as one of the principal means of assuring that transferred nuclear material and equipment would not be used to further the production of nuclear weapons. A supplier state would transfer nuclear material and equipment to a recipient state, and the recipient state would usually promise not to use the material and equipment for the development of nuclear weapons. Nevertheless, since there was often no interpretation mechanism in these NCAs, the recipient state could provide its own interpretation of the NCA's provisions, leading to disputes such as those seen in Case Studies 5 and 6 below.

Case Study 5: Did India's "peaceful nuclear explosion" violate its nuclear co-operation agreements with Canada and the United States?

On 28 April 1956, Canada and India signed an NCA under which Canada was to deliver a heavy water reactor to India.[67] India subsequently obtained heavy water from the United States,[68] which was subject to an India-US NCA.[69] In both the Canada-India NCA and the India-US NCA, India agreed that it would not use the reactor or the heavy water for non-peaceful purposes.[70] Nevertheless, in 1974, India used the plutonium produced by the heavy water reactor to conduct its first nuclear explosion.[71]

To justify its actions, India interpreted the NCAs to only prohibit military nuclear explosions, not "peaceful nuclear explosions".[72] It stressed that the NPT itself acknowledges the existence of "peaceful applications of nuclear explosions".[73] At the time the NPT was negotiated, some scientists, for example, envisioned the application of nuclear explosions for large-scale construction projects.[74] Not everyone agreed with India's interpretation, however. Four years before India conducted its "peaceful nuclear explosion", it had asked Canada and the United States whether they would distinguish between a peaceful nuclear explosion and a nuclear weapons test, and they had answered in the negative.[75]

67. Agreement on the Canada-India Colombo Plan Atomic Reactor Project (1956), 1958 Indian Treaty Series 9 (hereinafter "Canada-India 1956 Agreement"); Martin, D. (1996), *Exporting Disaster: The Cost of Selling CANDU Reactors*, Campaign for Nuclear Phaseout, Ottawa, § 3.2.1.1; Keeley, J.F. (2009), *A List of Bilateral Civilian Nuclear Co-operation Agreements*, Vol. 2, University of Calgary, Calgary, p. 91.
68. Martin, D., supra note 67, § 3.2.1.1.
69. Keeley, J.F. (2009), *A List of Bilateral Civilian Nuclear Co-operation Agreements*, Vol. 3, University of Calgary, Calgary, p. 252; India-US 1963 NCA, supra note 21.
70. Canada-India 1956 Agreement, supra note 68; India-US 1963 NCA, supra note 21, art. VI; Perkovich, G. (2002), *India's Nuclear Bomb: The Impact on Global Proliferation*, University of California Press, Oakland, p. 27.
71. Martin, D., supra note 67, § 3.2.3.
72. Ibid.
73. NPT, supra note 13, art. V.
74. Ehrlich, R. (1985), *Waging Nuclear Peace: The Technology and Politics of Nuclear Weapons*, SUNY Press, Albany, NY, United States, p. 334.
75. Ibid.

India's "peaceful nuclear explosion" was undoubtedly an alarm to nuclear supplier states like Canada and the United States. But only four states – Pakistan, Canada, Japan and Sweden – publicly deplored the act.[76] Many developing states actually congratulated India on the explosion, expressing their support for the fact that a fellow developing state had joined the nuclear weapons club. These states were able to take this position without discrediting international law because India had put forth a plausible legal theory under which the "peaceful nuclear explosion" was perfectly consistent with its international obligations. Since there was no interpretation mechanism in the NCAs, there was never an authoritative determination on whether India's "peaceful nuclear explosion" violated the NCAs.

Case Study 6: Could South Korea engage in reprocessing under the 1974 South Korea-US nuclear co-operation agreement?

On 15 May 1974, Washington and Seoul signed an NCA for the transfer of power reactors from the United States to South Korea.[77] The NCA contained restrictions on reprocessing activities in South Korea, as reprocessing produces plutonium that can potentially be used to make nuclear weapons. Article VIII(C) of the NCA specified:

> When any special nuclear material received from the United States … requires reprocessing, or any irradiated fuel elements containing fuel material received from the United States … are to be removed from a reactor and are to be altered in form or content, such reprocessing or alteration shall be performed in facilities acceptable to both Parties upon a joint determination of the Parties that the provisions of article XI [on the requirement that any transferred material or equipment be used solely for civil purposes] may be effectively applied.[78]

In more practical terms, the NCA gave the United States a veto right over (1) the reprocessing of fissile material received from the United States; and (2) the reprocessing of irradiated fuel elements containing fissile material received from the United States. Nevertheless, commentators often generalise the provision by stating that Washington had a veto right over all reprocessing in South Korea,[79] or even that the NCA banned all reprocessing in South Korea.[80] Part of the confusion stems from the fact that as a matter of policy, Washington had not permitted South Korea to engage in reprocessing at all under the NCA.[81]

This issue reached the headlines over the last couple of years because Seoul and Washington were frantically trying to negotiate a new NCA before the NCA was set to expire in March 2014.[82] Over the course of negotiations, Seoul sought to lift the reprocessing ban, in line with US NCAs with the European Union, Japan, Switzerland

76. Ibid.
77. South Korea-US 1974 NCA, supra note 21. The 1974 NCA in reality only amended an NCA signed in 1972, which in turn superseded an NCA signed in 1956. Agreement for Cooperation Between the Government of the United States of America and the Government of the Republic of Korea Concerning Civil Uses of Atomic Energy (1972), 911 UNTS 36.
78. South Korea-US 1974 NCA, supra note 21, art. VIII(C).
79. E.g. Holt, M. (2013), *U.S. and South Korean Cooperation in the World Nuclear Energy Market: Major Policy Considerations*, Congressional Research Service, Washington, DC, p. 10.
80. E.g. Nuclear Threat Initiative, "South Korea: Overview", www.nti.org/country-profiles/south-korea/ (accessed 27 November 2014) ("Since 1974, South Korea is bound by a bilateral pact with the United States banning the reprocessing of spent nuclear fuel.").
81. Kang, J. and H.A. Feiveson (2001), "South Korea's Shifting and Controversial Interest in Spent Fuel Reprocessing", *The Nonproliferation Review*, Vol. 8, No. 1, Routledge, London, p. 70.
82. Keeley, J.F., supra note 69, p. 316; South Korea-US 1974 NCA, supra note 21, art. XV.

and, to a certain extent, India.[83] Washington, on the other hand, sought to extend the ban to all reprocessing in South Korea, in line with the US-UAE "gold standard" NCA.[84] The matter was so difficult that Seoul and Washington had to extend the 1974 NCA for another two years while negotiations continued.[85] They finally reached an agreement in April 2015.[86]

The questions surrounding the 1974 NCA may soon become moot, but there is no guarantee that similar questions could not arise under the new 2015 NCA or another NCA with similar language. To what extent was reprocessing actually allowed under the 1974 NCA? Could South Korea have pursued reprocessing if it had obtained the requisite material and equipment from a non-American source? The plain text of the NCA seemed to say yes, but once again, if one considers the "object and purpose" of the NCA and then takes into account the way Seoul and Washington treated the NCA over the course of their nuclear co-operation relationship,[87] there is a stronger case for saying that Seoul indeed could not have engaged in any reprocessing at all under the 1974 NCA. Unfortunately, the lack of an interpretation mechanism in the NCA meant that there was never an authoritative interpretation on the matter.

C. Nuclear export control agreements

Although not legally binding, NECAs have also faced significant compliance problems. As with the NPT and NCAs, the lack of an interpretation mechanism in NECAs has undermined their ability to achieve their non-proliferation objectives, as Case Study 7 shows.

Case Study 7: Do the new China-Pakistan reactor contracts fall under the NSG guidelines' grandfather clause?

Pakistan's nuclear co-operation with China has always been a matter of concern for non-proliferation proponents. Pakistan is not a party to the NPT, nor does it have a comprehensive safeguards agreement with the IAEA in force. Yet under the NPT, nuclear weapon states like China can still export nuclear material and technology to Pakistan for peaceful purposes, as long as there are limited-scope safeguards on the exports in question.[88] Indeed, China has been exporting nuclear equipment to Pakistan for decades.[89] In 1986, Beijing and Islamabad signed an NCA, Article II of which states: "the fields of co-operation between the two sides may include: … Design, construction

83. Von Hippel, F.N. (2010), "South Korean Reprocessing: An Unnecessary Threat to the Nonproliferation Regime", Arms Control Association, www.armscontrol.org/act/2010_03/VonHippel (accessed 4 April 2015).
84. See supra note 64 and accompanying text.
85. Qiang, H. (ed.) (2013), "S. Korea, U.S. to extend nuclear pact for 2 more years", *Xinhua English News*, 24 April 2013, http://news.xinhuanet.com/english/world/2013-04/24/c_132336968.htm (accessed 4 April 2015).
86. Gale, A. and J.S. Kwaak (2015), "U.S., South Korea Reach Revised Nuclear Deal", *The Wall Street Journal*, 22 April 2015.
87. Article 31(3)(b) of the Vienna Convention on the Law of Treaties provides that in interpreting treaty provisions, one shall take into account "[a]ny subsequent practice in the application of the treaty which establishes the agreement of the parties regarding its interpretation". VCLT, supra note 4, art. 31(3)(b).
88. NPT, supra note 13, art. III(2).
89. Pant, H.V. (2013), "China-Pakistan nuclear axis defies nonproliferation aims", *The Japan Times*, 19 April 2013, www.japantimes.co.jp/opinion/2013/04/19/commentary/world-commentary/china-pakistan-nuclear-axis-defies-nonproliferation-aims/ (accessed 4 April 2015).

and operation of nuclear research and power reactors and associated facilities".[90] Subsequently, Beijing signed agreements to supply Pakistan with a nuclear reactor at Chashma on 31 December 1991 and a second nuclear reactor at Chashma on 4 May 2004.[91]

After years of negotiation, nuclear supplier states finally convinced China to join the NSG in June 2004.[92] As discussed in Case Study 4, the NSG guidelines require recipient states of exports from NSG members to have a comprehensive safeguards agreement in force (which Pakistan does not);[93] so, for a moment, states thought they had finally stopped China's nuclear exports to Pakistan.

Nevertheless, on 10 April 2005, Pakistani officials announced that China planned to construct an additional two reactors at Chashma.[94] NSG members, including the United States, responded that doing so would violate the NSG guidelines. The issue died down for a few years, only to resurface in April 2010, when reports confirmed that China would be going through with the two new reactors.[95] At the NSG annual meeting that year, various NSG members, including the United States, expressed concern about the reactors. Controversy arose again when Beijing secretly concluded an agreement to sell Pakistan a fifth reactor in February 2013, and then publicly confirmed it in March 2013.[96] In November 2013, Islamabad announced that China would be building a sixth reactor as well; the last two would be located in Karachi.[97] Then in 2014, it was reported that Beijing and Islamabad were conducting negotiations for another three reactors in Muzaffargarh.[98] Despite all of these transactions, Beijing has maintained that its co-operation with Pakistan "does not violate relevant principles of the Nuclear Suppliers Group"[99] because the nuclear reactor projects fall under the NSG guidelines' grandfather clause.[100]

90. China-Pakistan 1986 NCA, supra note 21, art. II.
91. Keeley, J.F., supra note 67, p. 115.
92. Lucas, S. (2004), "China Enters the Nuclear Suppliers Group: Positive Steps in the Global Campaign against Nuclear Weapons Proliferation", Nuclear Threat Initiative, www.nti.org/analysis/articles/china-enters-nuclear-suppliers-group/ (accessed 4 April 2015); PTI, "Secret deal with Pak on nuclear reactor violates China's international promise: US", *The Indian Express*, 23 March 2013, http://indianexpress.com/article/news-archive/print/secret-deal-with-pak-on-nuclear-reactor-violates-chinas-international-promise-us/ (accessed 4 April 2015).
93. NSG Guidelines Part 1, supra note 58, para. 4(a).
94. Balachandran, G. and K. Patil (2013), "China's Reactor Sale to Pakistan: The Known Unknowns", Institute for Defence Studies and Analyses, www.idsa.in/issuebrief/ChinasReactorSaletoPakistan_gbalachandran_151113.html (accessed 4 April 2015); Bokhari, F. (2005), "China and Pakistan in Deal on Reactors", *Financial Times*, 11 April 2005, www.ft.com/intl/cms/s/0/8fc4a58c-aa26-11d9-aa38-00000e2511c8.html (accessed 4 April 2015); Keeley, J.F., supra note 67, p. 115.
95. Nuclear Threat Initiative (2014), "Pakistan: Nuclear", www.nti.org/country-profiles/pakistan/nuclear/ (accessed 4 April 2015).
96. Pant, H.V., supra note 89; Pti, supra note 92.
97. Buckley, C. (2013), "Behind the Chinese-Pakistani Nuclear Deal", *The New York Times*, 27 November 2013, http://sinosphere.blogs.nytimes.com/2013/11/27/behind-the-chinese-pakistani-nuclear-deal/?_r=0 (accessed 4 April 2015); Hibbs, M., "China Provides Nuclear Reactors to Pakistan", *Jane's Intelligence Review*, 29 November 2013, IHS Global Ltd, Englewood, CO, United States.
98. Shah, S. (2014), "Pakistan in Talks to Acquire 3 Nuclear Plants From China", *The Wall Street Journal*, 20 January 2014.
99. Pant, H.V., supra note 89; Hibbs, M. (2013), "Chinese Chashma Poker Chip?", *Arms Control Wonk*, http://hibbs.armscontrolwonk.com/archive/1526/chinese-chashma-poker-chip (accessed 4 April 2015).
100. Hibbs, M., supra note 99.

The grandfather clause of the NSG guidelines states that the requirement of comprehensive safeguards does not apply to "agreements or contracts" predating the NSG's adoption of the comprehensive safeguards requirement (3 April 1992).[101] The clause, however, does not define what qualifies as "agreements or contracts". In light of this ambiguity, China has interpreted the phrase to encompass Article II of its 1986 NCA with Pakistan. As mentioned above, Article II merely specifies that power reactors fall within the "fields of co-operation" between China and Pakistan,[102] but China has invoked it as an "agreement[] or contract[]" to justify its continued export of nuclear reactors to Pakistan.[103] Whether such vague language in an NCA counts as an "agreement[] or contract[]" under the NSG grandfather exception is questionable: arguably, the exception refers to a concrete agreement or contract for purchase, not a general agreement to co-operate. Nevertheless, under China's interpretation, China's membership in the NSG could possibly never impede it from selling reactors to Pakistan, as under its terms the China-Pakistan NCA shall remain in force indefinitely unless either China or Pakistan decides to terminate it.[104]

In the end, the issue boils down to a legal question: do the new China-Pakistan reactor contracts fall under the NSG guidelines' grandfather clause? The lack of an interpretation mechanism leaves the question unanswered. Consequently, China will continue to sell reactors to Pakistan, and most NSG members will continue to accuse China of violating the NSG guidelines. Had the NSG guidelines contained an interpretation mechanism, at the very least this legal question could be authoritatively answered.

IV. Nuclear arbitration

These case studies are just a sample of the many legal uncertainties in non-proliferation agreements that remain unresolved to this day. Indeed, commentators have been criticising the effectiveness of non-proliferation agreements for many years.[105] One could even argue that the greatest successes of the non-proliferation regime (e.g. the fact that at most "only" nine states have nuclear weapons) owe not to the plethora of legal instruments, but rather to the heavy hand of politically powerful states, such as the United States.[106] Indeed, there is substantial evidence that the most effective non-proliferation measures are political, not legal.[107]

101. NSG Guidelines Part 1, supra note 58, para. 4(a).
102. See supra note 90 and accompanying text.
103. Balachandran, G. and K. Patil, supra note 94.
104. China-Pakistan 1986 NCA, supra note 21, art. XI(2).
105. E.g. Moodie, M. and A. Sands (2001), "New Approaches to Compliance with Arms Control and Nonproliferation Agreements", *The Nonproliferation Review*, Vol. 8, No. 1, Routledge, London, pp. 3, 7; Müller, H. (2000), "Compliance Politics: A Critical Analysis of Multilateral Arms Control Treaty Enforcement", *The Nonproliferation Review*, Vol. 7, No. 2, Routledge, London, p. 77-90; Bolton, J.R. (2004), "The NPT: A Crisis of Non-Compliance", US Department of State, http://2001-2009.state.gov/t/us/rm/31848.htm (accessed 4 April 2015); Miller, S.E. (2012), "Nuclear Collisions: Discord, Reform & the Nuclear Nonproliferation Regime", in Miller, S.E. et al. (eds.), *Nuclear Collisions: Discord, Reform and the Nuclear Nonproliferation Regime*, American Academy of Arts & Sciences, Cambridge, MA, United States.
106. See Tzeng, P. (2013), "Nuclear Leverage: US Intervention in Sensitive Technology Transfers in the 1970s", *The Nonproliferation Review*, Vol. 20, No. 3, Routledge, London.
107. See ibid.

Why have non-proliferation agreements been so problematic? Commentators appear to agree on one reason: the lack of enforcement mechanisms.[108] They argue that non-proliferation agreements like the NPT need to establish bodies that have the authority to enforce non-proliferation obligations.[109] The problem, however, is that states would likely never agree to enforcement mechanisms regarding matters as critical to national security as nuclear non-proliferation.[110]

The seven case studies above suggest an alternative solution: interpretation mechanisms. As seen in the case studies, the fundamental problem underlying issues of non-compliance has been the lack of an authoritative interpretation of the non-proliferation agreement in question, not the lack of enforcement. The allegations of non-compliance, though surrounded by political considerations, always boiled down to a legal question: whether or not a state had breached a provision in a non-proliferation agreement. Yet the question could not be authoritatively answered because of the lack of an interpretation mechanism. Therefore, interpretation mechanisms could possibly go a very long way in resolving at least some of the most pressing cases of non-compliance with nuclear non-proliferation agreements.

A. The benefits of interpretation mechanisms

At first glance, interpretation mechanisms might seem very weak: an interpretation without any guarantee of being enforced may not be very effective. Nevertheless, there are four principal benefits that come from an authoritative interpretation.

First, in cases where disputing states engage in good faith interpretations of their non-proliferation obligations but come to divergent conclusions, the authoritative interpretation would resolve the legal uncertainty. Despite what many states may say, many legal questions that arise from non-proliferation agreements do not have clear legal answers. There are plausible legal arguments that North Korea validly withdrew from the NPT under Article X(1); that merely planning to develop nuclear weapons does not violate Article II of the NPT; that Russia's and the United States' nuclear stockpiles do not violate Article VI of the NPT; that the NSG guidelines do not violate Article IV of the NPT; that India's "peaceful nuclear explosion" did not violate its NCAs; that South Korea can engage in reprocessing under the South Korea-US NCA; and that the new China-Pakistan reactor contracts fall under the NSG guidelines' grandfather clause. There are also credible legal arguments to the contrary. Given that genuine legal disputes can arise over the interpretation of non-proliferation agreements, an authoritative interpretation from an impartial body could resolve legal ambiguities and even settle entire disputes.

Second, in cases where disputing states engage in self-serving interpretations of their non-proliferation obligations, the authoritative interpretation would officially declare who is "correct". At the moment, non-complying states can (and do) give completely implausible interpretations of their non-proliferation obligations without

108. Gilinsky, V. and H. Sokolski, supra note 2, p. 79; Mohan, C.R. (2012), "Living with an Imperfect NPT", in Miller, S.E. et al. (eds.), *Nuclear Collisions: Discord, Reform & the Nuclear Nonproliferation Regime*, American Academy of Arts & Sciences, Cambridge, MA, United States; Moodie, M. and A. Sands, supra note 105, pp. 3, 7; Brauer, J. and K. Hartley (2000), *The Economics of Regional Security: NATO, the Mediterranean and Southern Africa*, Harwood Academic Publishers, Amsterdam, p. 82; du Preez, J. (2005), "The 2005 NPT Review Conference: Can It Meet the Nuclear Challenge?", Arms Control Association, www.armscontrol.org/act/2005_04/duPreez (accessed 4 April 2015); Skinner, DC (2005), "Q&A: The Nuclear Nonproliferation Treaty", *The Wall Street Journal*, 9 June 2005.
109. See supra note 2.
110. See supra note 3.

any retribution. Moreover, they often garner support from their political allies, transforming the legal question of non-compliance into a political issue. The existence of an authoritative interpretation, however, would publicise the implausibility of weak legal arguments, and thereby encourage states, at least on some occasions, to admit their non-compliance. Moreover, non-complying states would have a much more difficult time trying to gain the support of third party states if an official interpretation authority found that the state had breached a non-proliferation obligation. Currently, given that there is often no authoritative determination on whether a state has breached a non-proliferation obligation or not; third party states are able to support non-complying states without risking their reputation as international law-abiding states. But if there were an authoritative interpretation, third party states would think twice about supporting behaviour declared to be in violation of international law.

Third, the authoritative interpretation would help prevent recurrent violations of non-proliferation obligations. Regardless of whether a state intends to provide a good faith or self-serving interpretation of a non-proliferation obligation, if an interpretation authority has previously held a certain action to be in violation of that obligation, then the state would be less likely to take the same action. In the absence of this precedent, states would not be discouraged from relying on the same misleading interpretations – no matter how implausible – of past non-compliant states, leading to a recurring cycle of non-compliant behaviour.

Fourth, in cases where a government leader takes a hard stance on a non-proliferation issue to satisfy an audience back home, an adverse authoritative interpretation by a third party decision maker would provide a strong "excuse" for the leader to give in. Commentators have noted that this phenomenon occurs regularly in public international law disputes: government leaders often refuse to concede very much in disputes with other states because they would receive significant criticism from their domestic constituencies, but if a neutral third party orders the concessions, then the leaders are often more than happy to comply, as they would not be perceived by their own people as having intentionally conceded anything. It is difficult to say whether non-proliferation disputes fall perfectly within this paradigm, but there is every reason to believe that states like Iran and the United States often take strong stances in international negotiations at least partly out of a desire to appease certain factions of their populations back home.

For these four reasons, interpretation mechanisms could be a very useful tool for resolving cases of non-compliance, even without enforcement mechanisms.

B. The case for nuclear arbitration

As explained in Section I, interpretation authorities come in all shapes and sizes. The ECHR and the TFEU established interpretation authorities consisting of one member from each member state. The ICESCR and the ICCPR established bodies consisting of rotating members as their interpretation authorities. And the New York Convention allowed private arbitral tribunals to serve as interpretation authorities. In the end, what's important is that the interpretation authority is impartial and has the appearance of being impartial, so that states are willing to submit to its jurisdiction.

Who should have the authority to interpret the NPT, NCAs and NECAs? Perhaps the first candidate that comes to mind is the IAEA Board; after all, the IAEA Board already serves as the interpretation authority for IAEA comprehensive safeguards

agreements.[111] Nevertheless, there are two main reasons why the IAEA Board's interpretation jurisdiction should *not* be extended to other non-proliferation agreements.

First, the IAEA Board is by its nature political: it is a geographically representative body that makes high-level decisions regarding IAEA policy. Just as legal disputes in domestic legal systems are resolved by courts rather than legislatures, an independent body free of broader policy considerations should be entrusted with deciding disputes over purely legal questions, such as whether or not a state is in compliance with a non-proliferation agreement. Second, the fact that the IAEA Board is a permanent body means that it has a lot of history: some states may have – justifiably or not – developed certain dispositions towards or impressions of the Board because of the Board's past policy decisions, jeopardising the Board's reputation as an impartial adjudicatory institution.

A promising alternative is arbitration. Arbitration is a method of dispute resolution that avoids the partiality of national courts and the political nature of international organisations. Arbitration has become the primary means for dispute resolution in international commerce. When a company from State A enters into a contract with a company from State B, they typically stipulate in their contract that if a dispute arises from the contract, they will not go to the (potentially biased) national courts of State A, the (potentially biased) national courts of State B or a (potentially politicised) international organisation. Rather, they will form an ad hoc arbitral tribunal to settle their dispute. In most cases, each party has the right to appoint one arbitrator, and the two party-appointed arbitrators appoint the third arbitrator, who presides as Chair. These three arbitrators constitute the arbitral tribunal, which hears the case and issues a final judgement called an "award".

States have used arbitration to resolve disputes over sensitive matters for centuries. For example, land and maritime boundary disputes between states are often resolved through arbitration, and investment disputes that touch on the state's fundamental regulatory powers regularly go to arbitration. In addition, many trade and intellectual property disputes end up being resolved in arbitration. Despite its ad hoc nature, arbitration has earned the trust of states to resolve the most critical legal disputes of the century.[112]

Why do states rely so much on arbitration, as opposed to a permanent adjudicatory body? The reasons are manifold, but at least some are worth discussing here. First, in an arbitration, the disputing parties have a stronger voice in the resolution of the dispute. In most cases, the parties participate in the selection of the arbitrators by selecting at least one arbitrator on their own. Therefore, the parties are assured that their arguments, even if publicly unpopular, will be considered. Second, there is a stronger guarantee that the decision-making body (the arbitral tribunal) will be impartial. Since the parties can each appoint an arbitrator, they do not need to fear that the tribunal will "happen to be" composed of biased individuals. Third, the parties are able to appoint arbitrators with the appropriate level of expertise. Therefore, the parties have greater assurance that their arguments, even if esoteric, will likely be understood. Fourth, there is greater flexibility in arbitration. The arbitral tribunal is not constrained by the procedural rules of national courts or international organisations. The tribunal can adopt the procedural rules most appropriate for the dispute at hand. It can also resolve the

111. See supra note 12.

112. Many states have questioned the legitimacy of arbitration for resolving investment disputes, but even arbitral awards in such disputes are widely complied with. In any case, arbitration is undoubtedly a popular mechanism for resolving other inter-state disputes.

dispute on a timeline most suitable for the parties; if the dispute is an emergency, for example, the tribunal could set a tighter timeline. Fifth, and finally, there is the option of confidentiality: disputes before arbitral tribunals can be kept completely (or partially) secret, for better or for worse.

All of these reasons are very much applicable to the arbitration of disputes arising from non-proliferation agreements. First, having a greater voice in the arbitration is particularly important for states such as Iran, North Korea and the United States that might feel that their perspectives on non-proliferation are not widely shared. By appointing an arbitrator, they can be sure that their perspectives are taken into consideration by the tribunal. Second, the fact that the arbitral tribunal is not a permanent body with a history and future of political decision-making would provide a guarantee of impartiality. The tribunal would be constituted solely for the dispute at hand, and would be dissolved after the dispute ends. Consequently, the parties can trust that the tribunal would resolve the dispute in a manner independent from outside considerations. Third, the interpretation of specific non-proliferation agreements may require a high degree of expertise. The ability of the parties to appoint arbitrators would allow them to choose specialists who have dedicated their careers to studying a particular legal issue, or even drafters of the non-proliferation agreement in question who would best understand the purposes and principles behind the agreement's text. Fourth, the flexibility permitted in arbitration would be particularly useful in non-proliferation disputes because the timeline for certain proliferation risks can be relatively short (e.g. enriching uranium to weapons-grade levels). Fifth, the option of confidentiality could be extremely helpful in settling certain non-proliferation disputes. States often take hard stances because they do not want to appear as politically weak before their own public or the world community. By allowing the resolution of non-proliferation disputes to be confidential, states could be more willing to come to mutually acceptable agreements. Moreover, some disputes may involve the presentation of confidential intelligence information that the proffering state may not want to become public. Allowing the arbitration to be kept confidential would confine knowledge of such information to the parties and the arbitrators.

In conclusion, arbitration is a promising interpretation mechanism for disputes arising from non-proliferation agreements. But how would it look in practice?

C. What would nuclear arbitration look like?

Arbitration comes in all shapes and sizes. First, arbitration can be institutional or ad hoc. Second, arbitration can be binding or non-binding. Third, arbitration can arise from pre-dispute or post-dispute arbitration agreements.

Institutional or ad hoc?

Arbitration can be institutional or ad hoc. Institutional arbitration is conducted under the auspices of an arbitral institution (e.g. the Permanent Court of Arbitration). Ad hoc arbitration is conducted completely in private: the parties agree to abide by whatever rules they choose.

The arbitration of disputes arising from non-proliferation agreements should be institutional, so that there is some legitimacy to the process. The arbitral institution could be called the "Nuclear Arbitration Centre" (NAC) and could be an independent branch of the IAEA. The NAC secretariat would have two responsibilities: (1) maintaining and updating the NAC Arbitration Rules; and (2) handling the purely procedural matters of each arbitration (e.g. forwarding documents and organising files). To be clear, the Nuclear Arbitration Centre would not play any role in deciding disputes; only the members of party-appointed arbitral tribunals would be responsible for examining the merits of disputes.

Binding or non-binding?

Arbitration can also be binding or non-binding. Under binding arbitration, there is often a corresponding enforcement mechanism that forces the parties to comply with the arbitral award. Under non-binding arbitration, the final arbitral award is not necessarily enforceable against the parties, but it is still an authoritative determination on the matter.

The arbitration of disputes arising from non-proliferation agreements should be non-binding, as the arbitration would serve as a mere interpretation mechanism, not an enforcement mechanism. Introducing binding arbitration into non-proliferation agreements may be ideal, but, as mentioned in the Introduction, states would likely not agree to such infringements on its sovereignty for national security reasons.[113] Non-binding arbitration (as purely an interpretation mechanism), however, would face much less opposition, as states would not be relinquishing any sovereignty and they would not be forced to comply with the arbitral award.

Pre-dispute or post-dispute arbitration agreements?

Arbitration is based on consent, and therefore any arbitral proceeding requires an arbitration agreement. That is, the parties must agree to submit the dispute in question to arbitration. The arbitration agreement can be a pre-dispute agreement (a specific clause located in the underlying agreement) or a post-dispute agreement (a separate agreement concluded after the dispute arises).

For the arbitration of disputes arising from non-proliferation agreements, it would be best to include a pre-dispute arbitration clause in the underlying agreement so as to force the disputing parties to arbitrate any disputes arising from the interpretation or application of the agreement. The clause could look like this:

> All disputes arising from the interpretation or application of any of the provisions in the present agreement shall be finally settled under the Rules of Arbitration of the Nuclear Arbitration Centre by three arbitrators. Each party shall have the right to appoint one arbitrator. The two party-appointed arbitrators shall then jointly appoint the third arbitrator, who shall preside as Chair of the tribunal.

Consequently, once a dispute arises over the interpretation of a provision in the non-proliferation agreement, the parties would be forced to appoint an arbitral tribunal and forward the case to the tribunal. The tribunal would then – after having solicited and heard arguments from the parties – render an arbitral award on the matter. The award would interpret the relevant provisions of the agreement, determine whether the agreement was breached and (if applicable) specify the consequences of the breach. Since the arbitration would be non-binding, the award would not be enforceable. However, it would be authoritative.

D. Why would states agree to nuclear arbitration?

Proposals are productive only if they are politically feasible. In the sensitive field of nuclear non-proliferation, it is difficult to present a proposal that would be accepted by all parties, especially as most proposals favour one faction over another. Indeed, one can – as a matter of gross simplification – identify two factions in the field of nuclear non-proliferation: the "non-proliferation faction" (led by the United States) supports horizontal non-proliferation at the expense of the peaceful use of nuclear energy, while the "nuclear energy faction" (led by Iran, Egypt and the Non-Aligned

113. See supra note 3.

Movement) supports the peaceful use of nuclear energy at the expense of risks of horizontal proliferation. Although it is often very difficult for a proposal to satisfy both factions, introducing arbitration as an interpretation mechanism could do so, especially as it is a procedural proposal, not a substantive one. Reasons why both factions would likely accept arbitration as an interpretation mechanism include the following.

First and foremost, it should be noted that the law – i.e. the texts of the various non-proliferation agreements that have given rise to cases of alleged non-compliance – does not favour one faction over the other. Among the cases examined in Section III, in some the law seems to be on the side of the non-proliferation faction, whereas in others the law seems to be on the side of the nuclear energy faction. Consequently, the only clear winner of establishing arbitration as the interpretation mechanism would be the rule of law.

Second, arbitration would save costs for both factions. The amount of time and resources that states from both factions have put into arguing that their legal interpretations are correct have been substantial. By allowing a private, impartial tribunal to render a final determination on such issues, states in both factions would be able to focus more of their time and energy on more productive matters.

Third, states would not be giving up any sovereignty because NAC arbitral awards would not be legally binding. Consequently, states could still resist complying with their non-proliferation obligations in cases where they find it absolutely necessary, such as if their national security interests are at stake.

V. Practical steps

Nuclear arbitration looks good on paper. How could it be implemented? Establishing a Nuclear Arbitration Centre under the auspices of the IAEA would be neither costly nor difficult. The most difficult part of implementing nuclear arbitration is having states actually include arbitration clauses within their non-proliferation agreements.

Although the NPT is the non-proliferation agreement that needs an interpretation mechanism the most, it would be extremely difficult for the treaty to be amended. Similarly, the multilateral nature of NECAs make them difficult to amend as well. The most practical starting point, then, is NCAs: states should begin amending their NCAs to include NAC arbitration clauses, and should begin including NAC arbitration clauses in their new NCAs.

The United States could be the leader in this endeavour. At the moment, Washington is negotiating and renegotiating many NCAs. The US-Vietnam NCA and the US-Taiwan NCA were renewed just last year;[114] the US-South Korea NCA was signed this year;[115] and US NCAs with China,[116] Japan,[117] Jordan,[118] Norway,[119]

114. Kerr, P.K. and M.B.D. Nikitin (2014), *Nuclear Cooperation with Other Countries: A Primer*, Congressional Research Service, Washington, DC, pp. 9-11.
115. Gale, A. and J.S. Kwaak, supra note 86.
116. Kerr, P.K. and M.B.D. Nikitin, supra note 114, p. 13.
117. Ibid., p. 7.
118. Kane, C. (2012), "US Nuclear Cooperation Agreements and the Middle East", Arms Control and Regional Security for the Middle East, www.middleeast-armscontrol.com/2012/08/03/us-nuclear-cooperation-agreements-and-the-middle-east/ (accessed 1 March 2015).
119. Kerr, P.K. and M.B.D. Nikitin, supra note 114, p. 14.

Saudi Arabia[120] and Thailand[121] are in the pipeline. In addition, the United States has many other NCAs in force that are open to amendment.[122] Many senators in Congress have been pushing for strong non-proliferation guarantees in their nuclear transfers, especially after the 2008 US-India NCA.[123] The inclusion of arbitration clauses could be one such measure of achieving this objective.

France could also play a leadership role, as it has recently signed some new NCAs at an effort to expand the market for its nuclear exports, such as with Saudi Arabia[124] and South Africa.[125] China[126] and Russia[127] have also recently expanded their exports, and are looking to sign new NCAs with states looking to develop nuclear power. Indeed, on the whole, many new states are interested in developing nuclear energy for peaceful purposes, such as Jordan, Saudi Arabia, Thailand, the UAE and Vietnam. New NCAs between supplier states and these nuclear newcomer states will need to be signed, and so opportunities to introduce NAC arbitration clauses into NCAs abound.

Including NAC arbitration clauses into new NCAs should be in the interest of all parties. While the situation may be different for the NPT, all parties to NCAs are generally interested in the complete compliance with all provisions of their NCAs, especially the non-proliferation provisions. It is widely believed that all of the nuclear newcomer states are genuinely seeking to develop purely peaceful nuclear programmes, which was not necessarily the case in the 1970s.[128] Moreover, no matter how meticulous the drafters of the NCAs are, all parties would agree that there will always be ambiguous terminology that needs to be interpreted by an impartial authority. For example, there has been some controversy over whether the reprocessing restrictions in many of the US NCAs (e.g. the South Korea-US NCA) includes pyro processing.[129] Including NAC arbitration clauses in NCAs would particularly be in the interest of supplier states like China and France that are eager to increase their nuclear exports, but also want to maintain a pro-non-proliferation image.

120. Sayler, K. (2011), "The Wisdom of a U.S.-Saudi Arabia 123 Agreement?", Center for Strategic & International Studies, http://csis.org/blog/wisdom-us-saudi-arabia-123-agreement (accessed 4 April 2015).
121. Kerr, P.K. and M.B.D. Nikitin, supra note 114, p. 15.
122. Ibid., pp. 13-15.
123. Ibid., pp. 8-9.
124. Golla, M. (2011), "*Nucléaire : Paris et Ryad ont signé un accord*" [Nuclear: Paris and Riyadh have signed an agreement], *Le Figaro*, 22 February 2011, www.lefigaro.fr/societes/2011/02/22/04015-20110222ARTFIG00426-nucleaire-francais-les-projets-se-precisent.php (accessed 4 April 2015).
125. *Le Soir* (2014), "*Afrique du Sud: Zuma autorise un accord de coopération nucléaire avec la France*" [South Africa : Zuma authorises a nuclear co-operation agreement with France], 10 October 2014, www.lesoir.be/677014/article/actualite/fil-info/fil-info-monde/2014-10-10/afrique-du-sud-zuma-autorise-un-accord-cooperation-nucleaire-avec-fr (accessed 4 April 2015).
126. World Nuclear News (2014), "China, South Africa extend nuclear cooperation", 10 November 2014, www.world-nuclear-news.org/NP-China-South-Africa-extend-nuclear-cooperation-1011144.html (accessed 4 April 2015).
127. Crail, P. (2009), "Russia, India Ink Nuke Cooperation Deal", Arms Control Association, www.armscontrol.org/act/2009_01-02/russiaindiacoop (accessed 4 April 2015); Agreement Between the Government of Australia and the Government of the Russian Federation on Cooperation in the Use of Nuclear Energy for Peaceful Purposes (2007), 2814 UNTS I-49368; World Nuclear News, supra note 126.
128. See Tzeng, P., supra note 106.
129. Weiner, S. (2012), "Reaching an Agreement on South Korean Pyroprocessing", Center for Strategic & International Studies, http://csis.org/blog/reaching-agreement-south-korean-pyroprocessing (accessed 4 April 2015).

After a critical mass of bilateral NCAs contain NAC arbitration clauses, the next step would be to include NAC arbitration clauses in the NECAs: the Zangger Committee trigger list and the NSG guidelines. Again, the member states of these groups should be interested in NAC arbitration clauses, as they would provide a non-political means of interpreting the export controls (e.g. whether a certain piece of new technology falls under the relevant trigger list). If the member states feel that NAC arbitrations lead to undesirable results, they can always edit their trigger lists and guidelines at their next plenary meeting. The NAC arbitrations, however, would still be useful in providing an impartial analysis of the trigger lists and guidelines in their current states, so as to provide for their consistent and reasonable application.

The final goal would be to include a NAC arbitration clause in the NPT. This would, however, require significant political support, as the treaty would have to be amended.

Instituting NAC arbitration may not have a noticeable impact for a few decades. What's important, though, is that the international community would be moving in the right direction. Universal compliance with nuclear non-proliferation agreements may be a lofty goal, but instituting NAC arbitration would be a significant first step.