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Central  
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# **Soviet Actions To Counter the US Strategic Defense Initiative**

**Special National Intelligence Estimate**

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*SNIE 11-24-86  
February 1986*

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**THIS ESTIMATE IS ISSUED BY THE DIRECTOR OF CENTRAL INTELLIGENCE.**

**THE NATIONAL FOREIGN INTELLIGENCE BOARD CONCURS, EXCEPT AS NOTED IN THE TEXT.**

*The following intelligence organizations participated in the preparation of the Estimate:*

The Central Intelligence Agency, the Defense Intelligence Agency, the National Security Agency, and the intelligence organization of the Department of State.

*Also Participating:*

The Assistant Chief of Staff for Intelligence, Department of the Army

The Director of Naval Intelligence, Department of the Navy

The Assistant Chief of Staff, Intelligence, Department of the Air Force

The Director of Intelligence, Headquarters, Marine Corps



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**SNIE 11-24-86**

**SOVIET ACTIONS TO COUNTER THE  
US STRATEGIC DEFENSE INITIATIVE**

Information available as of 13 February 1986 was used in the preparation of this Estimate, which was approved on that date by the National Foreign Intelligence Board.

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## KEY JUDGMENTS

*Moscow recognizes that the US pursuit of the Strategic Defense Initiative (SDI) has potentially far-reaching consequences for Soviet strategy, planning, and force structure.* Soviet leaders apparently are concerned that US development and deployment of strategic defense systems resulting from SDI would:

- Directly affect the heart of their strategy, undermining their confidence in the ability of their strategic forces to perform a preemptive counterforce or retaliatory attack, and to maintain the initiative throughout the conflict.
- Provide the United States with an advantage in strategic defense that could be used for coercion in a crisis and give the United States a strategic advantage in a conflict. An alternative view holds that, in addition to these concerns, the Soviets, as expressed in repeated statements by top officials, may also believe that the development and deployment of strategic defense systems resulting from SDI, even in a limited form, might lead the United States to believe it could launch a preemptive counterforce first strike against the USSR, secure in the belief that any surviving Soviet retaliatory forces could be effectively neutralized by the SDI defenses.<sup>1</sup>
- Result in a long-term high-technology arms competition that could exacerbate already-difficult decisions regarding resource allocation. Although many of the technologies the Soviets need to pursue the development of systems to counter SDI and to develop their own ballistic missile defenses are already under development in the USSR,<sup>2</sup> the US effort disrupts the Soviets' long-range plans, threatens to negate their longstanding investment in offensive ballistic missiles, forces them to consider the US schedule in their planning, and introduces a more severe penalty for technological failures. [redacted]

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*Moscow's effort to halt or slow the US SDI program has been focused on generating Allied, domestic, and Congressional opposition to both the US antisatellite (ASAT) and SDI programs.* The Soviets have

<sup>1</sup> The holder of this view is the Director, Bureau of Intelligence and Research, Department of State. [redacted]

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lobbied hard to bring pressure on the United States to negotiate constraints on these programs. They probably believe that SDI can be slowed, and perhaps even halted, by their sustained efforts to erode US public support, exploit Allied doubts, and encourage cutbacks in Congressional funding. They undoubtedly are hoping for a change in attitude with the next administration:

- The Soviets will continue a concerted propaganda campaign against SDI in the United States and Western Europe, complementing it with “active measures,” perhaps to include threatened new weapons deployments against US allies, to increase the political cost to the United States of proceeding with the program.
- They will continue to use arms control discussions as a means of delaying or undercutting SDI.
- By offering 50-percent reductions in strategic offensive weapons, coupled to a demand for an SDI ban (a much deeper reduction than in their pre-SDI START proposal), the Soviets probably believe they are using their best available lever to obtain US agreement to limit SDI.

As part of their campaign strategy, the Soviets will falsely portray their own well-established projects for developing directed-energy and kinetic-energy weapons and associated technologies as responses to SDI.

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*Soviet defense planners, however, are unlikely to count on Soviet public efforts or the unpredictable outcome of arms control negotiations to block SDI. We anticipate Soviet programs across a broad front, including development of technologies to counter a future US ballistic missile defense (BMD) system and to improve the USSR's own offensive and defensive force capabilities. Until US defense system architecture is clearly defined and the extent of changes in US strategy and force posture are better known, the Soviets will find it difficult to tailor their responses to SDI. They will place highest priority on acquiring intelligence on US SDI developments and on gaining access to the key technologies. Increased Soviet collection activities against the United States and its Allies, and programs to improve Soviet technical intelligence capabilities, will result. At the same time, they will build their forces for the early-to-mid-1990s as previously planned, and will avoid major disruptions in both the defense sector and the overall planned economy for at least the next several years. In dealing with SDI, they will seek to design longer term solutions that they can manage at a deliberate pace with minimum disruption.*

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*The Soviets will take a broad approach, developing operational capabilities to suppress US defensive systems through direct attack, to penetrate surviving US defenses with an improved and possibly expanded ballistic missile force, and to avoid the US defenses by use of aerodynamic weapons platforms.* They are likely to emphasize programs that have intrinsic value to Soviet strategic forces, intercontinental and intermediate-range, even if SDI is only partially successful, and we expect them to make ready adaptations of existing and already-programmed forces:

- Improved ASAT systems (particularly ground-based lasers) are likely to be an early result of continuing Soviet directed-energy weapon developments. The Soviets probably perceive that space-based components would be the most vulnerable element of a deployed SDI system.
- The Soviets' most obvious and certain countermeasure against SDI would be to exercise their options for reducing the vulnerability and improving the penetrability of their existing and future ballistic missile systems. It should be noted, however, that they would face difficult choices in implementing countermeasures against a comprehensive defense from boost phase to terminal, involving several layers and using diverse techniques. Many of the countermeasures would require performance and capabilities trade-offs that could degrade the effectiveness of their offensive systems.
- An effective US defense against ballistic missiles is likely to increase Soviet reliance on bombers and cruise missiles that would be able to circumvent US ballistic missile defenses, although the Soviets would expect improved US air defenses as a necessary complement to the SDI program. These aerodynamic systems, incorporating advances in penetration aids and low-observable technology, might be used to attack not only some targets formerly allocated to ballistic missiles but also some SDI ground-based elements as a defense suppression measure [redacted]

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*Soviet technology, especially antiballistic missile (ABM) and ASAT technology, provides substantial capabilities for developing systems to attempt to respond to SDI.* The Soviets have long had vigorous research and development programs in advanced technologies, particularly lasers for potential ASAT applications. They may also build on their existing ASAT technologies, including the potential for direct-ascent interceptors. They have a solid and innovative base for the development and testing of a variety of countermeasure technologies. Soviet developments are competitive with those of the West in many of



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the critical technologies. However, the Soviets lag in many of the basic technologies that are considered crucial for a comprehensive space-based ballistic missile defense system and some aspects of counter-SDI developments. [redacted]

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*The Soviet Union will continue to pursue its longstanding strategic ballistic missile defense efforts, regardless of whether the United States proceeds with SDI.* The Soviet approach to BMD is distinctly different from that of the United States. If the Soviets perceive the need, they could deploy by the early 1990s their own version of a nationwide terminal BMD system, based on ABM interceptors armed with nuclear warheads and possibly supplemented with some ground-based directed-energy weapons. They undoubtedly have reviewed their own efforts in light of the US SDI, and we expect that they will now seek to pursue their advanced BMD technology, planning, and programs in a more integrated fashion:

- The Soviets have the potential for widespread ground-based ABM deployments. They could strengthen their defenses at Moscow, expand throughout the western USSR, and cover key targets east of the Urals.
- The Soviets have been actively pursuing ground-based lasers for BMD and ASAT applications for many years. They have major laser research and test facilities at Saryshagan, Troitsk, and Golovino. Possible directed-energy facilities are under construction near Dushanbe and Storozhevaya. An alternative view holds that the evidence is insufficient to judge the purpose of either the Dushanbe or the Storozhevaya facilities.<sup>3</sup>
- The Soviets have been working on particle beam, kinetic-energy, and radiofrequency weapons technologies.
- Soviet research includes a project to develop a space-based laser weapon. In addition, the Soviets are developing new space systems, including the heavy-lift space launch vehicle, which will probably be an integral part of any advanced-technology strategic defense system they might develop and deploy. [redacted]

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<sup>3</sup> The holders of this view are the Director, Bureau of Intelligence and Research, Department of State, and the Assistant Chief of Staff for Intelligence, Department of the Army [redacted]

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## DISCUSSION

### The Soviet Perception of SDI and Its Implications

1. The Soviet Union has traditionally regarded both defensive and offensive strategic forces as essential to a successful military strategy. The Soviets believe that a nuclear war could happen, and if it does they intend to survive and prevail to the extent possible. The most important element of the Soviet damage-limiting concept is the destruction of enemy nuclear forces through offensive strikes, but defensive operations are an essential component of a viable nuclear strategy to blunt the effects of the enemy's offensive nuclear forces.

2. The Soviets have structured their strategic war plans primarily around ballistic missiles and prize the military advantage of using such systems to strike decisive blows quickly and accurately over great distances with a minimum of warning. Several new and improved intercontinental ballistic missiles (ICBMs) and submarine-launched ballistic missiles (SLBMs) that are currently either being deployed or are in development will constitute the backbone of their offensive forces for the next 15 to 20 years. The Soviets see the US Strategic Defense Initiative (SDI) program as having significant potential for developing a US capability to undercut severely—even preclude—the achievement and maintenance of Soviet offensive force goals.

3. Although the Soviets were undoubtedly alert to increasing attention to strategic defense research in the late 1970s and early 1980s, the President's announcement of the US SDI in March 1983 almost certainly caught Moscow by surprise. Soviet leaders did not anticipate the high-level focus on strategic defense research and the heavy commitment called for by the program.

4. The Soviets probably are not yet convinced that a complete and effective US ballistic missile defense (BMD) system, resulting from SDI research, is politically viable or technologically feasible. Nonetheless, from the Soviet perspective, the US SDI has far-reaching political, economic, and military consequences for the USSR and its allies. Soviet leaders see SDI as having the most serious consequence in terms of its impact on Soviet strategic war-fighting capabilities and strategic force planning.

5. From a Soviet perspective, the military problem posed by US deployments of strategic defense systems resulting from SDI would be twofold:

- The Soviet concept of conducting strategic warfare emphasizes the value of a successful counterforce strike to provide a decisive advantage. Even a strategic defense system with a modest degree of effectiveness, such as a terminal defense of ICBM silos, would directly affect the heart of the Soviets' strategy, reducing their confidence in the ability of their ballistic missile forces to perform such an attack. It could force them to allocate a much larger number of warheads to assure the required high confidence in achieving their strategic objectives, and in maintaining the initiative throughout the conflict. This might entail a significant increase in the size of their offensive forces beyond current plans.
- To the extent that SDI would be able to neutralize a Soviet retaliatory strike effectively, Soviet military planners would be concerned that SDI could be used to establish a strategic advantage situation in a crisis or conflict, whereby the United States, with impunity, threatens strategic escalation in order to force Soviet conventional forces to back down. Of particular concern would be a situation of asymmetry, where only the United States had an effective SDI capability deployed.

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An alternative view holds that, in addition to these concerns, the Soviets, as expressed in repeated statements by top officials, may also believe that the development and deployment of strategic defense systems resulting from SDI, even in a limited form, might lead the United States to believe it could launch a preemptive counterforce first strike against the USSR, secure in the belief that any surviving Soviet retaliatory forces could be effectively neutralized by the SDI defenses.<sup>4</sup>

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<sup>4</sup> The holder of this view is the Director, Bureau of Intelligence and Research, Department of State.

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6. The Soviets also apparently are concerned that US development and deployment of strategic defense systems resulting from SDI would:

- Confront them with the possibility of new US technologies that could have both a near- and long-term impact on both their strategic and their general purpose war-fighting capabilities. Many of the technologies now being investigated for SDI, particularly signal processing, sensors, and advanced electronics, would be applicable to battlefield weapon systems. Thus, the Soviets have to be concerned with results of additional Western political and resource commitment to basic military research, regardless of the outcome of the SDI effort itself.
- Result in a long-term high-technology arms competition that could exacerbate already-difficult decisionmaking regarding the allocation of scarce resources. The Soviet development of advanced technology for a variety of applications was initiated in the 1960s and 1970s, well before the announcement of the SDI program, and will continue regardless of how the SDI program fares. The US effort, however, disrupts the Soviets' long-range plans, threatens to negate their longstanding investment in offensive ballistic missiles, forces them to adopt a faster pace in an attempt to match the US schedule, and introduces a more severe penalty for technological failures.
- Create greater uncertainty about the nature of the future strategic environment, causing the Soviets to investigate a variety of force options and carry out research and development (R&D) that they might otherwise choose to delay or forgo, and to pursue previously unplanned technology developments. [redacted]

7. While their concerns about SDI stem primarily from its potential effect on their offensive force capabilities, the Soviets appear to believe that SDI-related technologies have inherent offensive applications. Although much of their professed concern is undoubtedly for propaganda purposes, they may be concerned that SDI technologies could ultimately support space-based weapons capable of attack on other space-based as well as ground-based targets, including both offensive and defensive systems, as well as command, control, and communications assets. [redacted]

8. The uncertainties in the nature and extent of possible changes in US strategy and force posture compound the complexities facing Soviet decision-

makers. Their inclination must naturally be to build their forces for the early-to-mid-1990s as previously planned, yet they must hedge against SDI. The planning problem for them is how to translate the need to hedge against SDI into specific actions. [redacted]

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#### Impact of Soviet Resource Constraints

9. As in the past, Soviet decisions on major military programs and force modernization will continue to be driven primarily by calculations of political and military benefits and the feasibility of weapons technology. We do not believe that economic problems will lead the Soviets to abandon major strategic weapon programs or forsake force modernization goals. We judge that strategic forces will continue to command the highest resource priority and, therefore, would be affected less by economic problems than any other element of the Soviet military. We believe the Soviets, if they felt it necessary, could and would substantially increase military spending over the levels we have projected, even though a steep increase would have painful consequences for economic modernization and growth over the long term, as well as for the well-being of the nonmilitary industry and the consumer sector. The Soviets' intense campaign to stop the US SDI, however, is at least in part an indication of their awareness of the difficult economic choices and strains they face. As a result of the stark economic realities, decisions involving the rate of strategic force modernization probably will be influenced more by economic factors now than in the past. [redacted]

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10. Evidence from flight-testing, production facilities, and deployment sites indicates that the Soviets will continue to make resource commitments in line with the high absolute levels of the past decade to *already existing* strategic forces' research, development, and deployment programs. Major *new* programs started in the next several years and greater production efforts in response to SDI, however, would almost certainly conflict both with resource allocation for other military programs and with General Secretary Gorbachev's industrial modernization program. Indeed, Moscow sees the United States channeling advanced technology and concepts into the strategic competition, and the possibility of significant results means the Soviets have all the more incentive to modernize their industrial base in order to put the military in a better position in the 1990s to develop and deploy systems depending on advanced technologies. Thus, there is concern among Soviet officials over the resource and technological challenge posed by US weapon programs, and by the potential of SDI in particular. On balance, however, we judge that the

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Soviets will, in the near term, be able to conduct the R&D into advanced technologies needed to respond to the US SDI program without facing serious disruptions in their economy or ongoing military programs.

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11. The Soviets will be particularly sensitive to the prospect of further strain on the technology sector of their economy and additional competing resource demands stemming from a prospective open-ended, high-technology arms competition with the United States that could result from the SDI. Even using existing antiballistic missile (ABM) and space assets as a base, a major increase in R&D funding would be required in areas where Soviet innovative capabilities are weakest, including high-speed computers, high-speed signal processing, command, control and communications software, sophisticated high-speed electronics, infrared, optical and nuclear sensors, composite materials, and precision machinery to manufacture the complex components of these new systems. Competing demands for high-quality economic resources—trained manpower, raw materials, sophisticated manufacturing techniques, and industrial capacity—if not adequately resolved, may result in poorly managed development programs and, even more likely, in bottlenecks and disruptions in the manufacture of large numbers of very complex systems. As a result, the Soviets may find it necessary to spread development and deployment over longer periods to overcome these problems and to lessen the disruptive impact on the economy as a whole.

there appears to be an element of concern in Soviet statements over the potential long-term economic consequences to the USSR of continuing to pursue its strategic goals in the face of accelerated US programs on strategic offense, strategic defense, and other military fronts.

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14. Various Soviet officials, however, have asserted that the USSR is prepared to bear the burden necessary to counter US strategic offensive and defensive programs. It is possible that some of the Soviet expressions of concern over the economic impact of arms competition are deliberately exaggerated to convince Westerners that Moscow is approaching the US-Soviet arms talks in Geneva in good faith because it has compelling economic reasons to negotiate an agreement. Other such statements, on the part of lower or midranking scientific officials, as to the tangible economic benefits of arms control agreements probably serve the interests of top political and military leaders, who almost certainly would not share that view. It is also likely the Soviets believe such statements on their part will encourage Western fears of repercussions from SDI for Western economies.

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**Political and Diplomatic Activities**

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15. Since the US announcement in March 1983, Moscow's effort to halt or slow the US SDI program has been focused on generating Allied, domestic, and Congressional opposition to the US antisatellite (ASAT) and SDI programs and in some respects has exceeded Moscow's past public efforts to derail intermediate-range nuclear forces (INF) deployments. It is clear that the Soviets see political opportunities to encourage US domestic and Congressional opposition to these programs, and to provoke US-West European frictions over the wisdom of pursuing what the Soviets have sought to characterize as a "new dimension of the arms race." In a clearly orchestrated attempt to use Western media and established contacts with Western scientists and officials to influence US policy, the Soviets have sought to manipulate US and Western perceptions of SDI. (See inset.) At various times, depending on the targeted audience, they have taken different, even contrary approaches. They have portrayed SDI as being technically unachievable or prohibitively expensive to pursue, as militarily destabilizing, or as something that could be countered by Soviet developments.

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13. The Soviets have doubtless taken some steps to refocus their technical efforts and to reallocate resources in order to begin developing technology for SDI-related countermeasures and to put greater emphasis on some of the specific research the United States is pursuing.

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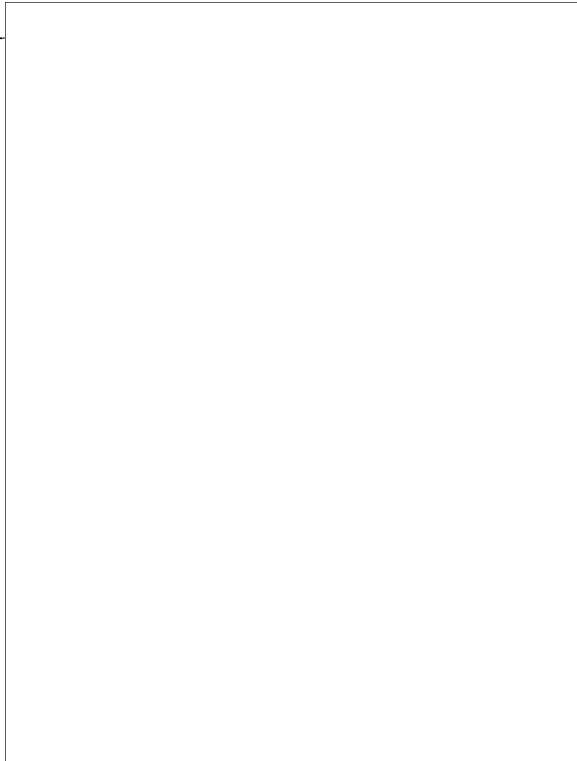


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Scientific Community

Soviet scientists have been especially prominent in Moscow's well-orchestrated efforts to discredit the US plans for SDI. The Soviet leadership probably calculates that the views of these Soviet scientists would be respected by their professional colleagues in the West and, therefore, that they would be in a good position to influence US scientists and the public who also might be concerned about the use of science for weapons, particularly for ASAT or SDI systems:

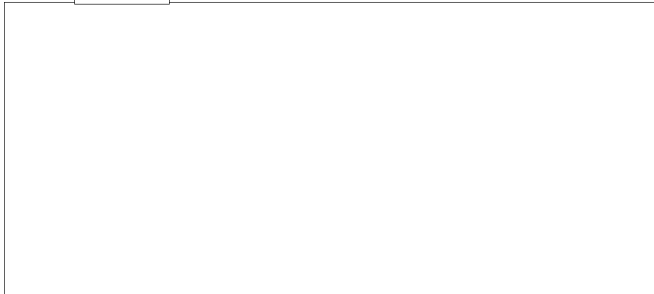
— A Committee of Soviet Scientists in Defense of Peace and Against the Threat of Nuclear War was organized in 1983 and includes many Soviet scientists who are heavily involved in Soviet research on directed-energy weapons and other defensive weapon systems. It sponsored and distributed several versions of a major paper to Western scientists on the scientific, economic, military-strategic, and political implications of the US program. The paper attempts to encourage the belief that space-based SDI systems would be technically unachievable, prohibitively expensive to pursue, but easy and cheap to counter—themes the Soviet scientists espoused at several international conferences and in bilateral meetings, and have addressed in press articles since the US announcement.



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16. Because of the overlap between SDI and ASAT developments, the Soviets have been seeking ASAT constraints as a way of impeding SDI developments as well. The first SDI-related arms control initiative was announced by General Secretary Andropov in August 1983. He proposed a multilateral treaty to prohibit the use or threat of force in or from space and announced a unilateral moratorium not to be the first to put ASAT weapons into outer space. The treaty proposal was more comprehensive and ambitious than the Soviets had previously been willing to accept. The Soviet ASAT moratorium was intended to preclude testing of the US developmental ASAT vehicle. It almost certainly reflected Moscow's recognition that US ASAT plans are much closer to fruition than US plans to develop any SDI weapons, and that ASAT technologies are applicable to the US SDI program.

ons was advanced in November 1984 following the US elections. At a meeting between Secretary Shultz and Foreign Minister Gromyko in January 1985, agreement was reached to begin negotiations in March 1985.



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17. The second Soviet initiative came in June 1984 in a government statement proposing bilateral space weapons talks and a reciprocal moratorium on ASAT tests. This proposal went beyond the 1983 Soviet initiative in clarifying that the Soviet definition of space weapons includes both ASAT and SDI systems. When bilateral talks failed to take place as proposed by the June 1984 proposal, a Soviet proposal to enter talks on negotiations on both nuclear and space weap-

19. Although public Soviet statements have continued to claim interest only in a comprehensive agreement, there have been indications the Soviets may be prepared to explore the possibilities for a less comprehensive interim agreement:

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— Gorbachev called for a reaffirmation of the 1972 ABM Treaty by the United States and the Soviet Union in a July 1985 message to the Union of Concerned Scientists and in his September interview with *Time* magazine.

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Active Measures

Until late 1984, Moscow's steadily expanding propaganda campaign against SDI was not accompanied by a dedicated active measures effort.<sup>a</sup> Soviet forgeries and disinformation campaigns directed at discrediting US strategic policies emphasized INF and its alleged dangers and rarely, if ever, addressed the issue of SDI. This was true of other covert activity such as clandestine Soviet involvement in the West European peace movement. In November and December 1984, however, the Soviet active measures directed against SDI began to gain momentum and to grow in intensity. In particular, efforts were made to reinvigorate the West European peace movement apparently in the hope that it would generate sentiment against SDI. To date, the active measures effort has used mostly semiovert tactics such as the staging of international conferences. The Soviet-controlled World Peace Council, for example, sponsored the January 1985 "Third Vienna Dialogue on Disarmament and Detente" that condemned SDI as "destabilizing," and linked it to the prospect of "nuclear winter." Other propaganda conferences have been held in other European cities, and more have been scheduled for 1986.



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— In his 15 January 1986 proposal to eliminate nuclear weapons by the year 2000, Gorbachev did not explicitly call for a ban on SDI research.

With the exception of the ASAT proposal, however, these hints of flexibility have not as yet been followed up at NST. Since the 15 January proposal the Soviets have indicated at NST that there is no change in their position calling for a ban on SDI research.

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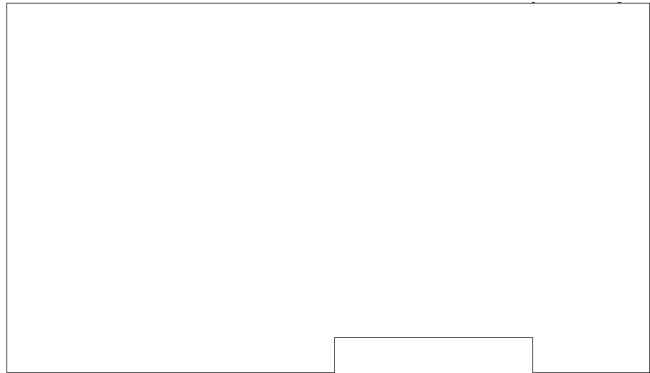
20. The Soviets probably believe that SDI can be slowed, and perhaps even halted, by their sustained efforts to erode US public and Congressional support, exploit Allied doubts, and encourage cutbacks in Congressional funding. They undoubtedly are hoping for a change in attitude with the next administration. The Soviets see the negotiating process as offering opportunities to pursue these objectives, and they will continue to orchestrate their negotiating approach to buttress their public campaign. The Soviets, for example,

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Tactics the Soviets are likely to use against SDI in the future include:

- Forgeries and disinformation that misrepresent the consequences of SDI development for Europe.
- Covert press placements designed to undermine US negotiating and political positions on SDI.
- Reinvigorating Western peace groups, largely through Soviet fronts, with the aim of engaging peace movement representatives in the anti-SDI campaign.
- Directives to West European and other Communist parties to step up demonstrations against SDI.
- Supplying scientific information and disinformation to critics of the US SDI.

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<sup>a</sup> "Active measures" is the term the Soviets use to refer to worldwide activities that are intended to promote Soviet foreign policy goals but that go beyond traditional diplomatic, propaganda, and military means.

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21. At the same time the Soviet Union will continue its political and other diplomatic efforts—complementing them with active measures (see inset)—to increase the political cost to the United States of proceeding with its ASAT and SDI programs. Moscow probably will seek to complement its diplomacy in upcoming summits and in the Geneva arms talks with efforts in the United Nations and the Geneva Conference on Disarmament to further promote its propaganda campaign. Before the 1985 UN General Assembly session, the Soviets approached Third World capitals with demarches arguing against SDI and encouraging these countries to make anti-SDI statements in the United Nations. Indeed, in announcing the 1985 Soviet UN arms control initiative before the General Assembly in September, Soviet Foreign Minister Shevardnadze proposed a Soviet "Star Peace"

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concept as a counter to the US "Star Wars" program. The proposal links aid to developing countries for peaceful activities in space to the achievement of agreements on the nonmilitarization of space in an attempt to generate additional opposition to SDI among Third World countries.

22. The Soviets will continue to make use of the Soviet scientific community in their campaign to encourage doubts among the US and European scientific communities about the feasibility and wisdom of going ahead with the program. Their calculations will be that these scientists can bring additional pressure on the administration and Congress to stop SDI. The Soviets may also involve others who could appeal to other politically active special-interest groups in the United States and Western Europe.

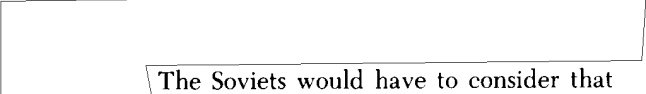
23. With regard to the future Allied participation in SDI research, Moscow will continue to play a dual strategy of threats and inducements. On the one hand, Moscow already has harshly reprimanded governments that have expressed support for, or interest in, research, saying that participation will make the Allies accomplices in the abrogation of the ABM Treaty. The Soviets have strongly criticized the decision of the United Kingdom in early December to allow its firms to participate in SDI research, have warned West Germany that it will become an accomplice in the arms race if it follows through with its plans to join the research effort, and have charged that British and West German actions are likely to lessen the chances for any arms control agreements at Geneva and are inconsistent with the ABM Treaty. The Soviets will undoubtedly point to such complicity in the hope of arousing the interest of peace groups and opposition parties. With regard to Japan, the Soviets probably surmise that, as the host of the May economic summit, Japan will be under increasing pressure to join Britain and West Germany in backing SDI. The Soviets are likely to calculate that the best they can hope for is to play on popular Japanese fears of "provocative" military initiatives in order to circumscribe and delay Tokyo's response to US overtures.

24. On the other hand, the Soviets will seek to use to their advantage any Allied sensitivities on SDI, especially technology transfer issues and any restrictions that are applied to developments made as a consequence of participation in SDI research, by publicly and privately exploiting Allied doubts that US offers of true participation are genuine. At the same time, they will actively seek to acquire the fruits of the joint SDI research programs. The Soviets also will no doubt take advantage of the opposition of some Euro-

pean scientists to participation in SDI research. Soviet actions are likely to attempt to nourish the concerns of these scientists, especially as Allied participation grows, and as more Europeans become aware of the low-key SDI-related research that is already being carried out in Europe. An indication of the Soviet approach came when Gorbachev, in discussions with Italian Prime Minister Craxi in May, commended the EUREKA<sup>5</sup> program provided it remains peaceful.



25. In the event of US demonstration of SDI technologies, the Soviets would in all likelihood seek to turn it to their advantage in their ongoing international propaganda campaign. They would characterize US actions as an attempt to force the pace of the arms race, and would charge the United States with violations of the ABM Treaty, even if such technology demonstrations were permitted under the terms of the agreement. In this circumstance, the Soviets could consider whether to demonstrate their own technology in response.



The Soviets would have to consider that technology demonstrations such as those suggested here could be viewed as inconsistent with present Soviet propaganda against SDI, and that Soviet efforts to weaken domestic and Allied support for the program could be seriously undermined by any such demonstrations.

26. On the other hand, the Soviets might wish to use such a demonstration to foster a perception of Soviet technological prowess, and to influence the US public debate on SDI. The Soviets already have under way technology development programs in countermeasures, ASAT, and ballistic missile defense that could serve as the basis for a potential demonstration.



**Military and Technical Activities**

27. While Moscow clearly hopes that Washington eventually will abandon SDI, Soviet defense planners are unlikely to rely on Soviet public efforts or the unpredictable outcome of arms control negotiations to block SDI. Instead, planning undoubtedly is under way to assess possible outcomes of current and future

<sup>5</sup> EUREKA—a name derived from the European Research Coordination Agency—is a French-proposed program to coordinate West European civilian technological research.



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US technologies and capabilities against the USSR's own options for strategic offensive and defensive systems. (See inset.) Undoubtedly, the Soviets have reviewed their own efforts in light of the US SDI, and we expect that they will now seek to pursue their advanced BMD technology, planning, and programs in a more integrated fashion. [redacted]

28. The USSR has been working on military applications of directed-energy technology as long as and more extensively than the United States. Directed-energy and kinetic-energy weapons potentially could be developed for several weapons applications—ASAT, air defense, battlefield use, and, in the longer term, BMD. Three types of directed-energy technologies—high-energy laser, particle beam, and radiofrequency—have potential strategic weapon applications. [redacted]

29. The Soviets have a solid and innovative base for the development and testing of a variety of countermeasure technologies, and we expect them to continue regardless of how far the United States proceeds with SDI. To be effective, countermeasures are usually developed against a specific threat. Therefore, until US hardware architecture is clearly defined and the extent of changes in US strategy and force posture are better known, the Soviets will find it difficult to "tailor" their responses to SDI. Nonetheless, since the 1983 announcement the Soviets probably have taken some steps to refocus their technical efforts to ensure that they are in fact conducting all the necessary basic research required to develop countermeasures. [redacted]

30. The Soviets may be concerned that their system development process is not suited to contend with major new US initiatives like the SDI program and that they could lose out to the United States in an open-ended competition in advanced technologies. Their concern may result from the customary Soviet development process that usually requires a relatively early freeze of technology, and they have lagged the West in many areas of technology. Nonetheless, they have traditionally compensated for such problems through innovative design solutions, an increase in weapon quantities, or the deployment of initial systems that have a lesser capability than those the United States would build. The Soviet development style, moreover, emphasizes continued product improvement that often proceeds in parallel with new developments. This procedure reduces the need for the Soviets to push technology in each development program since desired performance can be achieved through a series of modernizations. [redacted]

#### Soviet Commentary on Possible Responses to SDI

Since the March 1983 US announcement, Moscow has been claiming that it will not let the US SDI go unanswered. Most Soviet statements, including those of General Secretary Gorbachev, claim that the Soviet response will be a buildup and improvement of strategic offensive forces to overwhelm the US SDI. Several Soviet military leaders, including Marshal Sergey Sokolov, Defense Minister, and Marshal Sergey F. Akhromeyev, Chief of the General Staff, indicate that the Soviet countermeasures also will include the further development of defensive weapons, while other spokesmen have discussed the development of a counterpart Soviet system. [redacted]

Some Soviet scientists maintain that numerous active and passive countermeasures to defeat space-based SDI stations can be based on existing technology, and will be simple and relatively inexpensive to implement. Specific examples of active countermeasures cited by the scientists include high-acceleration missiles, ground-based lasers, space mines, cruise missiles, and "false or preemptive missile launches." Passive measures cited include those designed to protect missiles during various stages of flight, including smokescreens, ablative coatings, and hardening of boosters. [redacted]

Selected statements of senior Soviet officials follow:

- "Perhaps someone in the United States had decided that there has appeared a possibility to overtake us, to put a hold on the Soviet Union. But this is an illusion. It could not be done in the past, and it cannot be done now. We shall find a response, and an adequate one at that." Gorbachev, *Time* interview (quoted in *Pravda*, 2 September 1985)
- "The Soviet Union is far from naive and cannot count only on peaceful assurances by US leaders, which serve as a cover for developing strike weapons in space. If that is continued, nothing will remain for us, but to adopt countermeasures in the field of both offensive and other, not excluding defensive, armaments, including those based in space." Akhromeyev (*Pravda*, 19 October 1985)
- "[People in the United States] are perfectly well aware that the deployment of a large-scale ABM system by one side will inevitably prompt retaliatory actions by the other in the form of quantitative and qualitative growth of strategic defensive weapons in the creation of a large-scale ABM defense for the country, which also means the creation of the means for the neutralization of ABM defenses." Sokolov (*Pravda*, 6 November 1985) [redacted]

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31. Timely development by the Soviets of tailored countermeasures must be based on an assessment of the strengths and vulnerabilities of the US approach to SDI. They will place highest priority on acquiring intelligence on US SDI developments and on gaining access to the technology in which they lag. Increased collection activities in the United States and in Allied countries, and programs to improve Soviet technical intelligence capabilities, will result. [Redacted]

avoid taking that step, at least at an early date, so long as they hold out hope that they could stop the SDI program. [Redacted]

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32. Although [Redacted] have reported diversions of resources to military projects, we have no direct evidence, and we doubt, that the Soviets have yet made major changes in their force planning or in their R&D programs in response to the SDI announcement. In the latter case, however, changes would be difficult to detect and identify. [Redacted]

35. Although we cannot be certain, it appears from the evidence that the Soviets' emphasis in developing advanced-technology antisatellite and ballistic missile defense weapons is to concentrate initially on developing and deploying ground-based systems. Their near-term objectives would be to provide better terminal defenses than their conventional ABM systems alone could provide and to extend their coverage to intercept ballistic missile reentry vehicles (RVs) at higher altitudes. [Redacted]

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33. In structuring their efforts, the Soviets will build their forces for the early-to-mid-1990s as previously planned and will try to avoid major disruptions in both the defense sector and the overall planned economy for at least the next several years. They will seek to design longer term solutions that they can manage with minimum disruption. Thus we expect them to pursue both near-term "quick fixes"—ready adaptations of existing and already-programmed forces—and to establish R&D programs designed to yield payoffs in the longer term, well after the turn of the century. We anticipate efforts along a broad front, as the Soviets investigate a variety of options to counter SDI and continue their longstanding activities in conventional and advanced technologies for strategic defense. We also would expect them to deploy some systems, using available technology, even when that technology cannot fully satisfy their military requirements. This would be consistent with Soviet philosophy and past practices. [Redacted]

36. Soviet space-based laser efforts apparently are geared toward an initial antisatellite role. The development of technologies for midcourse and boost-phase intercept of ballistic missiles is probably viewed by the Soviets as a more distant objective and would benefit from the development of their ground-based technologies and their space system infrastructure, and the acquisition of key Western technologies. [Redacted]

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37. In the near term, the Soviets are likely to devote most of their efforts to developing weapons that have intrinsic value to their strategic forces even if the US SDI is eventually abandoned. They will focus on devising countermeasures to exploit anticipated weaknesses or vulnerabilities in what they view as the most likely technologies for a future US defensive shield. ASAT upgrades are the most obvious route to this goal because they will be useful in any case to counter a number of future US space systems. [Redacted]

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34. As SDI development proceeds, and in the absence of a negotiated agreement restricting ASAT and space-based weapons, the Soviet approach would be characterized by an emphasis on developing operational capabilities to suppress SDI systems through direct attack (destructive attacks on ground facilities and satellites, and interference with sensors and communications); to penetrate surviving defenses with improved and possibly expanded ballistic missile forces; and to circumvent SDI defenses by the use of aerodynamic platforms. This approach is most consistent with evidence on Soviet military doctrine and strategy, targeting objectives and operations, and methods of countering strategic defenses. Also, the Soviets could carry out deployment of widespread ABM defenses based on existing technologies to provide terminal defense, although they probably will

38. If the Soviets sought to increase the number of boosters for existing land- and sea-based missile systems, the size of the increase would have to be substantial in order to have any significant military value against a multilayered SDI system. A significant increase in missile production, however, would carry a high cost. Although the Soviets have the ability to boost output in the near term, such a move would interfere with Gorbachev's industrial modernization program, which is needed to support production of systems with more advanced technologies in the 1990s. In the absence of an effective US boost-phase intercept capability, a more effective solution might be to emphasize increasing the number of warheads per missile, and expanding the use of decoys and other penetration aids. An increase in the number of long-

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range bombers and cruise missiles, and the introduction of low-observable technology to these systems beyond current plans, is also an option, but would also require substantial additional investment. Moreover, the Soviets must expect that the United States would pursue air defense deployments as a complement to SDI. 

39. To have more advanced-technology counters to SDI available in the midterm, the Soviets would have to begin development soon. They will seek to avoid limiting their options during development, and will seek to postpone decisions on actual deployment until they have a clear indication of US intentions to develop and deploy SDI. These improvements could conceivably include shielding boosters and RVs, hardening RVs, and, with more difficulty, initiating programs to develop boosters with greater acceleration performance than boosters currently in development (so-called fast-burn boosters). The Soviets are probably already pursuing such options as maneuverable reentry vehicles (MaRVs) to improve accuracies and avoid terminal defenses, along with reduced observables and terminal guidance technology on cruise missiles. These efforts would have added urgency in response to SDI. Current programs for space-based and ground-based ASAT systems would be likely to receive added emphasis. These responses would require significant increases in R&D as well as procurement, and could entail substantial reallocation of funding. Given the Soviet preference for relying on existing systems and incorporating new technology only as required, however, these programs probably could be accommodated without unacceptable disruption of defense planning, given the level of industrial capacity already required for the initial responses outlined above 

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the Blackjack, that clearly will have an intercontinental mission. This bomber and its future variants will remain operational well into the next century as a carrier of cruise missiles and gravity bombs. In the early-to-mid-1990s, the Soviets could begin deployment of cruise missiles that would incorporate trade-offs between lower radar and infrared observables and supersonic or perhaps hypersonic speeds to penetrate future air defense systems. 

41. The Soviets have an excellent theoretical knowledge of electromagnetics and traditional signature-reduction technologies. They have shown an interest in signature-reducing technologies with broad application to a variety of aerodynamic vehicles and have acquired related technical information, materials, and manufacturing equipment from a variety of foreign sources. 

 we doubt that Soviet designers have as yet decided on an overall conceptual approach to low-observable aerodynamic systems design. 

**Advanced Technologies for Countering SDI**

42. Soviet developments are competitive with those of the West in many needed technologies, including:

- Laser and other directed-energy technologies applicable to weapon system developments.
- Communications technologies (for survivability and secure command and control systems).
- Radar technologies, especially high-power radio-frequency (RF) devices.
- Electronic countermeasures.
- Power sources (particularly nuclear sources).
- Ion sources, and accelerators for high-energy beam weapons.
- Propulsion.
- Structural materials and metalworking technologies.
- Nuclear weapons. 

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40. An effective US defense against ICBMs and SLBMs also is likely to increase Soviet reliance on bombers and cruise missiles that would circumvent US ballistic missile defenses. The longer flight times associated with these systems, however, make them much less useful than ICBMs in a primary counterforce role. These offensive systems, incorporating advances in penetration aids and low-observable technology, could attack not only some targets formerly allocated to ICBMs but also some SDI ground-based elements as a defense suppression measure. Moreover, new attack-class submarines carrying cruise missiles are likely to be quieter and more survivable and to be deployed in broad ocean areas, thereby increasing the search area. The Soviets are already deploying Bear H bombers equipped with the AS-15 long-range air-launched cruise missile (ALCM) and are testing a new aircraft,

43. Four areas of Soviet technological weaknesses are of special importance because they have broad impact on Soviet capability to demonstrate and deploy counter-SDI systems. All will require further indigenous development and continuing infusions of Western technology if they are to improve:

- In computer technologies, the current level of technology available to a Soviet system designer

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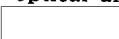
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is five to 15 years behind that available to a Western system designer. Computer technology developments appear to be falling further behind as the decade progresses. These deficiencies are offset somewhat by the Soviet development process, which is fairly efficient in incorporating the best of the available technology into both existing and new systems. In addition to deficiencies in computer hardware, the Soviets are significantly behind the West in their ability to produce sophisticated software.

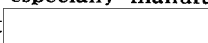
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- In production technologies for microelectronics, the Soviets have been unable to achieve high-quality mass production, sufficient for their needs, of both electronics-grade silicon and the microelectronics devices themselves.
- The Soviets have long had a problem in producing sufficient amounts of high-quality precision test equipment (experimental, testing, diagnostic, calibration) for use in their research, development, and production programs.
- In sensor technologies, the Soviets have lagged in the development of optical and infrared large-array developments. 

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44. Lags or weaknesses in Soviet technology within specific areas, however, do not necessarily translate into less capable military systems. Innovative design engineering, or larger weapon deployments and other operational measures, can often offset technology deficiencies. 

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45. Moreover, in many cases, in order to be able to produce systems using these sophisticated technologies, the Soviets will emphasize the legal and illegal acquisition of these technologies, especially manufacturing technologies, from the West 

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**Technologies for Penetrating Ballistic Missile Defenses**

46.  there are a variety of technologies the Soviets could pursue to improve the ability of their ballistic missiles to survive and penetrate a deployed SDI. For example, the Soviets will have by the early 1990s the technology to be able to begin development of high-acceleration (fast-burn) boosters. Such boosters could reach initial operational capability (IOC) by the period 2000-2005. Propulsion technology has been a strength of the Soviets, and we expect such a development program to be well within their capability. Fast-burn boosters will be much more complex than present ones, however, and thus will require high development costs, will be more difficult

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and more costly to produce, and will possibly be less reliable. Throw weights probably will be smaller for a given booster size because of greater structure weight, greater atmospheric drag, and probably less efficient propellant combustion. The Soviets would face a challenge in maintaining the accuracy of fast-burn boosters to the same level as current ICBMs, much less improving accuracy; boost completed within the atmosphere would expose RVs to drag that would be difficult to model. This could be partially compensated for by an improved navigation system. [Redacted]

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49. The Soviets are also conducting research under military sponsorship for the purpose of acquiring the ability to develop particle beam weapons (PBWs), but the size and scope of this effort are unknown. We believe the Soviets will eventually attempt to build a space-based PBW, but the technical requirements are so severe, including those for power generation, power conditioning, and beam pointing, that we estimate there is a low probability they will test a prototype before the year 2000. [Redacted]

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*The holder of this view is the Director, Bureau of Intelligence and Research, Department of State.* [Redacted]

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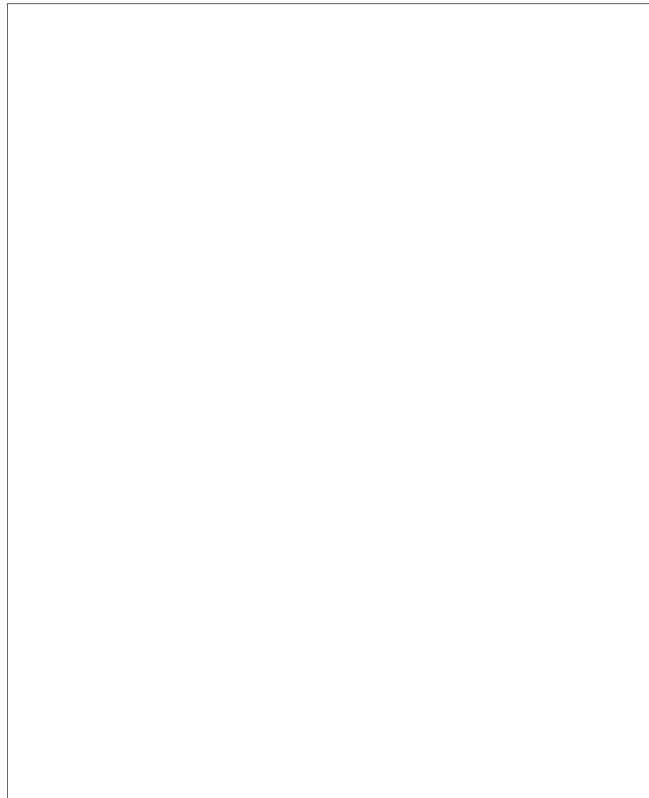
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52. We have evidence that the Soviets have expended considerable resources since the 1960s on research and development on technologies with potential applications for hypervelocity kinetic-energy weapons, including rail guns. Currently, they appear to be concentrating their efforts on these technologies to those applicable to short-range, ground-based systems.

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