

ATOMS FOR PEACE + 50 Nuclear Energy & Science for the 21st Century

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Panel Chairman:

Ambassador Linton F. Brooks, Administrator, National Nuclear Security Administration and
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Controlling and Accounting for Existing Fissile Material, Pre-empting and Preventing the
Creation of Weapons-Grade Fissile Material

LONGSWORTH: Thank you. I am Paul Longworth and I'm the Deputy Administrator of the
National Nuclear Security Administration, which is an entity within the Department of Energy
and as Ambassador Brooks pointed out, I do work for him. I'm not sure which is worse, actually
speaking on a panel with your boss or speaking on a panel where your boss has an opportunity to
rebut your comments. But I have been speaking at several conferences like this recently and I
also have to say, following Dr. Scheinman's comments, is kind of like following Warren Buffett
at an investment conference. I also feel kind of inadequate.

You've heard a lot today about President Eisenhower's seminal 1953 speak and for good reason.
You know, his vision was, in retrospect really quite remarkable. He recognized that his true
legacy would be to help mankind in his words, "solve the fearful atomic dilemma by finding the
way by which the miraculous inventiveness of man, shall not be dedicated to his death, but
consecrated to his life."

What's interesting is that today, 50 years later, the fundamental dilemma that Eisenhower so
aptly articulated remains. While the challenges to the international nuclear nonproliferation
regime have become increasingly complex. The men and the women and the scientists and the
technicians who work on the programs that we carry out, they confront this dilemma everyday.
They carry out programs to reduce the global danger of weapons of mass destruction.

And the mission of my office is, broadly speaking, is to reduce the proliferation threats and we carry out our work through a broad range of programs, to secure nuclear material in Russia and elsewhere, to reduce stockpiles of excess fissile materials including in the United States, to help transition Russia's nuclear weapons resources toward peaceful, commercial viable endeavors, and to undertake cutting edge research and development to assess whether other people are following the rules.

It's a broad challenge and it's a central part of all the work that we do, particularly the work that we do with the IAEA. Eisenhower's "Atoms for Peace" speech set forth two principles, which have influenced and continue to influence our nonproliferation programs. First, it proposed the peaceful use of atomic energy should be available to all responsible nations, and that's, Dr. Scheinman pointed out in Article Four and other parts of the NPT treaty.

But it also called for the international community to establish an organization that could safeguard fissile material worldwide through the cooperation of its member states, which he also noted as very clear in Article Four. These principles have helped shaped the evolution of nuclear nonproliferation regime over the past 50 years and it is the centerpiece of our nonproliferation efforts worldwide. It's also a testament to Eisenhower's vision. The agency the he called for, the IAEA, has played a substantial role in upholding world nuclear nonproliferation regime and I would note that it actually makes civilian nuclear energy palatable.

The United States continues to take steps to make the IAEA even more effective as a mechanism for confronting today's complex proliferation threats. Secretary Abraham and Ambassador Brooks have played critical roles in supporting this. The Secretary has had three delegations to the IAEA General Conference. He is called for and hosted an international conference on raising awareness on radiological dispersion devices and I believe he's the first secretary of energy to ever speak to the IAEA Board of Governors. He's invested a lot of time.

But most importantly he's invested time in establishing a strong relationship and working relationship with the IAEA's Director General Mohamed ElBaradei. They've worked closely together to ensure that the IAEA has all of the tools that are necessary to address and stem the evolving challenges that the IAEA faces.

In the Secretary's recent address to the IAEA General Conference, he stated that, "The benefits of nuclear energy and the obligations to use it responsibly are linked." And he went on to highlight the fact that the international community must strengthen the Nonproliferation Treaty if the benefits of peaceful nuclear application are going to be enjoyed by all. The central challenges to the nonproliferation regime come from a few rogue states, as Dr. Scheinman has pointed out, who are seeking weapons of mass destruction, or at least the capability to produce weapons of mass destruction.

The threat is exacerbated by well organized and well funded terrorist organizations that are determined to wage attacks against the United States and our friends and our allies. Dealing with these threats and, in fact, upholding nonproliferation principles outlined in Eisenhower's speech is what the Office of Defense Nuclear Nonproliferation does every day.

I'd like to spend just a few moments walking through some of the things that we do and some of the successes we've had recently. Our most fundamental programs are to safeguard nuclear materials. We do this bilaterally and we do this in conjunction with IAEA. These programs are designed to ensure that a state cannot divert nuclear materials from peaceful purpose to a clandestine non-peaceful purpose. By agreeing to a robust IAEA inspection and monitoring role, states also are able to enjoy significant cooperation from the IAEA in pursuing legitimate peaceful nuclear energy objectives.

We work closely on the IAEA on implementing these programs and, in fact, our fiscal year 2004 budget, which we hope Congress will pass soon, includes a \$10 million dollar increase over last year to support this important work. We recognize that to help insure the cooperation with the IAEA inspectors from other states, it's important that the United States set an effective example. In that vein we have recently marked the 100th IAEA inspection of nuclear materials at two facilities, the Oak Ridge facility and the Hanford site.

We also provide vital support to the IAEA's program for physical protection, training, developing and issuing technical standards and assessing the security of nuclear materials through the IAEA's International Physical Protection Advisory Service or IPPAS. We funded and arranged courses for state systems of accounting and control as well as physical protection training for over 800 students from more than 60 countries.

We provide the IAEA with technical expertise to develop technical guidelines for their new and more rigorous standards that were started in 1999 and we've participated in virtually all of the IPPAS's missions since it was established in the early 1990s. Similarly, we work closely through bilateral efforts with our partners throughout the world to secure nuclear materials and facilities wherever they are, not just in Russia but principally in Russia.

We've led or participated in over 140 bilateral visits and in more than 40 different countries to help insure that the security of nuclear materials in those countries is sufficient. We have formal safeguards, cooperation agreements with each of these countries is sufficient. We are also preparing for, we hope soon, the Senate to begin hearing on a U.S. additional protocol that we are optimistic that will happen soon. The additional protocol will greatly expand the effectiveness of IAEA inspectors, including states of particular concern.

The President has urged all countries to conclude and enter into force their own additional protocols with the IAEA as soon as possible and has stated publicly that he wants the United States to lead by example. Improving the security of research reactors also shows how we support the principles underlying President Eisenhower's vision. We need to improve the security of research reactors and related facilities where fissile and other radiological material may be co-located.

These facilities also support important medical, agricultural, and industrial research as well as other legitimate, peaceful uses of nuclear technology. However, under secured, these facilities could be vulnerable to sabotage, theft or attack. In September the NNSA initiated an agreement to provide up to \$4 million dollars to support Rumania's purchase of low enriched uranium that it will need to convert its, test a research reactor from highly enriched fuel to low enriched fuel.

Dealing with this problem is a particular priority for the Secretary, Ambassador Brooks, and for me, personally. We want to reduce the commercial use of highly enriched uranium and thereby minimize its exposure to terrorists or sabotage. So, we've taken some important steps in the area of research reactors. We've already converted 38 reactors in 22 countries. That's more than 50% of the reactors, the known reactors with U.S. origin HEU fuel outside the United States. We're developing a new low enriched uranium fuel, which we hope can replace the remaining reactor cores, it's a very high density molybdenum fuel. And we hope to have that demonstrated within a year.

And we're very close to formalizing and finalizing an agreement with Russia that will facilitate the return to Russia of Russian origin HEU fuel. In the area of RDDs, I'm happy to announce that next week NNSA will create a nuclear radiological threat task force that will consolidate and strengthen our ability to address the full spectrum radiological security threats facing the U.S. both domestically and abroad. The task force will identify and secure high-risk radiological materials throughout the world that could be used in radiological dispersion devices or RDDs, or dirty bombs.

The taskforce demonstrates that we are trying to be pro-active in dealing with today's security threats. It also represents a way in which I believe the United States has to continue to adjust and expand on its Atoms for Peace mission to meet the emerging threats that face us. So, in closing, the programs I've discussed today reflect the steps that we are carrying out in our nonproliferation mission. Yet, as Secretary Abraham has pointed out, much of the work remains to be done, given the challenges facing the nonproliferation regime.

I'm proud that our office is working hard to support the administration's efforts to meet these challenges. Creating an enduring bond between nonproliferation efforts and the benefits of peaceful uses of nuclear technology is an objective that President Eisenhower laid out and it's one that we must continue to achieve. We kind of believe that is one of the reasons that we are here. I believe we can work with our international partners to shape the nonproliferation regime for the next 50 years. And in so doing, the Atoms for Peace legacy we hope can endure and will continue to benefit mankind. Thank you.

Question and Answers:

BROOKS: We now turn to the part of the program where you get to ask the questions. I'm going to stand for this because I can't see that half of the room from where I'm sitting. I would ask that you identify yourself and, no matter how piercing you think your voice is, wait until the microphone gets to you. And I think we start with a question in the back.

NEFF: I'm Tom Neff from MIT. I have a question for Larry Scheinman. First I want to correct one of the things that Phil Sewell said. ... (Inaudible) receives about \$425 million dollars from USEC for the enrichment services and I think the company profits by about \$100 million dollars a year. Phil was right. This is money that should go into pockets of the sensitive nuclear workers that protect this material.

My question for Larry was Iran. We have gone from a period of a week ago, in which we were being very tough on Iran and we've gone now to where three countries are now promising cooperation in helping Iran with its civil nuclear program. Larry, could you comment a little bit about this switching of gears and where you think this comes out in the perspective of history?

SCHEINMAN: Well, I think it is enormously comforting to see that Iran has, in fact stepped away from what looked like a very conflictual and contentious approach. But I would worry about what kind of an outcome we get in the following sense.

If it were true that Iran would be prepared to completely dismantle its enrichment activities in exchange for some kind of a guarantee for long-term fuel supply from outside, presumably the European Union from what I understand to be the case, and that this could be done in the context of an additional protocol with all of the bells and whistles of transparency that that could bring-- We may need even more. Then I see this going in a very, very constructive direction because I think this would be a bell weather for how other countries would have to try to treat this approach to their fuel cycle desires in the future.

Iran is a real test case in this regard. If on the other hand, what looks to is to take a leaf from Ron's book, some kind of a multi-nationalization of an Iranian enrichment program sitting on Iranian territory, that becomes more problematic and I would be concerned about that, although I must say that, if I think about some of the questions that Ron just raised in his run down of the issues of what do we mean by this, that, and the other, there's no need for us to be uniform in how we approach this. I think we can take this region by region or country set by country set as long as we stay within the parameters of the arrangement that brings about the outcome that we desire, which is avoidance of further proliferation.

BROOKS: I had a question over here and then we'll go over there.

HORNER: Dan Horner from McGraw Hill Nuclear Publications. I think that you just made a-- I'll pose this question as a devil's advocate question and then ask the panelists to respond. In Paul Longworth's presentation he mentioned, as part of the U.S. nonproliferation efforts, the effort with regard to the U.S. supplied research reactor overseas and converting those reactors and bringing back the HEU fuel. But wasn't the supplying of those reactors a direct outgrowth of the Atoms for Peace Program and, in that respect, isn't that a proliferation downside of the Atoms for Peace Proposal and wouldn't your job have been easier if that aspect hadn't taken place?

If Paul could respond to that initially and maybe some of the other panelists then could jump in. Thanks.

LONGSWORTH: You know, it's not, and I'm going to give you a strange answer here. It's not, because the original deal was that the spent fuel from those reactors would come back to the U.S. and I think, even in 1953 when they kicked that program off as the-- We realized that obviously we needed to repatriate the nuclear material. It is a strange answer because we are going to complete about half of the fuel that we've identified in an environmental impact statement by--

In the next few years we will have only addressed about half of the fuel that, again, we designated to come back to the United States.

So we are about halfway there in fulfilling our commitment from 1953. But I think we are going to continue to work on that and get that stuff back. But, no. I think it was part of the original bargain that that stuff would come back to the U.S.

INDUCI(?): Joseph Induci at the Brookhaven Laboratory. There used to be something called the Fissile Material Cutoff Treaty, which I thought had potential to bring in a few countries that aren't currently covered and now I hear nothing. Would one of the panel members be willing to enlighten the group on just what happened there?

BROOKS: Ron?

LEHMAN: The Fissile Material Cutoff Treaty was initially envisioned as sort of either of two things, one was a universal treaty open to all parties, the other was something that one would do, maybe on an interim basis or a regional basis, but primarily focused on South Asia and perhaps the Middle East, i.e., the non-parties as well as the weapon states. Interestingly enough, there was a UN resolution in the General Assembly co-sponsored by both the United States and India, supporting a fissile material cutoff. And all the P-5 have said that they can live with it.

Having said that, it is in the conference on disarmament. It's caught up on linkages, by and large issues such as Pakistan's concern about making sure that it deals with residual stocks. It is not enough to cut off the production for weapons purposes; they want to deal with the existing stocks. There's linkages to India by the issue of a time bound framework for disarmament. In short, there's been maybe some flexibility on each of those, at least expressed by the parties. But the process seems bogged down in the CD.

ElBaradei in his Economist article raises the question that others have raised before of whether or not this could be the basis either for a new restraint regime or an additional restraint regime. But thus far people have not been able to break it away from these linkages.

BROOKS: I would like to just add that as the community thinks about the future, the Fissile Material Cutoff Treaty is a good example of the limitations of formal multi-lateral arms control. It's it's one of the reasons why we probably need to spend more time thinking about, as Ron said in his presentation, whether "international" means the same sort of thing that it has always meant or whether there are commercial international agreements a la the USEC Agreement that are, at least part of the solution.

We had a question down here.

___: Question for Mr. Sewell, I was intrigued by his suggestion with regard to the government sponsoring a reactor, the intent of which is to get rid of the, let me call it, surplus nuclear materials in Russia and, perhaps, even our own defense programs. We are not only having the problem with uranium 235, we also have a problem with regard to plutonium 239. And if the real

objective is to get rid of those materials-- There have been people said, "Well, you just bury them."

But if you really want to get rid of them and get a new reactor into being, you would design the reactor core, which initially would burn straight 235 or straight 239. And if you do that, in the case of the 235 rather than using low enriched uranium, you don't make any more plutonium, which you would in your scenario, and the people would jump on that, the anti's, saying we're really not doing what we want to do.

So initially these reactors, which you are suggesting, could be designed to burn straight 235 or straight 239 and really get rid of all this surplus E-2(?). Economically, and for the long run, it doesn't make any sense, but at least politically, if that's the objective, it would succeed. Thank you.

BROOKS: Bill, do you want to respond?

BILL: I can't correct you at all, I don't think. That is a very good suggestion. The only thing I could say is that most reactors today are designed to use low enriched uranium and that's the concept that we were trying to do so that we wouldn't have to be any major investments in a nuclear infrastructure for commercial basis. But conceptually, the concept, the idea that you propose is valid.

And the idea that we put forward, in terms of government support in burning basically, nuclear materials, is just that. It's an idea of the government and industry to grasp and design in a way that's optimum, optimum in terms of meeting policy objectives by the government and the world community and also in a way that will help provide incentives to build a new nuclear reactor that will get things started, with respect to the increased use of nuclear power that has so many benefits.

That incentive, again, would be one in which the government doesn't have to pay anything in the end. It's merely a backup incentive that would be paid back and looking in a way that several different objectives can be accomplished at once and that's the main idea in concept. And your concept and idea is just as valid and I just applaud them all. It's good for mankind, good for the world. That's what we're proposing today.

BROOKS: Let me just point out a third concept that's actually what we're doing. Some of the defense HEU is, in fact, being burned in U.S. reactors -- TVA reactors. In addition, at a galactically slow pace, we are working with the Russian Federation to the elimination of 34 tons of weapons plutonium in each country through conversion into MOX fuel. It doesn't make any economic sense either but it does allow us to take advantage of existing reactors.

We had a question over there.

KEEN: My name is Linda Keen and I'm President of the Canadian Nuclear Safety Commission. My question is for either Ambassador Lehman or for Mr. Longworth. Can you see in the future

a safeguard regime for countries who are committed to peaceful use, who have put in extensive safeguards but is more risk based than the blanket program that we see now?

LEHMAN: I'll go first and buy you some time. The classic issue is the cookie cutter problem. One size does not fit all. And there are tremendous inefficiencies and actually drawbacks in trying to make one size fit all. The result is that we spend a tremendous amount of money verifying things that are low risk and many of our arms control efforts but then can't apply what is needed to deal with areas that are of higher risk.

In 1991, our approach to dealing with North Korea, for example, was not only to have them be parties to the NPT and have an IAEA safeguards agreement, but there was the North-South Denuclearization Agreement, which would have provided for no processing, no enrichment, North or South, and for separate bi-lateral inspection regime, the idea being that North Korea was a greater risk. This was a way to enhance things.

The problem is that in many of the international fora, the question of a common standard and universality of membership drives much of the debate, much of the question when you deal with India, for example, it has to do with their desire to have a common standard for everybody which would be fine if you could create those conditions but, in fact, things aren't the same everywhere.

However, what I have experienced is, when you get more into the, I'll use the generic phrase, cooperative threat reduction and constructive engagement, you start to deal with practical problems that inevitably have to deal with the specific differences. And in many cases, I think the great debate about the future of arms control, international constraint and cooperative threat reduction is really the great debate between how much emphasis you put on standardization of norms and how much emphasis do you put on engagement, constructive engagement.

LONGSWORTH: You know there are so many nuances with how safeguards work actually gets done at facilities and I'd just like to parrot what Ambassador Lehman said. Inspections are the tool to the end not the objective. And I think everyone would agree that the IAEA probably spends a lot of money inspecting facilities that are not really a proliferation risk. For example, in the U.S., I don't think anybody has accused the U.S. of selling plutonium or weapons on the open market. But because inspections are a tool and because of the universality principle, I think we allow inspectors to come in and we fully support that but it is a problem because it does take limited IAEA resources and the UN is inspecting facilities that don't pose a great proliferation risk. But it is the way you get other countries to open up their facilities. So it is a tool to the end.

BROOKS: Back here.

LYMAN: Hi. I'm Ed Lyman with the Union of Concerned Scientists. I wanted to ask a follow-up question to Dan Horner's question on research reactors. With all due respect, I don't think you really gave a complete answer to the question of whether exporting HEU research reactors all over the world was the best idea or not and, in fact, the other part of the answer you left out, is that not only are we taking the spent fuel back but we are persuading reactors that we had

shipped that only used highly enriched uranium to convert so they no longer need to use highly enriched uranium but can use low enriched.

And that was a flaw in the original regime that we're trying to play catch up on. In that respect, I'd just like to ask you, it would be a terrible legacy, 50 years after Atoms for Peace, if our own export control law was to be significantly weakened, yet that's exactly what's going on in Congress right now, where's there's an attempt to modify the U.S. HEU export control laws to make it easier for certain countries to receive highly enriched uranium without any obligation to work with the US to convert.

And I am just wondering why the administration is not, to my knowledge, going on record and said anything about this particular question, which I think is quite important and something that my organization is fighting very hard for. So, thank you.

LONGSWORTH: Let me start at the beginning of your question and work through it. It wasn't possible to build reactors at the time with low enriched fuel to achieve what you needed to do for science, medicine, agriculture and other purposes. I wouldn't describe it as a flaw in the original approach because I think the United States took the best course available to it at the time was, we'll send the fuel out and we'll take it back. And it's taken 50 years to start doing that but we're making progress on that.

I do want to point out, on behalf of Ambassador Brooks, it is not his program or mine that is responsible for taking those back. It is another part of DOE, but (laughter) so, for the record-- But now low enriched fuels are becoming available and it is possible to have the same nucleonics in a reactor and get the same performance with difference kinds of fuels, low enriched fuels, and we're beginning to do that.

One of the programs that we carry out is to convert these reactors as I mentioned in my remarks. With regard to the Burr, Schummer, depending on which one is being debated in the energy bill, you know, interestingly enough, we were unaware that that provision was in there. I believe we are opposed to it. Frankly, I may get in a lot of trouble here, but I think we were opposed to the Schummer amendment because we have all of those authorities that Schummer, which was the underlying provision that was amended, that it required us to take a lot of steps that aren't necessarily appropriate to have in the statute.

And so I don't know if we agree with either provision, the underlying Schummer amendment or the Burr amendment, which you refer to would weaken the Schummer provision. So I think we are opposed to the Burr, but we are also opposed to the underlying Schummer amendment, which was being modified.

BROOKS: There was a question over here but I lost where it was. Yes, sir.

POMPER: Miles Pomper from Arms Control Today. A question for either Ambassador Brooks or his Deputy-- You mentioned the additional protocol and that it might come up before the Senate in the next few weeks, what's been holding it up? It's been held up for close to a year

now and my understanding is that it is infighting in the administration between the State and Defense Departments.

LONGSWORTH: President Bush has sent it to the Senate so it is pending action by the Senate Foreign Relations Committee. While they are doing that, we are having discussion within the administration on exactly how we would implement it. But it think the next step is for the Senate to hold hearings and provide its advice and consent or not provide its advice and consent.

BROOKS: The President has made it very clear on wanting to see the additional Protocol brought into effect. As to what's holding up hearings, you're talking to the wrong branch of the government when you are talking to Paul and I.

More questions. Yes, sir. Down here--

___: I was glad to hear of Mr. Sewell's proposals for cost-benefit to the public of expanding nuclear power to burn up some of these materials. It doesn't stretch my imagination very much to think that the public would also accept a certain amount of public funds going to try to purchase this material and keep it out of the hands of terrorists, if it is only a few billion dollars a year, when the public supports hundreds of billions for defense, if the public was just explained the affect of not doing this compared to the effect of the 9/11 incident on our country.

Could somebody answer why we don't have the government proposing to spend some taxpayers' money on this in advance to get this material and then put it in reactors as we build them?

BROOKS: Well, I'll answer it. Secretary Abraham proposed and his Russian counterpart agreed well over a year ago to a parallel program that would create a strategic uranium reserve. We would purchase basically whatever the Russians would chose to sell us and the quantity is still being debated. Right now it is only a few tons a year. Blend it down and make it sort of the uranium equivalent of the strategic petroleum reserve. It would just sit there minding it's own business, but it would be in a form that would be suitable for energy us and unsuitable for weapons use.

There is dispute on the hill as to whether that is good use of public funds and I'll let you know when I see the appropriations act. But the idea is one that the President thought of a year ago and it's basically a good idea. We're also purchasing, and this is small amounts, I mean small amounts in the Russian context but large amounts in anybody else's, HEU from Russia for the handful of U.S. research reactors that have not yet been converted to low enrichment fuel. They'll be burning Russian HEU here very shortly, once again, the will of the funders permitting, and I'm pretty sure it will.

Did you have a question down here? [pause] Can we get a microphone down front?

___: Firstly, I would like to make one historical remark. Indeed, historically, all technologies have become, as they were introduced ...(inaudible) technologies, and all have proliferated in the past. So, what we're trying to do here is historically, totally, unprecedented and, therefore, one should not be surprised that it is extremely difficult. I mean that is one remark. In that sense,

Administrator Longworth gave a list of the program achievement and his note was certainly quite optimistic. And there are, indeed, many achievements to be proud of.

But I think it is a matter of the glass either being half full or half empty, namely, there have been developing many impediments and the time scale in which some of these programs have been proceeding have slipped really extremely badly. I mean the plutonium disposition has slipped very badly that one is now talking about 17 years, or whatever the number is. There have been glitches in the HEU Purchase Agreement. There are major problems in the MPC&A [Material Protection, Control and Accounting] improvement in Russia due to, on the Russian side, them not giving access sufficiently, on the American side, due to the insistence on liability protection for the American participants.

These are problems that we don't let the Americans to attend various conferences and so on and so forth. And I was wondering, whether one of the panelists can give some comments, whether there are really some major efforts being made to try to re-accelerate some of the lost time on some of these programs.

BROOKS: Let me, because I think that is really a question that is addressed to those of us who are in government. I can tell you that Secretary of Energy has been more active, as far as I'm concerned, than any Secretary in history in trying to accelerate programs and remove roadblocks I can tell you that the President has been active in pushing these. I can tell you that it was discussed with President Putin at Camp David. And so we are trying to accelerate but I think the honest answer is, it is a very slow process and a very difficult process.

I think that is going to have to be the last question. As I listen to your comments and the comments of the panel, I came to sort of three broad conclusions that I will leave with you. One is that the international regime that grew out of President Eisenhower's vision, hasn't done everything, but it's done a lot. The second is that there are lots of good ideas for the future and we ought to explore those, but all those good ideas are going to take time. And, therefore, I guess, the third is that redoubling our efforts at material protection is probably pretty important in the near term.

With that, I think what is next on your schedule is a break until four, but before you do, I wonder if you would join me in thanking our panel.

[applause]

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