U.S. Goals and Policy Options

8

The U.S. national interest would be served well if all countries in the former East Bloc become prosperous, democratic trading partners. Some are very likely to do so; others hold less promise. The reform transition is proving extremely difficult, and in Russia and several other former East Bloc countries there is no consensus that it is worthwhile. Failure in reform could have very undesirable implications for the United States, including a possible resumption of the Cold War and dangerous international instability.

U.S. policy must be based on a realistic understanding of the situation and of the United States' ability to influence decisions. The transfer of energy technology can be a major vehicle for supporting reform and, if done wisely, can greatly benefit both the United States and the recipient countries. However, poorly thought-out programs may actually impede reform while providing only a marginal increase in U.S. exports. This chapter reviews the main goals guiding U.S. policy toward the region and suggests specific policy options relating to energy that support U.S. goals. Since national goals can conflict, it also considers how the options can be coordinated in overall strategies.

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U.S. NATIONAL GOALS

The chief U.S. goal, over which there is no disagreement, is to promote the transition of formerly hostile East Bloc countries to democratic, market-oriented trading partners. The primary justification for U.S. assistance has been the "historic opportunity" to ensure world peace and the security and prosperity of American citizens that has arisen from the collapse of Communism and the end of the Cold War. Promoting political stability and economic

prosperity in the former East Bloc should lessen the risk of future conflict and dampen geopolitical competition.

Energy-specific Goals

Reform and modernization of the energy sector is a critical factor in the transition because of its great economic importance. As a component of overall American strategy in the former East Bloc, U.S. goals with energy-specific implications include the following:

- to promote market reform in the energy sector,
- to modernize energy sector facilities and technologies,
- to advance U.S. energy-related business interests,
- to reduce energy-related pollution and threats to the environment, and
- to augment world fuel supplies.

Promoting Market Reform

Energy sector reform is a crucial component in the transformation of the countries of the former East Bloc to market-oriented societies. It is unlikely that energy production can be increased significantly, and energy use rationalized, unless broad-based policy changes are made. Successful marketization of the economies of the region depends most fundamentally on introducing comprehensive programs of privatization, enacting basic changes in legal structures, eliminating state subsidies, freeing domestic prices, achieving currency convertibility, and establishing a favorable climate for foreign investment. In particular, energy price reform is essential to economic transition and has been a key condition of loans from the multilateral development banks (MDBs) to Russia and other former Soviet Union (FSU) republics.

Modernizing Facilities and Technologies

Energy sector modernization is of special importance for several reasons. The enormous fossil fuel reserves of several former East Bloc countries represent the largest and most immediately exploitable source of exports that can generate the hard currency so desperately needed to finance general political-economic reforms. Since inefficient and antiquated supply and consumption patterns severely restrict the quantity of oil and gas available for export, modernization of energy technologies and facilities is imperative.

Countries lacking large oil and gas reserves must import supplies. Imported energy is very costly, especially as Russia moves to world prices in its exports to other FSU republics. The bulk of Ukraine's huge debt to Russia stems from oil and gas imports. Many countries must resort to burning high-pollution domestic coal, and several rely on unsafe nuclear powerplants. The introduction of cleaner and more efficient energy technologies will enable these countries to spend less on imported fuels and to reduce pollution.

Advancing US. Energy-Related Business Interests

U.S. companies are competitive in many energy areas. Assisting them in former East Bloc markets will lead to increased U.S. exports and jobs. In particular, American oil and gas companies are world leaders in exploration and production technologies. The former East Bloc represents an excellent opportunity for U.S. firms to find new reserves, increase business, and employ their excess capacity. Increased activity in the FSU could boost U.S. employment in the oil and gas industry, which has shrunk by 400,000 jobs over the past 10 years.

Reducing Energy-Related Pollution and Threats to the Environment

Pollution in the former East Bloc has caused great devastation in some regions, adversely affecting public health and the economy. Some pollutants have global implications. Carbon dioxide emissions from the former East Bloc account for a disproportionate share of worldwide greenhouse gas emissions. Addressing energy-related environmental problems in the former East Bloc also offers business opportunities and jobs to the United States.

Augmenting World Fuel Supplies

World-wide availability of fuels will benefit significantly from energy sector modernization and Western investment. Oil and gas are plentiful now, but supplies are likely to tighten over the next decade, especially if Russia has to start importing oil. Western technology can at least slow the decline of Russian oil production. Kazakhstan and Azerbaijan have the potential for increased exports.

Even greater potential can be gained from improved efficiency of energy use, especially in the near-term.[1] Reducing energy waste is equivalent to increased production, and will make more energy available for export from the region. Increased world energy availability, whether obtained from increased production or reduced consumption, will mitigate future world market oil price increases and diversify sources for energy imports.

The Political Context of Energy Sector Reform

As described in chapter 6, political reform and economic reform are closely intertwined. Success of market-oriented economic reform depends on the creation of political systems that embody some type of popular consensus about the nature and pace of reform and in which leaders have the political will to carry out the painful process of restructuring and reform. U.S. goals and priorities must take account of this relationship.

It is important to recognize, however, that Western priorities will not always coincide with local preferences. What may seem to Westerners the most economically rational course of action might not be acceptable to local reformers. For them, successful reform often means maintaining employment, renewing human and physical capital, and creating future opportunities as well as maximizing economic activity. This is not just a question of political-cultural preferences, but a recognition that the maintenance of social peace requires a transition that balances economic needs with social costs.

In Russia, this orientation--coupled with Russian 1eaders' fear of appearing subservient to the West—has profound implications for the energy sector. Instead of importing Western equipment and advisers, Russians have so far preferred to develop their own oil and gas "majors." They want to use the energy sector as an engine to modernize decrepit and outdated enterprises and to convert the former military-industrial economy to civilian uses. In this context, it may make economic and political sense for Russians to buy domestically manufactured but inferior parts rather than import Western equipment. Not only are first costs lower, but buying domestic parts maintains domestic employment and provides some basis for a slow upgrade of manufacturing capacity.[2]

In effect, some former East Bloc governments may find it a wise policy to "buy" social peace by maintaining state support for old and inefficient industries with only gradual conversion to a market economy. The cost—greater but more predictable inflation and higher budget deficits-may be justified for local reformers if it results ultimately in a peaceful transition to a more efficient market-based economic system. The energy sector will not be immune from this calculus. U.S. goals and priorities should therefore be flexible enough to take adequate account of local priorities in economic reform, particularly in the energy sector.

POLICY OPTIONS

Policymakers have a variety of instruments to support the goals discussed above. These tools can be categorized under bilateral development assistance, export promotion, multilateral development institutions, and investment promotion. In addition, improved coordination of all these programs is desirable and may permit new, effective initiatives. Most of the specific programs

[1] For an overview of energy use and policy options to improve efficiency, see chapter 4 of OTA'S earlier assessment, *Energy Efficiency Technologies for Central and Eastern Europe, OTA-E-562* (Washington, DC: U.S. Government Printing Office, May 1993).

[2] It is worth noting that our own "buy American" legislation also aims to support domestic employment.

mentioned in this chapter were discussed in more detail in chapter seven

| Bilateral Development Assistance

Congress recognized the great need for help in the former East Bloc and created a substantial development assistance program with major energy and environmental components. The assistance program is having some success, particularly with energy efficiency, but experience is limited. Most of the elements have been well selected, and fundamental changes in direction appear unnecessary. However, Congress could consider ways to improve the effectiveness of the overall assistance program and its components.

The major purposes of the U.S. energy assistance program are to promote economic reform and to modernize energy systems. Assistance can play a significant role in promoting reform within the energy sector, if properly directed. U.S. government aid programs must be coordinated with advisory activities to promote internal price, regulatory, and other reforms.

U.S. resources are very limited compared with the immense need for development projects to improve energy supply and consumption. However, projects focused on specific areas (e.g., training, technical assistance, institution building) can maximize the impact of U.S. government resources and fill precise needs that large multilateral institutions such as the World Bank find difficult to address.

Most programs are funded by the U.S. Agency for International Development (AID), sometimes with the involvement of other agencies such as the U.S. Department of Energy (DOE). AID's program budgets for Central Europe and the FSU are shown in tables 8-1 and 8-2. These tables include AID programs that are either specifically targeted at the energy sector or that address general areas of economic and systemic reform that are important for energy-sector development and that are highlighted in this report.

Areas and programs that OTA's analysis indicates are exceptionally effective for meeting urgent needs and satisfying U.S. goals in the former East Bloc energy sector are listed in table 8-3 and discussed below. This section also describes how these programs can be improved through redirection and/or increased funding.

Policy Assistance

Policy assistance guides governments in establishing democratic processes and in adapting to a market economy. Helping establish a new set of economic ground rules that provide proper financial and regulatory incentives for producers and consumers will provide a framework within which other problems (including investment in oil and gas production) may be resolved, either through the operation of the market or with the aid of U.S. development assistance programs.

The primary goal for the energy sector is price reform. The advantages of price reform are compelling. Higher energy prices would provide producers with the necessary capital to develop new energy supplies and would encourage efficient energy use in all sectors of the economy. Reducing energy use would also have important environmental benefits since much pollution is energy-related. Reduced subsidies to the energy sector would help reduce budget deficits, a key requirement for improved fiscal management. Foreign exchange earnings would be augmented by increased exports of oil and gas now consumed locally.

Exportable forms of energy, including oil, gas, and coal, should be priced at world levels for economically rational decision making. The target for electricity is to increase prices to a level that covers the full costs of production and distribution and provides a surplus for future system expansion. Current prices in the FSU are far below either of these levels. For example, oil and gas prices in Russia are still less than half world prices because rapid inflation has diluted much of the impact of the frequent price increases of the past three years.

However, rapid energy price increases cause considerable hardship, especially to residential consumers, because long-established patterns of consumption are based on low energy prices. That

TABLE 8–1: USAID Central Europe Budget Allocations
(Italics indicate energy sector–specific items)[a]

Program type	FY 1993 (millions)	FY 1994: preliminary (millions)
Regional energy efficiency	7.0	9.0
Energy-sector *restructuring and privatization*	*7.0*	*8.0*
Krakow Power Project	*7.0*	*4.5*
Nuclear safety (DOE and NRC)	*5.0*	*5.0*
Rule of law	2.1	2.8
Democratic governance and public administration	13.5	23.0
Privatization	42.0	44.3
Small business development	32.0	30.0
Commercial law reform	9.3	11.3
Financial sector reform	18.5	18,1
American business initiative	5.1	3.0[b]
Trade enhancement	1.5	O.ob
Enterprise funds	110.0	55.8

[a]This table IS *not* a comprehensive listing of USAID Central Europe-related programs Instead, it includes only those programs that are either specifically targeted at the energy sector or that address general areas of economic and systemic reform that are Important for energy-sector development, areas that are highlighted in this report

All figures represent original appropriations and do not reflect carryover

[b]ABI Terminated after fiscal year 1994.

Trade Enhancement merged with Small Business Development program in fiscal year 1994

SOURCE U S Congress, Off Ice of Technology Assessment, 1994

is why the Russian government has resisted strict programs of price reforms as a condition of receiving MDB loans. High political dissatisfaction and accelerating inflation will make further progress more difficult.

Though correct energy pricing is a necessary condition for energy sector reform, it is frequently not sufficient, because institutional and market imperfections can weaken the signals provided by higher prices. In the FSU, for example, many consumers, particularly large, energy-intensive, industrial enterprises, along with some FSU importing countries, do not pay their oil and gas bills. In this case, the specified price is an administrative fiction that has no restraining impact on consumption patterns. Effective energy pricing will require major policy changes and reforms throughout all sectors.

Privatization is a close companion to price reform. In all countries of the region, conversion of behemoth state energy industries into a system of more rationally structured, profitable, private enterprises can serve as a model for economic transition in nonenergy sectors of the economy. Rationalization of enterprise management and elimination of government subsidies and price controls in the energy sector can also reduce the incentives driving the widespread corruption that is undermining public confidence in economic reform.

Centrally planned economies rarely incorporated regulation as it is practiced in the West, but several forms will be needed as privatization proceeds. Most obvious is environmental regulation to meet modem standards. Most former East Bloc countries have stringent regulations on the books,

TABLE 8-2: Selected USAID FSU Program Budget Allocations (Italics indicate energy sector-specific items)[a]

Program type	FY 1992-3 funding (millions)	FY 1994 funding (millions)
Policy and market reform assistance		
Pricing policy and institutional reform	5.7	*22.0*
Rule of law	9.5	*25.5*
Local governance	9.7	*9.5*
Privatization	125.3	115.0
Business development	14.2	75.0
Banking sector reform and bankers training	N A[b]	12.6
Fiscal sector reform	13,2	15.5
Financial and monetary sector reform	13.4	10.7
Training and macroeconomic advice (Dept. of Treasury)	NA	2.1
Market environment	2.2	14.4
Business **and organizational training**		
Short- and Long-term training	2.7	91.5
US/NIS partnerships	NA	5.0
Exchanges (USIA)	56.3	128.0
SABIT program (DOC)	2.0	2.0
CAST program (NAS)	2.0	2.0
Eurasia Foundation	8.0	12.0
Energy efficiency		
Efficiency & performance improvement	22.4	*35.0*
Production and delivery systems	15.7	*39.0*
Special earmarks (Lab-to-lab, etc.)	*NA*	*33.0*
Nuclear power		
Nuclear power plant safety and regulation	45.2	85.0
Technical assistance		
Russia Energy & Environment Commodity Import Program	*NA*	*125.0*
Environment		
Policy and institution building	3.4	21.9
Technology cooperation	5.7	36.5
Local NGO support	2.3	14.6
Trade and investment promotion		
Transfer payments to DOC and TDA	23.2	8.5
Enterprise funds		
Russian-American Enterprise Fund	**20.0**	120.0
Western NIS Enterprise Fund	NA	45.0
Central Asian Enterprise Fund	NA	30.0
Fund for large enterprises in Russia	NA	100,0
EBRD Small Business Fund	NA	15.0
Multi-Lateral Equity Fund	NA	21.0

[a]This table is *not* a comprehensive listing of USAID FSU-related programs. Instead, it includes only those programs that are either specifically targeted at the energy sector or that address general areas of economic and systemic reform that are Important for energy-sector development, areas that are highlighted in this report.

All figures represent original appropriations:

- They do not reflect recisions under way in February 1994.
- They do not reflect considerable carryover of funds appropriated in fiscal year 1992-93.

The higher levels of funding in fiscal year 1994 representaone-time infusion Fiscal year 1995 appropriations will revert to fiscal year 1992 -93 levels or lower

[b]NA=Not applicable.

SOURCE U S Congress, Off Ice of Technology Assessment, 1994

TABLE 8–3: Exceptionally Effective Development Assistance Programs

- Policy assistance
  - Price reform
  - Privatization
  - Regulation
- Training in market activities and skills
- Energy efficiency
  - Demonstrations and assistance
  - Efficiency centers and information
- Nuclear safety and proliferation control
- Environmental information and assistance
- Specific technology transfer programs
  - Utility Partnership Program
  - Powerplant renovations
  - Clean-coal demonstrations and assistance
  - Coal mine safety
- Energy research and development

SOURCE U S Congress, Office of Technology Assessment, 1994

but they are not enforced. Assistance is needed to achieve a workable regulatory code and to train regulators to administer and enforce the environmental laws, as discussed in chapter 5.

In addition, electric power must be regulated appropriately. At present, rates in some countries are held well below costs, but the opposite could occur once the utilities are privatized. Yet few former East Bloc governments have any experience with cost-based regulation, a role that is handled in the United States by the Federal Energy Regulatory Commission and by state regulatory agencies. U.S. expertise should become very important as central planning is reduced.

Policy assistance is not expensive. It generally involves reciprocal visits and training. Government, industry, and academic personnel should be involved. The main agencies coordinating the work involving energy sector policy should be DOE, AID, the Environmental Protection Agency (EPA), the Nuclear Regulatory Commission (NRC), and the Department of State (DOS). An additional appropriation of about $1 million per agency should allow for many visits in both directions and extensive training in skills needed for operating a modem, market-oriented government.

Training in Market Activities and Skills

As privatization has progressed, officials of former East Bloc countries and Western observers have realized that new skills are needed. These include specific technological expertise and market economy skills that Westerners take for granted, such as accounting, planning, and financial management. Developing these general market economy skills is essential for putting the energy and environmental industries and their customers on a rational and more efficient footing.

Training programs to transfer technical and business-related skills will also help create an environment more conducive to reform and U.S. investment. Without the skills necessary to manage financing, operations, and personnel within the structures of a market economy, former East Bloc firms will not be able to purchase and efficiently make use of advanced technologies from the West. The importance and effectiveness of this type of training has been demonstrated in China by the success of the American-sponsored Dalian Management School. The Department of Commerce (DOC) assisted the founding of that school.

Business, technical, and cultural training is possibly the most effective form of assistance at the moment. With highly educated work forces, the societies of the former East Bloc have excellent prospects for successfully absorbing training in Western-style management techniques and market-related skills. Education and training programs in these countries have produced high rates of success. For example, the U.S. director of a major Russian-American oil production joint venture in Western Siberia reports that the company plans to turn its operations over completely to Russian managers within just five years. In almost all other countries where he has worked, it has taken at least one generation to train local personnel to manage production themselves.[3]

[3]Robert E. Tornstrom, president and general manager, Occidental Petroleum of the CIS, personal communication, November 1993.

Furthermore, such programs are traditional activities for U.S. government agencies, especially AID and the Peace Corps, and can directly support all five goals discussed in the previous section. Throughout the former East Bloc, these activities fill avoid that the private sector cannot adequately address. Finally, educational and training programs are inexpensive and have demonstrated high cost-effectiveness.

It is important to ensure that these programs are well defined, tightly focused, and closely supervised. They can have substantial long-term impact if they are result-oriented (teaching appropriate and measurable skills) and targeted toward countries or firms making significant progress in reform. Training can occur in the United States for intensive sessions at universities and industrial facilities. But for maximum effectiveness, the bulk of the programs should involve sending U.S. trainers to the region to teach large groups and to train local residents to teach the skills themselves. Not only do such programs develop desperately needed expertise, they spread the use of Engl ish as the international language, a major advantage for Americans involved in international activities, and will create personal and institutional ties.

The costs involved would depend on the extent of the program. The need is almost unlimited. However, a series of short courses for enterprise managers could have significant near-term impact for several million dollars additional. AID or DOC could fund these programs.

Energy Efficiency

Energy efficiency has been discussed previously, but it is so central to economic revitalization that it is worth revisiting. Minimizing costs by reducing labor, materials, energy, and capital needs is basic to a free market. Since energy is a major cost in these energy-intensive economies, a focus on efficiency provides a compelling demonstration of free market advantages as well as substantial, immediate economic benefits. Since improvements can be implemented quickly, efficiency programs can also provide very rapid returns, improving the energy balance and enhancing Western credibility at a time of great skepticism about reform.

Increased efficiency is also vital to maintaining and expanding export earnings. In Russia, oil and gas exports currently account for more than 80 percent of convertible currency earnings-money that is critical to Russia's economic transition. However, production continues to fall and, given the normal time lag in bringing major projects on line, is not expected to revive significantly for several years. In the short- to medium-term, the amount of oil and gas available for export will therefore depend on the amount freed up by reducing waste. The World Bank has estimated that reforms in domestic pricing and taxation in Russia could produce additional oil exports worth $11 billion in the first year alone,[4] much more than is likely to result from increased production.

As discussed in the OTA energy efficiency report, options for helping achieve efficiency include: policy assistance, technical assistance (including demonstrations), and other programs designed to provide information about opportunities and incentives to save energy; and material assistance to support the purchase of equipment. In addition, improved U.S. government agency coordination and increased attention by the MDBs are important.

AID has hired contractors to perform energy audits and recommend improvements. It also supports (through DOE) energy efficiency centers in Poland, the Czech Republic, Russia, and Bulgaria. In some cases, it has helped retrofit facilities with energy-saving equipment. Retrofits that pro-

[4] The World Bank, *Russian Economic Reform* (Washington, DC: September, 1992), p. 183. Given the fall in world oil prices since the World Bank made this estimate in 1992, the present value of these incremental exports would be somewhat less than the original $11 - billion estimate. However, the amount would surely be quite large in any case—dwarfing the amount of money available from bilateral and multilateral funding sources.

vide tangible demonstrations of the feasibility and benefits of energy efficiency measures are particularly effective. All these activities could be increased. Expanding current energy efficiency activities might require several million dollars. Greater assistance with the implementation of improvements would cost much more, maybe up to several tens of millions of dollars, but would yield more tangible gains.

An approach to coordinate the efforts of several agencies to implement energy efficiency improvements is discussed below under Program Management and Coordination.

Nuclear Safety and Proliferation Control

As discussed in chapter 4, the risk of a major nuclear disaster is significant. As the world's leading manufacturer and operator of nuclear powerplants, the United States has significant experience in helping reduce safety risks. In addition, U.S. safety analyses and procedures developed after the accident at Three Mile Island are partially relevant to Soviet nuclear technology.

Considerable assistance is already being extended in the nuclear safety area. For example, NRC and DOE review and exchange information on plant designs, operation, and regulation of FSU powerplants. The United States is also providing two training centers (in Russia and Ukraine) equipped with reactor simulators.

Nuclear safety cooperation has been valuable even at its present modest cost. An increase in funding could substantially enhance the program's efforts to improve practical impact by expanding efforts to improve safety equipment at nuclear stations. Much higher levels of funding would be justified if U.S. concern over nuclear safety is very high. In this case, consideration should be given to supporting the construction of replacement power, since none of these countries can easily afford to build alternative plants or supply fuel for them.

Assistance that focuses on physical improvements rather than information would be expensive. Billions of dollars are likely to be required to upgrade safety to near Western levels or to replace the riskiest plants. Western European countries and Japan would share much of this burden.

Proliferation control will involve two major areas: safeguarding the nuclear materials from dismantled weapons and reducing the chance that expertise in weapons design and manufacture will become available to other countries or terrorist groups. The former is the subject of an earlier OTA report[5] and is beyond the scope of this report. The latter is relevant to civilian nuclear power because a constructive way to employ nuclear weapons experts is in analyzing and improving nuclear reactor safety, or in nuclear power R&D. For example, U.S.-Russian collaboration on gas cooled reactors could greatly speed progress and reduce design and testing costs.

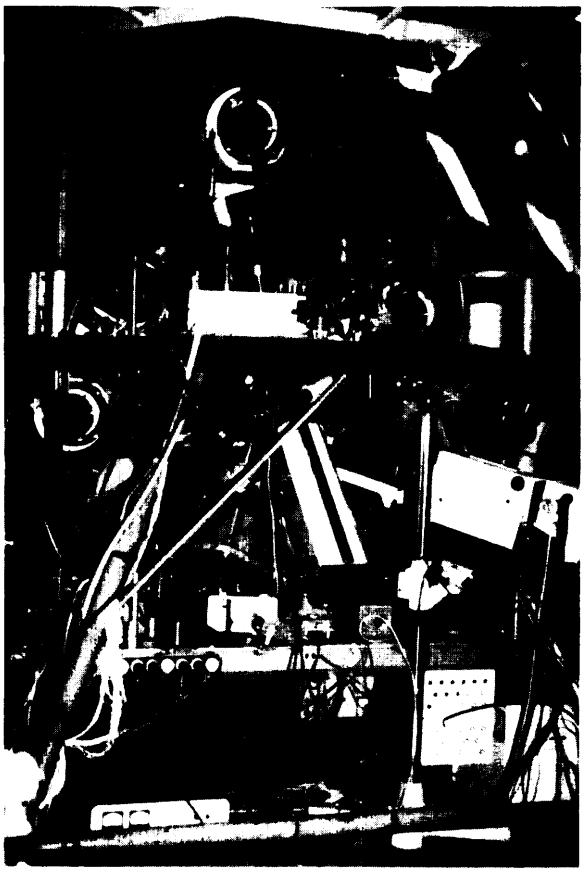
Assistance to Russia and Ukraine to establish institutions for R&D has been offered. The Russian center was initiated in December 1993 by presidential promulgation, but the Ukrainian Parliament has not yet ratified the agreement. Pending full operation, DOE could be encouraged to seek joint R&D projects and other stabilizing activities.

Environmental Information and Assistance

Major improvements will be required simply to reduce current pollution that is contributing to the heavy contamination of the last several decades, as discussed in chapter 5. Environmental degradation has damaged human health and economic productivity in former East Bloc countries. The United States has pioneered pollution control measures and regulation, and has the world's best technology in many areas. U.S. equipment and expertise are particularly important for: preventing environmental damage by oil and gas production in the Arctic and offshore; coal mine runoff and

[5] U.S. Congress, Office of Technology Assessment, *Dismantling the Bomb and Managing the Nuclear Materials, OTA-O-572* (Washington, DC: U.S. Government Printing Office, September 1993).

DAN FENSTERMACHER



Russian fusion test equipment. Fusion R&D has benefited from U.S. -Russian cooperation,

reclamation; coal cleaning; and control of particulate, sulfur dioxide, and nitrogen oxides.

A variety of U.S. programs provide environmental information, technical assistance, and financial assistance. The latter addresses the major problem—lack of investment funds—which is especially critical since few environmental projects are directly self-supporting. Several initiatives funded by AID, EPA, and DOE contribute to environmental projects, but generally on a relatively small scale. Since some activities lead to sales of U.S. equipment, it is likely that increased financial assistance would benefit U.S. enterprises.

It is important to assure that environmental expertise and enforcement are in place before major new energy facilities are constructed. Training, information, and policy programs could be usefully augmented for this purpose.

Increasing the flow of information would not be expensive. Another million dollars per year would pay for significant activities. Assistance in actual improvements in pollution control would be much more costly because help is needed almost everywhere. If such help is profferred on a wider scale, it will be important to select appropriate projects (e.g., control of air pollution sources that affect human health and for which American expertise is particularly appropriate.)

Specific Technology Transfer Programs

The following programs involve transfer of American technology and expertise to specific areas of the energy and environment sector. Each of the programs relies heavily on technical training, which is intrinsic to technology transfer. The skills of engineers and workers must be upgraded to manage modern equipment and systems. Although the highly educated residents of former East Bloc countries have shown great aptitude in learning new skills, technical training (other than that accompanying sales) is not likely to occur rapidly without assistance.

The Utility Partnership Program (UPP) enables U.S. utilities to transfer their expertise directly to their counterparts in the former East Bloc. It pays expenses for travel and seminars. The program also allows U.S. utilities to learn of new techniques and approaches. This program has been instrumental in helping Central European utilities make the transition to market economies (as discussed inch. 4). Expansion of the program to the FSU is too recent to have seen such results. So far, the contacts have led to at least one contract for the U.S. partner to implement some of its recommendations.

However, some U.S. partners are finding that the demands on their time, which are not covered by the program, are getting too great to be justified before their public utility commissions. Additional funding of several million dollars would permit an increased level of activity, such as more extensive training. To some extent, AID has opened the door to greater funding of this program, but participants must bid competitively on specific proj-

ects, a cumbersome and uncertain process. Expanding the scope of the UPP would increase the transfer of some very useful technology, at relatively nominal cost.

Powerplant renovations are necessary because a large fraction of the generating capacity is old and dilapidated. Major retrofits involving new combustion technology with modem operational and emissions controls should result in greater efficiency and less pollution, as discussed in chapter 4. As with clean-coal technology, discussed below, none of these countries can afford on their own to do the work as rapidly as needed. Unlike investments for pollution control, powerplant renovation can be self-supporting, but few projects are likely to occur over the next several years without assistance.

Clean coal technologies (discussed in chs. 3 and 4) will be essential because many of these countries have no choice but to continue heavy reliance on coal. The current demonstration project in Poland is now undergoing tests. This project has installed flue-gas desulfurization (FGD) and other modernizations on two small coal-fired boilers. The total cost is about $12 million, about two-thirds of which is funded by DOE.

Although the project is a small one, the potential for American business is huge. Assuming the tests prove out and such equipment is installed on all boilers, the market in Poland alone could amount to $3.6 billion.[6] However, neither Poland nor any of the other coal-dependent countries can afford such an investment for cleaner air, no matter how great the indirect benefits (e.g., improved public health) may be. Foreign aid (including cost sharing) will greatly speed the adoption of such equipment, much of which can be supplied by U.S. companies.

Continued demonstrations of other new technologies will also open the door for major U.S. exports and combat some very serious environmental problems. FGD will require further demonstrations in other countries, especially if different types of coal are to be used. Technologies such as fluidized-bed combustion will also need demonstration to achieve significant market penetration. Total costs of an expanded program would depend on the level of expansion. Tens of millions of dollars could easily be used between demonstrations and export financing.

Coal mine safety has been sadly neglected in the entire region, and miners have paid a heavy price, as noted in chapter 3. AID has supported assistance through the United Mine Workers and the National Coal Association to improve conditions. Partners are sharing their expertise in reducing accidents. Equipment such as methane detectors (to prevent explosions) has also been delivered.

This program is primarily a humanitarian gesture to a sector that has been badly exploited. And although it has less potential to produce additional business for U.S. companies than other programs discussed here, the program will help a key sector operate more efficiently. Even an expanded program would entail only modest costs. Nevertheless, policy makers should closely scrutinize coal mine safety programs to ensure that they fulfill these humanitarian and efficiency related goals and not unwittingly prolong the operation of mines that should more properly be closed.

Energy Research and Development

R&D, discussed in chapters 3 and 4, can bring mutual benefits. Russia has considerable R&D expertise that can be constructively employed in projects that produce results useful for the United States. The Russian focus on pure science dovetails with the U.S. strength in applied engineering and commercialization. For example, Russia can contribute significantly to R&D programs on flywheels, turbines, high voltage transmission and cogeneration.

[6] The $12 million is for two 50 MW boilers. Poland has 30,000 MW of coal-fired capacity. Some of this capacity will be replaced, not modified, but new units will also need pollution control equipment.

R&D programs could provide forums for the exchange of R&D information and fruitful interchange of personnel. This area could attract support from a range of donors—bilateral and multilateral, foundations, nongovernmental organizations (NGOs), and some industries hoping to stimulate future sales through the contacts developed as well as with new products.

Some R&D institutions are already planned or in existence; for example, a U.S.-Russian Joint committee established under the U.S.-Russian Federation Framework Agreement on Scientific and Technical cooperation in the Field of Fuel and Energy, and an International Science and Technical Center headquartered in Moscow. Ways of augmenting their programs, activities, and participants could be investigated. Ultimately, cooperative R&D should be profitable, but startup costs could be significant.

Problems in Program Execution

AID created its assistance programs for the former East Bloc in just a very few years, yet it selected quite appropriate energy and environmental topics. For this, AID deserves commendation. However, the execution of the program leaves more to be desired.[7] As noted in the OTA energy efficiency report, procurement is very lengthy and costly and discourages small businesses. Current employees and contractors have been used despite a lack of knowledge of the region or of the ways in which it differs from developing countries. Some of this was inevitable because of the speed with which the program was created, but AID could be encouraged to employ regional experts whenever possible and to recognize that its mission in the former East Bloc differs fundamentally from its activities in less developed countries. Congress could require AID to document the qualifications of the people involved in the programs, especially those in decisionmaking positions. Congress also could consider lifting the hiring ceiling at AID if necessary.

Another complaint (and not just about AID) has been about the number of consultants proffering inappropriate advice while offering no tangible help, thus damaging American credibility. These visits can interfere with work without offering compensating advantages. Focusing assistance on projects that will provide visible benefits to the recipients will improve impressions of U.S. involvement.

More attention can be paid to widening the benefits to U.S. business of development assistance programs. AID's missions are often in touch with potential customers, and the contacts can produce information that leads to additional business for U.S. companies. Thus, the net cost to this country of the assistance program is less than the appropriated funds. However, U.S. firms sometimes find AID unresponsive and bureaucratic. Congressional initiatives may be necessary to make business promotion an official function. Perhaps AID could work more closely with the Foreign and Commercial Service (FCS, part of DOC).

| Export Promotion

From the beginning, the private sector has been recognized as the major player in rejuvenating former East Bloc energy systems, and the promotion of energy-related products and services exports has been a fundamental goal of U.S. policy. Modernization of the energy sector is essential for economic health and good business for U.S companies and workers.

The United States is highly competitive in a wide range of energy and environmental technologies. Table 8-4 lists some of the areas where U.S. technology is especially competitive. These products and services should find markets if the conditions are right. Often, however, support by the

[7] Various proposals have been made t. revamp the entire foreign aid program. Congress is now considering the Administration's recommendations.

TABLE 8–4: Competitive U.S. Technologies

- Oil and gas
  - Exploration—seismic analysis, deep drilling, deep water & Arctic
  - Production—reservoir engineering, workovers, stimulation
  - Gas pipeline compressors and control equipment
  - Environmental protection
  - Refining
  - Spill cleanup
- Coal
  - Coal cleaning
  - Fluidized-bed combustion
  - Gasification/combined cycle
- Nuclear
  - Control systems
  - Safety equipment
- Electric power
  - Advanced generation
  - Integrated resource planning
- Energy efficiency
  - Control systems
- Environment
  - Monitoring equipment
  - Pollution control (SO_x and particulate at powerplants, refineries etc.)
  - Reclamation and acid mine drainage

SOURCE U S Congress, Off Ice of Technology Assessment, 1994

U.S. government is required. The main elements of export promotion are well known: financing, information procurement and dissemination to industry, and active trade promotion policy. In the former East Bloc, U.S. companies have been at a disadvantage because Japan and most countries of Western Europe do more to support their exporters. U.S. export promotion programs are discussed in chapter 7.

Financing

Few customers have the money to pay for the Western goods and services they need, particularly in the FSU. Hence financing is critical for maximizing exports. In many cases, private financing is inadequate because of the risk or if foreign governments provide subsidies. U.S. government financing is usually provided in the form of loan guarantees. The major policy issues concern the level of funding for export credits and the extent to which export financing can be used to leverage reform.

Congress has approved $2.5 billion in foreign aid for the FSU, much of which will be channeled through Eximbank and OPIC to involve American companies directly. These funds serve several purposes: to provide FSU countries with the capital needed for crucial energy-related imports, to provide financing for American exports, and, to some extent, to provide incentives for firms and governments to engage in economic reform. Eximbank's Framework Agreement (see ch. 7) is one of two main financing instruments in the overall program and is the major vehicle for financing exports of American oil and gas equipment to the FSU.

However, financing increased exports to the FSU has been difficult (even for bilateral and multilateral credit agencies) because of the high levels of political and economic instability. In addition, Russia has ambiguous feelings about foreign involvement, especially in the oil and gas industry, and even more particularly if conditions are attached. Although U.S. export-credit agencies and the multilateral banks have tried to make loans contingent on progress toward economic reform, it has been extremely difficult in practice to achieve conditionality.

These programs have forced U.S. export-credit agencies to fulfill missions for which they were not designed. Increased exports to Russia are a U.S. policy goal even though the Russian financial situation does not warrant the loans necessary to support them. As a result, Eximbank is accepting loans for Russia under conditions that it would reject for other countries.

Eximbank's traditional mission has been to finance exports, especially those that are threatened by subsidized financing from other countries or are too risky for commercial lenders. It is not a foreign aid agency, yet it has been asked to expedite loans to Russia beyond its customary practices. This has put a strain on the bank's staff and forced it to work in areas in which it has little experience. Moreover, the financial costs of lending to high-risk countries may deprive Eximbank of opportunities to lend in other countries to enterprises that are less risky and promise greater immediate economic benefit to the United States. Even other countries of the FSU, such as Kazakhstan, may present fewer risks than Russia, but they are being neglected.

U.S. economic and political priorities will almost certainly dictate continued support for large-scale export credit programs because they provide great potential for growth and reform. However, Congress should be aware of the explicit financial costs of export-credit programs for the former East Bloc. If too many risky loans fail, increased subsidies will be required.

It is possible that the volume and impact of the transactions resulting from the Eximbank Framework Agreement will be considerably smaller than anticipated, at least over the next year or so. To begin with, the mechanism for accessing these loans is complex, highly information-intensive, and time-consuming. For projects based on revenues from increased production of oil, a duly authorized expert must visit the site of the proposed project, confirm the technical feasibility of the project, and make an estimate of the additional oil that could be produced through the use of the new imported equipment. Proceeds from the sale of this oil support the escrow account from which the Eximbank loan is repaid. The near certainty of serious disagreements among all parties over baseline production estimates is liable to slow the process further.

In addition, interest on the part of the Russian production associations is reported to be less than anticipated, largely because they are obliged to go through the Ministry of Fuel and Energy to apply for loans. That complication may deter some associations from participating in the Eximbank framework agreement. In addition, the minimum loan for consideration is $25 million, a large sum in relation to the cost of some of the items of equipment such as special drills that are most likely to be in demand. Eximbank has suggested that this minimum requirement could be met by combining several companies in one loan application, but this adds an additional layer of complexity to the already cumbersome system.

Additional production generated by the deals may well be smaller than analysts had previously anticipated, for two reasons. First, although the framework agreement applies to all "incremental" production—including green fields and rehabilitation projects—the program is predicated on the idea that a speedy infusion of capital can produce a significant short-term increase in production through rehabilitation of many of the 30,000 wells that currently stand idle. However, recent experience suggests that relatively few of these wells (between 5,000 and 8,000) are realistic candidates for rehabilitation at present world oil prices.

Second, the focus of the agreement—reflecting opinion current at the time the agreement was being conceptualized—is the provision of technology. Observers of the Russian oil scene now see the

institutional and policy environment, rather than technology, as the major factor behind the failure of the Russian oil sector. However, the Eximbank agreement does not impose any conditions with regard to policy reform.[8] Eximbank's mission, after all, is to promote U.S. exports rather than Russian reform.

Nevertheless, the framework agreement is an enterprising and imaginative endeavor to provide better loan security and a much larger potential market than any of the alternatives. The first transaction under the Oil and Gas Agreement was announced in early 1994. It provides $245 million in loan guarantees for Permneft, a Russian oil production association, to assist in rehabilitating oil fields.

In addition to direct financing, U.S. programs include feasibility studies. These studies have been valuable in promoting U.S. exports. The U.S. Trade and Development Agency (TDA) has won many plaudits from industry for its projects, which frequently lead to contracts much larger than the cost of the study. AID has also sponsored feasibility studies that have proved fruitful. This is an area that could usefully be expanded, benefiting both development and American exports. Small companies have reported difficulty in competing for TDA studies because larger companies often bid below costs to position themselves for contracts later. Special programs or procedures in qualifying might allow small companies to expand their foreign work. Alternatively, the Small Business Administration (SBA), which now is essentially not involved in the region, could be directed to start such a program. The Overseas Private Investment Corp. (OPIC) also offers limited financial support for feasibility studies, but if the company secures any contracts as a result, it must repay OPIC's contribution. These conditions greatly limit OPIC's activities.

Analysts in the oil equipment and supply industry and at DOC advocate a significant expansion of U.S. credit promotions through Eximbank, OPIC, and TDA. They argue that U.S. programs, such as Eximbank, are too conservative in their activities—that the low levels of default on Eximbank loans and OPIC investment insurance prove that these agencies are not promoting American exports aggressively enough. According to this view, American firms will have a unique opportunity over the next few years to establish strong positions in markets just being opened to them if the U.S. government provides credits for the first, inherently risky projects.

Finally, trade promotion programs have a strategic dimension, especially in the former East Bloc. Even if economic returns are less than optimal, U.S. programs demonstrate a commitment to the region in its time of crisis. U.S. projects also support and encourage those forces seeking to open long-closed societies to the outside world. Further, increased Western contact provides a positive and accessible example of a functioning capitalist-democratic society.

Conditionality

Virtually all bilateral and multilateral aid embodies elements of conditionality, which refers to conditions a recipient is required to meet, over and above normal agreements on repayment schedules. For the recipient country, conditionality is

[8] The World Bank granted Russia a waiver of its standard "negative pledge" provision in order to allow implementation of the Eximbank Framework Agreement. The negative pledge requires that borrowing countries give the Bank a first and undiluted lien on all public assets and promise not to use those assets against credits received from other sources. In addition, they must have in place a program of structural reform, including a comprehensive set of policy reforms to promote privatization and a macroeconomic program that is satisfactory to the World Bank. According to the Bank, the negative pledge is a major reason why its borrowing costs are so low, enabling it to provide otherwise unsecured loans to the world's neediest countries. Thus the waiver could reduce incentive for reform if it encourages Eximbank rather than World Bank loans. The waiver also could elicit hostility from developing countries that have made great sacrifices in austerity programs mandated by the World Bank and the International Monetary Fund (IMF). Some countries could seize on this example to resist further austerity measures, thus undermining World Bank and IMF efforts in the developing world.

part of the price that must be paid to gain access to funds that otherwise might not be available. Conditionality gives the donor agency or government influence over policy in the recipient country. In general terms, the larger the financial transaction, the greater the potential for conditionality.

In the former East Bloc energy sector, conditionality has applied to MDB loans and bilateral development assistance programs. Such conditionality has usually required the recipient country to institute a program of energy price increases, market-oriented reforms, and sectoral restructuring. Though conditionality has always been a prominent feature of MDB lending activities in developing countries, it has received new focus in MDB programs for the former East Bloc as a way to overcome major obstacles to energy sector reform and development.

Expanding conditionality to bilateral export credit programs could also be beneficial. At present, the United States supports conditionality in MDB and U.S. Agency for International Development (AID) lending programs, but not in programs for export or investment promotion. There are good reasons for this difference, since the purpose of OPIC and Eximbank is to support the U.S. private sector, not to reform the Russian energy sector.

However, Eximbank programs represent a major part of U.S. financial assistance to Russia, and conditioned credit mechanisms could be the most effective means of forcing adoption of necessary price and structural reforms. To make the conditions effective and to articulate U.S. policy in the clearest light, Congress could direct the Eximbank to enforce conditionality more strongly and to deny export credits and development assistance to those former East Bloc countries that refuse to accept conditions.

Central European countries are already open to foreign investment or committed to reform, but the situation is different in most of the FSU. There, Congress may be able to help U.S. firms get a "foot in the door" and promote political-economic reform by directing U.S. export credit agencies to assist only those enterprises that are truly privatized (e.g., with a majority of shares owned by private investors, not by the state). By rewarding companies that have converted to private ownership and made politically difficult decisions to welcome foreign investors, the U.S. government can encourage the type of fundamental reforms that are so sorely needed while also promoting the needs of American business.

There are also solid arguments in favor of a substantial export-credit program for the FSU energy sector even without imposing conditions to promote reform. U.S. exports of equipment and services help increase oil and gas production, which is necessary for economic survival, especially in the near-term. In addition, most observers agree that American credit programs should be large and versatile enough to allow U.S. firms to compete against their foreign rivals. Western European countries and Japan actively assist their companies through financing programs designed to support their ability to sell goods and services abroad.

Insisting on conditionality will slow the pace of financing. Much of the impetus for rapidly expanding assistance and export-credit programs has come from a sense of the need for providing help rapidly. There is a clear tradeoff here between speed and effectiveness, and the relative merits are difficult to predict.

Business Information

Government agencies can play a key role in promoting U.S. business by notifying American companies of business opportunities and organizing trade shows and conferences to introduce American products to potential customers. Several DOC activities have received favorable reactions from business, including the FCS and the American Business Centers (funded by AID).[9]

[9] **Olga Bilyk,** Continuum International Inc., "U.S. Government Export Promotional Efforts," OTA contractor report, January 1994.

Both programs could be expanded significantly, especially in the FSU. The Business Information Service for the Newly Independent States (BISNIS) and the Eastern Europe Business Information Center (EEBIC), located in Washington, are very useful in helping U.S. companies enter the market and in keeping them informed about business conditions in the region.

Neither DOE nor EPA appears yet to have had great impact on promoting U.S. business, especially in the FSU, despite activities such as trade shows and the Coal and Technology Export program.[10] Low program funding and lack of financing capability may be the reasons. Combining the activities of these two agencies and giving them funding at least for feasibility studies could strengthen them. The Federal International Energy Trade and Development Opportunities Program may be a prototype.

Small businesses are particularly in need of information. Many are not even aware of the government help that is available. Those that have marketed in the region have often become interested because of ethnic heritage connections, The SBA apparently has not been involved in the region. Initiating a program in the SBA could be a significant asset.

U.S. Policy Involvement

U.S. diplomatic representatives also can have a significant impact on the level of exports. U.S. embassies support U.S. firms, but not to the same degree as other countries. Congress could direct DOS to make such support a major part of U.S. policy, possibly combined with an upgrading of status for the FCS. A related step could be to enlarge the office of the U.S. Trade Representative.

U.S. policies not aimed at exports still can effect them. In particular, Congress might also reconsider the ban on assistance to Azerbaijan.[11] This ban was imposed because of Azerbaijan's blockade of Armenia, arising from the war over Nagorno-Karabakh, the Armenian enclave in Azerbaijan. Armenian armies from Nagorno-Karabakh, apparently with backing from Armenia, have conquered large areas of Azerbaijan outside the enclave. Armenian-Azeri relations have been difficult and often violent in the past, and this study has not attempted to assign blame for the current situation. However, the ban has, in effect, given U.S. backing to one of the antagonists. The ban is greatly resented in Azerbaijan because the Azeris see themselves as victims of Armenian aggression. It has significantly hurt American business in Azerbaijan, a major producer of oil. Other countries have not joined in the ban, and their oil companies are enjoying the lack of competition from the United States.

| Multilateral Development Banks

The MDBs are by far the largest contributors of public finance to the energy sectors of the former East Bloc. The World Bank has made loans of $1.7 billion to countries of Central Europe, mainly Poland. The European Bank for Reconstruction and Development (EBRD) has loaned an additional $225 million. Russia has received $600 million from the World Bank with an additional $600 million under review and $250 million from the EBRD. MDB lending is important because of its size and also because of the leveraging effect of its lending activities, which give rise to as much as five or six times the value of the original contribution.

The World Bank has traditionally (in its developing country programs) concentrated on large-scale conventional energy supply projects, notably centralized power generation and hydroelectric projects. Few energy projects have been devoted to efficiency or the development of smaller scale renewable energy resources even where such projects might be more economical and appropriate. This criticism, made originally in the context of the Bank's developing country lending

[10] Ibid., p. 35.

[11] Public Law 102-511, Section 907.

Control center in the Dukovany Nuclear Power Plant, Czech Republic. This site has 4 WER 440-213 reactors.

program, has again surfaced with regard to its new lending activities in the former East Bloc, where the loans are still heavily oriented toward the power sector and district heating in Central Europe, and oil in Russia. Though these loans may result in improved efficiency in the supply system, there are few MDB activities directed at end-use efficiency, where the greatest gains are available.

There are several reasons for this neglect. Energy efficiency projects are complex and harder to put into a project format for lending. The benefits are harder to estimate and incorporate into energy planning. Past emphasis in favor of traditional supply-side projects is difficult to change. Moreover, there is no clear organized center of expertise in the World Bank to support implementation of energy efficiency projects.

In recognition of the MDBs' role in energy lending, Congress has taken an active interest in their activities throughout the world, with particular reference to the World Bank developing country program. Congress has instructed the U.S. Executive Directors to the MDBs to take into account end-use energy efficiency, renewable energy, and environmental impacts in making decisions about new energy projects. Congress has also addressed the issue of bundling, or combining small energy projects into large projects, on the financial scale usually handled by the large development banks. In addition, Congress has promoted increased assistance and support for NGOs in MDB activities.

Although programs for the former East Bloc differ considerably from those for the developing countries—the World Bank has made no large-scale oil loans for developing countries—these same congressional directives could be applied to the Bank's new activities in the former East Bloc. The deteriorating energy situation in Russia particularly, but also in the other countries of the region, gives a new urgency to energy conservation, and Congress could reiterate its insistence on MDB attention to energy efficiency in this new context.

The United States has considerable leverage over the MDBs, and could be more explicit and consistent in its advocacy of MDB priorities. In particular, if Congress decides that promoting economic reform supersedes the goal of raising short-term energy production (see section on conditionality, above), one of the most important things it could do would be to instruct the U.S. MDB representatives to insist on stronger enforcement of conditionality on existing and future loans. Although the MDBs have been successful in achieving conditionality in Poland and other areas of Central Europe, they have had less success in Russia. For example, in its $600-million oil sector rehabilitation loan to Russia, the World Bank failed to secure a timetable for raising domestic Russian energy prices to world market levels. Instead, it received a promise that domestic prices for oil and oil products would rise only slightly faster than inflation through May 1994. After that date, the Russians have agreed only to a subsequent gradual approach to the level of average European prices.

Congress could bolster other American reform goals by instructing MDB representatives to ensure that small projects and business are accommodated in the lending program and that priority is placed on energy efficiency projects.

| Investment Promotion

The rationales for supporting exports and foreign investment are different. Investment helps build the industrial infrastructure of the receiving country, and it also can be good for the United States,

even though it does not result in additional jobs here. It helps U.S. companies grow and become low-cost producers. It makes available new resources and products. And it helps accomplish what the U.S. foreign aid program is trying to do-assist in development.

Central Europe, especially Hungary, has been successful in attracting investment. Relatively little investment has yet occurred in the FSU, largely because of the unstable political situation and the ambiguous feeling (or even xenophobia) of many Russians toward foreign investment. Various levels of government have erected a formidable array of hurdles, including high and uncertain taxes, that confront the would-be investor. The Russian oil industry, in particular, opposes foreign participation in major oil production projects because of a strong sense that the domestic industry needs only loans and some occasional technology. Nevertheless, only the international oil companies have the financial resources necessary to increase Russian oil production.

Countering this opposition will be difficult. Patient diplomacy and gradual demonstration of the benefits will be required to overcome longstanding suspicions of the West and reluctance to accept foreign investment. Even where investment is welcome, as in Kazakhstan, opposition from Russia may cause serious problems because transport of oil exports across Russia is a geographic necessit y.

Russia has a strong penchant for using domestic equipment in the oil industry, even though it is generally inferior to that of the West. It may be useful to encourage joint ventures between equipment manufacturers in both countries as a way of promoting modernization. DOE and DOC could be instructed to play an introductory and facilitative role.

OPIC has been a major force for foreign investment through its insurance against political risk. However, OPIC is limited to $50 million for oil and gas projects, which is inadequate for large projects. Raising the limit and adding to OPIC's resources would provide a significant asset to U.S. activities.

Foreign investment in independent powerplants is also of interest to U.S. companies, but only if the revenue streams are adequate. Since controlled prices of electricity in the FSU frequently do not cover costs, no one wants to invest. Encouragement of market reforms is essential for this type of investment to grow.

| Program Management and Coordination

The task of reform and modernization in the former East Bloc dwarfs even the Marshall Plan. Although mostly free of war damage, industrial facilities and infrastructure are crumbling. Worse problems are the lack of market economy expertise among managers and decisionmakers, and the mindset of much of the population, which is unaccustomed to personal initiative. Funding will not be as generous as it was for the Marshall Plan, so great care must be taken to assure that policies are implemented with the maximum possible effectiveness.

Improvements are possible, in particular in the coordination of the various agencies involved. It is not always clear that the agencies communicate well and support one another's activities as effectively as possible. Congress could require more active coordination through DOS or DOE in some cases (possibly including nuclear safety) to ensure, for example, that assistance projects and export promotion support the highest national priority objectives.

Extensive collaboration between agencies could reveal new approaches, which may be needed for intractable issues. In particular, the promotion of price reform in Russia must be based on a realistic appreciation of the problems involved and the tools that are available. One approach would be to combine higher prices with increased efficiency in energy use so that total bills do not rise, or at least increase less than the rise in prices.

To implement this approach the Russian government could announce that oil and perhaps gas prices will be brought to world levels over a specified period, perhaps five years. Industrial facilities, central heating plants, power stations, and

other large energy consumers would be promised their full energy quota at prices starting at the current level and rising over the five years. All fuel not used would be bought back by the supplier at a high fraction (perhaps 90 percent) of the world price in hard currency and could then be exported. As efficiency measures are implemented, a substantial revenue stream would be generated for the user, who could use them for further efficiency gains. Initial improvements could be financed by the World Bank or EBRD, based on the future revenue. This approach would require new Russian institutions such as energy service companies that finance themselves through their share of the savings they secure for energy users, and an energy efficiency equipment supply industry.

The U.S. role would entail close coordination between:

- DOS to negotiate the program with Moscow and the MDBs;
- DOE to supply energy-efficiency expertise;
- AID to assist in institution building in Russia;
- DOC to coordinate U.S. businesses and export activities; and
- Eximbank to finance large-scale efficiency exports.

This plan would address the major barriers to greater efficiency: lack of incentive, lack of capital to pay for improvements, and lack of information on how to do it. However, several factors could interfere. It is complex and would require unusually close coordination in the United States and in Russia. Corruption would also be a real concern when money is flowing.

POLICY STRATEGY

This report has emphasized the importance of focusing policy to ensure that U.S. programs support the fundamental U.S. goals that were listed at the start of this chapter. The options discussed above fall into three groups of activities: maximizing the effectiveness of current U.S. programs; additional funding for effective programs; and selecting priorities on near-term trade vs. long-term reform. This section suggests how the options discussed above can be combined as elements of a comprehensive strategy.

Maximize the Effectiveness of U.S. Aid and Trade Programs

Administration of U.S. programs is discussed in the previous section and in chapter 7. Improving program effectiveness is a low cost option that should be considered whether or not any further options are pursued. Thus it is the first element in an overall strategy.

The following changes could greatly improve the effectiveness of all U.S. activities and programs in all countries of the former East Bloc:

AID

- Streamline and accelerate the grants and procurement process.
- Lift the hiring ceiling and require the agency to hire more personnel with regional expertise.
- Coordinate AID programs more closely with DOC to ensure maximum benefit to U.S. business.

Eximbank, OPIC, TDA

- Increase operating budgets to:

a. Permit the hiring of personnel with regional expertise.
b. Speed processing and improve monitoring of credit, insurance, and other applications.

Commerce and State Departments

- Upgrade status of the FCS to ensure maximum coordination between trade-promotion and diplomatic efforts.

DOE

- Provide more funding for international programs.

Expand Effective Assistance Programs

Bilateral and multilateral development aid supports all U.S. goals simultaneously. Government assistance is small compared to overall needs, but it can play an important role in showing the way to reform and modernization. The level of funding allocated depends, of course, on the priority accorded rejuvenation of the former East Bloc vis-a-vis other U.S. budgetary priorities. The contro-

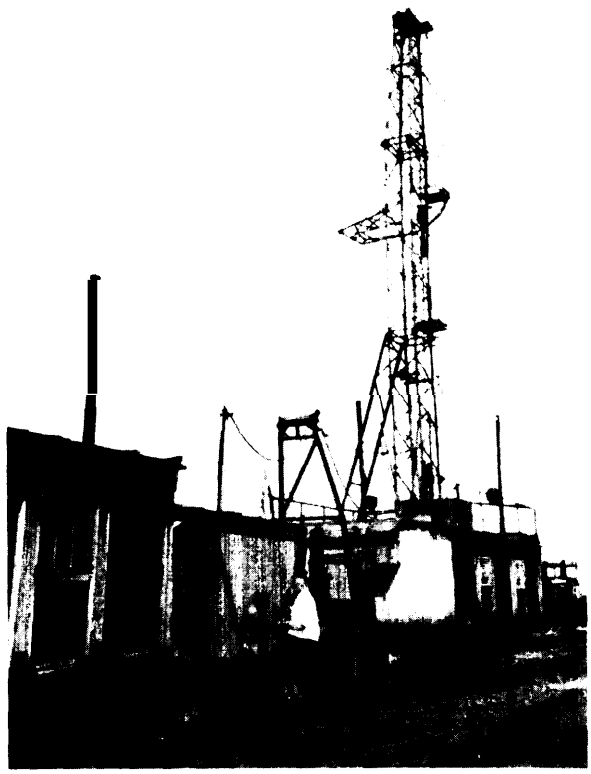
versial aspects of assistance have to do with the level of funding that is appropriate. This section reviews areas that have been effective and could usefully be expanded if more funds are made available, As noted in the detailed programmatic discussion above, almost any level of funding could be well-spent because the needs are so great. Selecting the level of assistance is the second element in an overall strategy.

Emphasize Government-to-Government Policy *Assistance*

Under any scheme of priorities, it is important that the U.S. government continue to engage intensively in a dialogue with former East Bloc countries about the nature and philosophy of economic reform. The more Congress wants to promote economic transition, the more actively should U.S officials try to persuade local policy makers to take the painful steps involved in economic transformation and help them design realistic reform programs that meet the need to maintain domestic political and social stability. As a first order of priority, Congress can direct the U.S. government to continue to exert influence on these countries through policy advice provided through diplomatic channels and through contact between American officials and representatives of former East Bloc countries. In the energy sector, DOE, NRC and other agencies can expand visits in both directions, host extended training sessions, and provide analysis of specific issues.

Expand Business anti Organizational Training

Regardless of whether a country has embarked on a course of radical reform or has yet to take steps toward economic transformation, American-sponsored training programs in business skills are essential to promoting the idea of reform, supporting reform processes already under way, and making it easier for American energy-related firms to conduct business. The more active Congress wishes to be in promoting stability, modernization, reform, and U.S. business interests, the more it should expand programs in this area.



ADVANCED RESOURCES INTERNATIONAL

Coal coring exploration rig, Kuznetz Basin, Kazakhstan

Expand Energy-Efficiency Programs

Energy efficiency remains one of the most important priorities in the energy-intensive economies of the former East Bloc. Even in countries that have not undertaken programs of systemic reform, energy-efficiency projects can promote reform by demonstrating that it is possible to cushion the effects of raising energy prices and introducing market-based economic relations.

Given this potential, U.S. policy makers might redirect policy priorities away from investing public sector funds in energy production projects and toward improving the energy consuming sectors. Although capital needs for FSU exploration and development will be great under any set of priorities, concentration by Western governments and companies on projects to enhance efficiency promise to be much more effective than projects to increase production.

Expand Technical Assistance Programs

Technical assistance programs—through demonstration projects and other activities—prov ide access to technologies essential to short-term stabilization and long-term modernization and economic growth. Since U.S. firms are leaders in several areas, an expansion of technical assistance programs-consistent with an activist program of U.S. policy—would provide benefits for U.S. business. Priority projects as discussed in the previous section include:

- *Coal and Electric Power Generation*
  a. Utility partnerships
  b. Powerplant renovation and advanced generation
  c. Clean coal demonstrations
  d. Coal mine safety
- *Nuclear Energy*
  a. Safety information and assistance
  b. Funds for safety upgrades or replacement power
- *Collaborative Energy Research and Development*
  a. Nuclear safety and R&D

| Select Priorities for Trade and Development

In Central Europe, U.S.-funded export-credit and training programs provide privatized and new enterprises with the finances and education needed to establish themselves and build toward future profitability. There, ample financing both encourages U.S. exports and reinforces reform.

However, in Russia and other countries of the FSU (with the partial exception of Kazakhstan), some U.S. and multilateral export-credit programs may, under some conditions, be counterproductive to domestic economic and political reform by strengthening old, statist economic mindsets and government structures.[12] Ready availability of Western public sector credits and guarantees helps Russia avoid resorting to much larger but more burdensome private sources of Western capital. In particular, this weakens the incentive for Russia to allow foreign oil exploration and production companies greater freedom of operation, including direct investments. Western public sector credits, if not made conditional on aspects of reform, also weaken U.S. efforts to promote a long-term change in mindset from Communist, centrally planned economies toward private enterprise. Even the staunchest proponents of reform in the FSU seem to prefer Western public sector credits or loan guarantees to building the types of legal structures and nurturing the economic climate needed to attract large-scale Western investment projects based on investment in Russia itself.

This reluctance to seek large-scale Western private investment is also fueled by a deep suspicion of foreigners—particularly by Russia, which exhibits a pervasive reluctance to give up control of even a portion of its patrimony to Westerners. American oil exploration and production companies say that the availability of World Bank loans and the potential for credits under the Export-Import Bank (Eximbank) Framework Agreement have helped create the perception among managers of Russian state-owned enterprises and private firms that there is a pool of “easy money” available to finance new exploration and workover projects, thus obviating the need to grant equity stakes to potential Western investors.

The final element in an overall policy strategy involves a relative] y controversial selection of priorities on U.S. exports, modernization, and reform. As has been noted, some goals conflict, especially in countries that have not yet embarked on a solid course of economic reform. Policies must be tailored to each country or region to ensure their appropriateness and consistency.

The key question for Congress is the priority accorded to promoting market reform and long-term sectoral modernization versus near-term economic stability and maximization of immediate

[12] As illustrated above, the scope of U.S. exports may ultimately be limited by local preferences and reform priorities which may dictate ‘he purchase of domestic over imported goods, even in cases where the economic advantages of purchasing American products are clear.

U.S. economic interests. It should be noted that this is not a clear choice; promoting market reform will lead to increased U.S. business, and near-term stability is necessary for long-term reform. Rather, it is a matter of degree and emphasis. The most important vehicle for expressing this policy preference is the conditionality provision of export credits and insurance. The question rises most visibly when a potential recipient refuses (or ignores) conditions attached to the financing of an otherwise viable project. That poses a dilemma for the U.S government or MDB since the goals of reform and modernization conflict.

The differing conditions among the former East Bloc countries suggest two alternative approaches for U.S. policy:

1. *Support near-term economic stabilization through expansion of energy production.* This option seeks to support East Bloc countries by maximizing their energy output to provide foreign exchange, regardless of their progress on economic reform. It also aggressively emphasizes U.S. exports.

Policies: Expand export-credit and MDB programs to ensure that financing is not a major constraint; make only minimal provisions for conditionality and restrictions on loans. Higher subsidies might be necessary for OPIC and Eximbank to cover increased losses on bad debt.

2. *Support long-term energy sector modernization and systemic market reform. This* approach may entail further short-term declines in oil and gas production in order to achieve long-term gains.

Policies: Expand export-credit programs only insofar as exports support reforms and can be effectively used. Impose maximal conditionality on credits: export-credit and investment assistance would go only to firms actively engaged in a real transition to market functions.

Congress can capitalize on the importance of export-credit programs for opening up markets previously closed to American products. But Congress may wish to balance this policy against the possible disincentives that such programs can create for internal reforms and for opportunities for U.S. investment in the FSU.

A balanced approach is appropriate for Poland, the Czech Republic, and Hungary because their progress toward economic reform makes it possible to promote both trade and reform simultaneously. This option may also be appropriate in Kazakhstan. Although market reform has been limited there, Kazakhstan is open to foreign investment and trade.

In other countries of the former East Bloc, the choices are not so easy. Declining oil production is a serious threat to Russia's weak economy. Bolstering that economy may be essential for preventing social and political instability. The United States has the technology and the resources to provide significant help. However, an overemphasis on providing help is likely to interfere with the reforms that are essential for long-term economic health.

CONCLUSION

Improved energy technology will be a critical factor in modernizing the economies of the former East Bloc, and the transfer of energy technology will be an important asset in achieving U.S. national goals. However, internal constraints and the lack of capital in these countries will limit Western investment and purchases of equipment and services. A strong and active U.S. government role is necessary to expedite the transition to market economies and democracy, and to assure that the U.S. economy shares in the growth. The policy options discussed above, if implemented skillfully and with adequate funding, can contribute very significantly to the process. Congress will face the issue of whether increased efforts are warranted in light of other national priorities and uncertainties over progress toward reform in Russia and other countries of the former East Bloc.