

Left Parties position on the Indo-US Nuclear Deal

Frequently Asked Questions

Question: Why have the Left parties asked the UPA Government not to go forward on further negotiations on the India-US nuclear deal now?

Answer: The Left parties have been closely following the emerging strategic tie-up between India and the US, a vital component of which is the nuclear deal. At every step of the way, it has asked the Government not to abandon the country's independent foreign policy or abandon India's self-reliant nuclear energy program. It had warned of the rightward shift of goalposts that is likely to occur right after Manmohan Singh-Bush agreement of July 18, 2005. After various versions of the Bill were submitted to the to both houses of the US Congress, the CPI (M) had done a clause by clause analysis that demonstrated how the US has not only consistently retreated from its commitments but has also attempted to lock India into a relationship that will serve American strategic interests. The CPI (M) had then observed that, given the nature of the two bills which were to be the basis of the US Act for civilian co-operation with India, it was clear "that this Deal will not lift existing embargoes on technology, will keep Indian foreign policy a permanent hostage to the US, and impose a host of discriminatory restrictions on the Indian nuclear program. In its current form, the Deal will not be acceptable to the Indian people." [CPI (M) statement issued on 23rd July 2006]

Subsequently, after the two Bills were reconciled and put together as the Hyde Act and duly passed by the US Congress, the CPI (M) had stated that given that the Hyde Act was a clear departure from what the PM had stated before the Parliament, the Government should not go ahead with the 123 Agreement. The CPI (M) had stated then "This (the Hyde Act) cannot be accepted by India as it negates the most significant, if not all, assurances made by the Prime Minister to the Indian parliament. Thus, further negotiations on this score must not proceed." [CPI (M) statement issued on 11th December 2006]

Therefore, the Left's demand of asking the Government for not going ahead with the nuclear deal is neither sudden nor new. It is, after studying the nuclear deal as well as other steps that have or are being taken, that the Left has finally stated that enough is enough. A minority Government, which obviously does not have the support of the Parliament on this score, cannot go ahead and pledge the country's future. The Left cannot continue to let the country's future be mortgaged in this way. Therefore the Left parties have now said clearly that if the Government wants to continue to flout the majority view inside the Parliament, it must face the consequences.

Question: What are the other measures that have accompanied this Nuclear Deal that will jeopardise India's independent foreign policy?

Answer: It must be understood that the Nuclear Deal is a part of a larger interlocking program in which India is to become a partner in the US's strategic vision. Apart from these strategic ties, the Manmohan Singh Government has also tried to forge closer military collaboration and economic integration with the US.

In foreign policy, one of the major steps was signing of the New Framework for India-US Defence Relationship in Washington on June 28, 2005, just prior to the Manmohan Singh-Bush Agreement

of July 18, 2005. This agreement states, “US-India defence relationship derives from a common belief in freedom, democracy, and the rule of law, and seeks to advance shared security interests”. The US invasion of Iraq, justified under the bogus claim of bringing democracy to West Asia, was a blatant violation of international law was a fact that cannot be overlooked; and India’s entering into this agreement, which alludes to a *shared belief* in “democracy and rule of law” with the US, was a good indication of where India’s foreign policy was headed. The Defence Framework Agreement is sweeping in its scope, and it lays the foundation for drawing India into a web of strategic and military relations — joint military exercises, joint planning, joint operations in other countries and defence procurement.

The Manmohan Singh Bush agreement was followed immediately by India’s *volte-face* on Iran in the International Atomic Energy Authority (IAEA), on two occasions. These moves against Iran at the IAEA, to which India became a party, have been widely regarded as setting the stage for imposition of immediate punitive sanctions and later, an armed attack on Iran. Bush officials have now made public that India succumbed to the US pressure in IAEA. US Senator Richard G. Lugar in his opening remarks in the Senate Foreign Relations Committee had noted, approvingly, “We have already seen strategic benefits from our improving relationship with India. India’s votes at the IAEA on the Iran issue last September and this past February demonstrate that New Delhi is able and willing to adjust its traditional foreign policies and play a constructive role on international issues.” Manmohan Singh’s oft-repeated claims that India’s foreign policy would not change due to this Deal, is not borne out by his Governments’ record.

The next step, and the most serious of all, is the Logistics and Service Agreement, which the Manmohan Singh Government is currently negotiating with the US. This is widely known as the Acquisition and Cross Servicing Agreement (ACSA), which the US already has with several countries, mostly the NATO nations. This initiative seeks to convert India into an Asian outpost of NATO. It essentially allows refuelling and complete access facilities to all US ships and aircraft. Put simply, the US navy can bomb Iraq and Iran and then come to India’s ports for rest, recreation and refuelling, before going back for another round of hostilities. Step by step, from a vote against Iran, we are now to become hosts to the US navy in its military misadventures in West Asia and elsewhere. The Logistics and Service Agreement as well as the Defence Framework, has also requirements of “interoperability” between the Indian and US armed forces. This calls for both sides to have the same equipment so that military personnel of both sides can use each other’s equipment and operate better together. This also means spares can be shared by the two sides. That is why such agreements invariably lead to buying of US arms, particularly expensive aircraft and missiles. Billions of dollars of US fighter aircrafts like F-16 and F/A-18A and missiles would be sold to India following this agreement.

If this were not enough, we have also become willing partners to the US policy of containment of China. Nothing else can explain why Indian navy should join in the naval exercises of trilateral countries – the US, Japan and Australia in the Bay of Bengal. It seems that the plan is to gradually expand the trilateral countries to include India and become the quartet. It is known that the US strategic thinking calls for “full spectrum” dominance in all possible theatres. In Asia, the US has been handicapped because in the entire Eastern, South-Eastern and South Asian region, it has only one major military base – in Okinawa, Japan. The only other base it has in this region is in the Indian Ocean, in Diego Garcia. Getting India to join the US designs of widening its strategic ambit in Asia is therefore a major breakthrough for the US. The question is what benefit does India get in becoming a part of this US vision? Is this in the interest of India’s independent foreign policy?

Question: How does the Hyde Act put pressure on India's foreign policy?

Answer: There are various sections in the Hyde Act that, directly or indirectly, refer to India's foreign policy. There are a number of references to India's role being one of support and complicity with the US designs on Iran. It has been stated at the outset in the Hyde Act, under Section 102 (Sense of Congress), that the US is entering into a nuclear cooperation agreement with a non-NPT signatory like India on the basis that it "has a foreign policy that is congruent to that of the United States, and is working with the United States on key foreign policy initiatives related to nonproliferation;" The Left Parties had expressed serious concern on such conditions inserted into the Hyde Act, which are obvious attempts to coerce India to accept the strategic goals of the United States. Other instances of such provisions in the Hyde Act are:

- ✍️ Annual certification and reporting to the US Congress by the President on a variety of foreign policy issues such as, "India is fully and actively participating in United States and international efforts to dissuade, isolate, and, if necessary, sanction and contain Iran..." [Section 104g(2) E (i)]
- ✍️ Indian participation and formal declaration of support for the US' highly controversial Proliferation Security Initiative, including the illegal policy of interdiction of vessels in international waters [Section 104g(2) K]
- ✍️ India conforming to various bilateral/multilateral agreements to which India is not currently a signatory, such as the US' Missile Technology Control Regime (MTCR), the Australia Group etc. [Section 104c E, F, G]

It has been argued that all these are in the non-binding sections of the Act and therefore India need not care about them. However, what is being deliberately overlooked is the annual certification clause, by which the US Congress will have to be kept informed of India's good behaviour in living up to the Hyde Act. In case such a certificate is not forthcoming or if the Congress is not satisfied with the US President's certificate, the Congress could take measures to suspend or terminate the 123 Agreement for Civilian Nuclear Co-operation. This would mean that the US could always use the Hyde Act or the US Congress as a constant source of pressure on India's foreign policy. The deeper we are in a nuclear co-operation agreement with large investments made on imported nuclear reactors and fuel, the more would be the threat.

Question: What were some of these key assurances that the Prime Minister gave in the statement to the Rajya Sabha?

Answer: Various sections of the country's public opinion, particularly the Left Parties and a group of leading nuclear scientists, had publicly raised various queries and criticism regarding the progress of the nuclear deal. These were raised in the light of the two draft bills that were before the US Senate and the House of Representatives for being voted upon. These bills, after some modifications, eventually became the Hyde Act. However various provisions of the bills and the discussion surrounding them had already raised serious concerns in India. Thus the Prime Minister on August 17, 2006 made a statement in the Rajya Sabha that gave concrete assurances regarding the nuclear deal in response to these queries and criticisms.

- 1) The Prime Minister stated that India would not accept any interference on its ability to make independent foreign policy.

- 2) In the nuclear deal, the Prime Minister guaranteed that India would accept nothing less than “full civilian nuclear cooperation”. This meant, in his words: “We seek the removal of restrictions on all aspects of cooperation and technology transfers pertaining to civil nuclear energy — ranging from nuclear fuel, nuclear reactors, to re-processing spent fuel, i.e. all aspects of a complete nuclear fuel cycle.” The Prime Minister specifically guaranteed that: “We will not agree to any dilution that would prevent us from securing the benefits of full civil nuclear cooperation as amplified above.”
- 3) The Prime Minister explicitly guaranteed that the Government would not accept any dual-use restrictions on technology. This was in response to a query of the Left Parties that asked whether the deal would “lift all existing sanctions on dual use technology imposed on India for not signing the NPT”. The Prime Minister specifically assured “we seek the removal of restrictions on all aspects of cooperation and technology transfers pertaining to civil nuclear energy”.
- 4) The Prime Minister assured that no binding and irreversible commitment to place India’s civilian nuclear facilities under IAEA safeguards would be made without ensuring that all restrictions on India had been lifted.
- 5) The Prime Minister’s statement emphasized that any provision for annual reports, by the President of the United States that India was complying with its non-proliferation and other requirements, was against the letter and spirit of the deal. He specifically assured that these provisions, in the draft bills, were “not acceptable to us”, even if they “were projected as non-binding”, as for instance by the Bush administration and other commentators in the US and India.
- 6) India would not accept any scrutiny of the strategic part of its nuclear program in any form. Nor would it allow any compromise on its pursuit of its long-term three-stage nuclear program, using fast-breeder reactors and thorium based reactors as the second and third stages.
- 7) The Prime Minister’s statement emphasized that India would insist that the terms of the Separation Plan of March 2006, agreed to with the United States, should be fully adhered to. The PM’s statement especially emphasized that the Plan, among other things, gave India the right to accumulate enough nuclear fuel sufficient to cover the lifetime of India’s nuclear reactors. Further the Plan gave India the right to take suitable corrective measures in case fuel supply was interrupted.
- 8) There would be no safeguards that would not be administered by the IAEA. Aware of the widespread concern that the Americans may one day seek to impose their own biased, unilateral version of inspection, the Prime Minister specifically guaranteed that: “We will not accept any verification measures regarding our safeguarded nuclear facilities beyond those contained in an India-Specific Safeguards Agreement with the IAEA. Therefore there is no question of allowing American inspectors to roam around our nuclear facilities”.
- 9) India would give no assurances regarding testing specifically in relation to this agreement for civilian nuclear cooperation. However it would continue its unilaterally declared moratorium on testing.
- 10) The PM’s statement reiterated India’s commitment to global nuclear disarmament in line with the Rajiv Gandhi Action Plan and at the same time reiterated India’s refusal to accept discriminatory proposals like signing the NPT, or signing regional disarmament proposals.

Question: In what manner did the final version of the Hyde Act go against these assurances and guarantees given in the Prime Minister’s statement?

Answer: The Hyde Act in its final form went directly against many of the assurances and guarantees that the Prime Minister had given:

1) The Hyde Act explicitly made it clear that “full civilian nuclear cooperation” would simply not be forthcoming. It was clear that neither the US Congress nor the US Administration had any intention of allowing India access to enrichment, reprocessing and heavy water facilities. Indeed the US Administration had not moved from the position that President Bush had made clear shortly before his India visit in March 2006. Bush referred to the Global Nuclear Energy Partnership that the US had already initiated with Russia, France, Japan and China as partners which seeks to divide the world into ‘fuel suppliers’ and ‘fuel users’. Recycling or reprocessing capabilities for nuclear fuel would be restricted to the first category. India, according to Bush, was to be unambiguously placed in the second category of those who would not have access to such technology. The US Congress, with its ranks full of those who are most vociferous in the denial of nuclear technology to India, had obviously no trouble in following suit.

2) The Hyde Act specifically maintained that there was also a need to restrict the access to enrichment and reprocessing technologies for India, thus maintaining dual-use restrictions on technology transfers to India.

3) Despite the vehement tone of the Prime Minister’s statement against the annual ‘certification’ by the US President, the US Congress did no more than replace the word ‘certification’ with ‘assessment’ retaining the rest. These in the final version included:

i) Annual assessment and reporting to the US Congress by the President on a variety of foreign policy issues such as India’s foreign policy being “congruent to that of the United States” and more specifically India joining US efforts in isolating and even sanctioning Iran [Section 104g(2) E (i)].

ii) Indian participation and formal declaration of support for the highly controversial Proliferation Security Initiative including the illegal policy of interdiction of vessels in international waters [Section 104g(2) K]

iii) India conforming to various bilateral/multilateral agreements to which India is not currently a signatory such as the US’ Missile Technology Control Regime (MTCR), the Australia Group etc [Section 104c E, F, G]

It is true that Bush declared, soon after signing the Act into law, that the provision of such assessments is not binding and that he would treat the relevant clause as advisory. However Bush’s predilection of declaring a large number of different clauses in various legislations passed by the US Congress as simply advisory has been severely criticized in US domestic politics. It is quite likely that following the US Congress, US Presidents in future may take the ‘assessment’ process more seriously. In any case, if the Congress cracks the whip, it can always do so and initiate steps to terminate the deal.

4) On the question of scrutiny of the non-civilian part of the program, the Hyde Act specifically required an account from the President annually of various actions undertaken by India in relation to its strategic nuclear program.

5) On the question of the maintenance of fuel supply in the event of disruption and the building of a nuclear fuel reserve, the final version of the Hyde Act, went beyond the original two bills passed by the US Senate and House of Representatives. It explicitly included two fresh restrictions. The first mandated that in the event of any disruption of supply due to deliberate US termination then the US administration is bound to persuade other members of the Nuclear Suppliers Group to follow suit. Secondly, no building of a fuel reserve was to be assisted beyond what was required for purely operational requirements.

6) The Hyde Act makes clear that testing would lead to the termination of the agreement. It however, goes well beyond the requirement of 'no testing', as is clear from its language that nuclear cooperation could be terminated if there were any other US law by which also this cooperation was rendered inoperable. If termination of the agreement occurs under such conditions, the US is bound to persuade other nations to put India back in nuclear isolation.

7) India was expected to join the discriminatory non-proliferation regime, partly as enforcer such as in the Proliferation Security Initiative, and partly as both subject and enforcer in respect of the other arms control regimes. If India fulfilled these expectations of the United States, the ability to undertake global disarmament initiatives would, of course be severely limited. India's credibility in global disarmament has already been severely damaged by the ongoing nuclearisation, with the induction and deployment of nuclear weapons, initiated by the NDA and continued by the UPA Governments. It must be recalled that the NDA Government had earlier signalled their willingness to sign India into the discriminatory global non-proliferation regime provided they could enter as a nuclear weapons state in some form or the other. The UPA Government under Manmohan Singh had not renounced that policy explicitly. The only clarification that has come in this regard has been the declaration of the Prime Minister that he had personally informed President Bush that India would not be a party to any bilateral version of the NPT or the CTBT.

Question: How is the '123 Agreement' related to the Hyde Act?

In the original Joint Statement of 2005 President Bush had promised that the relevant US laws would be modified to enable Indo-US nuclear cooperation to take place. This is because the United States, apart from executive action, also conducts foreign policy by the passing of specific legislation in the Congress governing the relations of the US with other nations. The US Congress has, in particular, erected a dense jungle of laws, rules and legislative requirements and practices on the question of non-proliferation.

The main modification of US laws to enable nuclear cooperation between the United States and India is effected by the Hyde Act. Without the Hyde Act, the '123 Agreement' between the US and India would not have come into being. Such an agreement is required by Section 123 of the US Atomic Energy Act for nuclear cooperation between the United States and any other nation, and hence also the nickname by which it is commonly known. This '123 agreement' lays out the main nature and structure of nuclear cooperation between the US and India. It has however to conform to the requirements of the Hyde Act, which the US Undersecretary of State, Nicholas Burns has been at pains to emphasize. During the official briefing on the 123 agreement on 27th July 2007, Burns categorically said: "...we were very careful when we began these — the latest phase of these negotiations to remind the Indian Government that since the President and Prime Minister had their two agreements of July '05 and March '06, something else had happened: The Congress had debated over six, seven months those agreements and *the Congress has passed the Hyde Act*. And so

we had to make sure that *everything in this US-India civil nuclear agreement, the 123 Agreement, was completely consistent with the Hyde Act and well within the bounds of the Hyde Act itself.*” (emphasis added)

The Hyde Act can and does impose restrictions and conditionality on the implementation of US-India nuclear cooperation that are binding on the US Administration. They need not appear in the 123 Agreement, which is a bilateral agreement between India and the US. The 123 Agreement lists out the joint obligations of either parties, or the parties to each other. The key issue here is does the 123 Agreement have enabling provisions, which allows the other measures under Hyde Act to be implemented. For example, if the US Congress asks the 123 Agreement to be terminated, does the Agreement have provision for this? And the answer is that the right of termination and return of materials is incorporated in the Agreement under the Termination clause. Burns had the following to say about it: “On the issue of so-called right-of-return that, of course, the American President under our Atomic Energy Act has the right to ask for the return of nuclear fuel and nuclear technologies if there is a test. That right-of-return has been, of course, preserved as it must be under our law, and there has been no change in how we understand the rights of the American President and the American Government... you know, when you write an agreement the way we have, and when you have legions of lawyers on both sides of the table, you also build in protection — both sides do — to meet your legal obligations. And so if there's ever any reason for the United States to have to invoke the right-of-return, we could certainly do so.” The termination clause is also quite wide ranging and not limited to only testing. As it stands, the agreement can be terminated by giving reasons by either party. In other words, if the US does not like India buying, say LNG from Iran, it can bring the termination clause into play by giving this as a reason. In such an eventuality, India would be back to complete nuclear isolation.

Moreover, the claim on the part of the Prime Minister Manmohan Singh made in his 13th August 2007 statement in Loksabha on Civil Nuclear Energy cooperation with the US, that the annual good conduct certificates required by the Hyde act provisions does not find a place in the 123 agreement, therefore implying that this has now been overridden, is hollow. Since the annual reporting is an obligation of the US President to the US Congress, the 123 Agreement does not necessarily have to contain that provision in its text for it to apply. The condition still remains, irrespective of whether it is in the 123 Agreement. That the Hyde Act *holds* in the 123 Agreement has been written into the 123 Agreement itself in Article 2.1, which states that “Each Party shall implement this Agreement in accordance with its respective applicable treaties, ***national laws***, regulations, and license requirements concerning the use of nuclear energy for peaceful purposes”. (emphasis added) Thus the suggestion of several spokespersons of the Indian Government that the requirements of the Hyde Act and the 123 Agreement are somehow independent or that the 123 somehow overrides the Hyde Act is clearly untenable.

Question: Will the ‘123 agreement’ help the Government to maintain the assurances given earlier and recover the ground lost with the passage of the Hyde Act?

Answer: The answer is an emphatic NO. In fact, the agreement clearly reflects all the limitations of the Act that enabled it to be born. The 123 Agreement also explicitly refers to the fact that the agreement is to be implemented in accordance with the national laws, etc. of both countries, namely the Hyde Act and the Atomic Energy Act of the US. To appreciate fully how the 123 Agreement fully in line with the Hyde Act, we have to briefly go into some of the details of the agreement which is discussed below.

Question: What new developments have come about with the completion of the negotiations for the 123 Agreement? What light does the PM's statement in the Loksabha on August 13, 2007 shed on the nature of the agreement?

Answer: (i) The agreement uses the term "full civilian nuclear cooperation covering aspects of the fuel cycle", which clearly implies that the agreement has omitted talking of **all** aspects of the nuclear fuel cycle. Therefore, there will be no cooperation in the field of reprocessing, enrichment, and heavy water facilities. This has been made absolutely clear. Secondly, the agreement makes it clear that the restriction of dual-use technologies relating to these fields will also continue. Thus what past experience has shown to be one of the most burdensome aspects of the nuclear blockade against India is not going to be substantially mitigated. It should also be noted that the grand claim in the Prime Minister's statement that this agreement "...will be creating opportunities for our scientists to participate in the international exchange of scientific ideas and technical know-how and to contribute to the global effort to deal with the world-wide challenges of energy security and climate change" is an extreme overstatement. Indian scientists will continue to be denied collaboration and know-how and even equipment in the most critical areas of the nuclear fuel cycle and other fields, because of dual-use restrictions.

(ii) The details of what kind of reprocessing facilities India is allowed belongs to the subject matter of the '123 agreement'. Here India has been given the consent in advance to process spent nuclear fuel, but only in principle. The details of the "arrangements and procedures" (as they are formally in US nuclear jargon) to actually reprocess are governed by a separate section, namely Section 131, of the US Atomic Energy Act. These specified procedures and approvals etc. have to be gone through when the facility is actually set up and various US approval procedures, including the approval of the US Congress, is required again at that stage. These procedures provide ample opportunity for further shifting of the goal posts by the US in future.

(iii) The non-assistance and dual-use restrictions on enrichment and reprocessing facilities will also clearly affect the three-stage nuclear program. Any fast-breeder program or later thorium based reactor program based on the reprocessing of spent imported nuclear fuel will take place under these restrictions but nevertheless with the application of safeguards. Thus India gains nothing in this area of significant technological blockade. Significantly when the Principal Scientific Advisor to the Prime Minister and the former Chairman of the Atomic Energy Commission, Dr. R. Chidambaram, was asked in an interview in The Hindu, whether the 123 agreement would affect India's three stage nuclear program, he responded with caution, saying: "it will not decelerate India's three stage nuclear program". This precisely acknowledges that India's nuclear scientists will continue under the same regime of 'isolation' or blockade that they have worked under so far.

(iv) The issue of fuel supply assurances remains as fuzzy as ever. The first cause is the reference in the relevant clause of incorporating fuel supply assurances in an 123 Agreement that would be submitted to the Congress. Since this is the 123 Agreement, the reference to incorporating fuel supply assurance in an 123 agreement is not clear. Secondly, the implementation of the fuel guarantee explicitly depends on the willingness of the IAEA and other nations (including through the Nuclear Suppliers Group) to cooperate in enabling this. If the NSG and the IAEA insist on abiding by the standards set by the United States then the implementation would be exceedingly difficult. Thirdly, it should be noted that if fuel supply were indeed procured from other sources, it would still be subject to the terms and conditions of the 123 Agreement if it were processed through US equipment.

(v) The Indian Government's claim that there is some assurance of fuel supply in the event of the cessation of cooperation does not appear to be borne out by facts. The PM's statement that India has the right to 'corrective measures' in the event of disruption of supplies by cessation of cooperation does not mention that this is to be negotiated as part of the IAEA safeguard arrangement and depends on its approval at that stage. In the matter of maintaining fuel supply, the Hyde Act will certainly prevail. Under its terms, in the event of a nuclear test or for any other reason as established by US law even subsequently, the US administration is obliged to cease nuclear cooperation. The Hyde Act explicitly states that the US will work with other Nuclear Suppliers Group (NSG) countries to stop all fuel and other supplies to India if the agreement is terminated under US laws. Therefore, it is also bound to act to prevent nuclear cooperation between India and other countries in such a case. Article 5.6 of the 123 Agreement on disruption of supplies therefore seems to be limited to "market failures" and not to cover a disruption that takes place under the clauses of the Hyde Act. In such an eventuality, the US will have to pay compensation to India but all future fuel supplies would stop.

(vi) The claim in the PM's statement that the agreement has built in an "elaborate process of consultation" prior to any cessation of cooperation does not mention the fact that this is not obligatory. According to Article 14.2 of the 123 Agreement, cooperation may cease without consultation if either party deems that such consultations would not be fruitful. Further by Article 14.9, the right to reprocessing may also be unilaterally withdrawn, with of course the fig leaf of some consultations. As noted above, this stranglehold on reprocessing rights also applies to spent imported fuel if it has been used in reactors of US origin.

(vii) The PM's statement that India's right to test nuclear weapons is not abridged by the 123 Agreement is correct. However, the consequence of a test by India is specified in the Hyde Act. This has been amply clarified by a US State Department spokesman Sean McCormack on 14th August 2007: "The proposed 123 Agreement has provisions in it that in an event of a nuclear test by India, all nuclear cooperation gets terminated." He added that there is also a "provision for return of all materials, including reprocessed material covered by the agreement".

Question: How important is nuclear energy in India's future electricity and energy requirements?

Answer: It is very strange that we are having a discussion in the country of the importance of nuclear energy to our energy basket only in the context of the Indo-US nuclear deal. If indeed nuclear energy were so important to India's future, why is it that no serious techno-economic study has ever been presented impressing upon us the vital importance of nuclear energy?

At present nuclear power generation capacity in India stands at 4,120 MW, which is a little less than 3% of our total installed capacity of all power plants. A part of the reason has been the nuclear isolation we have faced and therefore the much slower development of our civilian nuclear energy program. However, this is only a part of the reason. The other part is the techno-economics of nuclear power and its relatively high cost. The key issue is what is the total amount of power that can be added using the nuclear route and what will be its cost? We will deal with the techno-economics of nuclear power later, but let us first take up the possible proportion of nuclear energy, both in terms of its contribution to electricity generation and as a proportion of the primary energy basket.

If we assume that we need to add about 100,000 MW in the next 10 years, as the Ministry of Power is asserting, what is the best-case scenario for nuclear power? According to the Planning Commission's study (Integrated Energy Plan, Planning Commission), taking the most optimistic scenario, it is 15,000 MW by 2015 and 29,000 MW by 2021 (these targets include 8,000 MW of imported reactors). Even though these targets have already been admitted as quite ambitious by the Planning Commission ("Optimistic Scenario"), let us assume for the sake of argument, that they can be met. Even then, nuclear energy will only add up to about 7% of our total installed capacity. And if we take the even more ambitious figures that the Government is now bandying about – 40,000 MW by 2020 – this will still be less than 9% of our total installed capacity. Figures such as 40,000 MW by 2020 have no relation to the actual capabilities on the ground, or the need for huge amounts of capital for such a program, or the cost of such power if these plants are set up. However, even if one goes by these "optimistic" scenarios, it is clear that that nuclear power is going meet only a small part of our electricity needs. And as the techno-economics will show, going ahead with such an ambitious nuclear power program will come at a high cost and will dry up investments in other sectors.

Question: What are the economics of nuclear power vis-à-vis other forms of power?

Answer: In the 1960s and '70s, there was a lot of euphoria about nuclear power. By the '80s, it became clear that nuclear power was high-priced. In the West, nuclear plants routinely overshot their budgets and the time required to erect them. With discovery of gas in large quantities and increased efficiency of thermal power plants, nuclear plants were perceived to be too expensive. This was quite independent of the debate regarding the potential hazards, de-commissioning costs, and the problem of storing nuclear wastes.

India's experience in this regard has been no different. Nuclear power plants are about 25-30% more expensive, even when using domestic technology and equipment. And since they take a long time to build, before the plant starts producing power, a large amount of capital is locked up during construction. If the plant is built using a mix of equity and debt, this cost of locking up money is known as Interest During Construction (IDC); the capital cost of building a plant, without taking its IDC into account, is called 'overnight' costs. This is the way that all conventional power plants are built and is also the way the Nuclear Power Corporation of India Limited is proposing to build plants in the future. Taking IDC for both thermal and nuclear plants, the capital cost of nuclear power plants would be twice that of coal-based thermal power plants — about Rs. 8.1 crore per MW (about Rs. 6 crore as overnight costs and 8 years to construct the plants) for nuclear plants, as against Rs. 3.73 crore per MW (Rs. 3.2 crore as overnight costs and 4 years time for construction) for coal fired plans. That means that the cost we incur to put up nuclear plants that will generate 10,000 MW of nuclear power is far greater; with the same amount of money we can put up 20,000 MW of coal-fired plants.

If imported reactors for nuclear power are considered, the situation becomes even worse. The cost of nuclear plants, as overnight costs is Rs. 9 crore per MW. Taking into account the IDC, this becomes around Rs. 12.1 crore per MW or three times the cost of coal-fired power plants. In other words, if we put up 10,000 MW of imported nuclear plants, with the same amount of money we could put up 30,000 MW of coal-fired power plants. For a 40,000 MW nuclear power program, it would mean importing 20,000 MW of imported reactors with 20,000 MW of indigenous reactors. This means an investment of Rs. 400,000 crore, which is equal to the total amount of investment we have planned for the entire 100,000 MW in the next 10 years! Incidentally, India's total capacity

addition in the last 10 years has been less than 40,000 MW, the figure that is now being proposed for nuclear power alone.

The cost of power from nuclear plants, as compared to that from coal-fired plants, is also quite higher. Coal-fired plants today produce electricity at the plant end (not as delivered to the consumer) cost of about Rs. 2.50 per unit depending on the coal cost at the location. For nuclear plants with domestic reactors, the cost is about Rs. 3.90 per unit. For imported reactors, it is about Rs. 5.50 per unit. Even if we take a lower figure for time of construction – 6 years instead of 8, then the corresponding cost figures would be around Rs. 3.60 for domestic units and Rs. 5.10 for imported ones.

Not only is nuclear power more expensive, it will also have adverse effects on the entire power sector. Going in for huge investments for imported nuclear power plants – three times the cost of coal fired units -- would mean starving the Indian economy of other investments. It would mean either giving up much larger investments in the power sector or starving other infrastructure sectors.

For those familiar with Enron, there is a sense of history repeating itself. First, there is a political decision to give Enron a 2,000 MW project, and then the fuel policy and power policies are changed to suit Enron. The liquid fuel policy of using naphtha as fuel for power plants came out of the need to accommodate Enron. Today, it is clear that such a policy, decided without application of mind and considering the techno-economics of the sector, has resulted in a major crisis for Maharashtra State Electricity Board and idling of plants using naphtha. Unfortunately, a similar exercise is underway with respect to nuclear energy. In order to justify the Indo-US nuclear deal, we are now talking about 40,000 MW of nuclear energy, without taking into account its capital cost or the price of electricity from such plants. If the MSEB crisis was the result of adding a 2,000 MW Enron plant, we can only imagine what would be the impact of introducing 40,000 MW and its high cost power.

The talk of using imported nuclear reactors for providing energy security is also misleading. Unlike the three-phase nuclear cycle, which envisages the use of enriched uranium in Pressurised Water Reactors (PWR), then using reprocessed plutonium of the PWR's along with a thorium blanket in Fast Breeder Reactors (FBR), and finally plutonium and thorium mix in Advanced Heavy Water Reactors (AHWR), the imported Light Water Reactors (LWR) plants use only enriched uranium. In such a cycle, the requirements of uranium are much higher, and we would need continuous imports of large amounts of uranium. If we concentrate instead, on the FBR and AHWR route, this would require much smaller amounts of uranium and would therefore require much smaller amount of imports thus providing greater fuel security than the imported reactor route that the Government is currently pushing.

Question: How important is oil and gas in India's future energy needs?

Electricity is only a part of our total energy needs. We need fossil fuels for transport, for manufacturing fertilisers and petrochemicals and also for household consumption. The requirements of primary fuels also depend on the kind of fuel we use for power generation. However, it is clear that in any scenario, the bulk of India's electricity needs – from 91% as the best-case scenario to 95% as per current plans - would have to come from non-nuclear sources. For the foreseeable future, the nuclear option is going to have little impact on our need for other sources of

energy. Oil has been used in India primarily for transport and industry. The Tenth Plan has this to say about the growth of hydrocarbon demand: “The share of hydrocarbons in the primary commercial energy consumption of the country has been increasing over the years and is presently estimated at 44.9% (36.0% for oil and 8.9% for natural gas). The demand for oil is likely to increase further during the next two decades. The transportation sector will be the main driver for the projected increase in oil demand. Consequently import dependence for oil, which is presently about 70%, is likely to increase further during the Tenth and Eleventh Plans.”

It has been estimated that by 2015, Indian demand for crude oil would be around 4.25-4.5 million barrels/day and it would be importing about 80% of this, almost entirely from the West Asian region. The important issue here is that if we look at the power sector demand, oil does not figure in this. So nuclear energy, which can be used to produce electricity, is not a substitute for oil under any circumstance. While India accounts for only about 2% of world’s oil consumption, it is already among the 10 largest importers of oil in the world. With increasing oil consumption, this trend is likely to continue with India and China emerging as major importers of oil accounting for at least 15% of world’s oil demand. As there is no way nuclear energy can go into trucks, buses and cars, the transport sector will continue to be heavily dependent on imported hydrocarbons in the near future. If we take nuclear energy as a fraction of the total primary energy needs of the country, we find that this is not more than 3-5% of our total primary energy basket (the 5-9% of the electrical energy translates to 3-5% in primary energy terms). If we look at oil and gas, even with an ambitious nuclear energy program, they will constitute more than 30% and 10% respectively, and together more than 40% of our future energy needs. More than 40% of our energy needs in the future is going to come from oil and gas - and this, independent of our nuclear energy program.

Therefore, the nuclear deal that has been signed between India and the US will help us only to a marginal extent in addressing our primary energy needs. The argument that nuclear energy is the energy for the future is neither backed up by rigorous analysis of India’s energy needs nor does it take into account the fact that very few countries are exercising the nuclear energy option in today’s world. India needs to keep the nuclear option open, looking at possible long-term needs; but to present this as a panacea for our current energy needs flies in the face of reality. If India has to take measures for its energy security in the immediate future, its primary concern must be to secure oil and gas supplies. It is in this context that peace and stability in West Asia is of such vital concern for India. Aspiring to be seated at the international high table, by becoming a junior partner of the US, is not only irrelevant as far as our energy needs are concerned but may actually militate against the interests of India’s energy security. This is borne out by the virtual abandonment of the proposed Iran-Pakistan-India gas pipeline project by the Indian Government at the behest of the US.