

**House of Representatives Standing Committee
on Industry and Resources**

Inquiry into the development of the non-fossil fuel energy industry in Australia

Case study into the strategic importance of Australia's uranium resources

**Supplementary questions to ASNO, following public hearing
Monday, 10 October 2005**

**Responses by Mr John Carlson, Director General, ASNO
18 November 2005**

The Committee has requested responses to a number of points raised in submissions to this Inquiry, set out below. My response follows each point.

1. "False or misleading" statements alleged to have been made by ASNO

Friends of the Earth (FOE) have alleged that ASNO has made "false or misleading" statements. These statements are referred to in the transcript of the public hearing held in Melbourne on Friday 19 August, pp. 65-66 and listed in submission 52.1, pp. 2-4. AONM is also discussed in FOE's original submission, no. 52, pp. 19-22.

General comment by DG ASNO: The charge of making "false or misleading" statements is a very serious one. It is irresponsible to impugn the integrity and professionalism of a public officer in this way without substantial grounds. It is also disrespectful of the gravity of the Parliamentary Inquiry process. FOE's charge cannot be justified simply because FOE, or their representative, do not agree with ASNO statements and comments, or with government policy. The Committee can draw its own conclusions about the merits or otherwise of FOE's allegations, having regard to the intemperate language used (e.g. "notorious", "attempt to absolve", "absurd", "culpability") and my responses to the specific points raised.

Submission 52.1 refers to the following alleged statements and issues:

- i. 'ASNO sometimes states and frequently implies that the safeguarding of Australian-obligated nuclear materials (AONM) is foolproof (sic). For example, ASNO director John Carlson (2002) says: "All Australian-obligated nuclear material, including plutonium, is fully accounted for."**

DG ASNO response This is a clear example of verballing. I have never used the word "fool-proof", nor have I implied that the monitoring system for AONM is "fool-proof". The

fact I have concluded that at a particular time all AONM is fully accounted for does not imply that the monitoring system is fool-proof.

FOE seem to believe the statement that all AONM is accounted for is inconsistent with the propositions that “there is always some risk of diversion of AONM” and “the possibility of diversion cannot be entirely discounted”. There is no inconsistency. The statement that AONM is accounted for reflects the factual situation at a particular point of time. This says nothing about the future – of course it is possible diversion might occur in the future, though Australia’s policies and practice on uranium supply seek to minimise this risk.

FOE also refer to the occurrence of “Material Unaccounted For” (MUF) involving AONM. ASNO does not “concede” that MUF has occurred, the FOE submission carries an insinuation which is incorrect and shows that FOE do not understand the concept of MUF. As my Annual Reports regularly explain, MUF is a normal occurrence in the verification of nuclear accounts. MUF is the difference between recorded quantities and measured quantities. MUF does not equate to material missing - as often as not, the measured quantity will be greater than the recorded quantity, i.e. material will be “gained”. MUF certainly does not imply that AONM is missing. When ASNO concludes that all AONM is accounted for, this means, *inter alia*, that we are satisfied about the explanation for any MUF.

ASNO’s conclusions on the peaceful use of AONM are not based solely on reporting under Australia’s bilateral agreements. The IAEA’s safeguards conclusions are important here – the IAEA’s conclusion that no nuclear material in a particular country has been diverted obviously includes the AONM in that country.

ii. ‘ASNO (letter, available on request) insists that South Korea did not use AONM in its long-standing secret nuclear weapons research program. How can ASNO be sure?’

DG ASNO response FOE’s assertion that the ROK has a nuclear weapons research program is unsubstantiated. When the unauthorised nuclear experiments carried out by ROK scientists were reported to the IAEA Board of Governors, the Board concluded that these activities did not amount to non-compliance with the ROK’s safeguards agreement. In other words, the Board did not consider that the activities constituted evidence of efforts to develop nuclear weapons.

As to the question whether any AONM was involved, ASNO’s conclusion is not based on “insistence” but on examination of the facts. As set out in my Annual Report for 2004-05 (page 45),

“ASNO notes that no AONM was transferred to the ROK until 1986, so AONM could not have been involved in the experiments that took place before that date. For the subsequent experiments, the IAEA’s investigations showed that the nuclear material used was produced from indigenous sources. Accordingly, ASNO is satisfied that no AONM was involved.”

iii. 'Carlson (2000) states that "... in some of the countries having nuclear weapons, nuclear power remains insignificant or non-existent." Carlson's attempt to absolve civil nuclear programs from the proliferation problem ignores the well-documented use of civil nuclear facilities and materials in weapons programs as well as the important political 'cover' civil programs provide for military programs.'

iv. 'Likewise, Carlson (2000) says: "If we look to the history of nuclear weapons development, we can see that those countries with nuclear weapons developed them before they developed nuclear power programs." However, ostensibly civil nuclear programs clearly preceded and facilitated the successful development of nuclear weapons in India, Pakistan, and in the former nuclear weapons state South Africa.'

DG ASNO response: My comments were addressing the assertion that Australia should not export uranium for nuclear power programs because nuclear power is a proliferation risk. This is another instance where I have been verbally by FOE - my remarks were about nuclear power, but FOE have generalised this into "civil nuclear programs". Of course nuclear weapons programs don't come out of thin air, they are supported by nuclear facilities necessary for producing the required fissile materials, and these have included so-called research reactors - India being an obvious example.

Looking first at the recognised nuclear-weapon states - US, Russia, UK, France and China - all of these states had nuclear weapons before they developed nuclear power programs. Looking at those states found to be in non-compliance with their safeguards agreements - Romania, Iraq, DPRK, Libya and Iran - none of these had nuclear power at the time of the non-compliance, indeed only Romania has nuclear power now. Iran has a power reactor under construction (by Russia), but this reactor was not part of Iran's clandestine nuclear program.

Finally, let's look at the non-NPT states. Israel is generally considered to have nuclear weapons, though it has not confirmed this. At any rate, Israel certainly does not have a nuclear power program.

In support of their argument FOE point to the other two non-NPT states, India and Pakistan, and South Africa which was a non-NPT state at the time of its nuclear weapon program.

India completed its first power reactor, Tarapur 1, in 1969, and conducted its first nuclear explosion in 1974. However, the plutonium for this explosion was produced using the Cirus research reactor, which commenced operation in 1960. India's preparations to acquire a nuclear explosive capability pre-date the Tarapur power reactor by many years.

Pakistan completed its KANUPP power reactor about the same time as the development of its uranium enrichment program. Pakistan's nuclear weapons program was based on HEU (high enriched uranium), while the KANUPP reactor operates on natural uranium. There is no connection between this reactor and the enrichment program.

In South Africa's case, the first stages of the Valindaba vortex enrichment plant to produce HEU were commissioned in 1974, and the first nuclear weapon was produced in 1979. This was well ahead of the commissioning of South Africa's first power reactor at Koeberg, in 1984.

The examples pointed to by FOE do not substantiate their claim that nuclear power programs support military programs. Currently there are 30 countries, plus Taiwan, operating nuclear power reactors. The overwhelming majority – 24 of the 31 – do not have nuclear weapons. The remaining seven comprise the five nuclear-weapon states and India and Pakistan.

v. ‘Carlson said in November 2002 that: “The North Koreans have to come to a realisation that building up nuclear weapons is not in their interest.” (Quoted in Koutsoukis, 2002.) Clearly the North Korean regime had not come to that realisation.’

DG ASNO response: I am at a loss as to why FOE consider this is a false or misleading statement. My comment is absolutely correct – resolution of the North Korean nuclear issue depends on the North Koreans realising that pursuit of nuclear weapons is not in their interest. It is encouraging that in July 2005 Kim Jong-Il stated “he is fully committed to the denuclearisation of the Korean Peninsula, which is a legacy of his father”. The negotiations with the DPRK have a long way to go, but it is important that we make every effort to reach a satisfactory outcome.

vi. ‘Statements by Carlson/ASNO about the weapons useability of below-weapon-grade plutonium grossly distort the available scientific evidence and can only be seen as an attempt to promote uranium exports and to absolve governments and uranium mining companies of their culpability in increasing the global stockpile of weapons-useable plutonium.’

vii. ‘Carlson (2002) states that Australian-obligated plutonium is not weapon-grade but he fails to note that so-called below-weapon-grade plutonium can be - and has been - used in nuclear weapons.’

DG ASNO response: These questions were addressed during my appearance before the Committee on 10 October 2005, but I will summarise the position here.

In 1962 the US conducted a nuclear test using what was described as “reactor-grade” plutonium. I pointed out in my Annual Report for 1998-99 (page 58):

“There is some confusion over [this test, because] at that time “reactor-grade” was much closer to weapons-grade than is currently the case. While the US has never revealed the quality of the plutonium used in that test, there are indications that it was of “fuel-grade”, an intermediate category between weapons-grade and reactor-grade, which has been recognised as a separate category since the 1970s”.

I also stated:

“While [the technical difficulties of using reactor-grade plutonium] could possibly be overcome, to some extent at least, by experienced weapons designers (e.g. from the nuclear-weapon states, with experience from hundreds of tests to draw upon), ASNO

is not aware of any successful test explosion using reactor-grade plutonium, typical of light water reactor fuel”.

While FOE’s submission asserts my comments are a “gross distortion of available scientific evidence”, FOE representative Green himself quotes US sources as indicating the plutonium used in the 1962 test was fuel-grade rather than reactor-grade (Jim Green, newsletter of May 2005). One of the authors cited by Green was Dr Alex De Volpi, who was a senior scientist in the US weapons program. To quote Green:

“De Volpi (1996) is sceptical that the plutonium used in 1962 the test (sic) would be classified as reactor grade using current classifications, but states that it was below weapon grade, i.e. it was fuel grade plutonium”.

Thus Green is castigating me for expressing views similar to those he repeated, without disapproval, in his own publication. I note Green did not mention that De Volpi’s article was titled “A Coverup of Nuclear-Test Information”, and that De Volpi has described the US government’s position on the 1962 test as “deceptive”.

FOE also attack me for denying that “below-weapon-grade” plutonium could be used in nuclear explosions. This is another example of FOE verballing – what I actually said (quoted above) was that ASNO was not aware of reactor-grade plutonium of the isotopic composition typical of light water reactor spent fuel being so used. The only “gross distortion” here is FOE’s misrepresentation of what I said.

viii. ‘Carlson (2002) defends the International Atomic Energy Agency’s safeguards system and says it provides the “foundation” for preventing misuse of Australian-obligated nuclear materials. The safeguards system was exposed as a farce by the Iraqi regime in the 1980s and early ‘90s ... Since the Iraq debacle, efforts have been made to improve the system, but it still inadequate (and the IAEA is still hopelessly compromised by its other mandate promoting the spread of nuclear technologies).’

DG ASNO response: FOE are alone in considering the IAEA safeguards system is a “farce”. Most observers would share the view of the Norwegian Nobel Committee, in awarding the Nobel Peace Prize for 2005 to the IAEA and its Director General, Mohamed ElBaradei, that the “IAEA’s work is of incalculable importance”.

The IAEA itself was quick to acknowledge that the exposure of the Iraqi nuclear weapons program revealed weaknesses in the “traditional” safeguards system. Since the early 1990s a program involving the Agency and Member States has been under way to strengthen the safeguards system, particularly to improve the detection of undeclared nuclear activities. Australia is very active in this program. The safeguards strengthening program has been described in my various Annual Reports.

There is no basis to the claim of a conflict of interest between the IAEA’s safeguards responsibilities and its responsibilities to “enlarge the contribution of atomic energy to peace, health and prosperity throughout the world”. These responsibilities are complementary, not inconsistent. In practice the IAEA’s role with nuclear technology is more one of facilitation and monitoring than promotion. The IAEA also has a very important role in technical

assistance, making nuclear applications available to developing countries in areas such as health and agriculture.

To claim that the IAEA's responsibilities are inconsistent is in effect to argue there should be no international cooperation on nuclear science and technology. It would be more honest for FOE to state this position openly – doubtless FOE would oppose nuclear cooperation regardless of the organisation involved – rather than try to present it as an argument about conflict of interest.

ix. 'Carlson (1998) makes the absurd claim that: "One of the features of Australian policy ... is very careful selection of our treaty partners. We have concluded bilateral arrangements only with countries whose credentials are impeccable in this area." Carlson's claim is demonstrably false: ... [the situation in 6 countries are mentioned].'

DG ASNO response: The careful selection of bilateral treaty partners, taking account of their non-proliferation credentials, is not a "claim" made by me but a feature of Australian policy applied by successive governments. Looking at the countries singled out by FOE:

US, France and UK: FOE assert these countries are all in breach of their NPT disarmament obligations. To assess this claim, one should look at the actual obligations. Article VI of the NPT requires all NPT Parties 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".

The principal nuclear-weapon states (NWS), US and Russia, have concluded a series of agreements for nuclear weapons reductions. These countries have reduced deployed warhead numbers from 10,000 each in 1991 to 6,000 each in 2002, and are proceeding to levels of between 1,700 and 2,200 by 2012. Clearly there is more to be done in warhead reductions, but it is not helpful, as FOE do, to ignore this very real progress.

France and UK have both unilaterally reduced warhead numbers. Both have de-targeted their warheads. The UK has placed surplus military fissile material under IAEA safeguards, and has also placed all enrichment and reprocessing activities under safeguards. France is dismantling its military production facilities.

China: There is no basis for the assertion that China "has no intention of fulfilling its NPT disarmament obligations".

Japan has not breached any aspect of the NPT. Personal views in a US diplomatic cable in no way substantiate FOE's assertion that Japan is in breach of the NPT.

South Korea: As noted in the response to 1.ii above, it has been accepted by the IAEA Board of Governors that the activities referred to by FOE were not authorised by the ROK government. The ROK government has taken decisive action to improve the effectiveness of its nuclear regulatory arrangements. Also as discussed under 1.ii, FOE's assertion that "it is

not known and may never be known whether any AONM were used in any of the illicit research” is not true.

India: The Australian Government welcomes India’s intention to accept non-proliferation commitments, and sees this as a very positive development. However, India is not eligible for the supply of Australian uranium, and no consideration is being given to changing Australia’s policy in this regard.

General comment: The NPT disarmament provisions are more complex than many critics appreciate. From the terms of Article VI, quoted above, it is clear that the disarmament commitment involves all Parties, not just the NWS. It is neither reasonable nor consistent with the terms of the NPT to place all the onus on the NWS.

What is missing currently are wider international efforts, involving all NPT Parties, to negotiate a treaty on general disarmament, as contemplated by the NPT. Also essential to establishing the conditions for deeper cuts in nuclear arsenals is a firm commitment by all Parties, non-nuclear-weapon states (NNWS) as well as NWS, to non-proliferation. The efforts of some NNWS to pursue nuclear weapons are not conducive to nuclear disarmament. The NPT implicitly recognises the fact that a stable environment in terms of non-proliferation of other forms of WMD is also an essential condition for further nuclear disarmament.

2. Adequacy of Australia’s bilateral safeguards

Some submitters (e.g. Prof. Richard Broinowski, submission no. 72; MAPW, submission no. 30, p. 3; FOE, submission no. 52, pp. 19–22) argue that the ASNO-supervised bilateral safeguards to prevent military use of AONM are inadequate. It is argued that:

- i. AONM cannot be effectively safeguarded because of its quantity, the variety of its (chemical) forms, and the variety of locations and circumstances in which it is held;**

DG ASNO response: There is no basis for this assertion – the factors listed (quantity, form, locations and “circumstances”) have no adverse effect on the ability to apply safeguards to nuclear material.

Australian safeguards requirements are built on IAEA safeguards. Each of Australia’s bilateral partners, in accordance with its safeguards agreement with the IAEA, is required to maintain a national system for nuclear material accountancy and control, under which detailed data are recorded and updated for all safeguarded nuclear material. These records are based on specific batches or items of nuclear material (e.g. individually numbered fuel elements). The IAEA has some 45 years experience verifying states’ inventories of nuclear material – confirming whether actual nuclear material holdings correspond to declared inventories – through inspections, measurements, containment and surveillance, etc.

Australia’s bilateral partners are required to maintain records which enable AONM to be identified. These records are based on the records maintained to meet IAEA requirements – the usual mechanism is to add to the IAEA *pro forma* an additional column in which

safeguards obligation is recorded (e.g. "A" or "AUS" for Australian-obligated material). This enables specific batches of nuclear material to be identified as AONM.

ii. accounting procedures for nuclear materials involve uncertainties and margins of error which, on the industrial scale involved, means that it cannot be excluded that material sufficient to produce a nuclear weapon(s) could be diverted;

DG ASNO response: Accounting procedures for nuclear materials can be very precise, depending on the form of the material. It is correct that there are measurement uncertainties or margins of error for nuclear material in certain forms. Examples include plutonium in spent fuel, where the plutonium content is a calculated value which cannot be confirmed by precise measurement unless the plutonium is recovered by reprocessing, and nuclear material undergoing bulk processing (such as reprocessing, where fuel elements are dissolved and uranium and plutonium recovered).

In these case conclusions on non-diversion of nuclear material are not based on accountancy alone. In addition to nuclear accounting, the IAEA uses surveillance and containment methods, e.g. cameras and radiation detectors covering process lines, possible withdrawal points, and exit points. Even if the quantities of nuclear material undergoing processing are not known precisely at a particular moment, these measures provide assurance that no materials have been removed from the process.

iii. before comprehensive IAEA safeguards had been imposed on the international uranium trade, Australia sold several tonnes of unsafeguarded uranium to France, India and Japan in the 1960s;

DG ASNO response: Australia's current policies on uranium exports, including the current bilateral agreements and the concept of AONM, date from 1977. Obviously uranium exports prior to that time were not covered by current policies.

Statement 2.iii, however, is incorrect on two respects. First, although comprehensive or full scope safeguards were introduced following entry into force of the NPT in 1970, IAEA safeguards pre-date the NPT, and in fact have existed since 1959. Before the NPT, IAEA safeguards applied on an "item-specific" basis, i.e. to specified materials and facilities (and this is still the case in the countries not party to the NPT).

Second, it is not correct that all exports prior to introduction of the current policies were "unsafeguarded". For example, uranium exports to Japan were covered by the 1972 Australia/Japan nuclear cooperation agreement, which required Australian uranium to be covered by IAEA safeguards (which at that time were "item-specific") or by safeguards applied by Australia. The current Australia/Japan agreement, concluded in 1982, required nuclear material supplied by Australia under the 1972 agreement to be brought under the new agreement.

Due to pressure of other work ASNO has not had time to research the question of pre-1977 uranium supplies to France and India. However in his book "Fact or Fission" Broinowski indicates in both cases these were only "sample quantities", not the tonnes suggested above.

iv. since their inception under the Fraser Government, Australia's safeguards have been eroded by being inappropriately modified because of commercial considerations (e.g. the introduction of the 'flag swaps' and 'equivalence' concepts under the Hawke Government in 1986) (see list of seven points in Broinowski submission); and

DG ASNO response: There has been no "erosion" in Australia's safeguards requirements. Indeed, these have been strengthened, see Mr Downer's announcement in May 2005 that Australia is making the IAEA's Additional Protocol a condition of supply to NNWS.

Some of Broinowski's claims appear to reflect a misunderstanding of Australia's safeguards requirements. Comments on his seven points follow.

Sales to France when it was not an NPT Party: From the outset of the current policy (the policy announcement of 24 May 1977), the requirement for NPT membership applied only to non-nuclear-weapon states, on the basis that the NPT would ensure full scope safeguards applied to all their nuclear activities. In the case of the existing nuclear-weapon states, the policy has always been that exports may be permitted to such states where they give assurances that AONM will be used for exclusively peaceful purposes and will be covered by IAEA safeguards. Conclusion of a bilateral agreement with France was totally consistent with the 1977 policy.

Australian uranium no longer had to attract IAEA safeguards when leaving Australian ownership: The 1977 announcement recognised that this requirement presented a practical problem – Australia exports UOC (uranium ore concentrates, or "yellowcake"), which is before the "starting point" of safeguards. UOC exports are reported to the IAEA, and the IAEA confirms their receipt, but the full range of safeguards procedures do not apply until the uranium conversion stage, when UOC is processed into UF₄ or UF₆. To give effect to this requirement would have required establishment of uranium conversion facilities in Australia, but there was no commercial interest in this. Accordingly this requirement was modified.

The 1984 ASTEC Inquiry into Australia's Role in the Nuclear Fuel Cycle reviewed this requirement, and found that this modification did not weaken the policy. ASTEC concluded:

"Indeed, the original policy appears to have been based on a misconception that ownership gives additional safeguards control. In fact, safeguards control ... is independent of ownership." [1984 ASTEC Report, page 161].

Pre-1977 sales of uranium to Japan were not subject to prior consent: subsequently prior consent was dropped altogether in favour of a "program" approach: This raises two different points. First, the 1977 policy was not intended to be retroactive. Not unreasonably, Japan argued that uranium supplied pre-1977 should not be subject to new conditions. However, as noted in the response to 2.iii above, pre-1977 material was rolled into the 1982 Australia/Japan agreement.

As regards programmatic consent, this is not a derogation from the requirement for consent. The requirement for consent is that prior written consent must be obtained from Australia

before nuclear material is transferred to a third country, high enriched (to 20% or more U-235), or reprocessed. Rather than process numerous individual consent applications, the government decided it was more convenient to all concerned to give generic consent in advance under circumstances where in any event individual consent would have been given. The conditions of such consents are carefully defined, and Australia can withdraw consent if there are any difficulties. This is entirely consistent with the 1977 policy, it simply makes for more efficient implementation.

Allowing uranium contracts to be negotiated before conclusion of bilateral agreements: This issue was examined by the 1984 ASTEC Inquiry. ASTEC found that, rather than placing Australia under pressure to dilute its policy,

“there is some evidence to suggest [this] ... placed pressure on the customer country to meet Australia’s requirements and conclude an agreement so that deliveries might proceed.”

ASTEC concluded the change in policy did not result in any detriment. [ASTEC Report, page 162].

Sales from off-shore warehouses: As noted earlier, the applicable safeguards arrangements, rather than ownership, determine how nuclear material can be transferred and used. Establishing an offshore inventory, e.g. at a uranium conversion plant, gives the producer the opportunity to move quickly to secure contracts. However, the safeguards authority of the country where the inventory is located will not permit transfers outside the terms of the applicable safeguards agreements.

The principle of “equivalence” was introduced in 1986: The principle of equivalence was not introduced in 1986. The basis of Broinowski’s claim is not clear, but presumably was prompted by a statement of that time discussing the equivalence principle.

In fact the principle of equivalence, and the complementary principle of proportionality, have applied from the outset. These principles are not specifically mentioned in the 1977 announcement, because they are matters of technical detail. However, the principles are applied under all of Australia’s bilateral agreements, starting with the first agreement, with the ROK, in 1979.

The basis of these principles is that uranium is a “fungible” commodity, i.e. any particular quantity of uranium is indistinguishable from any other uranium of the same quantity and quality. It is a feature of the nuclear fuel cycle that uranium from different sources is mixed together at the various processing stages, e.g. conversion, enrichment, fuel fabrication, irradiation and reprocessing. This makes it impossible to track “national atoms”, and no country attempts to do this. Instead, at each stage of the fuel cycle an Australian obligation applies to the proportion of output that corresponds to the proportion of Australian-obligated input.

International “flag swaps”: The basis of these is that where a physical transfer might take place, in appropriate circumstances the physical transfer can be avoided (with resulting savings in terms of cost and the need to handle nuclear material). Broinowski gives an example that illustrates these arrangements. Suppose:

- (a) a US utility owns 100 tonnes of AONM in the form of UF_6 which is located in France awaiting enrichment. In the normal course, once enriched, the AONM will be shipped across the Atlantic for delivery to the US owner;
- (b) a German utility owns 100 tonnes of South African uranium as UF_6 which is located in the US awaiting enrichment;
- (c) the two companies could arrange to sell and transfer the uranium to each other, i.e. the US company would end up with 100 tonnes of South African uranium and the German company would have 100 tonnes of AONM. There would be no Australian policy issue with such transfers;
- (d) however, the companies can save shipping costs by arranging a "book transfer", by which the AONM would be re-labelled as South African and the South African uranium would be re-labelled as AONM. The outcome would be the same as if a physical transfer had taken place.

There is no detriment to Australian policy from a transfer of this kind. Such transfers are infrequent, are handled carefully by ASNO, and must reflect what could otherwise be done physically.

v. use of Australian uranium exports could potentially free up indigenous sources of uranium for use in military programs in customer countries.

DG ASNO response: This argument has no basis. It assumes that uranium is a scarce commodity. In fact every country has uranium - if cost is no object it can even be recovered from seawater. It is not a question of military and civil programs competing for uranium, historically in the NWS the military programs have always had priority and have been separately sourced.

A further point here is that all the NWS ceased production of fissile material for nuclear weapons purposes in the 1980s or 1990s. The choice for a NWS is not, will it use uranium for weapons or for electricity, but rather, will it generate baseload electricity with nuclear, or coal, or gas, or hydro?

3. Adequacy of the international safeguards regime

Some submitters have argued that despite the recent improvements, fundamental problems with the international safeguards regime remain (e.g. FOE, submission no. 52, pp. 18-19), including that:

- i. countries have pursued covert weapons programs within the umbrella of the NPT (e.g. Iraq, Romania, Taiwan, Libya and Yugoslavia);**
- ii. civil nuclear programs have facilitated covert weapons programs, (e.g. Iraq and North Korea);**

DG ASNO response: Romania, Iraq, DPRK, Libya and now Iran have been found in non-compliance with their safeguards agreements. Neither Taiwan nor Yugoslavia have been found in non-compliance.

The subject of strengthening the IAEA safeguards system, particularly with respect to detection of undeclared nuclear activities, is referred to in my response to 1.viii above.

In asserting that “civil nuclear programs have facilitated covert weapons programs”, is FOE suggesting that all nuclear activities should cease? Of course those countries that have pursued nuclear weapons have used scientists and engineers who have gained experience in nuclear research programs. It is hardly a serious response to this issue to proscribe all nuclear research – while we’re about it, why not proscribe all physics, all chemistry, all engineering, all mathematics and computing? There are 63 NNWS NPT Parties with significant nuclear activities – only five, those listed above, have been in non-compliance.

iii. there is no resolution to the problem highlighted by North Korea — having made full use of their right to access nuclear technologies for peaceful purposes, NPT signatory states can then withdraw from the regime and develop weapons;

DG ASNO response: Only one country, the DPRK, has attempted to withdraw from the NPT. I note that the DPRK’s nuclear capabilities were not obtained under the NPT. Withdrawal from the NPT is not an unqualified right. Many countries, including Australia, consider that the DPRK has not complied with the withdrawal provisions. Australia is active in the development of international action against any further withdrawals, for example, to establish that nuclear technology acquired during NPT membership continues to be bound by peaceful use obligations.

iv. some or all of the five declared weapons states are in breach of their NPT obligation to pursue good-faith negotiations on nuclear disarmament. Their ‘intransigence’ is said to provide excuses for other states to pursue nuclear weapons—and civil programs can provide the expertise, facilities and materials to pursue military programs;

DG ASNO response: On the claim that the NWS are in breach of their disarmament obligations, see my response on 1.ix above. The alleged intransigence of the NWS may provide the opportunity for simplistic rhetoric, but it is not plausible that a NNWS would seek nuclear weapons because the NWS are not meeting their NPT commitments.

v. the IAEA has a ‘dual and contradictory role’ of promoting the use and spread of nuclear technologies while preventing weapons proliferation;

DG ASNO response: See my response to 1.viii above, these are complementary rather than contradictory roles.

vi. membership of the Board of Governors of the IAEA is weighted in favour of countries with significant nuclear programs;

DG ASNO response: The IAEA Board of Governors has 35 members, appointed on the basis of the IAEA Statute. The Statute has a formula for membership of the Board of Governors which includes:

“the ten members most advanced in the technology of atomic energy ... and the member most advanced in the technology of atomic energy” in eight designated regions “in which none of the aforesaid ten is located”.

The remaining members (around 22) are elected with due regard to equitable representation.

It's not clear why the submitter objects to representation on the Board of those countries with significant nuclear programs, but in any event it can be seen from this formula that the Board is widely representative.

vii. the NPT/IAEA safeguards are of no relevance to non-NPT states—India, Pakistan, Israel and, since its withdrawal, North Korea (which has now indicated it will seek to resume NPT membership);

DG ASNO response: It's not clear what is meant by this statement. The NPT is not irrelevant to the three non-NPT Parties, their national security benefits substantially from the stable non-proliferation environment which the NPT provides. To a significant extent they are bound by the non-proliferation commitments of the NPT, in the sense that they should not assist a Party to break its commitment not to pursue nuclear weapons. All three non-NPT Parties accept IAEA safeguards on some of their facilities.

viii. the timeliness of detecting diversions—plutonium and HEU could be diverted and incorporated into a nuclear weapon in a short space of time;

DG ASNO response: The IAEA has set its timeliness and quantity goals for verification of nuclear materials on the basis of conversion times (i.e. how long it would take to turn the material into a nuclear explosive device) based the conservative assumption that all preparatory work has already been done. This preparatory work includes the construction and commissioning of relevant facilities, such as an enrichment or reprocessing plant. In practice far greater warning times should be available than simply the IAEA's timeliness goals. Part of the program to strengthen safeguards includes developing detection capabilities to find undeclared facilities, and information analysis to identify indicators of preparations to proliferate.

ix. 'Material Unaccounted For'—discrepancies between the expected and measured amounts of nuclear material, which is said to be particularly difficult in large throughput facilities such as reprocessing plants; and

DG ASNO response: See my response to 1.i and 2.ii above.

x. **there are resource constraints on the IAEA's safeguards program.**

DG ASNO response: For the period from the early 1990s to 2003 the IAEA operated under the constraints of a "zero real growth" (ZRG) budget applied by the Member States, in line with similar action in other UN bodies. In recognition of the increased workload facing the IAEA, in 2003 the IAEA Board of Governors agreed to a substantial increase – around 16% – in the regular safeguards budget.

Savings in safeguards costs are expected from the introduction of "integrated safeguards", which allow the rationalisation of safeguards activities in states where the IAEA has concluded there are no indications of undeclared nuclear material or activities. These savings will be available to offset increasing costs in other areas of safeguards implementation.

Member States are keeping the adequacy of the safeguards budget under review.