Assistance, Trade, and Investment Programs

7

The countries of the former East Bloc are in the midst of a major energy and environmental transition and could benefit immensely from the knowledge, technologies, and services that the United States and other advanced industrial countries can provide. However, there are significant obstacles to the rapid rehabilitation and development of the energy supply sector. OTA's previous report reviewed the obstacles to improving energy efficiency in the region and U.S. programs to promote more efficient use of energy resources. [1]This chapter will address similar issues about technologies affecting energy supply?

The first section of this chapter reviews the barriers to energy sector modernization and market reform in the former East Bloc energy sector and briefly describes the U.S. and multilateral programs designed to address them. The next section offers an evaluation of U.S. bilateral programs and of multilateral programs addressing energy and the environment in the former East Bloc. The final section presents a survey of bilateral and multilateral programs.

BARRIERS TO ENERGY SECTOR DEVELOPMENT

A broad range of institutional, economic, and technical barriers are impeding market reform and technology transfer to the former East Bloc energy sector. These barriers are listed in table 7-1.

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[1]U.S. Congress, Office of Technology Assessment, Energy Efficiency *Technologies for Central and Eastern Europe, OTA-E-562* (Washington, DC: U.S. Government Printing Office, May 1993).

[2]Please note that this chapter will address programs in all areas except nuclear power. That subject is analyzed inch. 4.

TABLE 7–1: Barriers to Diffusion of Energy and Environmental Technologies

Institutional barriers
Lack of comprehensive legal framework
Multipliclty of governmental authorities
Weak enforcement of regulatory standards
Lack of market information
Lack of market and r'management training
Ambivalence about foreign investment
Bilateral trade restrictions (in West and East)
Economic barriers
Lack of domestic capital
High levels of political and financial risk
inconsistent and punitive tax regimes
Government energy-price subsidies
Low emissions fines
Lack of feasibility financing for U.S. small business
Technical barriers
Inadequate physical infrastructure
Lack of trained personnel (in East and West)
Differences in technical standards

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

| Institutional Barriers

The policy and institutional climate remains the major inhibitor to technology adoption and diffusion in many countries of the region. The most serious institutional barrier to market reform and modernization is the lack of a comprehensive legal and regulatory framework to govern energy sector development, to define the rights and responsibilities of joint ventures, and to prevent reconsideration of completed contracts. In addition to this basic framework, most countries in the region lack a well elaborated system of intellectual property rights. Since recipient countries often do not have adequate patent protection, U.S. industry has been reluctant to transfer proprietary technologies. An absence of a clear system of title and ownership over land also inhibits energy exploration and production. The multiplicity of governmental authorities, each of whom has a veto over the decision of other parties, has further complicated the development of joint ventures.

Environmental regulations have been a major factor in promoting energy facility modernization in the west, but that has not been true in the former East Bloc. Many countries, particularly in the former Soviet Union (FSU), lack regulations to ensure environmental quality (despite economic costs). But even in Central Europe, where there is a highly developed regulatory framework for the environment, enforcement is extremely weak.

Another important institutional impediment to energy-sector development is the lack of a systematic means of disseminating information to potential users about the benefits and costs of improved technologies, as well as how to obtain and use them. Inadequate information for U.S. producers about export markets and a lack of contacts in foreign markets also discourages more aggressive export activity. Even when market information is available, its high cost puts it out of reach.

Finally, unfamiliarity with basic Western business practices and concepts such as profit and depreciation greatly complicates business negotiations. A widespread lack of training in free market economics and a lack of knowledge about the rates of return needed to attract investment create unrealistic expectations among enterprise managers. Weak management skills and little experience in project evaluation or least-cost energy planning also impede technology transfer.

As noted in chapter *6*, the countries of Central Europe have made a great deal more progress addressing the above issues than have the FSU states. One of the reasons for institutional inertia in the FSU, especially in Russia, is a deep ambivalence toward foreign investment and ownership. Continuing barriers to trade in both donor and recipient countries also reduce the incentive for institutional reform in both Central Europe and the FSU.

| Economic Barriers

The second set of barriers to diffusion of energy technology is economic in nature. A severe lack of domestic capital and foreign currency constrains the ability of former East Bloc states and enterprises to purchase improved energy and environ-

mental equipment. These constraints may be somewhat less severe for oil and gas because they are highly exportable commodities. However, capital constraints are 1ikely to be acute for renewable, coal, electricity y, and environmental technology. But even in the oil and gas sector, advanced Western technology is typically more expensive than domestic technology, even when the average life of equipment is taken into account.

Continuing high levels of political and economic instability in former East Bloc countries translate into high levels of economic and foreign currency risk, even in Central Europe. Commercial banks remain reluctant to loan on a conventional basis.

Government policy—in both East and at home—also contributes to economic impediments to technology transfer in the former East Bloc. In the East, uncoordinated, inconsistent, uncertain, and frequently punitive tax regimes increase the cost of doing business. Subsidized energy prices reduce incentives to invest in more efficient or environmentally improved equipment, or to increase supplies. Low fines for emissions violations provide little economic incentive for the purchase and installation of environmental equipment in many countries.

In the United States, inadequate access for smaller suppliers to risk capital, or to financing for feasibility studies and startup costs, greatly restricts the ability of U.S. small business to take advantage of newly opened markets in the former East Bloc. Other governments are believed to offer more generous export credits, thus putting U.S. companies at a competitive disadvantage in these markets.

| Technical Barriers

The final set of barriers to trade and technology transfer is technical in nature. These barriers include an inadequate regional support infrastructure for high-quality technology. Trained manpower, spare parts, and supplier systems may also not be available locally. Differences in technical standards can block transfer of U.S. technology. Many countries of the region are adopting European Union (EU) emissions standards that are much stricter than the U.S. standards. U.S. technology, designed to meet U.S. conditions, may not correspond to the needs of the recipient country. And the costs of adaptation may be too high.

Integration of Western and local technologies may prove difficult. In some cases, improved technology may not be as flexible as existing technology. Difficulties arise when enterprises attempt to mix imported and local technologies. And the energy equipment supply industry in some countries is so large that Western technologies can only supplement rather than replace it.

Finally, former East Bloc governments lack adequate numbers of technical and business trained personnel. And in the United States, companies suffer from a lack of U.S. personnel who are knowledgeable about the countries and regions and proficient in local languages

| Overview of U.S. and Multilateral Assistance Programs

The United States supports a large number of programs designed to overcome these barriers by promoting the mutual benefits of energy and environmental technology cooperation and encouraging the economic and institutional reforms necessary for the diffusion of improved technology. Western energy and environmental assistance began in 1989-90, with the extension of aid to Poland, Hungary, and Czechoslovakia. Energy and environmental assistance to the FSU began in 1992, and has grown rapidly (see box 7-1).

Current bilateral development assistance programs, operated primarily by the U.S. Agency for International Development (AID), the U.S. Department of Energy (DOE), and the U.S. Environmental Protection Agency (EPA), encompass a wide range of functions. These include technical assistance, training in market-related skills, provision of market information, government policy advice, research and development (R&D), and technical cooperation.

Other bilateral programs, managed primarily by the Export-Import Bank of the United States

BOX 7–1: Legislation and Funding for U.S. Assistance to the Former East Bloc

U.S. assistance to the former East Bloc is mandated under two major pieces of legislation, the Support for East European Democracy (SEED) Act of 1989 (PL 101-1 79), and the Freedom for Russia and Emerging Eurasian Democracies and Open Markets (FREEDOM) Support Act of 1992 (PL 102-51 1). Funds for the assistance effort have also been appropriated under other foreign aid bills as well as reprogrammed by some agencies.

Central Europe

The SEED Act was passed by the Congress and approved by the Administration in November 1989. It authorized $930 million for fiscal years 1990-92. Foreign aid appropriations for fiscal year 1990 included $659 million for Poland and Hungary. Amid much debate over the appropriate scope of U.S. assistance, Congress provided about $370 million in assistance for fiscal year 1991, along with $70 million for the newly formed European Bank for Reconstruction and Development (EBRD) and $3 million for Romania. In September 1991, Congress reprogrammed $11 million in aid to start SEED programs in the Baltics. Funding for fiscal year 1992 was appropriated under a Continuing Resolution which made $370 million available for the entire region. The Foreign Appropriations Act of 1993 (PL 102-391) provided $400 million in assistance in fiscal year 1993 for Central Europe and the Baltics, plus $69 million for EBRD. Although fiscal year 1994 appropriations were signed into law in September 1993 (PL 103-87), portions of this appropriation were rescinded in February 1994 (PL 103-211) to offset the costs of earthquake relief for California. Under the revised 1994 appropriation, foreign assistance for Central Europe and the Baltics totaled $390 million and EBRD received no funds.

Former Soviet Union

U.S. assistance to the FSU has consisted of a number of commitments made bilaterally and to multilateral organizations. Assistance to the FSU, and in particular to Russia, began in 1990 with the extension of food credits ($5,1 billion) and assistance in the destruction of weapons ($800 million). In 1992, Congress passed the FREEDOM Support Act, which provided a comprehensive framework for U.S. foreign aid programs for the FSU and authorized $410 million for humanitarian and technical assistance for fiscal year 1993. On April 1993, at the U.S.-Russian Vancouver Summit, President Clinton announced a $1.6-billlon aid package for Russia, composed completely out of funds that had already been appropriated, including under the FREEDOM Support Act. Shortly thereafter, on April 15, 1993, at a meeting of G-7 ministers, the U S. announced an additional $1.8 billion in assistance. Congress funded $1.6 billion of this assistance through a supplemental appropriation for fiscal year 1993, attached to the foreign operations appropriation bill for fiscal year 1994 (PL 103-87). That bill provided an additional $904 million for fiscal year 1994, for a total of $2.5 billion in additional assistance.

SOURCES Congressional Research Service, selected issue briefs and reports for Congress

(Eximbank), the Overseas Private Investment Corporation (OPIC), and the U.S. Department of Commerce (DOC), provide backing to the U.S. private sector to encourage U.S. business to play a key role in the rehabilitation of the regional energy sector.

As the largest shareholder in the multilateral development banks (MDBs), the United States also actively exercises influence in their large project lending programs. Much of the past and anticipated lending has been to the oil and gas industry and the power sector. However, there are also active programs for coal and energy efficiency.

Bilateral and multilateral lending is designed to provide the capital to overcome economic barriers to technology transfer. Conditions attached to some lending programs, especially from the

TABLE 7-2: Comparative Levels of Multilateral and Bilateral Funding for Energy-Related Development Assistance Projects in Central Europe and the FSU*

Source	Fiscal years 1990-94 funding ($ million)	
World Bank		
Central Europe	1,651	
FSU (Russia)	1,210	
Total		2,860
European Union		
Central Europe (PHARE)	550	
FSU (TACIS)	123	
Total		673
EBRD		
Central Europe	220	
FSU (Russia)	250	
Total		470
United States		
Central Europe	151	
FSU	93	
Total		244

* Does not Include bilateral trade-promotion programs

SOURCE U S Congress, Office of Technology Assessment, 1994

MDBs, are intended to force countries to make the institutional changes that are crucial to reform.

As illustrated in table 7-2, the bulk of assistance for energy-sector development comes in the form of World Bank loans. Lending by the European Bank for Reconstruction and Development (EBRD), though smaller, also provides energy-related development financing. European Union energy-related development programs provide almost three times the level of resources as U.S. bilateral assistance programs.

U.S. government agencies have pursued different energy-related development assistance policies in Central Europe and the FSU. In Central Europe and the Baltics, U.S. assistance has focused on diversifying sources of energy supply, rehabilitating and modernizing the energy supply infrastructure, improving end-use energy efficiency, and controlling pollution. In the FSU, maintaining and increasing oil and gas production has had clear initial priority.

While much U.S. energy assistance has environmental components, particularly with regard to air pollution and greenhouse gas emissions, the overall assistance effort has not been nearly as environmentally oriented as was anticipated in its earliest phase. This is due, in part, to the recognition of other priorities, especially economic revitalization.[3]

EVALUATION OF U.S. PROGRAMS

Since most programs addressing energy and the environment in the former East Bloc are quite recent in origin, it is not possible at this point to offer detailed critiques. Nevertheless, even on the basis of limited experience, it is possible to identify both particular strengths and incipient weaknesses in the collection of programs dealing with assistance to the energy sector. It is also possible to identify the external constraints that limit the effectiveness of U.S. and multilateral programs. Before considering the strengths and weaknesses of U.S. programs, it would be useful to review these constraints.

| Constraints on U.S. and Multilateral Programs

U.S. programs have been developed and implemented under difficult circumstances and under a variety of political, institutional, and financial pressures. Considerable political pressure was put on agencies to disburse funds quickly to give visible evidence of Western support for the new regimes following the end of the Cold War. All agencies have experienced difficulties in recruit-

[3]For example, see Gordon Hughes, "Are the Costs of Cleaning Up Eastern Europe Exaggerated? Economic Reform and the Environment," *Oxford Review of Economic Policy, vol. 7, No. 4, 1991,* pp. 106-135.

ing permanent staff with the necessary area expertise. AID programs have been developed and carried out during its own reorganization, and with staff cuts affecting personnel in programs for the region. The ongoing reorganization at AID is designed to provide the agency with further flexibility and streamlined contract procedures, but in the meantime has hampered program development. Continuing pressure on all agency budgets has limited resources available to finance development and lending programs.

A further extenuating circumstance is that many programs are lodged in institutions that were designed for different types of operations. The World Bank and AID, for example, were designed for projects in developing countries whose experiences and needs differ considerably from those of the former East Bloc. In some cases, such as the World Bank negative pledge waiver, agencies have been asked to abandon policies that they consider crucial for carrying out their worldwide mission in order to provide assistance to the former East Bloc countries.

Eximbank is a striking example of an agency being obliged to combine differing functions in carrying out programs for former East Bloc countries. The primary mission of Eximbank is to support U.S. exports. The bank is not a development assistance agency; but the Oil and Gas Framework Agreement for Russia, which is a major support to U.S. exports, is also a cornerstone of U.S. financial assistance to the FSU countries. Eximbank therefore has had to balance the different political and economic pressures arising from the perception that it is an instrument of industrial, trade, and development policy.[4] In addition, the Eximbank Framework Agreement has encountered major organizational and procedural problems that delayed its final implementation for almost a year.

Conditions in the recipient countries have also not been conducive to rapid and efficient disbursement. In several countries, especially in the FSU, highly unstable political conditions have hampered or prohibited program development. It is difficult to plan specific energy improvements in the context of a drastic economic restructuring, falling living standards, and institutional disarray.

An important additional factor affecting the success of U.S. and multilateral programs is the difficulty of ensuring that countries adhere to the political and economic conditionality attached to assistance. To receive World Bank loans, for example, countries are typically expected to raise energy prices and encourage market reform throughout the energy sector. In practice, however, governments often resist the discipline of price reform and the privatization of energy enterprises, and thus make it difficult to advance assistance. This has been one of the principal factors holding up aid for Russian economic reform in general, and for Russian energy sector assistance in particular.

Reluctance to accede to conditionality can affect demand for assistance as well. Several U.S. agencies report a shortage of viable projects in the FSU countries, either because of lack of interest or unwillingness to accept conditions attached to financial assistance. In several countries, notably in the Russian oil and gas sectors, there is both a marked ambivalence toward the type of assistance the United States can offer, and a deep-seated suspicion of foreign investment.

| Strengths of U.S. Programs

The U.S. government and Congress moved with exemplary speed to develop energy assistance programs in support of reform efforts. Agencies

[4] For a discussion of Eximbank's multiple roles, see Richard E. Feinberg and Stuart K. Tucker, "Export Credits in U.S. Trade, Development? and Industrial Policy," in Rita M. Rodriguez, *The Export-Import Bank at Fifty: The International Environment and the Institution's Role* (Lexington: Lexington Books, 1987). See also U.S. General Accounting Office, *Export Finance: The Role of the U.S. Export-Import Bank,* GAO/GGD-93-39 (Washington, DC: U.S. Government Printing Office, December *1992).*

have been quick to develop new programs or expand the scope of old ones as new needs have arisen. These programs appear to have been prosecuted with vigor and enthusiasm.

OTA's survey of the existing programs shows them to be comprehensive in coverage. Within overall budget constraints, they address the main barriers to reform previously discussed. Programs have been developed to help ease capital constraints for both energy supply and conservation projects, to promote energy sector and macroeconomic reform, and to provide a wide range of technology and technical assistance. Particularly strong efforts have been made to include the U.S. private sector in these efforts. All in all, there are no obvious major gaps in the coverage of U.S. programs, though their size, design, and implementation are open to debate (see below and ch. 8).

U.S. programs have shown considerable flexibility and responsiveness to changing conditions, even over their short period of operation. There was a clear shift in the early years of the assistance effort from promising to provide energy and environmental technologies directly, to a strategy of building the policy and institutional capacity to enable countries to absorb new technologies. Efforts have also been made to respond to early criticisms of the U.S. effort, some of which were cited in the previous OTA report. These included too many temporary consulting missions, lack of in-country expertise, slow procurement, and confusion over country needs due to a regional approach to aid disbursement. The energy projects in Central Europe are now developed on a country-by-country basis. In the FSU, contract delays at AID have apparently slowed project startups, but AID has established in-country missions at an early stage.

Weaknesses of U.S. Programs

Despite the many achievements of the past years, major weaknesses to U.S. assistance have emerged. One major set of weaknesses is related to the scale of the assistance effort and to problems in program design and implementation. The proliferation of initiatives has caused problems. There are abundant reports from officials of former East Bloc countries of their being swamped by visiting missions and the resulting technical assessments. There is a further perception that the assistance available is going largely to foreign consultants rather than the recipient countries.[5] The large number of agencies offering broadly similar services raises major problems of coordination and duplication.

Coordination between the various donors, fairly low during the first years of assistance, has continued to be a problem.[6] There are several cases of lack of donor coordination that seriously weaken the entire effort. For example, while the World Bank supports an oil export tax as an efficient means of bridging the wide gap between domestic and export oil prices, other government agencies, more concerned with the promotion of foreign investment, strongly oppose it. There also continues to be lively competition among bilateral assistance programs to influence technology choices in former East Bloc countries. This can result in duplication of effort and a concentration on too narrow a group of technologies.

However, progress is being made in other areas. Currently, the World Bank, EBRD, AID, and the EU have several joint energy projects, including a major power sector restructuring project in Poland. Also, there is a more systematic data collection process under way to keep track of energy

[5] See for example, Barry Newman, "Disappearing: Act: West Pledged Billions Of Aid to Poland—Where Did It All Go'?," *The Wall Street Journal* (Feb. 23, 1994), pp. A 1, 8; John J. Fialka, "Helping Ourselves: U.S. Aid to Russia Is Quite a Windfal—lFor U.S. Consultants," *The Wall Street Journal*, Feb. 24, 1994, pp. A 1, 8.

[6] The lack of coordination is repined in U.N. Economic and Social Council, Economic Commission for Europe, Committee on Energy, "Multilateral Assistance to Economies in Transition in the Field of Energy: A Preliminary Overview and Evaluation," Geneva: Aug. 28, 1992, p. 9.

project requests in the FSU, managed by the International Energy Agency.

Underpinning these weaknesses in implementation lies a more serious and fundamental problem: a developing uncertainty over the best means to achieve U.S. policy aims in the region, if not the nature of those policy aims themselves. The original program emphasis in the FSU—widely shared by all agencies and most Western industrial countries—was on oil production projects, mainly through private sector investments. This emphasis was accompanied by MDB lending programs designed to supplement and leverage private investment. Oil and gas received the most attention because production in that sector could most quickly generate the extra foreign exchange needed to underwrite the reconstruction of the entire economy.

The assumptions behind this strategy are now in doubt. It is proving more difficult to achieve the anticipated production increases, partly because of the lack of enthusiasm in some host countries, notably Russia, for Western programs and the conditions that accompany them. There is also the belief in some international oil circles that government support of an active MDB oil policy and expansion of bilateral export credits undermines foreign investment by reducing the need for governments and enterprises to deal directly with private Western companies on an equity-stake basis.

The rationale that underlies the distribution of funds among the many countries of the region is also not clear. The allocation of assistance within the energy sector is open to question, particularly the emphasis on expanding supply, despite the immense potential for energy conservation. The reluctance of some host countries, especially Russia, to cooperate in key parts of the assistance program raises questions about the wisdom or feasibility of the present approach.

This is an opportune moment to use this experience in the assistance programs to re-examine the totality of U.S. efforts toward the former East Bloc in light of original U.S. policy objectives, and to suggest improvements in programs that support those our policies. These issues, especially the need to define U.S. goals and priorities, are elaborated in greater detail in the next chapter.

SURVEY OF ENERGY AND ENVIRONMENTAL PROGRAMS

Energy and environmental programs fall into two broad categories: development assistance and private sector support. In principle, the primary objective of development assistance is direct assistance to the recipient country. Trade and investment support, on the other hand, is primarily designed to help domestic industry. In practice, the distinction between the two is becoming increasingly blurred, for a number of reasons. First, benefits to U.S. industry can create a strong constituency for development assistance, especially important in times of budget stringency and recession. Second, export and investment promotion efforts are a natural concomitant to the recent emphasis on privatization and the primacy of the private sector in technology transfer. Third, project finance is becoming increasingly complex, including both multilateral, bilateral, and private sector participants. Fourth, greater private sector participation can screen ill-designed projects.

On the other hand, critics complain that the merging of development assistance and export promotion can compromise developmental goals and skew existing development programs in the direction of export promotion.

| U.S. Programs to Assist Former East Bloc Development

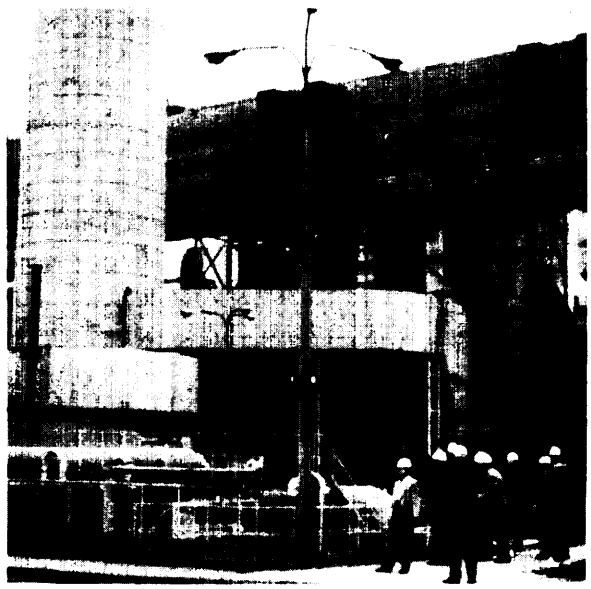
Assistance programs were designed first for Central European countries and then the FSU. The two regions will be discussed separately because of the differences between the programs. Additional information is included in chapters 3 and 4. Current budget data are listed in chapter 8.

Central Europe and the Baltics[7]

U.S. energy and environmental assistance to Poland has centered around a group of projects demonstrating U.S. know-how in Krakow. The Skawina Retrofit project has installed advanced U.S. clean-coal technology at a 550-MW (megawatt) plant near Krakow chosen by a U.S.-Polish project steering committee. This technology choice reflects the growing priority given to the export of U.S. clean-coal technologies by DOE, building on its extensive Clean Coal Technology Program in the United States.[8] In July 1991, Airpol, a New Jersey-based firm, was awarded a $7.6-million contract to install emission Controls on two 50-MW boilers.[9] The powerplant subsequently bought another.

Polish power sector assistance has several elements. The Power Sector Restructuring, Privatization, and Management program provides support for a multidonor power sector restructuring initiative developed by the World Bank and the Polish Ministry of Industry. AID contractors are working on increasing the efficiency of powerplants and transmission and distribution systems, privatization, and corporate management. A demand-side management and demonstration program is under way, and a utility partnership between Commonwealth Edison Co. and the Polish Power Grid is examining management issues.

In Hungary, the power sector and energy efficiency are also the primary focus of U.S. assistance. The New England Electric Co. and the Hungarian Power Cos. Ltd partnership has focused on improving management, financial systems, and consumer relations. A complementary program will address key regulatory and privatization issues. Building on energy audits undertaken in 1991, AID is assisting in commercializing low-cost efficiency technologies, developing local private energy service companies and joint ventures, and establishing training programs for promoting private investment in oil, gas, and coal.



GEORGE REISER, LARRY MARKEL, ELECTROTEK CONCEPTS, INC.

Combined Heat and Powerplant, Krakow, Poland

Energy efficiency is also a major element of U.S. assistance in the Czech Republic and Slovakia. SEVEn, the energy efficiency center in Prague, conducts outreach to the private sector. Several towns in the Czech Republic, including Cesky Krujlov, Plzen, and Ostrava, have ongoing energy efficiency and pollution reduction demonstration projects.

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[7]This section summarizes and updates projects by country or at a regional level (where new information is available), focusing on clean coal, electric power, oil and gas, and environmental components. For additional information, see Office of Technology Assessment, *Energy Efficiency Technologies for Central and Eastern Europe.*

[8]See u ş Department of Energy, c/can *Coal Technology Export Programs,* National Energy **Strategy** Technical Annex 6, DOE/S-0095P (1991/2).

[9]While limited to U.S.-based firms, the specifications for the project had to be adjusted (restrictions on foreign ownership were relaxed and the SO_2 emissions reduction target reduced from 70 percent to 65 percent) to allow for a sufficient number of U.S. bidders. Further detail can be found in ch. 4. Background to the project and the bidding process can be found in U.S. General Accounting Office, *Fossil Fuels: DOE's Effort to Provide C/can Coal Technology to Poland,* GAO/RCED-91-*155* (Washington, DC: U.S. Government Printing Office, May 1991).

In the power sector, Houston Lighting and Power Co. and the Czech Power Co. (CEZ) have formed a partnership. AID contractors will provide additional technical assistance to CEZ and support for privatization efforts.

In Slovakia, a utility partnership has been formed by Southern Electric International (Georgia) and the Slovak Electric Power Company (SEP), focused on management, organization, and finance. Follow-on power sector restructuring measures are being defined by AID in cooperation with SEP and the Ministry of Economy. In the oil sector, a study of options for upgrading heavy oil processing has been undertaken at the Slovnaft refinery in Bratislava.

In the Baltic countries, AID is attempting to stimulate the development of a domestic energy service industry. The first phase had focused on a series of energy efficiency audits. In the power sector, AID is assisting in pricing and model contracts for international electricity contracts. A utility partnership has been formed between Central Vermont Public Service and Latvenergo (Latvia). A partner is being sought for the Lithuanian utility.

AID is also conducting regional efforts in Central Europe and the Baltics. A major initiative is a project to rationalize the refining and oil transport sector. This will include developing a database, identifying policy. legal, and institutional factors to improve competitiveness, and identifying a list of potential capital projects.

The Former Soviet Union

As in Central Europe, U.S. energy and environmental assistance to the FSU is undertaken by AID, DOE, and EPA. AID has attempted to build in-country representation more rapidly than in Central Europe.

NIS Task Force

In January 1992, AID formed the Washington-based New Independent States (NIS) Task Force, linked to AID field missions, which currently include Moscow (Russia), Kiev (Ukraine, Belarus, and Moldova), Almaty (Kazakhstan, Turkmenistan, Kyrgyzstan, Tajikistan, and Uzbekistan), and Yerevan (Armenia, Georgia and Azerbaijan). The task force's energy program has four stated strategic objectives: 1. energy pricing policy and institutional reform. 2. energy efficiency and performance improvements. 3. energy production and delivery system improvements. and 4. nuclear power safety. [10]

Energy Pricing Policy and Institutional Reform. This component aims to introduce energy pricing reforms and sector restructuring and privatization. Another key element is training and exchanges between energy companies in the United States and the Former Soviet Union.

In Russia, assistance included planning for privatizing state-owned energy producers, reforming the price and tariff structure, and introducing an appropriate regulatory framework in the energy sector. The Institute for International Education is providing technical assistance and training to develop a petroleum commodity exchange in Moscow. Technical assistance has been given to Ukraine, Kazakhstan, and Armenia in drafting national energy plans and formulating privatization strategies. DOE is heavily involved in drafting a new oil and gas law, and implementing legislation for Russia.

As in Central Europe, AID has begun a program of twinning and exchanges between U.S. energy companies and those in the FSU. This program is discussed in chapter 4.[11] The Energy Industry Partnership Program (EIPP) for the Newly Independent States includes companies and

[10] Nuclear power safety programs are reviewed in ch. 4.

[11] The EIPP's progress is reported quarterly in *USEA—Focus on the New Independent States* and in the *USEA Annual Report 1992.*

associations from the electric power, gas, and petroleum sectors. AID funding for the EIPP is $7.2 million over three and a half years, with additional funding from participating companies.

Energy Efficiency and Performance Improvement. This component has focused on improving efficiency in electric power, refineries, industries, and residential buildings. Some funding was also directed to support the Moscow Energy Efficiency Center. Three U.S. engineering and consulting firms assessed efficiency options in selected district heating systems in Armenia, Belarus, Kazakhstan, Kyrgystan, Russia, and Ukraine and identified appropriate instrumentation and equipment to improve efficiency.

Energy Production and Delivery Systems Improvements. This component will improve production from existing power facilities, develop additional power generation capacit y from safe sources, and promote demand-side efficiency in key parts of the energy sector. One of the long-term goals is to provide alternative energy sources needed to decommission unsafe nuclear reactors.

Partners in Economic Reform, a U.S. nongovernmental organization consisting of the National Coal Association and the AFL-CIO, is providing advice on the management and safety of coal mines in Russia, Ukraine, and Kazakhstan. In Armenia, AID contractors helped prepare a $57-million loan from the EBRD to complete the Hrazdan power generation facility. AID is also conducting feasibility studies in Russia on greater efficiency in gas transmission.

DOE is proposing Oil and Gas Centers for the major oil- and gas-producing areas of Russia, providing information about U.S. technology and services. Functions would include seminars and training, matching of U.S. companies with Russian production associations, and technical assistance for economic, financial, and field analysis.

Gore-Chernomyrdin Commission

President Clinton and President Yeltsin agreed at the Vancouver summit meeting in May 1993 to establish a joint commission on energy and space cooperation. Vice President Gore and Russian Prime Minister Chemomyrdin were appointed to chair the commission, which met for the first time in September 1993. Agencies involved with the commission include DOS (overall policy and international coordination), AID (funding coordination), DOE and the Nuclear Regulatory Commission. Nuclear assistance is discussed in chapter 4.

Much of DOE's activity in the Russian energy sector is focused around the Gore-Chernomyrdin Commission. DOE has divided this program into three working groups. DOE's commercial and legislative working group sets up energy-infrastructure demonstration projects to educate Russians in business practices. Its largest effort so far has been a project to open 25 gas stations in the Moscow area. This group has also promoted the development of production-sharing agreements as an interim measure to facilitate U.S. involvement in oil and gas development. In the legislative area, DOE was heavily involved in drafting oil and gas law. Finally, the commercial and legislative working group sends U.S. academic advisors to the FSU to provide policy assistance.

An oil, gas, and coal development working group has developed seven projects to promote technology transfer and joint research. Its main project so far has been an oil and gas technology center located in the Russian city of Tiumen, the capital of the West Siberian oil and gas region. This technology center is designed to link Western companies and technologies with Russian enterprises.

DOE'S energy efficiency working group is currently working on 24 projects. The largest project, financed by a one-time transfer of $125 million from the AID commodity import program (fiscal year 1994 funds), facilitates purchases of U.S. energy-efficiency technologies. The working group is also conducting a study of energy use and alternative sources, with an emphasis on replacing the FSU's most dangerous nuclear reactors.

DOE's total budget for FSU activities is only $3 million (with a separate nuclear safety line of $73 million). Agency personnel note that the small size of the budget limits their activities.

They also note that the way in which funding is routed (all money must pass through AID before coming to DOE) adds a layer of bureaucracy to an already cumbersome system. Finally, DOE officials would like to have more direct authority to negotiate energy-related agreements. These officials note that the United States is the only Western country in which the State Department (or its equivalent), not the Department of Energy, takes the lead in negotiating energy-related agreements.

Environmental Assistance

AID and EPA are jointly undertaking a number of environmental projects. EPA is focusing its programs on three areas of activity: strengthening the capacity of environmental institutions, focusing resources on environmental "hot spots" and regional environmental management, and demonstrating environmental and energy technologies. EPA participated in a joint mission with the World Bank to plan with the Russian government two major Bank energy and environmental loans: the Oil Rehabilitation Project and the forthcoming Environmental Project. A key objective of the joint mission was to leverage limited U.S. grant assistance with the larger World Bank projects.

Bilateral Energy Agreements and Working Groups

Energy cooperation with Russia and other FSU countries has accelerated since 1992 but the immense potential for science and technology cooperation between the United States and Russia, as well as other FSU states, has only begun to be tapped. The United States and the Russian Federation Framework Agreement on Scientific and Technical Cooperation in the Field of Fuel and Energy provides for data exchanges, joint projects, and private sector contacts in a number of energy areas, including energy efficiency and renewable. A U.S.-Russian Joint Committee established under the agreement meets annually. DOE plans to pursue Fuel and Energy Agreements with other FSU states, with an initial focus on Kazakhstan, Ukraine, and Azerbaijan.

DOE also supports the U.S./Gazprom Working Group, which brings together U.S. and Russian gas industry officials to develop joint projects, and an Oil and Gas Equipment Working Group under the U.S.-Russia Business Development Committee. There have been delays, however, in organizing the International Science and Technology Center headquartered in Moscow. The founding parties, which included Canada and Sweden, pledged $70 million in fiscal year 1993, with a $25-million share from the United States. There is also an agreement (signed in June 1992) to establish a science and technology center in Kiev, Ukraine, with a $10-million donation from the United States, but friction over Ukraine's nuclear arsenal has delayed the program.

Multilateral Programs to Assist Former East Bloc Development

Much of the energy and environmental assistance to the former East Bloc is channeled through multilateral initiatives, primarily the World Bank Group and the EBRD.[12] The Central Asian Republics of the FSU have applied for membership in the Asian Development Bank (ADB).[13] The Global Environmental Facility (GEF) also provides multilateral financing. Assistance on policy and research issues is provided by the International Energy Agency, the U.N. Economic Commission for Europe, and the European Energy Charter (see box 7-2).

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[12] Of the $28.4 billion G-7 Multilateral Assistance Package for the FSU announced at the Tokyo Ministerial Meeting in April 1%$ $17.9 billion was to be provided through the International Monetary Fund, the World Bank, and EBRD.

[13] On July 1, 1993, the ADB's Board of Directors proposed 10 approve the membership of Kazakhstan, Kyrgyzstan, and Uzbekistan tentatively for Nov. 30, 1993. Tajikistan, Turkmenistan, and Azerbaijan have also applied for membership. Like the other regional development banks, the ADB provides loans and equity investments for projects, technical assistance, and other advisory services in support of projects. The ADB annually lends over $6 billion, with energy/power and the environment being two major sectors. U.S. Department of Commerce, *BISNIS*, July/August 1993, p. 6.

BOX 7–2: European Energy Charter

The European Energy Charter is a polltical declaration of principles, objectives, and actions that aims to create a new framework for cooperation, investment, and trade in energy across Europe and possibly across the world. The charter was Initiated by the European Community (now the European Union) with the major objective of integrating former East Bloc countries into world energy markets, Following several months of preparation, it was signed by **43 countries, including the United States,** in December 1991, and several others since then. A legally binding "basic agreement" to the Charter and additional protocols are currently under negotiation.[1]

The charter's objectives are organized around three functional areas energy trade, international cooperation in the energy field, and energy efficiency and environmental protection. The first two of these ininclude provisions to promote more sound legal frameworks for energy activities, access to energy resources, lower barriers to trade in energy goods and services, efficient management and use of energy resources, modernization of Infrastructure, information exchanges, research and development, and policy consultation.[2]

[1] **Richard Greenwood,** "The **European Energy Charter A New Framework for Pan-European Energy Cooperation,** *'Energy in Europe*, No *19,* July **1992, pp 69-72**

[2] **"Concluding Document of the Hague Conference on the European Energy Charter" (The Hague, Netherlands Dec 16-17, 1991)**

The World Bank Group

The World Bank[14] is the most influential multilateral organization affecting energy and the environment in the former East Bloc, lending almost $3 billion for energy projects between 1989 and 1993. The policy framework for Bank energy lending in the region is laid out in the country economic memoranda that typically precede lending, and in energy sector conditionality attached to loans. Conditions include raising energy prices to world market levels, restructuring and privatization of energy sector enterprises, and encouraging foreign investment. The power sector and district heating have been the major focus of Bank energy lending in Central Europe, while oil and gas will dominate in the FSU.

Central Europe

The Bank has been assessing problems of common regional concern through the Central and Eastern Europe Network for Regional Energy (CEENERGY) program, in coordination with the European Union, United States, and the Internaational Energy Agency.[15] **CEENERGY seeks to facilitate technical assistance and pre-investment activities in high priority areas.** It has supported studies of petroleum refining and transport, electrical power interconnection and trade, natural gas trade, energy efficiency in the context of environmental impacts, and the impact of Soviet energy exports on Central Europe.

World Bank energy and environmental projects in Central Europe are heavily concentrated in Po-

[14] The World Bank Group consists of the International Bank for Reconstruction and Development, the International Development Association, the International Finance Cm-p., and the Multilateral Investment Guarantee Agency.

[15] The following project descriptions are drawn from Bernard G. Montfort and Harold E. Wackman, "The World Bank Support for Energy Sector Transformation in Central and Eastern Europe" (World Bank, July 1992); and The World Bank, "Central Europe Department Projects Related to Energy/Environment" (May 17, 1993).

land, with loans of almost $1 billion approved in 1990-1993 (most of which are for the energy sector), and several more in the preparation stages. The policy framework for the energy lending was negotiated with the Polish government in 1990 and 1991. Energy price increases, were supported in a structural adjustment loan in 1991 ($300 million) and also in the first energy loan the Energy Resource Development Project approved in 1990 (the World Bank loan is for $250, million with $60 million in cofinancing from the European Investment Bank, toward a total project cost of $648 million). The project also sought to encourage fuel switching from coal, and development of a regulatory framework to support privatization and joint venture arrangements.

The subsequent Heat Supply Restructuring and Conservation Project approved in 1991 (the World Bank loan is for $340 million, with $50 million in cofinancing from the EBRD, toward a total project cost of $619 million) continues sector-wide restructuring and introduces modern technologies into the district heating system. A Cogeneration Privatization Project (the tentative loan amount from the World Bank is $120 million toward a total project cost estimated at $320 million), will promote private investment and ownership of major powerplants in Krakow and throughout the country.

A Power Transmission Project will rehabilitate and reinforce the existing electric power transmission system, and develop the transmission system to meet essential reliability requirements and international standards.

There are two prospective World Bank energy projects in Poland. The Coal Sector Restructuring and Environment project, anticipated for Board approval in early 1995, will support coal sector restructuring,. The Power Privatization project aims to promote independent power production and joint ventures between Polish powerplants and foreign investors.

The power sector is the major focus of the World Bank in the Czech Republic and Slovakia. The Power and Environmental Improvement Project ($246 million toward a total of $557.5 million) aims to reduce the environmental impact of powerplants in Northern Bohemia, through increasing the efficiency of powerplants and the reliability of the CEZ transmission system. Flue gas desulphurization equipment and particulate control (dust and ash) will be installed.

The Second Czech Power Project (about $200 million;) will improve system security and operational reliability and also assist in completing the restructuring of CEZ.

There are two prospective projects in Slovakia. The Slovak Gas project ($150 million, with proposed cofinancing with EBRD) would support a new international gas pipeline to increase domestic consumption and security of supply. The Slovak Power project would assist the Slovak Electric Power company in improving thermal efficiency and reducing pollution at the Vojany power station through installation of circulating fluidized-bed boilers.

In Hungary, the Bank is undertaking an energy/ environment project ($1 00 million for a total cost of $213.2 million) to support diversification of energy supply, energy conservation, and environmental protection. The project would include:

- construction of a gas-fired combined cycle cogeneration unit of 230 MWe (megawatts electrical) and 240 MWt (megawatts thermal) at Dunamenti powerplant;
- upgrading of Hungary's existing Energy Management System;
- assistance for environmental planning and management and,
- training and institution building in the power sector.

Former Soviet Union (FSU)

In Russia, priority elements of an initial energy policy package consist of energy price reform and the development of a regulatory framework to stimulate investment in the oil and gas sectors. [16]

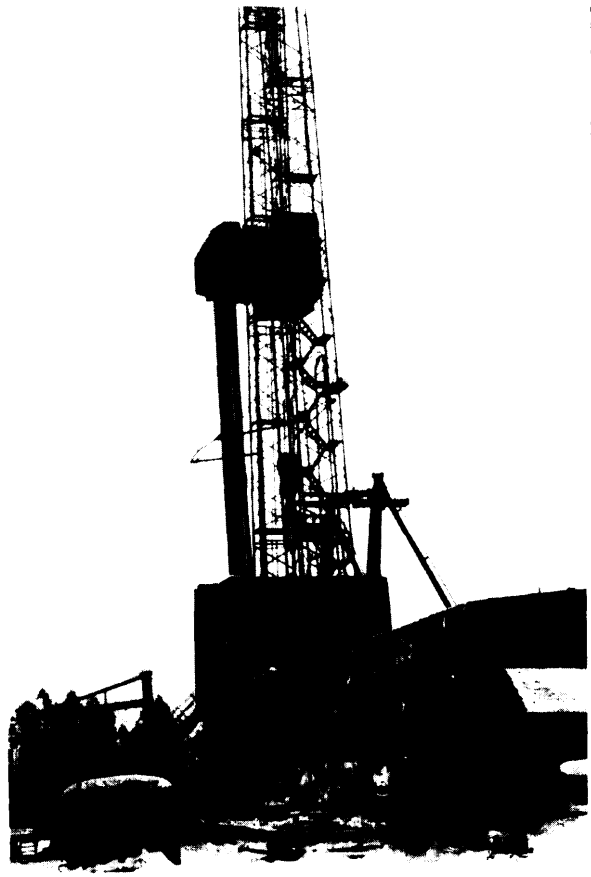
[16] The World Bank, *Russian Economic Reform: Crossing the Threshold of Structural Change* (Washington, DC: World Bank, September 1992), pp. I 80-81.

Bank energy and environmental lending to Russia includes several large projects under way or in preparation. A $610-million loan has been approved toward a $1-billion Oil Rehabilitation Project aimed at reviving oil production in Western Siberia. A natural gas project has also been identified $300 million) that would assist in reducing losses in gas distribution and enhance export potential. The petroleum sector could also be affected by a $300 million environmental project under preparation, to reduce gas flaring, repair pipelines, and increase recovery of liquids from natural gas. The Bank estimates that lending to the Russian energy sector could average between $500 million and $1 billion annually for the next several years.

The Oil Rehabilitation Project is intended to be the first in a series of large projects designed to help stabilize oil and gas production in the FSU, strengthen the managerial and technical capabilities and the financial viability of the participating oil producer associations, and mobilize cofinancing. Three oil producer associations in Western Siberia were chosen for the project: Kogalymneftegas, Pumeftegas, and Varyeganneftegas. A key element will be promotion of a policy framework that will increase foreign investment. The Bank aims to stimulate levels of investment of between $2 billion and $3 billion annually in Russia's oil and gas sector.

The project is intended to increase national oil output by 3 percent per year and bring in $1.5 billion in annual oil revenue. The loan will support repairs at 1,300 oil wells, drill 84 new wells in existing fields, and replace 1,000 kilometers of pipeline.

The Bank is also undertaking energy sector technical assistance and preparing project lending in Ukraine and Moldova (power sector) and the Central Asian Republics (primarily oil sector rehabilitation). In Kazakhstan, two projects are in preparation—a technical assistance loan of about $20 million for fiscal year 1994 and a rehabilitation loan of about $150 million for the Uzen oil field.



SPEARS AND ASSOCIATES INC

Drilling Rig, West Siberia

The International Finance Corp.

The International Finance Corp. (IFC) is the private sector arm of the World Bank. The IFC typically makes loan and equity investments of no more than 25 percent of project cost and has an upper limit of $100 million.

In Russia, the IFC is currently supporting two oil and gas projects. A loan of $60 million has been made to the Polar Lights Co., a joint venture between Conoco and Arkhangelskgeologia in the Ardalin oil field in Northern Russia. About $11 million is being provided to a joint venture involving Canadian Fracmaster and two Russian entities

for increasing production at existing wells in Western Siberia.[17]

The IFC is also increasing its participation in private power projects.[18] A new infrastructure investment group was formed in 1992 to assist the IFC in increasing its portfolio of power projects, including a 400-kV (kilovolt) transmission line under consideration in Poland.

The European Bank for Reconstruction anti Development (EBRD)

The European Bank for Reconstruction and Development (EBRD), through both its public sector and merchant banking activities, has approved almost $800 million for the energy sector.[19] Its larger energy loans have for the most part been cofinancing components of World Bank power sector and oil sector rehabilitation projects, although some smaller loans have been made for energy efficiency.

The Bank's short-term priorities are as follows: repairing and rehabilitating existing supply facilities (e.g., oil and gas pipelines); completing existing high-priority projects (e.g., transmission lines and power stations already under construction); assisting countries to diversify sources of energy supply; and private sector projects that promote diversification of supply and the injection of foreign capital (e.g., projects to bring existing oil and gas fields on stream). The Bank will also assist governments with emergency energy sector technical assistance in response to energy shortages and hardships resulting from economic restructuring.

Central Europe and the Baltics

The EBRD began its energy lending in 1991, with a $50-million cofinancing of the World Bank's Heat Supply Restructuring and Conservation project in Poland. In 1992, energy loans totaling $200 million to public sector operations focused on supply rehabilitation, completion of projects under construction, and end-use efficiency improvement. The Bank has also increased technical cooperation activities.[20]

Latvia, Lithuania, and Estonia were all recipients of loans to support Energy Sector Emergency Investment for $37 million, $44 million, and $47 million, respectively. Each loan focused on rehabilitation of energy supply facilities and end-use efficiency. On the merchant bank side of its operations, the EBRD has made several loans to energy companies in Central Europe, including expansion of generator producing capacity.

Former Soviet Union

As in Central Europe, EBRD lending for major energy projects in the FSU has typically been cofinanced with the World Bank and export credit agencies. The Bank is providing $250 million in cofinancing for the World Bank Oil Rehabilitation Project in Russia and has loaned the Armenian Ministry of Fuel and Energy $57 million to complete a powerplant. The Bank is also undertaking feasibility studies for rehabilitation of gas pipelines.

On the merchant banking side, the Board had approved five private projects on oil and gas for a total of$188 million to Russia. Four of these proj-

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[17] International Finance Corp., Oil and Gas Division, "IFC Investments in the Oil and Gas Sector," (June 1993).

[18] Jack D. Glen, *Private Sector Electricity in Developing Countries: Supply and Demand*, IFC Discussion Paper 15 (Washington, DC: The World Bank and the International Finance Corp., 1992).

[19] The EBRD's hesitancy t. lend too quickly or creatively has been widely noted. Most countries in the former East Bloc apparently regard the Bank's lending as too cautious, too little, skewed toward larger infrastructure projects, and not supportive enough of the private sector. Bank *officials concede* that it is not cost effective for the Bank to lend less than 5 million ecus. Also, they maintain that the EBRD's status as a merchant bank necessitates a cautious beginning to its lending, See Karol Okolicsanyi, "Eastern Views of the EBRD," *RFE/RL Research Report, vol. 2, No. 23,* Jun. 4, 1993, pp. 502.

[20] EBRD, *Annual Report, 1992.*

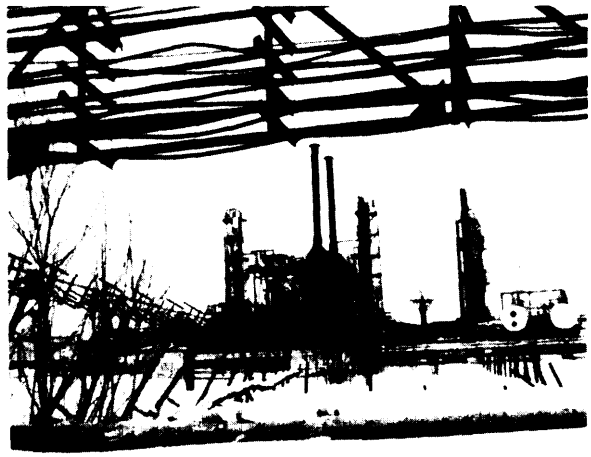
ects were joint ventures with U.S. and Canadian companies, and cofinancing partners include the IFC, OPIC, and Eximbank. These loans include: $33 million toward a loan of $90 million for a Canadian Fracmaster project; $40 million for a $300-million project by Chemogomeft in Tiumen Province; and $90 million for Conoco's Polyarnoye Siyanie project in Archangels province, with OPIC lending $50 million and Eximbank a possible $60 million.

The Global *Environment Facility*

The Global Environment Facility[21] (GEF) currently has one energy project in Central Europe, a coal-to-gas conversion project in Poland cofinanced with the World Bank. The GEF/World Bank contribution is $26 million toward a $52 million project. The project has several objectives, including an investment component that will initially convert two coal-fired boilers in Krakow to gas-fired, and a technical component that will address institutional and energy efficiency issues. The project also has been allocated a portion of a $4.5-million cofinancing grant from Norway to simulate joint implementation arrangements between Norway and Poland. Other prospective GEF projects include providing lines of credit for energy efficiency demonstration zones.

| European and Japanese Assistance Programs

The EU has a large and multifaceted program of energy and environmental assistance with former East Bloc countries. The "request driven" PHARE program engages in a diverse set of activities similar to the U.S. assistance program, including policy guidance, training, energy efficiency audits, and installing flue-gas desulphurization equipment. The EU's Technical Assistance Programme to the Commonwealth of Independent States (TACIS) was begun in December 1990. Energy had an allocation of $132 million in 1991 ($61 million for nuclear programs) and $167 million in 1992 ($115 million is for nuclear programs). Non-nuclear activities include oil, gas, and power sector projects, energy efficiency, and energy centers. The Directorate General for Energy's (DG XVII) Thermie program undertakes market assessments, trade promotion events, and energy efficiency audits.


SPEARS AND ASSOCIATES, INC.

Pumping Station Samotlor Field, Nizhnevartovsk.

Energy projects are also financed by the European Investment Bank (EIB), an autonomous organization within the EU structure that funds capital investment projects. Energy and the environment are a component of the "Europe Agreements," signed with Poland, Hungary, the Czech Republic, and the Slovak Republic that seek to provide the basis for the future integration of those countries into the EU.

A number of European countries and Japan have bilateral energy and environmental activities

[21] In 1992, the Global Environmental Facility (GEF) was designated as the interim financial mechanism for the Framework Convention on Climate Change. The GEF replenishment, estimated at between $2 billion and $3 billion, will be substantially devoted to projects that reduce greenhouse gases, including energy efficiency, renewable energy, and cleaner fossil energy.

in Central Europe and the FSU.[22] These programs vary widely in scope. Most offer small technical assistance programs on a grant basis and access to export credits. Priorities for the Western European countries include transboundary pollution control, power sector rehabilitation and transmission connections between East and West, oil and gas pipelines, and, increasingly, access to the oil and gas resources in the FSU.

Bilateral relations often reflect a mix of historical ties, geographical proximity, and national interest. For example, Scandinavian environmental assistance is concentrated in the countries that share the Baltic sea coastline and that also account for a large share of transboundary pollution.

Germany has focused its bilateral energy programs in Hungary and Russia. Austria's energy assistance programs are focused on pollution and power sector rehabilitation in the Czech Republic and Slovakia.

Japan's assistance activities have included industrial energy efficiency audits in Hungary and sending a survey team to Russia to establish the basis for more extensive future contacts. Japan has announced a $1 .2-billion package of bilateral aid for the FSU, a large part of which will be devoted to the construction of a facility for the disposal of nuclear waste.

Like the United States, other bilateral donors sometimes coordinate assistance with the World Bank and other multilateral lenders. The United Kingdom for example, is participating with the World Bank on power sector restructuring in Poland, and the Netherlands is providing cofinancing for technical assistance to the World Bank oil rehabilitation project in Russia.

U.S. Trade and Investment Programs

Western assistance for the former East Bloc was complemented from the beginning by efforts to stimulate trade and investment.

A large number of U.S. government agencies are involved in energy and environmental export assistance to former East Bloc countries. DOC, AID, DOE, OPIC, and the Trade and Development Agency (TDA) provide export and investment promotion, such as market information, training, conferences, official visits, and in-country support for business. Eximbank, OPIC, TDA, and, to a lesser extent, AID and DOE provide financing for exports, projects, and investments.

The proliferation of activities led to some confusion. Establishment of the Trade Promotion Coordinating Committee (TPCC) should improve coordination. The TPCC was initiated by the Export Enhancement Act of 1992 (Public Law No. 102-429). Chaired by the Secretary of Commerce, it consists of all 19 federal agencies[23] involved in export promotion plus the National Security Council and the National Economic Council. The purpose of the TPCC is to provide an export promotion strategy, coordinate and prioritize the government's export promotion activities, and provide a central source of information.[24]

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[22] Reviews of these activities relating to energy efficiency can be found in International Energy Agency, "Energy Efficiency Update, No. 14, March 1992, and U. N., Economic Commission for Europe, *East- West Energy Efficiency: Policies, Programmes, Technologies, and Who's Who (New* York, N. Y.: United Nations, 1992). On European and Japanese environmental aid programs generally see U.S. Congress Office of Technology Assessment, *Development Assistance, Export Promotion, and Environmental Technology Background Paper,* OTA-BP-ITA-107 (Washington, DC: U.S. Government Printing Office, August 1993), pp. 55-69.

[23] Departments of Commerce, Agriculture, Interior, Labor, State, Treasury, Defense, Energy, and Transportation; the Agency for International Development, Environmental Protection Agency, Export-import Bank, Council of Economic Advisers, United States Information Agency, United States Trade and Development Agency, United State Trade Representative, Office of Management and Budget, Overseas Private Investment Corporation, Small Business Administration.

[24] The committee is required to submit annual reports to Congress. The first report, entitled, *Towards a National Export Strategy,* was submitted in September 1993. This report emphasizes the need to combine functions, allocate resources strategically, involve the private sector, practice aggressive advocacy, evaluate export promotion efforts, and reduce export controls.

In Central Europe there has been modest but growing demand for U.S. technologies and services in the power sector, in air pollution control, and in energy efficiency. By far the greatest demand for U.S. investment could be in the oil and gas sector in the FSU. While the large oil companies have operated extensively across the world, many other U.S. energy companies and much of the environmental industry have not had a strong international orientation. Awareness of the large potential offered by a large and growing global market, a declining U.S. share of those markets, and, in some cases, the concomitant maturation of the U.S. market have increased industry interest in government involvement in supporting exports and overseas investment.[25]

Information Programs

U.S. information about business opportunities in Central Europe and the FSU is channeled through a variety of sources. DOC's Eastern European Business Information Center (EEBIC) and the Business Information Service for the Newly Independent States (BISNIS) act as clearinghouses for trade and investment opportunities for U.S. businesses.[26] DOC's U.S. and Foreign commercial Service (US&FCS) undertakes export promotion activities in the region. Electric power technologies and oil and gas equipment are promoted as a "best prospect" for U.S. trade in several countries.

International conferences, trade missions, and reverse trade missions can also be cost-effective means of promoting business. TDA and DOE have funded, and cofunded, a number of energy and environmental conferences and visits of officials.[27]

In-country support of business development is provided by a growing network of business centers that provide visiting company representatives with services such as telephone and fax, temporary office space, market information, and assistance in making business contacts. The American Business Center is open in Warsaw, Poland, and the FSU American Business Center Program, funded by AID, plans twelve centers. The US&FCS also has offices throughout Central Europe and in the FSU and is planning a substantial increase in personnel.

The DOE-managed energy efficiency centers engage in business development, including U.S. liaison support with U.S. companies, and in developing the Automated Eastern Europe and Newly Independent States Information System. The Czech and Slovak center, SEVEn, supports a series of energy efficiency business weeks featuring energy management and efficiency programs and appliances.

Other types of trade promotion activities involve increasing U.S. commercial opportunities at the multilateral and regional development banks. There is also support for firms seeking procurement opportunities at the banks. The DOC Office of International Major Projects maintains a reference room of World Bank and EBRD (and other regional development banks) project documents, project pipelines, and provides procurement liaison officers.

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[25] U.S. Department of Energy, *National Energy Strategy: Analysis of Options to Increase Exports of U.S. Energy Technology*, Technical Annex 5 (Washington, DC: U.S. Government Printing Office, 1991/1992); Interagency Environmental Technologies Exports Working Group, U.S. Department of Commerce, *Environmental Technologies Exports: Strategic Framework for U.S. Leadership* (Washington, DC: U.S. Government Printing Office, November 1993).

[26] The EEBIC publishes the *Eastern Europe Business Bulletin*, on a monthly and sometimes bimonthly basis, which includes general information on trade and investment as well as specific business opportunities in the energy sector and in energy equipment. It also produces the occasional publication, *Eastern Europe Looks for Partners*, which provides information on joint ventures in specific sectors. BISNIS similarly publishes the *BISNIS Bulletin*.

[27] These include a U.S. Power Technologies Conference in Prague in July 1992, followed by BuckPest, September 1993, and visits by energy officials from Poland, Hungary, the Czech Republic, Latvia, and Lithuania.

Pre-Export and Pre-investment Financing

Several different U.S. government agencies, including Eximbank, OPIC, TDA, and AID, provide pre-export financing for energy firms, which can lead to follow-on export or project opportunities. U.S. firms have lobbied in recent years for an increase in government funding for feasibility studies. The TPCC has recommended that all U.S. government funding for feasibility studies be centralized in the TDA.

TDA, the primary source of funding for feasibility studies, has steadily increased its energy and environment activities in the former East Bloc. These studies have been undertaken by U.S. firms, including Westinghouse, Bechtel, Enron, Fluor Daniel, Foster Wheeler, and Black & Veatch. Other project development funds include the Capital Development Initiatives for energy and the environment, managed by AID.

Financing for Exports and Investment

Eximbank and OPIC financing for the region has grown significantly since 1989. Both agencies face persistent demands to increase financing in the region. Energy capital goods are a key strate-, gic sector.

Eximbank Programs

Eximbank programs are designed to support exports that would not otherwise attract private sector financing, by offering loans with longer term maturities, providing export credit insurance, and countering export credit subsidies of foreign governments. While not explicitly stated as such by the Bank, which is not a development lender, the credits to former East Bloc countries are integral to U.S. foreign policy objectives of stabilizing the region economically and demonstrating U.S. financial commitment to its development.

The Bank is directed to support "key industries" that, among other things, export high value--added products, develop new capital goods technologies, and support highly skilled jobs in the United States.** Energy capital goods exports, particularly electric power and oil and gas, have been a large component of Eximbank's lending in recent years. The Bank has also received congressional mandates to reach targets in certain other energy and environmental sectors. A target for renewable energy exports of 5 percent of total energy exports was set in 1990 and adhered to since then.[29] Under the Export Enhancement Act of 1992, Eximbank was required to support the export of goods and services that have "beneficial effects on the environment or mitigate potential adverse environmental effects."

Eximbank offers short-term and medium-term loans and guarantees in most of Central Europe and the Baltics. By fiscal year 1992, the Bank had a total exposure of about $647 million in Poland, $196 million in the Czech and Slovak Republics, and $1.7 million in Hungary. The Bank began lending to the then-Soviet Union in 1991. By fiscal year 1992, its exposure in Russia was $115.5 million .30

But the poor quality and unreliability of the nascent banking sector and the indebtedness of the state sector in Russia makes sovereign borrowing difficult. To promote capital goods exports, Eximbank has been seeking alternatives to sovereign lending by offering various types of "limited recourse" financing, including project financing and a large export credit line for oil and gas equipment.[31]

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[28] Export-Import Bank, *Annual Report 1992* (Washington, DC: 1993).

[29] See U.S. General Accounting Office, *Export Promotion: Federal Efforts to Increase Exports of Renewable Energy Technologies*, GAO/GGD-93-29 (Washington, DC: U.S. Government Printing Office, December 1992).

[30] The Bank's total exposure as of Sept. 30, 1992 was $41.8 billion.

[31] Limited recourse financing is lending that is secured on the cash flow and earnings of the project rather than the guarantees from (recourse to) the project owners/sponsors.

The Bank's project financing is available for transactions that involve over $50 million in U.S. content. It applies to new projects, not expansions, which can be structured as BOT (Build Operate Transfer), BOOT (Build Own Operate Transfer), BOO (Build Own Operate), or variations. Project finance loans are looked at more favorably if they involve cofinancing with other ECAs and/or commercial banks. The first project financing deal put together for the FSU was a $47-million joint venture between Anderman Smith and Chemogoneft, a private, Russian-owned oil and gas production company. Exporters benefiting will include Halliburton Company, National Oilwell, and National Engineering and Constructors.[32]

But the bulk of limited recourse financing will come under the U.S.-Russia Oil and Gas Framework Agreement signed in July 1993, estimated to provide financing for $1 billion of U.S. oil, gas, and petroleum equipment and services. The operation of the agreement was delayed pending negotiations over the World Bank's negative pledge clause. This clause requires World Bank borrowers to avoid further liens on any public assets already pledged for Bank loans and to allow the Bank to claim priority over others in repayment of debt. This clause has effectively precluded state oil enterprises in the FSU from pledging their assets as security for foreign credit.[33] The World Bank recently agreed to waive this pledge for lending to Russia's oil and gas sector.

This waiver clears the way for Eximbank financing, which will be secured from the hard-currency sales of the oil and gas produced under the project. To qualify for a loan under the limitations set out by the World Bank as conditions for the waiver, the oil and gas equipment must be shown to provide incremental oil, that is, oil not available without the equipment purchase. Applications for financing under the agreement thus require a great deal of technical and financial information from all parties to the deal, notably including a yield consultant report on the technical and economic feasibility of the transaction Another limitation of the agreement is that many oil and gas equipment transactions are on a smaller scale than the financing minimum of $25 million.

The offering of export credits can also introduce a distorting effect into the recipient country's development path. Since export credits typically support heavy capital goods on attractive terms, or make accessible capital goods that would otherwise be unavailable, borrowers may be biased toward capital-intensive imports. This question has also been raised with respect to the Russian need for imports of U.S. oil and gas equipment, given the existence of a huge Russian and Azerbaijani oil and gas equipment industry, which, while not as technologically sophisticated as that of the United States, nevertheless supported the extensive development of Soviet oil and gas. At this point (spring 1994) it is too early to assess the likely success of the Eximbank framework agreement (see ch. 8 for further discussion).

OPIC Programs

OPIC's financing for U.S. investors in former East Bloc countries, which includes political risk insurance, loans, and guarantees, is oversubscribed. Political risk coverage, in particular, is a major requirement for many companies wanting to do business in the region. Table 7-3 reviews OPIC energy and environmental financing for the region.

OPIC is increasingly active in the FSU oil and gas sector, with financing for projects by Anderman Smith, Conoco, and Texaco. Assistance in oil and gas projects includes both political risk insurance and loan guarantees. However, OPIC has limitations on the type of financing and size of the

[32] "Caspian Progress Tops C.I.S. Deals", *Oil and Gas Journal*, vol. 91, No. 24, 1993, p. 20.

[33] Jeffrey A. Burt, "Positive Movement on the Negative Pledge," *Russian Petroleum Investor*, March 1993, p. 52.

TABLE 7-3: OPIC Loans and Insurance for Energy and the Environment to Former East Bloc Countries 1990-1993

Country	Recipient	Amount (U.S.$)	Type of assistance
Poland	Air products and Chemicals (industrial gas)	12,029,000	Insurance
Hungary	General Electric (lighting)	150,000,000	Insurance
Czech Republic and Slovakia	Environmental Systems Corp. (monitoring)	250,000	Insurance
Russian Federation	Anderman-Smith Overseas (oil and gas)	**7,000,000**	Insurance
Russian Federation	Conoco (oil and gas)	**50,000,000**	Loan guarantee
Russian Federation	Texaco (oil rehabilitation)	28,000,000	Loan guarantee

SOURCE OPIC, 1994.

projects it supports. The ceiling on loan guarantees will probably be raised to $200 million (from the previous $50 million) in line with Trade Promotion Coordinating Committee recommendations.

OPIC has also supported a "Russia Country Fund," which is expected to generate several hundred million dollars of investment in the Russian economy.[34] The fund will provide equity to a wide range of new businesses, expansions, and privatizations, with particular emphasis on energy and environmental projects.

Enterprise Funds

Energy and environmental companies doing business in Central Europe and the FSU may also be eligible for enterprise funds established by the U.S. government to foster overseas investment and private sector development. The funds are converted to small and medium size funds Such funds have been established in Poland (1990), Hungary (1990), the Czech and Slovak republics (1991), and Russia (1993). The funds emphasize the financing of firms in the recipient countries and the joint ventures with U.S. firms, but will also finance U.S. companies doing business in the recipient countries.

European and Japanese Trade and Investment Programs

Most European countries and Japan have export credit agencies (ECAs) and investment promotion and financing programs against which U.S. programs are often negatively compared.[35] Indeed, export financing supports a much higher percentage of many of these countries' exports than do U.S. programs. European and Japanese governments are reported to be more aggressive in supporting deals by their companies than is the United States. But the exposure of the European and Japanese programs in the former East Bloc generally, and in the energy and environmental sectors specifically, is difficult to monitor.

The Japan Export-Import Bank is preparing a $1.5-billion line of credit for the FSU that would include financing for a refinery in Uzbekistan be-

[34] Managed by Paine Webber, Inc. in cooperation with International Economic Cooperation.

[35] For surveys of other countries programs, see U.S. General Accounting Office, *Export Promotion: A Comparison of Programs in Five Industrialized Countries*," AO/GGD-92-97 (Washington, DC: U.S. Government Printing Office, June 1992); William E. Nothdurft, Going *Global: How Europe Helps Small Firms Export* (Washington, DC: The Brookings Institution, 1992); and Therese J. Belot and Dale R. Weigel, *Programs in Industrial Countries to Promote Foreign Direct Investment in Developing Countries,* Foreign Investment Advisory Service, Occasional Paper 3 (Washington, DC: The World Bank, 1992).

ing constructed by Marubeni Corpo and Chiyoda Corp. An EU political risk insurance fund for energy investors in the FSU has reportedly been started by Energy Private Investment Support, a private bank consortium with between $6 billion and $12 billion in resources.[36] Also, the investment activities in the former East Bloc of European state-owned energy enterprises, such as Elf-Aquitaine (France) or Statoil (Norway), could be considered a form of export assistance, given these companies' access to public finance. U.S. companies benefit from European and Japanese export financing, but are required to reduce sharply the level of U.S.-made components. For example, a U.S. supplier to a petrochemical project in the FSU reported having to reduce U.S. components to less than 5 percent when financing was sought at Italian and Japanese export credit agencies.[37]

[36]Cited in U.S. International Trade Commission, "Trade and Investment Patterns in the Crude Petroleum and Natural Gas Sectors of the Energy-Producing States of the Former Soviet Union," Publication 2656 (Washington, DC: U.S. International Trade Commission, June 1993) pp. 5-3 and 5-4.

[37]U.S. Department of Commerce, "Obstacles to Trade and Investment in the New Republics of the Former Soviet Union" (Washington, DC: U.S. Government Printing Office, March 1992), p. 21.