

Index

A

ABB. See Asea Brown Boveria
Acid mine discharge, 115
Acid rain, 120
ADB. See Asian Development Bank
AID. See U.S. Agency for International Development
Air pollution. See Pollution
AirPol. Inc., 92, 157
Ambient standards, 108n
Annealing, 87
Armenia, 13,57,74,78,80,89, 143, 146, 158, 159, 164, 189
Asea Brown Boveria, 92
Ash removal, 62
Asian Development Bank, 160
Assistance programs. See Development assistance programs
Automated Eastern Europe and Newly Independent States Information System, 167
Automobiles
emissions, 116-117, 124-125, 127
fuel efficiency, 36
ownership levels, 35, 38, 127n
Azerbaijan, 143, 146-148. See *also* Former Soviet Union
conflict with Armenia, 13, 57, 143, 158, 160, 189
energy resources and production, 3, 24-26, 27, 29,40,47,53,54, 109, 110, 169, 175

B

Baghouse filters, 118
Baltics, 23,24,28,34,45,85, 168
EBRD projects, 164
SEED Act, 152
U.S. assistance programs, 153, 157-158
Belarus, 26,28,46,83, 120
Beneficiation. See Coal beneficiation
Biomass technology, 103-104
BISNIS. See Business Information Service for the

Newly Independent States
Buildings sector
energy demand, 35
improving energy efficiency, 37-38
Bulgaria, 32,76,78,81,82,85, 123, 180
Business Information Service for the Newly Independent States, 167, 189
Byrd Amendment to the Trade Act of 1974,57

C

Capitalism, 147-148
Carbon monoxide, 111, 127
Cars. See Automobiles
Catalytic converters, 127
Catalytic cracking, 46-47
Catalytic reforming, 47
CEENERGY. See Central and Eastern Europe Network for Regional Energy
Central and Eastern Europe Network for Regional Energy, 161
Central Europe
EBRD projects, 164
SEED Act, 152
U.S. assistance programs, 157-158
World Bank program, 161-162
Central Maine Power, 95
Central Vermont Public Service, 158
Centrist opposition, 140
CEZ. See Czech Power Co.
Chernobyl, 73,74,76,77,80,84,85, 87
Chernomyrdin, Viktor, 81, 140, 159
Clean coal. See Coal beneficiation
Clean Coal Technology Program, 68,70, 157
CMP. See Central Maine Power
CO. See Carbon monoxide
Coal
electric power industry needs, 91
environmental issues, 113-116
need for industry reform, 6-8, 63
reserves, 29-30

198 | Fueling Reform: Energy technologies for the Former East Bloc

- Coal beneficiation
 - Custom Coals Corporation project, 68-71
 - description, 62
 - electric power industry needs, 91
 - environmental issues, 115-116
 - potential for U.S. technology transfer, 62-63
 - for sulfur removal, 62, 122
 - technology transfer programs, 183
 - U.S. reform support, 7-8
- Coal cleaning. See Coal beneficiation
- Coal mining
 - declining coal production, 59-60
 - drilling rig, 66
 - industry, 58-59
 - potential for U.S. technology transfer, 61-62
 - reclamation, 108, 114, 116, 128
 - safety technology transfer, 183
 - technologies, 60-61
- Coal Project, 7,62
- Coal Sector Restructuring and Environment project, 162
- Coalbed methane
 - description, 64-65
 - major resource countries, 31-32
 - potential for U.S. technology transfer, 66-67
 - technologies, 65-66
- Cogeneration Privatization Project, 162
- Combustion modification, 125
- Commonwealth Edison Co., 157
- Conditionality, 186-188, 190, 195
- Cross-measure boreholes, 66
- Custom Coals Corporation, 8,68-71
- Cyclone furnaces, 117, 124
- Czech Power Company, 80,90, 158
- Czech Republic. See *also* Former Soviet Union, 134-135
 - Dukovany nuclear power plant, 190
 - energy resources and production, 7,23,29,31, 34,35,39,61,66, 100, 104
 - environmental problems and remedies, 107, 109, 114, 116, 118, 120, 123, 124, 125, 129
 - nuclear power, 8,32,76, 80, 81, 85, 86
 - reform programs, 2, 12,21,63,89,90, 132, 134-135, 142
 - status of the electric power sector, 90
 - surface mining, 114
- Czechoslovakia
 - coal production, 30
 - reasons for division, 133n
- D**
- Dalian Management School, 179
- Decree 715,56
- Demand-side management, 9,92-94, 157, 159. See *also* energy efficiency
- Desulfurization, 120, 122
- Development assistance programs, 16-21,51,62, 75,98,99, 105, 132, 141, 173, 188, 189, 191-195
 - comparative levels of multilateral and bilateral funding, 153
 - constraints on U.S. and multilateral programs, 153-154
 - European and Japanese programs, 165-166
 - exceptionally effective programs, 176-184
 - multilateral programs to assist former East Bloc development, 160-165
 - nuclear safety assistance, 80-82,85,87
 - overview, 151-160
- Directional drilling techniques, 43
- Discovered oil resources, 24n
- DOC. See U.S. Department of Commerce
- DOE. See U.S. Department of Energy
- Donets Basin, 114-115, 122
- DOS. See U.S. Department of State
- Dresser Industries, 67-68
- Drilex Services, 43
- Drilling technologies, 42-43
- DSM. See Demand-side management
- E**
- EAP. See Environmental Action Programme
- East Bloc. See Central Europe; Former Soviet Union; *individual countries by name*
- Eastern Europe Utility Partnership Program, 21,94, 95,98, 157, 158, 182, 183, 194
- Eastern European Business Information Center, 167
- EBRD. See European Bank for Reconstruction and Development
- ECAs. See Export credit agencies
- Economic issues
 - barriers to energy sector development, 150-151
 - and countries yet to reform, 13-14, 143-147
 - the culture of reform, 147-148
 - energy's role, 23-24
 - overview, 131-132
 - problems common to all countries, 14-15
- EEBIC. See Eastern European Business Information Center
- EIB. See European Investment Bank
- EIPP. See Energy Industry Partnership Program
- Electric power, 9,87-98
 - capacity and production, 88
 - company management, 94-95
 - efficiency of use, 37, 159
 - potential policy improvements, 98, 176-179, 191, 194

- reverse technology transfer, 95-96
 - status of reforms, 90
 - technology needs, 91-96, 162, 167, 168
 - utility partnership program. See Eastern Europe Utility Partnership Program
 - Electric Power Research Institute, 96
 - Electrostatic precipitators, 118
 - Emissions figures
 - nitrogen oxides, 125
 - particulate, 119
 - sulfur dioxide, 121
 - Energy agreements, 160
 - Energy efficiency, 2, 12, 14, 16, 18,20,24,34-38, 74,84,93,98, 157-160, 164-167, 175, 176, 180, 181, 190-193
 - environmental issues, 116-127
 - by sector, 34-35
 - Energy Industry Partnership Program, 94, 158-159
 - Energy Private Investment Support, 171
 - Energy research and development, 9, 16,21,83,96, 151, 181, 183-184, 194
 - Energy Resource Development Project, 162
 - Energy sector development, 149-153
 - Energy Sector Emergency Investment, 164
 - Energy supply. See *also specific energy sources and technologies by name*
 - coal, 29-31,58-64
 - coalbed methane, 31-32, 64-67
 - natural gas, 27-29, 40-58
 - nuclear power, 32, 33,73-87
 - oil, 24-27,40-58
 - renewable energy, 32-34,98-106
 - Energy technologies. See Coal; Electric power; Nuclear power; Oil and natural gas; Renewable energy
 - Enterprise funds, 170
 - Environmental Action Programme, 130
 - Environmental issues. See *also* Energy and environmental programs
 - energy production, processing, and transportation, 109-116
 - impact of fuel consumption, 116-127
 - information and assistance, 181-182
 - need for technology reform, 10-11
 - outlook for U.S. technology transfer, 127-130
 - regulatory framework, 108-109
 - scope of environmental problems, 107-108
 - Environmental Project, 160
 - Environmental technology options
 - coal and shale mines, 116-
 - emissions control, 127
 - nitrogen oxides, 125-126
 - particulate, 118
 - processing oil and gas, 112
 - production of oil and gas, 110-111
 - sulfur dioxide emission, 121-124
 - transporting oil and gas, 113
 - EPA. See U.S. Environmental Protection Agency
 - Equity-sharing agreements, 53
 - ESPs. See Electrostatic precipitators
 - Estonia, 10, 11, 103
 - EU. See European Union
 - European Bank for Reconstruction and Development
 - Custom Coals Corporation project, 70
 - energy project funding, 18, 20, 51, 56, 82, 153, 155, 159, 160, 162, 164, 165, 189-190, 192
 - European Community. See European Union
 - European Energy Charter, 160, 161
 - European Investment Bank, 165
 - European Union
 - assistance programs, 165-166
 - funding for nuclear safety assistance, 81
 - regulatory framework for environmental issues, 108-109
 - trade and investment programs, 170-171
 - Eximbank. See Export-Import Bank of the United States
 - Eximbank Framework Agreement, 51, 154, 169, 185-187, 187n, 194
 - Exploration process, 41-42
 - Export credit agencies, 170
 - Export Enhancement Act of 1992, 166, 168
 - Export-Import Bank Act of 1945
 - Stevenson Amendment, 57
 - Export-Import Bank of the United States
 - assistance programs, 151-152
 - financing export promotion, 168-169, 186
 - maximizing effectiveness of programs, 192
 - opposition to Temelin Nuclear Powerplant funding, 85, 87
 - Exports
 - financing, 168-170
 - promotion, 184-189
- F**
- FBC. See Fluidized-bed combustion
 - Federal Energy Regulatory Commission, 179
 - Federal International Energy Trade and Development Opportunities program, 189
 - FGD. See Flue-gas desulfurization
 - Flue-gas desulfurization, 123
 - Fluidized-bed combustion, 91, 122
 - Foreign Appropriations Act of 1993, 152
 - Foreign investment, 51-54
 - Former Soviet Union. See *also individual countries by name*
 - assistance programs, 158-160
 - coal industry, 6-8

200 | Fueling Reform: Energy Technologies for the Former East Bloc

- coal production, 30
 - EBRD projects, 164-165
 - electric power industry, 9
 - FREEDOM Support Act, 152
 - joint oil and gas ventures, 67-68
 - natural gas production, 28
 - nuclear energy industry, 8-9
 - oil and gas industry, 3-6
 - oil production, 26
 - reasons for energy reform, 1-3
 - renewable energy technology, 9-10
 - republics involved, in, 4-5
 - technology interchange with EPRI, 96
 - World Bank program, 162-163
- Fossil fuel technologies. See Coal beneficiation; Coal mining; Coalbed methane; Oil and natural gas
- Framework Convention on Climate Change, 165n
- Freedom for Russia and Emerging Eurasian Democracies and Open Markets Support Act of 1992, 152
- FREEDOM Support Act. See Freedom for Russia and Emerging Eurasian Democracies and Open Markets Support Act of 1992
- FSU. See Former Soviet Union
- ### G
- G-7. See Group of 7 Industrialized Nations
 - G-24. See Group of 24 Nations
 - Gas turbines, 91-92
 - Gazprom
 - compressor manufacturing, 46
 - formation of, 50
 - GEF. See Global Environment Facility
 - Geothermal energy, 102-103
 - Global Environment Facility, 165
 - Gore-Chernomyrdin Commission, 81,159-160
 - Group of 7 Industrialized Nations, 51,81-82
 - Group of 24 Nations, 87
- ### H
- Hard Coal Agency, 63
 - HDR. See Hot dry rock technology
 - Heat Supply Restructuring and Conservation Project, 162, 164
 - HEU. See Highly enriched uranium
 - Highly enriched uranium, 82
 - Hot dry rock technology, 102-103
 - Houston Lighting and Power Company, 158
 - H₂S. See Hydrogen sulfide
 - HSP. See Hungarian Socialist Party
 - Hungarian Electricity Board, 90-91
 - Hungarian Socialist Party, 136
 - Hungary
 - coal production, 7,29-31,63,66
 - development assistance programs, 151, 157,162, 165, 166, 170, 191
 - energy demand, 34,35,39
 - environment, 114, 118, 123
 - Eximbank loans, 168
 - historical background, 132-133
 - natural gas production, 28
 - nuclear power, 32,75,76,80,81
 - political background, 132-133
 - reform programs, 2, 12,90, 121, 135-136, 195
 - renewable resources, 10,32, 103
 - status of the electric power sector, 90-91
 - World Bank projects, 162
 - Hydrocarbon emissions, 127
 - Hydrocarbon vapors, 111
 - Hydrocracking, 46-47
 - Hydroelectric power, 104-105
 - Hydrofracturing, 44
 - Hydrogen sulfide, 111
 - Hydrorefining, 47
 - Hyperinflation, 144
- ### I
- IAEA. See International Atomic Energy Agency
 - Idle well reactivation, 53
 - IFC. See International Finance Corporation
 - IGCC. See Integrated gasification combined cycle
 - ILO. See International Labor Organization
 - Industrial sector
 - energy demand, 34-35
 - improving energy efficiency, 37
 - Inflation rates
 - Czech Republic, 134
 - Hungary, 136
 - Kazakhstan, 138
 - Poland, 133
 - Russia, 141
 - Ukraine, 144
 - Information programs, 167, 188
 - INPO. See Institute for Nuclear Power Operations
 - Institute for International Education, 158
 - Institute for Nuclear Power Operations, 81
 - Institutional issues, 150
 - Integrated gasification combined cycle, 91
 - Integrated resource planning, 93-94
 - International Atomic Energy Agency, 81,83,87
 - International Energy Agency, 160
 - International Finance Corporation, 163-164
 - International Labor Organization, 142
 - International Monetary Fund, 133
 - International Science and Technology Center, 160
 - International Trade Commission, 57

Interneft, 53
 Investment programs, 166-171
 IRP. See Integrated resource planning

J

Japan
 assistance programs, 165-166
 trade and investment programs, 170-171
 Japanese Eximbank, 51
 JCCCNRS. See Joint Coordinating Committee for
 Civilian Nuclear Reactor Safety
 Joint Commission on Technological Cooperation in
 Energy and Space, 81
 Joint Coordinating Committee for Civilian Nuclear
 Reactor Safety, 80, 87
 Joint ventures, 53, 67-68

K

Kansk-Achinsk region, 122-123
 Kazakhstan. See *also* Former Soviet Union
 coal mining, 58-64
 drilling equipment manufacturing plant, 12
 historical background, 137
 nuclear weapons state status, 83
 political background, 137
 reform programs, 137-139
 Khasbulatov, Ruslan, 140
 Kiev, Ukraine, 144
 Krakow, Poland
 combined heat and powerplant, 157
 retrofit of a coal-fired powerplant, 92
 Skawina Power Plant, 117
 Kravchuk, Leonid, 143
 Kuchma, Leonid, 144
 Kuznetz Basin, Kazakhstan, 59, 193

L

Langepas, Western Siberia, 42
 Latvenergo, 158
 Lean combustion system, 127
 Lignite mining, 114
 LIMBs. See Limestone-injection, multi-stage
 burners
 Limestone-injection, multi-stage burners, 123
 Limited recourse financing, 168n, 169
 Liquefied natural gas, 113
 Lisbon Initiative, 80
 Lithuania, 76, 80, 82, 88, 103
 LNG. See Liquefied natural gas
 Longwall mining, 7, 61

M

Marshall Plan, 191
 MDBs. See Multilateral development banks
 Measurement while drilling, 43
 Methane. See Coalbed methane
 Methane degasification emissions, 65
 Microhydropower, 104-105
 Mine discharge, 115
 Ministry of Energy and Electrification, 89
 Ministry of Gas Production, 50
 Moscow Energy Efficiency Center, 159
 Multilateral assistance programs, 151-154
 Multilateral development banks, 151-152, 189-190
 MVMT. See Hungarian Electricity Board
 MWD. See Measurement while drilling

N

National Coal Association, 183
 National Security Controls Act, 57
 Natural gas. See Oil and natural gas
 Negative pledge, 154, 169, 187n
 New England Electric Company, 157
 New Independent States Task Force, 158-159
 NIS Task Force. See New Independent States Task
 Force
 Nitric acid, 120
 Nitrogen oxides, 124-126, 127
 Non-fossil fuel technologies. See Electric power;
 Nuclear power; Renewable energy
 NO_x. See Nitrogen oxides
 NRC. See Nuclear Regulatory Commission
 NSA. See Nuclear Safety Account
 Nuclear power
 considerations for the future, 83-87
 need for industry reform, 8-9
 nuclear safety, 74-80, 181
 nuclear weapons proliferation, 82-83
 reactor capacity, 32, 33
 safety assistance, 80-82
 technology issues, 73-74
 Nuclear Regulatory Commission, 80
 Nuclear Safety Account, 82
 Nuclear Safety Committee, 87
 Nuclear weapons proliferation, 82-83

O

OECD. See Organization for Economic Cooperation
 and Development
 Office of International Major Projects, 167
 Offshore operations, 45
 Oil and Gas Equipment Working Group, 160
 Oil and Gas Framework Agreement for Russia, 154,
 187

202 | Fueling Reform: Energy Technologies for the Former East Bloc

- Oil and natural gas
 - critical technologies, 47-49
 - drilling, 42-43
 - effect of political uncertainty on investors, 54
 - energy sector reform, 49-51
 - environmental issues, 109-113
 - exploration, 41-42
 - exports, 26-29
 - foreign investment, 51-54
 - industry problems, 40-41
 - joint ventures, 67-68
 - legal and regulatory framework, 54-58
 - need for industry reform, 3-6
 - offshore operations, 45
 - pipelines, 45-46
 - production, 25-28, 44-45
 - refining, 46-47
 - reserves, 24-25, 27
- Oil Rehabilitation Project, 160, 163
- OPIC. See Overseas Private Investment Corporation
- Organic sulfur, 62n
- Organization for Economic Cooperation and Development, 24, 27, 38, 57
- Organized crime, 142
- Overseas Private Investment Corporation
 - financing assistance programs, 169-170, 187
 - maximizing effectiveness of programs, 192
- Ownership rights, 54-55

- P**
- Particulate, 117-119
- Partners in Economic Reform, 7, 62, 159
- Permafrost areas, 110
- PHARE program, 165
- Photovoltaics, 101-102, 104
- PIER. See Partners in Economic Reform
- Pipelines, 45-46, 112-113
- Plant demonstration projects, EPRI and U. S., 96
- Plutonium, 82
- Poland. See *also* Former Soviet Union
 - coal mining, 58-64
 - coal production, 30
 - Custom Coals Corporation project, 68-71
 - development assistance programs, 157
 - geothermal resources, 103
 - historical background, 132-133
 - mine drainage problems, 115
 - natural gas production, 28
 - particulate emissions, 118
 - political background, 132-133
 - reform programs, 133-134
 - retrofit of a coal-fired powerplant, 92
 - status of the electric power sector, 89-90
 - sulfur dioxide reduction, 123-124
 - use of U.S. methane technology, 66
 - World Bank projects, 162
- Policy assistance, 176-179
- Polish Power Grid Company, 90
- Political issues
 - and countries yet to reform, 13-14, 143-147
 - the culture of reform, 147-148
 - overview, 131-132
 - problems common to all countries, 14-15
 - and quickly reforming countries, 12, 132-136
 - and slowly reforming countries, 12-13, 136-143
- Political risk insurance, 169-170
- Pollution
 - from coal-fired powerplants, 91
 - coalbed methane, 64-65
 - control of, 181-182
 - Custom Coals Corporation project, 68-71
 - emissions control, 126-127
 - impact of fuel consumption, 116-117
 - nitrogen oxides, 124-126
 - particulate, 117-119
 - sulfur dioxide, 119-124
- Positive Displacement Motors, 43
- Power and Environmental Improvement Project (Czech Republic), 162
- Power Privatization project (Poland), 162
- Power Sector Restructuring, Privatization, and Management program (Poland), 157
- Power Transmission Project (Poland), 162
- Powerplant renovations, 183
- PRA. See Probabilistic risk assessment
- Pressurized water reactors, 79
- Price-Anderson Act, 85
- Price reform, 13, 50, 143, 154, 162, 174, 176-177, 191
- Private sector support. See Investment programs; Trade programs
- Privatization: 17, 63, 130, 144, 146, 154
 - energy sector reform, 50-51
 - electricity sector, 89-90
 - Poland, 133-134
 - Czech Republic, 134-135
 - Russia, 142-143
 - U.S. programs to assist former east bloc countries, 156-158
 - multilateral programs to assist former east block countries, 161-162
 - policy assistance, 174, 177-178, 179
- Probabilistic risk assessment, 78
- Production process for fossil fuels, 44-45, 109-113
- Production sharing agreements, 53
- Proliferation control, 181
- PVs. See Photovoltaics
- PWR. See Pressurized water reactors

R

RAO. See Russian national electric utility

RBMK reactors

design, 75-76

in the former East Bloc, 76

safety problems, 76-78

R&D. See Research and development programs

Reactors

chain reactions, 76n

design safety problems, 75-78

Reburn technology, 126

Recuperators, 46

Refineries

environmental issues, 111-112

technology, 46-47

Regional Unified Energy Systems, 89

Regulatory framework

environmental issues, 108-109

private sector participation in oil and gas industry, 57-58

problems in oil and gas industry, 54-58

Renewable energy

barriers to development, 99

need for technology reform, 9-10

potential for development, 105-106

potential for U.S. technology transfer, 100-105

supply, 32-34

technologies, 98-99

Research and development programs, 183-184

Romania

coal production, 30

natural gas production, 28

oil production, 26

Roof bolting system, 61

Rotary drilling, 43

Ruble instability, 141

Russia. See *also* Former Soviet Union

coal mining, 58-64

effect of political uncertainty on investors, 54

effect on Kazakhstan's oil export industry, 139

environmental issues, 109-110

financing energy sector reform, 49-51

foreign investment, 51-54

fusion test equipment, 182

gas exports to Ukraine, 144

historical background, 137

joint oil and gas ventures, 67-68

lack of legal and regulatory framework, 54-58

nuclear weapons state status, 83

oil and gas industry, 3-6, 40-49

particulate emissions, 118

political background, 137

rank by country risk, 54n

reform programs, 139-143

status of the electric power sector, 89

tax regime, 55

wind power development, 100

Russia Country Fund, 170

Russian Federation Framework Agreement on Scientific and Technical Cooperation in the Field of Fuel and Energy, 160

Russian Joint Stock Company for Power and Electrification, 89

Russian Mafia, 142

Russian national electric utility, 33

S

Saline mine discharge, 115

SBA. See Small Business Administration

SCR. See Selective catalytic reduction

Second Czech Power Project, 162

SEED Act. See Support for East European Democracy Act of 1989

Seismic surveys, 42

Selective catalytic reduction, 126

Selective noncatalytic reduction, 126

SEP. See Slovak Electric Power Company

SEVEN, 157, 167

Shale, 113-116

Siemens, 91-92

Skawina Power Plant, 117

Skawina Retrofit project, 157

Slim-hole drilling, 43

Slovak Electric Power Company, 158, 162

Small Business Administration, 187

Small Shareholders Program, 136

Smelting, 117, 120

Smokestacks, 116

SNCR. See Selective noncatalytic reduction

SO₂. See Sulfur dioxide

Soil acidification, 116

Soil toxicity, 116

Solar cells. See Photovoltaics

Solar thermal electricity, 102

Source standards, 108n

Southern Electric International, 158

Soviet Union. See Former Soviet Union

Stevenson Amendment to the Export-Import Bank Act of 1945, 57

Strip mining site, 114

Sulfur dioxide, 92, 119-124

Sulfur removal, 62

Support for East European Democracy Act of 1989, 92, 152

Surface gob recovery, 65-66

Surface mining, 61, 62, 114

Surface pre-mining drainage, 65

204 | Fueling Reform: Energy Technologies for the Former East Bloc

T

TACIS. See Technical Assistance Programme to the Commonwealth of Independent States

TDA. See U.S. Trade and Development Agency

Technical Assistance Programme to the Commonwealth of Independent States, 165

Technical issues, 151

Technology transfer: 1,2,3,6,9, 10, 17,20,25,34, 131, 152, 156, 159, 182

oil and gas, 47-49,51,56

potential for U.S. coal and methane technology transfer, 61-63,64,66-67

nuclear, 79

reverse technology transfer, 95-96

renewable, 100-105

environmental technologies, 111-113, 118, 124-127

obstacles to, 149-151

Temelin Nuclear Powerplant, 82,86

TPCC. See Trade Promotion Coordinating Committee

Trade programs, 166-171

Trade Promotion Coordinating Committee, 166

Training programs, 179

Transportation sector

energy demand, 35

environmental issues, 112-113

improving energy efficiency, 38

Turbo drilling, 43

Turkmenistan. See *also* Former Soviet Union

historical background, 143

political background, 143

reform programs, 145

U

Ukraine. See *also* Former Soviet Union

coal mining, 58-64

historical background, 143

mine drainage problems, 115

nuclear weapons state status, 83

particulate emissions, 118

political background, 143

reburn technology, 126

reform programs, 143-145

sulfur dioxide reduction, 123

underground mining, 114-115

wind power development, 100

U.N. Economic Commission for Europe, 160

Underground mining, 60-61,114-115

Undiscovered oil resources, 24n

United Mine Workers, 183

United States

bilateral development assistance, 176-184

competitive technologies, 185

constraints on assistance programs, 153

energy-specific goals, 174-175

export promotion, 184-189

investment programs, 166-170, 190-191

legislation and funding for assistance programs, 152

and multilateral development banks, 189-190

national goals, 17, 173-174

nuclear power safety assistance, 80-82

opportunities to transfer environmental technology, 111, 112, 113, 116, 118-119, 124, 126, 127

policy options, 17-19

policy strategy, 19-22, 192-195

political context of energy sector reform, 175

program evaluation, 16-17, 151-153

program management and coordination, 191-192

programs promoting cooperation, 15-16, 156-160

reasons for supporting East Bloc reform, 1-3

regulations governing private sector participation, 57-58

strengths of programs, 154-155

trade programs, 166-170

weaknesses of programs, 155-156

UPP. See Utility Partnership Program

Upper Silesian Basin, Poland, 61

U.S. Agency for International Development assistance program funding, 151, 177, 178

Central Europe budget allocations, 177

electric power program, 9

FSU program budget allocations, 178

funding for nuclear safety assistance, 81

maximizing effectiveness of programs, 192

NIS Task Force, 158-159

program budget allocations for 1994, 14-15

U.S. and Foreign Commercial Service, 167

U.S. Department of Commerce

assistance programs, 152

maximizing effectiveness of programs, 192

U.S. Department of Energy

Clean Coal Technology Program, 68,70

development assistance programs, 151

Gore-Chernomyrdin Commission, 159

maximizing effectiveness of programs, 192

nuclear power safety assistance, 80

Oil and Gas Centers proposal, 159

retrofit of a coal-fired powerplant, 92

U.S. Department of State, 192

U.S. Energy Association, 94

U.S. Environmental Protection Agency

development assistance programs, 151

environmental projects, 160

U.S.-Russia Oil and Gas Framework Agreement, 169

U.S. Trade and Development Agency
 assistance programs, 168
 financing assistance programs, 187
 maximizing effectiveness of programs, 192

U.S. WindPower, 100, 101

U.S./Gazprom Working Group, 160

USEA. See U.S. Energy Association

US&FCS. See U.S. and Foreign Commercial Service

Utility Partnership Program, 94, 182-183

Uzbekistan. See *also* Former Soviet Union
 historical background, 143
 political background, 143
 reform programs, 145-146

V

Vacuum distillation, 47

Value-added tax, 134

VVER reactors
 comparison with U.S. reactor safety, 79
 design, 76
 in the former East Bloc, 77
 safety problems, 78

W

WANO. See World Association of Nuclear Operators

Water flooding, 44

Well stimulation, 47-48, 53

Western Siberia
 oil fields, 40
 World Bank projects, 163

Westinghouse Electric Corporation, 85, 86

Wet flue gas desulfurization, 117

Wind turbines, 101

Windpower, 100-101

World Association of Nuclear Operators, 82

World Bank, 51, 84, 70, 103, 139, 144, 147, 169
 energy project funding, 160-165, 189-190
 negative pledge provision waiver, 154, 187n

World Bank Group, 161-163

Y

Yeltsin, Boris, 81, 83, 140, 159

Z

Zhirinovskiy, Vladimir, 140, 141